The feasibility of delivering motivational interviewing to those with communication difficulties following a stroke

by

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Abstract

Mood problems are common in stroke survivors, as are communication difficulties, which are experienced in around a third of patients. Patients with communication difficulties have a greater risk of depression. Despite this they are often excluded from trials that either treat or prevent depression using talking-therapies, such as Motivational Interviewing (MI). Through a series of studies this thesis aims to explore the feasibility of widening access to MI for patients with moderate to severe communication difficulties.

In the first study, a secondary analysis of data from an earlier MI trial with stroke patients explored the communication characteristics of participants. Patients receiving MI were shown to benefit in mood compared to those receiving usual care, and this was more prominent in those with communication difficulties. The analysis found that no individual component of communication could account for changes in mood outcome. This highlighted the need for suitable tools to assess communication and mood in patients with communication difficulties post-stroke.

Through a series of integrative reviews, tools suitable for the screening and assessment of communication and mood in patients with communication difficulties were explored. A number of tools were available, however few had been adequately validated in this patient group. Of the tools considered in the review, a small number were identified as suitable.

Using the tools identified, a feasibility study explored delivering MI to patients with communication difficulties after stroke. The study found that with the implementation of aids and adaptations for communication difficulties, it is possible to deliver MI to patients with moderate to severe communication problems.

The final study explored the implementation of the intervention from the perspective of staff involved in the trial. Firstly, views of screening and recruitment were explored through interviews and analysis of the trial screening log. Further interviews were held with MI therapists before and after the trial. Perceived barriers to their roles within the study included holding dual roles, and facilitators included feedback from supervisors.

This thesis has contributed to knowledge, showing that through the use of aids and adaptations for communication difficulties, it is feasible to widen access to MI for patients with moderate to severe communication problems. The thesis has further added to knowledge through exploring staff views of implementing the intervention.

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Abbreviations

ABI	Acquired Brain Injury
ACE-R	Addenbrook's Cognitive Examination-Revised
ACE-RL	Addenbrook's Cognitive Examination-Revised (Language component)
ADRS	Aphasic Depression Rating Scale
AP	Assistant Psychologist
BDAE	Boston Diagnostic Aphasia Examination
BuSH	Built, Sport and Health schools ethics committee
CAT	Comprehensive Aphasia Test
CBT	Cognitive Behavioural Therapy
CETI	Communicative Effectiveness Index
COAT	Communication Observation Assessment Tool
CI	Confidence Interval
DoH	Department of Health
DISCs	Depression Intensity Scale Circles
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders-IV
EAAT	English Aachen Aphasia Test
FAST	Frenchay Aphasia Screening Test
GHQ-28	General Health Questionnaire-28
HCA	Health Care assistant
ICC	Intra-Class Correlation Coefficient
ICD-10	International Classification of Functioning Disability and Health
IQR	Inter-Quartile Range
K	Kappa
LAST	Language Screening Test
MAST	Mississippi Aphasia Screening Test

MDT	Multi-Disciplinary Team
MI	Motivational Interviewing
MTDDA	Minnesota Test for the shortened Differential Diagnosis of Aphasia
NAO	National Audit Office
NHS	National Health Service
NICE	National Institute for Clinical Excellence
NPV	Negative Predictive Value
OR	Odds Ratio
PALPA	Psycholinguistic Assessment of Language Processing in Aphasia
PICA	Porch Index of Communication Ability
PPV	Positive predictive value
RBMT	Rivermead Behavioural Memory Test
RCP	Royal College of Physicians
RCT	Randomised Controlled Trial
SAD-Q	Stroke Aphasic Depression Questionnaire
SD	Standard Deviation
SLT	Speech and Language Therapist
SODS	Signs of Depression Scale
SRN	Stroke Research Nurse
SST	Sheffield Screening Test
TA	Therapy Assistant
UAST	Ullevaal Aphasia Screening Test
UC	Usual Care
VAMS	Visual Analogue Mood Scales
VAS	Visual Analogue Scale
VASES	Visual Analogue Self Esteem Scales
WAB	Western Aphasia Battery
WHO	World Health Organisation

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Chapter 1: Introduction

1.1: Stroke

Within England, around 110,000 people every year suffer from a stroke (National Audit Office (NAO), 2010). Although stroke is often thought of as a condition that most often affects older adults, around a quarter of strokes occur in people under the age of 65 (NAO, 2010). Stroke is one of the top three causes of adult death and is the leading cause of adult disability in England, with over 300,000 people living with severe disability caused by stroke (NAO, 2010).

A stroke is defined by the World Health Organisation as “rapidly developing clinical signs of focal (at times global) disturbance of cerebral function, lasting 24 hours or leading to death, with no apparent cause other than of vascular origin” (Hatona. 1976 p.541). A stroke is caused by a disruption of blood flow to the brain. There are two types of stroke; ischaemic or haemorrhagic. Ischaemic strokes are caused by a clot or embolism which blocks the blood supply to the brain. When starved of oxygen and other nutrients, brain cells are damaged and die. Haemorrhagic strokes are caused by a bleed within the brain which damages brain cells through local damage at the site of the bleed, and more globally through increased intracranial pressure because of the additional leaked blood or due to oedema.

Regardless of the type of stroke, it can have a devastating impact. Of those who have a stroke, 48% will experience some level of disability, with 10% suffering severe disability and 12% experiencing very severe disability (Royal College of Physicians National Sentinel Stroke Clinical Audit (RCP) 2011, p.43). This disability is different for every individual but may include difficulty with walking (Jørgensen et al. 1995), arm movement (Nakayama et al. 1994), spasticity (Sommerfeld et al. 2004) or visual impairment (Rowe et al. 2009). Such disabilities limit mobility, reduce functional independence and restrict engagement in activities.

In addition to affecting physical function, stroke can cause neuropsychological and psychological problems. Neuropsychological problems include deficits in cognition, processing and responding to information. Psychological problems include disorders of mood, and can be a direct consequence of the stroke, or a failure to accept or adjust to the effects of the stroke. The presence of psychological and neuropsychological problems, alongside the physical effects of stroke, and their interactions, and the implications for support and treatment are the focus of this thesis.

1.2 Neuropsychological impact of stroke

Patients may suffer a range of neuropsychological difficulties, however this thesis will concentrate on those that may impact particularly in a talk-based therapy for mood problems, namely:

- Memory;
- Attention;
- Concentration;
- Information processing;
- Communication (also known as aphasia).

Neuropsychological deficits can impact on activities of daily living and may leave patients with less functional independence (Wade et al.1986; Hyndman and Ashburn 2003), increased fatigue (Ingles et al. 1999) and slower information processing (Gerritsen et al. 2003). As a result, standard talk-based therapies may not be suitable for patients experiencing these neuropsychological difficulties.

Around a third of patients who have a stroke will experience difficulties with communication, called aphasia (Wade et al. 1986; Tsouli et al. 2009) with 26% of patients on admission to hospital following stroke experiencing moderate to severe aphasia (Pedersen et al. 1995). Aphasia can impact on an individual's ability to speak, read, write or understand language. These language impairments may be present while other cognitive functions are relatively preserved. For some patients, aphasia may improve within the first three months after a stroke, however for others these difficulties may persist in the long term. One study found that aphasia after stroke continued beyond 12-18 months in 35% of patients (Darrigrand et al. 2011).

Dysarthria is a speech difficulty, but is different from aphasia. It is caused by problems coordinating or controlling the muscles used to speak. While this is a problem for patients after stroke, the biggest challenge in the area of communication difficulties lies in speech and language processing, and production.

Aphasia often occurs in those with more severe stroke (Pedersen et al. 1995) who have a higher incidence of poorer outcomes compared to those with normal communication including; poorer motor function (Gialanella et al. 2011); loss of social participation (Dalemans et al. 2008); and increased mortality (Tsouli et al. 2009). Furthermore, this group of patients are often denied the opportunity to discuss their issues because of their aphasia; many psychological support services require an individual to be able to verbally express their feelings. As a result, it is unknown whether aphasia is the cause or the consequence of associated difficulties with mood and adjustment.

1.3 Psychological impact of stroke

In addition to neuropsychological impairment after stroke, patients may face psychological disorders of mood including: distress, depression, anxiety and emotional labiality. The most commonly experienced psychological disturbance after stroke is in depression, with one review indicating an estimated 33% of stroke survivors will experience depression (Hackett et al. 2005). Depression after stroke can have a serious impact on an individual's recovery and long-term outcome. It has been associated with a decreased involvement in social activity (Mayo et al. 2002), poorer functional recovery (Spalletta et al. 2002) and increased mortality (House et al. 2001). Depression may impact on a patient's engagement in rehabilitation and recovery (Chemerinski et al. 2001), which may consequently have a negative impact on their overall recovery.

1.4 Depression in patients with post-stroke aphasia

Due to the associated poorer outcomes for patients with aphasia, it is perhaps unsurprising that these patients experience a greater risk of depression than those with normal communication (Kauhanen et al. 2000). One study indicated that in patients with post-stroke aphasia, 73% met DSM-III-R criteria for depression at three-months post-stroke, and 68% meeting criteria at 12-months (Kauhanen et al. 2000). More recent research emphasises the persistence of emotional distress, with expressive aphasia being shown to be a significant predictor of distress at one-month and six-months post-stroke. Having a more severe stroke and emotional distress at one-month were also shown to be predictors of emotional distress at six-months post-stroke (Thomas and Lincoln 2008).

Despite the negative associated outcomes for patients who experience aphasia after stroke, a systematic review of the treatment of depression (Hackett et al. 1996) found that patients with aphasia are often excluded from research studies. One review found that 71% (n=92) of studies reported exclusion of some patients with aphasia, with 40% (n=52) reporting exclusion of patients with severe communication difficulties (Townend et al. 2007). The extent of inclusion is unclear as the reporting of inclusion or exclusion of participants with aphasia is known to be inconsistent (Townend et al. 2007).

Excluding these patients from studies exploring the prevalence of depression, as well as studies exploring the prevention and treatment of depression, makes it difficult to generalise the results to patients with communication difficulties. Further research is needed to (i) establish the prevalence of depression among patients who suffer communication difficulties after stroke, (ii) determine what are treatments are effective, (iii) determine how treatments work , and (iv) explore these treatments can be delivered in the same way as for those patients with normal communication. In order to implement effective treatments, it is imperative to understand the context in which these treatments are to be delivered; and to have reliable and efficient methods for identifying depression in patients with communication difficulties. Only then could services be enabled to respond appropriately in the face of patients having problems.

1.5 Organisation of psychological services

Within the health service, there is a growing recognition of the value of positive psychological health and well-being. Supporting individuals with mental health issues is a significant task, with a report on national well-being stating that one in five adults (19%) in the UK display signs of suffering anxiety or depression (Office for National Statistics (ONS), 2012, p.38).

For standard healthcare services, the National Institute for Health and Clinical Excellence (NICE) (2009) recommend the use of a stepped-care model to aid selection of the appropriate intervention for depression. This model is shown in Figure 1.1.

Focus of the intervention	**Nature of the intervention**
STEP 4: Severe and complex[a] depression; risk to life; severe self-neglect	Medication, high-intensity psychological interventions, electroconvulsive therapy, crisis service, combined treatments, multi-professional and inpatient care
STEP 3: Persistent sub-threshold depressive symptoms or mild to moderate depression with inadequate response to initial interventions; moderate and severe depression	Medication, high-intensity psychological interventions, combined treatments, collaborative care[b] and referral for further assessment and interventions

STEP 2: Persistent sub-threshold depressive symptoms; mild to moderate depression	Low-intensity psychosocial interventions, psychological interventions, medication and referral for further assessment and interventions
STEP 1: All known and suspected presentations of depression	Assessment, support, psychoeducation, active monitoring and referral for further assessment and interventions
[a] Complex depression includes depression that shows an inadequate response to multiple treatments, is complicated by psychotic symptoms, and/or is associated with significant psychiatric comorbidity or psychosocial factors [b] Only for depression where the person also has a chronic physical health problem and associated functional impairment (see 'Depression in adults with a chronic physical health problem: treatment and management' [NICE clinical guideline 91]).	

Figure 1.1: The NICE proposed stepped-care model for psychological interventions

Using a stepped-care model, patients who present with minimal signs of depression would be placed in the lowest step of the model. These patients would receive minimal interventions, they would be monitored, and if required they could be referred for further assessment. As the patient’s symptoms increase in severity or complexity, the level of support would be stepped up. Higher levels in the model allow for more intense interventions to take place, provided by increasingly specialist staff.

Although guidelines recommend a stepped-care model in managing depression, there is only limited evidence suggesting that this should be the dominant model in the organisation of treatment (van Straten et al. 2015), and it is unclear whether a stepped-care approach can lead to similar or better patient outcomes than other models. Research is required to explore this further.

Current guidelines do not suggest specific interventions. Furthermore, while some professions are named within stepped-care models, such as clinical psychologists or crisis teams, there is no information to guide which professional, with which clinical or personal skills, are required to fulfil the role within each level. In order to provide the best and most appropriate care for patients, pertinent training and support for staff is needed.

Psychological support following a stroke has been identified as a key area for patient rehabilitation. In 2007, the Department of Health's National Stroke Strategy (DoH, 2007) recommended that psychological support should, where required, begin while the patient is still in hospital, with continued long-term support available for all stroke survivors. This recommendation applies to all people who have suffered a stroke, regardless of stroke severity, place of residence, or age. The importance of early intervention was highlighted. For some patients after stroke, depression may be a persistent problem (Donnellan et al. 2010). Therefore, psychological interventions to prevent or treat depression early post-stroke are preferable to ameliorate the debilitating effect. However, although the government has recognised the importance of early psychological intervention post-stroke, there are no guidelines on what psychological interventions to incorporate into stroke management strategies.

After stroke, a variety of approaches exist across health services to manage psychological difficulties. One method of treatment is pharmacological management. While this will not be discussed in detail in this thesis, it should be noted that pharmacological treatment may reduce depression, but also increase adverse events (Hackett et al. 2008a), and is therefore not suitable for all patients. Although this approach is recommended in RCP guidelines (2012, p.111), a systematic review of pharmacological therapy to prevent depression after stroke found no clear benefit (Hackett et al. 2008b). Despite this, pharmacological treatment is often used following stroke. The same review indicated that psychotherapy led to an improvement in mood and prevention of depression. The use of talk-based therapies is now a key focus for treatment and prevention of depression in general health services.

NICE has a number of recommendations on how to identify, inform, support, and treat people with depression and/or anxiety. Similar to non-stroke patients, the RCP National Clinical Guidelines for Stroke (RCP, 2012) recommends the use of a stepped-care model for psychological intervention after stroke which includes all members of the multi-disciplinary team (MDT). A stepped-care approach ensures that the patient is able to receive the most appropriate method of treatment based on the nature of their illness, as well as taking in to consideration the individual's personal and social circumstances. A stepped-care model should provide a holistic approach to guiding steps in treatment.

One service that has successfully implemented the stepped-care model is Improving Access to Psychological Therapies (IAPT), which has been set up across NHS services in the United Kingdom. IAPT services follow the recommended stepped-care model of psychological care and have been shown to work successfully in non-stroke patients. There has been some success in implementing psychological support for long-term conditions through IAPT services following encouragement from the Department of Health to widen access to such services. However, few services support stroke patients, possibly because of the unique challenges stroke patients bring, such as cognitive and communication difficulties. Only a few areas have implemented IAPT services post-stroke due to a number of factors. One such factor may be the negative perception of the complex issues faced by patients following stroke, including communication difficulties. Furthermore, the main approach in IAPT services is Cognitive Behavioural Therapy (CBT), which has not been proven to be effective after stroke (Lincoln et al. 1997; Lincoln and Flannaghan 2003).

Stroke patients themselves have reported a lack of adequate support to meet their emotional needs (McKevitt et al. 2011), with an absence of current psychological support for stroke patients as part of standard care. Furthermore, a greater understanding of which treatments work in stroke is needed. Psychological interventions after stroke can be used to treat depression which is already present, or to prevent the occurrence of depression. Previous studies researching both approaches will now be presented and evaluated to identify strengths and weaknesses.

1.6 Therapies to treat depression

Talk-based therapies appear to hold the most potential for patient benefit, however there are a number of talk-based therapies which can be employed to treat or prevent depression. The treatment of depression entails supporting patients experiencing depression in order to reduce its negative impact.

However, the main therapy that has explored treatment of post-stroke depression is CBT. This form of therapy allows the patient to consider their thoughts and feelings, as well as their actions. The therapist helps the patient to identify negative thoughts or behaviours, and to then discuss how these could be changed. Such changes are explored throughout sessions, with the patient then carrying out changes in their everyday life.

Between 1989-2009 there have been four key studies (Lincoln et al. 1997; Lincoln and Flannaghan 2003; Rasquin et al. 2009) exploring the treatment of post-stroke depression. These studies used different therapy techniques including counselling and CBT. The studies recruited between four (Rasquin et al. 2009) and 123 (Lincoln and Flannaghan 2003) patients from hospital registers or rehabilitation hospital registers, with patients living back in the community by commencement of therapy. Patients were recruited and began therapy between two months (Lincoln et al. 1997; Lincoln and Flannaghan 2003) and ten months (Rasquin et al. 2009) post-stroke, however stroke severity is only reported in one study (Rasquin et al. 2009) which showed patients to have moderate to mild severity strokes. In these studies, patients were excluded if they had disabilities of vision or hearing, suffered dementia or severe cognitive impairment, suffered fatigue, displayed lack of insight into psychological issues, experienced communication difficulties (unable to respond to study questionnaires) or had received treatment for depression or psychiatric disorders within five years. Depression was measured using the Beck Depression Inventory (BDI, (Beck 1961); Wakefield Depression Inventory (WDI, Snaith et al. 1971) (Lincoln et al. 1997; Lincoln and Flannaghan 2003; Rasquin et al. 2009), General Health Questionnaire-28 (GHQ-28, Goldberg and Hillier 1979; Towle et al. 1989), Hospital Anxiety and Depression Scale (HADS, (Zigmond and Snaith 1983)) (Lincoln et al. 1997), Visual Analogue Scale (VAS, Arruda et al. 1996; Rasquin et al. 2009). These trials varied in their choice of intervention comparison, with some providing no comparison (Lincoln et al. 1997), others using a usual care comparison (Rasquin et al. 2009), and the last using both usual care or attention control (Lincoln and Flannaghan 2003). Mood measures were taken at baseline, and taken repeatedly until between three-months (Lincoln et al. 1997; Rasquin et al. 2009) to six-months (Lincoln and Flannaghan 2003). The measures of mood used in these studies are validated in stroke patients, and the shared use of tools allows more direct comparison of results. However, the use of visual analogue scales in patients after stroke has been shown to be unreliable and this may have impacted on results (Price et al. 1999).

Overall, none of these studies showed a significant benefit to mood between treatment groups. In a review of CBT based treatments (Broomfield et al. 2011), it was suggested that there should be no concrete reason why CBT would not work with stroke patients. They suggested that in order to increase the suitability of the therapy, CBT may need to be adapted to the needs of stroke patients, such as for patients who may have cognitive impairment or communication difficulties. This adaptation is evident in the Communication and Low Mood (CALM) study (Thomas et al. 2013).

The CALM study (Thomas et al. 2013) adapted CBT to suit the needs of stroke patients. The study evaluated a behavioural therapy to treat depression after stroke in patients with communication difficulties. The intervention was adapted from CBT to focus on behavioural aspects of the therapy. The delivery of sessions was tailored to meet the patient's individual communication needs, and with the use of appropriate aids such as pictures and photographs.

Patients were recruited from a variety of sources, including hospital wards and community stroke groups, with time between stroke onset and study recruitment not reported. Depression was assessed using the Visual Analogue Self-Esteem Scale (VASES, Brumfitt and Sheeran 1999). Of those screened (n=511), n=105 consented and were randomly allocated to either behavioural therapy or usual care. The primary outcome measure of mood was the Stroke Aphasic Depression Questionnaire-21 Hospital version (SADQH-21), taken at six-months after randomisation. Secondary measures of mood included patient self-ratings scores of Visual Analogue Mood Scales (VAMS) and VASES, taken at three and six-months. The study found a benefit in self-rated mood three-months after randomisation. However, further studies using this approach are required to validate these results.

Overall, the studies reported here have indicated varying success in treating depression after stroke. However as depression decreases motivation to participate in rehabilitation and engage in social activities, perhaps we should be looking to prevent depression from occurring in the first place. In order to improve patient outcomes, therapies should be provided early after stroke, and should be focused on preventing the onset of depression.

1.7 Talk-based therapies to prevent depression

Talk-based therapies have been explored which aim to prevent depression after stroke. Between 1996-2007, there have been four key studies exploring prevention of post-stroke depression. Studies have used a variety of approaches, including problem-solving therapy (Forster et al. 1996; House. 2000), motivational interviewing (Watkins et al. 2007) and home-based therapy (Goldberg et al. 1997).

The studies recruited between 41 (Forster et al. 1996) and 450 (House. 2000) patients from acute hospital registers (Watkins et al. 2007; Goldberg et al. 1997), community settings (House. 2000) or a combination (Forster and Young 1996). Patients were recruited between one (Watkins et al. 2007) and 13-weeks (Goldberg et al. 1997) post-stroke, with details of time from stroke onset to recruitment not reported in one study (Forster and Young 1996). Studies reported stroke severity of patients from mild (Forster and Young 1996) to severe (Watkins et al. 2007). Stroke severity is not reported in two studies (House. 2000; Goldberg et al. 1997). In these studies, patients were excluded if they had disabilities of vision or hearing, suffered dementia of severe cognitive impairment, had communication difficulties (unable to respond to study questionnaires) or had received treatment for depression.

Overall, patients in these studies were recruited during the acute period following stroke, and patients experienced a range of stroke severity, allowing results to hold greater validity and generalisability. However, due to the exclusion of those with cognitive of communication difficulties, the results may not be applicable to all stroke patients.

Depression in these studies was measured using the GHQ-28 (Watkins et al. 2007; House. 2000), Nottingham Health Profile (NHP, Hunt et al. 1986)(Forster and Young 1996) and the Centre for Epidemiologic Studies – Depression scale (Goldberg. 1997). All four studies administered mood measures repeatedly up to twelve months post-stroke, providing a comprehensive understanding of changes to mood before and after the intervention.

These trials varied in their choice of intervention comparison, with some using a usual care comparison (Forster and Young 1996), and one using usual care or attention control groups (House. 2000). Mood measures were taken at baseline, and taken repeatedly until between three-months and six-months. The measures of mood used in these studies have been validated in stroke patients, and the shared use of tools allows more direct comparison of results to be carried out.

Overall, the studies showed mixed results, with two (Forster and Young 1996; Goldberg et a. 1997) showing no significant benefit to mood between treatment groups, and two (Watkins et al. 2007; House. 2000) showing a significant benefit to mood following the active intervention. Despite some success in preventing depression using interventions, the restricted inclusion and exclusion criteria, or the failure to report these, reduced the generalizability of results. As studies excluded those with communication difficulties, the results fail to provide a representative sample of stroke patients. The following section will explore a small number of studies with wider inclusion criteria which have involved patients with communication difficulties.

1.8 Talk-based therapy in patients with aphasia after stroke

Many of the neuropsychological impairments experienced after stroke, as described in section 1.2, may make it difficult for patients to engage in standard talk-based therapies for depression, therefore perpetuating the problem. Consequently, trials evaluating talk-based therapies for depression after stroke have commonly excluded patients with post-stroke communication difficulties (Townend et al. 2007). However, there are a small number of trials of psychological interventions which have included this group of patients. These studies will now be discussed further.

One community-based support service for patients with communication difficulties after stroke evaluated changes in psychosocial well-being (Hoen et al. 1997). The group facilitated patients in exploring communication strategies and aids, as well as promoting their involvement in social activities. The study found that patients were able to engage in the intervention despite communication difficulties, and were able to make improvements in psychosocial well-being, with some improving even many years after the stroke.

In a separate feasibility study, the impact of therapy sessions on quality of life for patients with communication difficulties after stroke was explored. This study evaluated group therapy for patients with communication difficulties and their carers (van der Gaag et al. 1999). Patients with communication difficulties and their carers participated in the talk-based therapy an average of 33 months post-stroke (range 11-81 months), with therapy focussing on adjustment to living with the disability through a range of therapeutic activities. Although sessions were predominantly discussion-based, a range of communication techniques were employed to enable patients to communicate in the group effectively. The value of the therapy was assessed after six months, with findings suggesting an improvement in measures of quality of life, self-confidence, and involvement in social situations.

Despite the popular use of talk-based therapies to prevent or treat depression in patients with normal communication, this approach may not be possible in patients with communication difficulties. However, even though an individual's ability to talk or engage in conversation is limited due to communication difficulties, a talk-based therapy may be possible. The few studies presented here suggest that holding therapeutic talk-based sessions with patients with moderate or severe communication difficulties is possible and can be effective in improving psychosocial well-being. However, it is clear that any alterations to delivery of sessions must coincide with individual patient needs. This follows NICE guidelines (2009) for providing psychological care to patients with chronic conditions, including stroke, which states interventions should,

> "*if necessary, adjust the method of delivery or duration of the intervention to take account of the disability or impairment*." (Recommendation 1.1.4.5, NICE, 2009)

Therefore, in order to deliver psychological therapies to patients with post-stroke communication difficulties, interventions may require adaptation in order to meet the needs of the individual patient. This may include physical adaptations, such as written or visual communications aids, or alternative communication strategies used by the therapist such as simply leaving more time for patients with aphasia to respond. Therefore, providing a suitable environment for patients with communication difficulties to engage with others is a key factor to consider when delivering a psychological intervention.

1.9 Summary

This chapter has introduced the topic of stroke and the extensive impact a stroke can cause. The psychological effects after stroke in particular have been highlighted, and the lack of research in this area for patients with communication difficulties emphasised. Finally, while guidelines for management of depression after stroke exist, there is an absence of specific recommendations for the implementation of psychological interventions. These issues will be explored further throughout the thesis. The thesis structure will now be described in more detail.

1.10 Thesis Structure

Chapter One will present an overview of the presence of communication difficulties after stroke, and how this can impact on psychological well-being. The high level of associated poorer outcomes for patients with depression after stroke and in particular those with communication difficulties, provides a context for the current interventions of prevention and treatment of depression after stroke. This chapter will discuss the limited involvement for individuals with aphasia after stroke in research studies. The possibility of using MI as an intervention for patients with communication difficulties post-stroke will then be explored further.

Chapter Two will summarise the existing literature on psychological interventions for patients following stroke, and in particular psychological interventions involving patients with communication difficulties following stroke. The chapter will highlight the strengths and weaknesses of previous research, with recommendations being made for future research.

Chapter Three will present the results of the secondary analysis of data from the original RCT, exploring the characteristics of participants who received MI in relation to their communication and to their mood. The analysis will further explore data suggesting that participants with communication difficulties who participated in MI may have benefitted more in terms of mood than those with normal communication. The communication ability of participants from the original RCT will be studied, and how this assisted in the development of inclusion and exclusion criteria for the feasibility study will be presented in Chapter Five.

Chapter Four will present a literature review of a number of tools suitable for use in stroke patients with communication difficulties. This includes a review of aphasia screening tools, comprehensive language assessment tools, and finally mood screening tools. This resulted in the identification of tools selected for use in Chapter Five.

Chapter Five will describe a series of single patient case studies of individual's with communication difficulties engaging in MI post-stroke. Participants with a range of communication abilities participated in MI in order to guide the minimum level of communication ability required to participate in MI. A discussion of the limitations of the study, conclusions, and discussion of the future implications of the findings will also be presented.

Chapter Six will report results from staff interviews focusing on staff views of the MI trial in patients with communication difficulties. This includes interviews with staff who identified and screened patients; interviews with MI therapists prior to the feasibility trial; and finally, an interview with the MI therapist after the intervention had been delivered in three patients. The therapist was asked to review how they felt participants were able to engage in the MI sessions and the barriers and facilitators to the delivery of sessions. Therapists were asked about relevant skills they felt necessary for future therapists working with patients with communication difficulties.

Chapter Seven will provide a discussion of the thesis overall, including the main findings of the studies, including the strengths and limitations and implications for future research and clinical practice.

Chapter Two: Psychological Interventions after Stroke

2.1 Introduction

Chapter One provided a broader context in which this thesis sits in relation to current psychological interventions. This chapter aims to provide a more detailed description and critical appraisal of the published research of psychological interventions in stroke, and in particular for research including patients with communication difficulties after stroke. This chapter will discuss the strengths and weaknesses of studies, as well as highlighting gaps in research. Finally, recommendations for future research including patients with post-stroke communication difficulties will be provided.

2.2 Psychological interventions treating depression after stroke

A number of interventions have been used to treat depression following a stroke. These aimed to support patients to adjust to emotional difficulties following a stroke. While the basic principle of therapies may be similar, their approaches may vary, including problem-solving therapy, cognitive behavioural therapy and motivational interviewing. Studies exploring a psychological intervention following stroke will now be presented and explored in more detail.

In an early study exploring the treatment of depression after stroke, a social work based intervention was evaluated (Towle et al. 1989). Patients identified from a hospital stroke register found to be depressed following stroke (based on the Wakefield Depression Inventory (WDI) and General Health Questionnaire-28 (GHQ-28) were selected to take part in the study. Participants (n=44) were randomly allocated to one of two groups. The control group received a single visit by a social worker, and an information booklet regarding various services required following stroke. The intervention group were given the information book and were visited by the social worker twice a week for 16 weeks. Problems identified by the social worker and patient were treated by the social worker with counselling, allowing the patient to express their emotions. Patients were then followed up 8 and 16 weeks following this to complete the WDI and GHQ-28. Following the intervention, results suggested there was no significant difference in mood for those receiving sessions with the social worker. Improvements in mood were seen in both groups, and may have been due to natural recovery, or the information booklet. This study attempted to support depressed patients who may have been more isolated and in need of support due to their longer time post-stroke and lack of available support services. However, delaying treatment to beyond a year post-stroke may have limited the potential for benefitting mood. An earlier intervention would perhaps have improved mood, or may have been able to prevent depression before it occurred. The authors also identified that the intervention may not have been long enough in duration to show a benefit.

In a different psychological intervention, Cognitive behavioural therapy (CBT) has been evaluated in its ability to treat depression after stroke. CBT is a structured, time-limited intervention which has been used to successfully treat a number of psychological conditions, including depression (Cuijpers et al. 2013). CBT is based on the theory that the way an individual thinks about a problem may impact on the way they feel physically and emotionally. CBT aims to address both physical and emotional aspects through directive, structured therapy sessions. CBT has been applied to treat depression in many patient groups, including stroke (Lincoln and Flannaghan 2003; Rasquin et al. 2009).

In an early pilot study of CBT for the treatment of depression after stroke, a small number of patients (n=19) received CBT (Lincoln et al. 1997). Patients identified through a hospital stroke register found to be depressed (based on scores on the Beck Depression Inventory (BDI), and Hospital Anxiety Depression Scale (HADS)) between one and six months post-stroke were suitable for the study. During a four-week baseline period, the BDI was completed weekly. The patient and therapist were able to choose the number and frequency of CBT sessions, with patients receiving a maximum of ten CBT sessions over three-months. Mood was assessed weekly throughout the intervention, and a follow-up measure of mood was carried out three months later.

On average, patients participated in eight sessions. Mixed results were found, indicating that while there were improvements in mood for some patients, other patients experienced no benefit. Despite demonstrating a potential benefit to mood for some patients, there are limitations to this study. Firstly, the small number of participants meant the study was underpowered, potentially leading to inconclusive results. In addition, the design was weakened by its use of a single intervention arm, making it impossible to compare the impact of an attention control group or a usual care group alongside the CBT. The benefit to some patients may have been due to patients having an engaged and supportive person to talk to, rather than the CBT itself. Finally, it should be noted that of 136 depressed patients who were visited, 92 declined therapy. This large number declining the intervention may indicate patients did not find the intervention suitable. The reasons for declining the study are not reported, however patient satisfaction with the intervention may be an issue to consider for future trials. Overall, the study found that while there is a potential benefit of CBT for some patients with depression following stroke, the results lack evidence.

Consequently, a larger scale trial of CBT was undertaken to address these limitations, including the addition of an attention control group (Lincoln and Flannaghan 2003). In this larger scale RCT, 123 depressed stroke patients were randomised into one of three groups; cognitive behavioural therapy (CBT), attention placebo, or no intervention. Mood was assessed using the BDI and WDI one-month post-stroke, with those considered depressed going on to receive a psychiatric interview. The BDI and WDI were then collected at three and six- months post-randomisation. Patients were offered up to ten intervention sessions lasting an hour each over three months. For patients in the CBT arm, sessions of CBT were held with the same community psychiatric nurse (CPN). While the therapy was tailored to the needs of the individual patient, the same basic techniques were used. These included education, graded task assignment and activity scheduling. Those in the attention placebo group saw the CPN up to ten times over three-months. Sessions did not provide a formal therapeutic technique, but focused on discussions of day to day events and around the impact of the stroke on the patient. Those in the control group had no further contact with the CPN following randomisation. There was no significant difference in number of sessions received between CBT and attention control groups (CBT=9.85 sessions (mean), attention control=10 sessions (mean)). Results identified no significant differences between the three groups. Despite an improvement in mood over time being demonstrated, this could not be attributed to the intervention. Although this trial used multiple intervention arms to compare the active intervention of CBT, the difference was unable to be detected. This may be somewhat accounted for by the relatively small sample size of this trial, therefore future research is required to explore the use of CBT in stroke patients further.

This trial provides a large scale exploration of CBT for depression after stroke, which was the first of its kind. In addition, with regards to staff providing the intervention, the therapist experience and training was based on what would be seen in standard clinical settings, with a CPN or assistant psychologist trained in CBT able to deliver interventions. This is a strength, in that it reflects the reality of resources and staffing arrangements in clinical practice. However the authors acknowledge that a weakness of the study is lack of examination of session content and quality. Without evaluation of session content, levels of fidelity to the correct intervention remains unknown, as does the suitability and skill of staff providing the intervention. The complex nature of difficulties experienced after stroke may have meant adaptations to the CBT were required to better suit patients. Due to the reporting within this study, it is unclear if CPNs made adjustments to the delivery of the therapy.

The adaptation of CBT to meet the needs of patients experiencing depression after stroke was explored in a subsequent feasibility study. A small scale feasibility study was carried out evaluating CBT especially adapted for depression after stroke (Rasquin et al. 2009). In this study, a series of single patient case studies of stroke patients were carried out. Patients attending a stroke rehabilitation centre were screened for suitability. Those reporting depressive symptoms early after stroke (standardised mood measures were not used at this point) and meeting other criteria were suitable for the trial. Consented patients were provided sessions of CBT between 6-10 months post-stroke. Depression was assessed using a number of measures. The Visual Analogue Scale (VAS) was administered three times per week from baseline to final follow-up at four months. The BDI, the Symptom Checklist Depression Scale (SCL-90D) were administered in week one, four, eight, twelve and four-months. Following a four-week baseline monitoring phase, patients received weekly hour-long sessions with a psychologist, which were carried out over eight weeks. Sessions were adapted to account for the cognitive deficits often experienced after stroke. This included reducing the amount of written material, and having information presented in simplified format. At the end of the intervention, patients were asked for feedback on their experience of what strategies worked best for them through a feasibility questionnaire. Of 19 eligible patients reporting depressive symptoms, 5 consented and took part in the trial. Patients were followed-up over three-months. A significant benefit to mood following CBT was difficult to demonstrate due to the nature of the study. As this was a feasibility study, it was not designed to measure efficacy however there were no significant results indicating a benefit to mood following CBT. Despite this, all patients involved in the trial were positive about using CBT and felt the strategies had helped them.

This study is one of the few which attempted to adjust the delivery of a psychological intervention for patients who have suffered a stroke. Furthermore, in carrying out a feasibility questionnaire, patients themselves were able to evaluate the intervention. This included one patient who would have preferred sessions earlier after stroke, and another who felt the mood assessments were too intensive. While only small in number, it is important to undertake such studies and place patient needs and wishes at the heart of designing a psychological intervention to ensure acceptability as well as effectiveness. The intervention was considered feasible and acceptable to patients and therapists in this trial. However, despite positive patient feedback, there are a number of limitations to this study. Firstly, inclusion criteria allowed patients reporting depressive symptoms to be involved in the trial; but no formal screen of mood was carried out to identify depression. This may have led to unsuitable patients being included in the trial, while other depressed patients who did not report depression were excluded. Secondly, although the study is designed as a feasibility study, the benefit of the intervention cannot be evaluated from these results. A larger scale trial would be required to detect a change in mood following the intervention, with the inclusion of a control group to compare treatment differences. This limitation is accepted by the authors and is noted as an area for future development.

In a review of CBT based treatments (Broomfield et al. 2011), it was suggested that from the outset, there appears to be no reason why CBT would not work with stroke patients. It may be the case that in order to increase the suitability of the therapy, CBT may need to be adapted to suit the needs of stroke patients, such as patients who may suffer cognitive impairment or communication difficulties after stroke. The use of CBT therefore provides a suggestion that CBT may be an effective method of treating depression after stroke, however further studies are required to confirm this.

These studies focus on therapies which aim to treat rather than prevent post-stroke depression. In clinical settings, this would allow a more selective approach to targeting patients who require psychological support, with only those identified as experiencing low mood selected. However, this entails waiting until a patient has developed depression before treating it. Yet it is known that depressed patients have lower motivation and poorer outcomes compared to those without, therefore it may be more beneficial to prevent depression from occurring in the first place. Studies which focus on the prevention of post-stroke depression will now be examined.

2.3 Psychological interventions preventing depression after stroke

Studies which aim to prevent depression after stroke seek to work with patients before depression is present. One early study exploring the prevention of depression after stroke is the Stroke Transition after Inpatient Rehabilitation (STAIR) study. This study aimed to improve mood outcomes for patients in the first year post-stroke following discharge from hospital. In a community setting, a home-based therapy was provided to explore psychosocial outcomes of patients following stroke (Goldberg et al. 1997). In this pilot study, both stroke patients and their carers were included. Patients in this trial were randomised to the active intervention or to a control group. Those in the active intervention received weekly phone calls and a monthly visit by a case-manager who identified and attended to psychosocial stressors which were impacting on either patient or carer. Patients in this arm had access to a range of specialist services such as psychologists, and links to community services. As well as being provided with information, patients were offered an advice line to call if required, and were also involved in regular reviews with research study staff. The study aimed to identify patient and carer concerns early post-discharge, and manage these concerns through the intervention. Mood was assessed using the Centre for Epidemiologic Studies – Depression scale. This, among other measures, was taken at baseline, six months, and one year post-discharge. Fifty five subjects were recruited to the study and were randomised to the experimental group (n=27) or control group (n=28), however complete follow-up data was available for only 75% (n=41) of these. Attrition was due to medical deterioration, loss of interest in the study, or difficulty scheduling appointments. Findings indicated that while improvements were made in social activity, the intervention did not significantly improve psychosocial functioning or quality of life compared to the control group. However, given the small number of participants in the trial, statistically significant differences were unlikely to be discovered. The small number of participants may be due to the restrictive inclusion criteria, with patients excluded if they experienced cognitive or communication impairment, although these figures are not reported. Future studies should widen the inclusion criteria to apply the intervention to a more representative group of post-stroke patients, including those with cognitive and communication difficulties.

An alternative therapeutic approach to prevent depression after stroke is problem-solving therapy. In one early RCT, patients were randomised to receive problem-solving therapy or usual care (Forster and Young 1996). In this trial, specialist nurses delivered the intervention. Patients receiving the active intervention were visited a minimum of seven times over the course of the first year following stroke. The nurses were able to provide information and advice, reviewing patient needs and creating goals. The control group received no visits. Mood was measured using the GHQ-28. Two hundred and forty patients were recruited to the study, with 120 randomised to each arm. Results indicated there was no significant difference between the two groups in measures of perceived well-being or physical or social activities; however there was a benefit to a subgroup of patients with mild disability. Adherence to the intervention framework was shown through trial diaries kept by the specialist nurses. The diaries showed that in the first six-months, patients received an average of eight visits, and in the final six-months most patients received four visits. In addition, monitoring of telephone calls identified that specialist nurses were able to support patient problems including contacting support groups and dealing with housing difficulties. This study was one of the first to evaluate home-based services which had already been established in practice but were not evaluated. The results suggest that further research is needed to identify what aspects of emotional support or counselling patients may need after stroke. The study was limited in its lack of an attention control arm, therefore differences between an active intervention such as problem-solving therapy, and the support provided by an untrained individual in talking to a patient, cannot be drawn from this study.

Building on the result of the initial study using problem-solving therapy to prevent post-stroke depression (Forster and Young 1996) as described above, a larger scale RCT was carried. This trial addressed the lack of attention control group in the previous study by randomising patients to one of three arms; problem-solving therapy, attention control, or usual care (House. 2000). However, there is no detailed description of these three arms. Four hundred and fifty patients were seen one month after stroke and randomized into one of the three arms. At a 12-month follow-up, patients receiving problem-solving therapy had reduced depression scores (as measured by the GHQ-28) than those in usual care group. Results indicated a statistically significant benefit in mood for patients receiving problem-solving therapy than attention control or usual care groups. One limitation of this study is that due to the lack of detail for the intervention arms, it remains difficult to understand what support patients need, and what aspects of the intervention are effective in altering mood. Furthermore, while this study indicated the effectiveness of problem-solving intervention, it was not acceptable to all patients, with one in five patients declining therapy. This highlights the importance of using an intervention which is not only effective for preventing or treating depression, but is also acceptable to patients.

A separate psychological intervention to prevent depression after stroke is Motivational Interviewing (MI). MI is a talk-based therapy originally used in the field of addictions (Miller and Rollnick 1991), and has since been used in other health fields in which individuals may suffer a lack of motivation or may require some form behaviour change. MI works with the patient to explore ambivalence, build self-efficacy and support the patient to identify their difficulties and discover their own solutions. MI has been used in stroke to support patients and build their confidence to adjust to life after stroke. A previous trial explored the use of MI in preventing or managing depression early after stroke (Watkins et al. 2007).

In this trial, mood was measured using the GHQ-28. This was taken at baseline, three-months and twelve-months post-stroke. Patients were randomised to receive either MI or usual care (UC). The intervention took place in the early stages after stroke, beginning up to four weeks post-stroke. Patients received up to four hour-long sessions of MI over four weeks. Patients were excluded if they suffered moderate to severe communication difficulties or cognitive problems. Therapists in this trial were external from the clinical stroke team and were trained and supervised by a clinical psychologist trained in MI. Results from the trial indicated that participants mood was better in the MI group compared to the control group at both three-months and twelve-months post-stroke (Watkins et al. 2011) after only a short period of MI. A statistically significant benefit to patient mood is clearly a strength of this study, indicating the potential benefit of MI for patients after stroke. However, the trial was limited in the lack of an attention control arm. Despite the inclusion of an UC group, an attention control arm may establish whether the benefit to patient mood is having an engaged person to talk to, or whether the MI itself brings about the change in mood. Furthermore, the trial excluded patients with moderate to severe communication difficulties; therefore the results are not necessarily reflective to many stroke patients. However this is a common exclusion criterion in research studies. Finally, the study employed therapists who were employed specifically to undertake research, therefore the impact of utilising clinical staff remains unknown. It may be that in real life application, it is more realistic for staff within the MDT stroke team to be trained to deliver the MI alongside their clinical role. MI is therefore a psychological intervention which requires further research to explore its potential.

Within the scope of research carried out into psychological interventions after stroke, many trials could be criticised for excluding patients with communication difficulties, which we know may affect around a third of patients who experience stroke. In a review of studies exploring depression after stroke it was found that 71% (n=92) of studies reported some exclusion of patients with aphasia, with 40% (n=52) reporting exclusion of patients with severe communication difficulties (Townend et al. 2007). This exclusion may in some cases be justified, for example if an individual's communication difficulties invalidate their cognitive capacity. However, it remains that in excluding this group of patients, around a third of those suffering stroke are not represented in research studies, creating a clear source of bias.

Additionally, despite the popular use of talk-based therapies to prevent or treat depression, if an individual's ability to talk or engage in conversation is limited due to communication difficulties, it is uncertain whether a talking therapy is appropriate. However, with the use of aids and adaptations, this type of intervention may still be possible.

2.4 Adaptation of interventions for patients with communication difficulties

Patients with communication difficulties may not be able to participate in standard talk-based therapies, however with the use of aids and adaptations, their participation may be possible. Aids and adaptations include any alteration to the delivery of an intervention. This could be physical aids, such as notepad and pen, pictures and photographs. Alternatively, adaptations may be communication strategies such as allowing the patient time to express themselves, or keeping sentences short. A small number of studies have explored the psychosocial well-being of patients with patients with communication difficulties using adaptations. These studies, and the aids and adaptations to communication used will now be discussed further.

One small scale study evaluated the potential benefit of patients with communication difficulties attending a community-based support service, focusing on changes in psychosocial well-being (Hoen et al. 1997). The service provided group therapy and facilitated patients to explore communication strategies and aids, as well as promoting their involvement in social activities. Sessions were run by SLTs, who worked with patients and supervised trained volunteers. Volunteers were provided training in a variety of communication adaptations. A small number of patients with post-stroke aphasia (n=35) of widely varying duration (1-20 years, median 4 years) following stroke were asked to complete measures of psychosocial well-being before and after six-months of participation in the group. The measure of psychosocial well-being used was the Ryff's Psychological Well-Being Scale, covering six dimensions including environmental mastery, purpose in life, and self-acceptance. Each question has a six-point response scale. The scale was modified to meet the communication needs of patients, with simplified questions chosen on a shortened form. The study found that patients were able to engage in the intervention despite communication difficulties, and were able to make improvements in five of the six areas of psychosocial well-being, with some making improvements years after the stroke.

This study is novel in its attempt to capture the psychosocial benefit of attending a community-based support group. In addition, the multifaceted nature of the intervention attempts to capture a number of the circumstances which are involved in patient rehabilitation. However, this multifaceted approach may also be a limitation of the study, in that a complex intervention requires complex evaluation. The measures taken are not direct measures of mood. Therefore, while measures such as purpose in life and self-acceptance may be linked with mood, with no direct measure, the impact of the intervention on patient mood remains unknown. A further weakness of this study is the small number of participants which limits the impact of the results despite their suggestion of a benefit for patients engaging in the intervention. Furthermore, the lack of a control group reduces the validity of the results in that it is unclear whether patients would have shown natural improvement regardless of participation in the group.

In the CALM study (Thomas et al. 2013), an adapted version of CBT was delivered to patients with severe communication difficulties. The adaptation in this study is the removal of the cognitive element of CBT, therefore focusing on behavioural aspects of the therapeutic technique. The intervention was delivered by assistant psychologists (APs) under the supervision of a clinical psychologist (CP). The APs attended weekly supervision meetings with the CP in addition to monthly group meetings with other APs, the CP and clinical neuropsychologist. APs were trained in communication strategies, and provided with a therapy manual. Mood was measured using adapted mood measures, the visual analogue mood scale (VAMS) and the stroke aphasic depression questionnaire (SADQ-10 hospital version), which were taken at baseline and the SADQ-21 which was taken at six months post-randomisation. Patients in this trial were recruited from a variety of settings including hospital wards, community rehabilitation and stroke groups; however the length of time patients were recruited post-stroke was not reported. Patients in the trial suffered depression after stroke. These patients received behavioural therapy sessions for up to three-months, receiving a maximum of 20 sessions. Sessions focused on increasing mood-uplifting activities and included education and graded task assignments. The delivery of sessions was tailored to meet the patient's individual communication needs, with appropriate aids such as pictures and photographs used. Session content was monitored through observation as well as through written documentation by therapists after the session. Complete follow-up data was collected for 89 patients, with results indicating a benefit in self-rated mood three-months after randomisation.

Taking a novel approach, the focus on the behavioural aspect of CBT was shown to benefit patient mood. A strength of this study, unlike many others, is the reporting of training and support provided to trial therapists. The training and support appears to be comprehensive and structured, allowing the therapists the opportunity to gain support and voice any concerns or queries. The reporting of this information is an important aspect for trials of such interventions in order to understand the level of support staff may require. However, the application of such a design to a clinical setting may be difficult to achieve. Many stroke services have limited access to CPs or clinical neuropsychologists. Therefore while APs are more readily available in health services, the supervision of these staff may be more challenging to ensure. A further strength of this study is the monitoring of session content. While not reported, this monitoring of sessions and regular supervision with therapists may increase therapeutic fidelity, leading to consistent sessions. However, one weakness of this study, as with many other studies which provide a single intervention arm, is that without a comparative attention control or usual care arm, the effective component of the behavioural therapy leading to patient benefit remains unknown, and may be due to receiving additional attention.

One feasibility study was carried out exploring the impact of therapy sessions on quality of life for patients with aphasia and their carers (van der Gaag et al. 2009). This trial used both group and individual therapy sessions, allowing patients to choose which mode of delivery they preferred. The therapy focused on supporting patients and carers to adjusting to life after stroke, and coming to terms with living with a disability. The therapy focused on "*enabling the* *transition from being 'ill' post stroke to 'living healthily with disability' through skill development and personal development”*. Outcome measures were both qualitative (semi-structured interviews adapted to meet the communication needs of patients with communication difficulties) and quantitative (EuroQol, Stroke and Aphasia Quality of Life Measure, SAQoL-39). These were taken pre-therapy and six months post-therapy. During an initial seven-week induction period, patients (n=38) and carers (n=22) attended joint and separate therapy sessions and counselling. Sessions lasted two hours and were carried out weekly. Following a 2-3 week break, patients could attend talk-based therapy sessions for up to twenty weeks. Sessions were predominantly discussion based, however a range of communication techniques were employed in order to enable patients to communicate with the group effectively. After six months, findings suggested an improvement in measures of quality of life. Measures of coping moved in a positive direction, however were not statistically significant. In addition to standardised outcome measures, interviews with patients and carers found that patients engaging in the therapy experienced improved self-confidence and led to greater involvement in social situations.

This study is one of few published pieces of research providing adaptations to therapy delivery for patients with communication difficulties after stroke. The use of both qualitative and quantitative measures allows the triangulation of results to ensure a consistent finding is taken from patients who may struggle to express themselves. The corroboration of both methods strengthens the belief that the views of patients have been understood correctly. However, one limitation of the study is that the outcome measures focus on quality of life, rather than more specifically on mood. While there may be a crossover of the two concepts, direct comparison with other studies exploring prevention of low mood cannot be made.

In one pilot study, MI was explored in patients with learning disabilities and alcohol dependency (Mendel and Hipkins 2002). Patients in this study experienced communication difficulties and therefore required adaptations to methods of delivery and communication strategies. Adaptations included reading aloud of materials for participants unable to read, or the use of visual analogue scales to rate importance or confidence of a topic, which are ordinarily discussed verbally with a patient with normal communication. The use of visual aids, as well as summarising sessions regularly, was reported to benefit patient’s understanding. Patients attended three group sessions held over two weeks. In this study, clients used a visual analogue scale and were asked to place stickers along the visual scale to weigh up positive and negative points to alcohol consumption. This study found that adapting MI to meet patient cognitive and communication needs was effective. This result provides support that if adaptations to therapy sessions are made, patients with communication difficulties can be successfully included.

In order to increase the opportunity for patients with communication difficulties after stroke to participate in psychological interventions, a number of adjustments may be required. Research indicates that with the suitable modifications, it is feasible to include patients with communication difficulties in research (Dalemans et al. 2009). In this qualitative and quantitative study, strategies to facilitate the participation of patients with communication difficulties in research were explored (Dalemans et al. 2009). The study included patients with mild, moderate and severe communication difficulties (n=13) and their carers (n=12), as well as SLTs. The qualitative aspect involved interviews with participants (patients with communication difficulties n=13, and their carers n=12). This was facilitated by the use of pre-structured diaries which were used to allow patients to document key issues occurring between sessions, the content of which could be discussed in the interview. The diaries contained structured sections relating to key aspects of daily life, including domestic life, and relationships. Patients could document in the diary issues to be discussed, therefore reducing the pressure to verbalise during sessions. This also allowed the patient's caregiver to have input on the patient's developments.

Suggestions included adaptations of currently used methods, such as the use of pictures, simplifying messages to one key point per page, or bolding key concepts of written information. In addition, attention to non-verbal information to use multiple methods to deliver the same message was recommended, as well as providing more visual opportunities for the patient to answer questions using words and pictures. Quantitative interviews with patients (n=128 with communication difficulties) led to adaptations of a questionnaire establishing satisfaction of methods of communication. The questionnaire was reduced to a dichotomous response for patients with more severe difficulties (satisfied vs. satisfied). Where possible, this was expanded upon to provide a more detailed response. The study highlighted that even patients with severe communication difficulties were able to express their views, and could be successfully included in research, providing adjustments to the delivery of communication was carried out.

In a review of CBT in patients with brain injury, a number of adaptations were described to increase participation (Khan-Bourne and Brown 2003). Given the nature of challenges experienced by this patient group, adaptations focused on cognitive and communication adjustments. This review identified practical adaptations of CBT for patients with limited concentration. One such adaptation was to hold shorter but more frequent sessions.

Adaptations to therapeutic technique involve increased use of summaries which, in addition to demonstrating empathy, can also support the patient to remain focused on the conversation. Memory aids including written notes or cue cards can reinforce a message. It is suggested that therapists take a holistic approach to the patient; considering the life events experienced by the patient when exploring patient concerns.

2.5 Summary

This chapter has provided a brief background of research exploring psychological interventions after stroke, in particular for patients with communication difficulties post-stroke. Previous studies have been evaluated, with aids and adaptations for communication difficulties identified.

The importance of psychological interventions is clear given the high instance of depression after stroke and the impact this can have on outcomes, in particular for patients with communication difficulties. However, despite this, the small number of studies carried out evaluating psychological interventions after stroke has been highlighted. In spite of patients with communication difficulties after stroke representing approximately a third of stroke patients, studies including this patient group are scarce.

While a variety of interventions have been trialled, there are a number of limitations to the studies discussed. Although some studies discovered a benefit to patients' mood, results in a number of the studies required further validation using larger sample sizes, or including additional intervention arms. In addition, many of the studies presented in this chapter recruited patients at varying times post-stroke, with some recruited many years after a stroke. This neglects the early period post-stroke when patients are most likely to benefit from a psychological intervention (Hackett et al. 2008a). Finally, some studies were limited by their use of mood measures. While it is accepted that standardised tools of mood may not be suitable for patients with communication difficulties, alternative measures should be used. In addition, standardised mood measures need to be used to allow for direct comparisons of intervention outcomes.

2.6 Recommendations for future research

This chapter has highlighted a number of strengths and weaknesses of previous studies providing psychological interventions to patients with communication difficulties post-stroke.

These will be taken in to account when considering a future feasibility trial including this patient group.

Future studies should place the patient at the centre of the intervention, with adjustments made to intervention delivery and communication strategies based on individual patient needs. This could include adjustments to therapist communication style such as leaving more time for patients to speak, or use of multiple methods of delivery to express a point. It could also include adaptations to the therapeutic delivery of the intervention, such as including an increased number of summaries which may aid patients with memory or concentration difficulties. Practical adaptations such as holding shorter but more regular sessions may benefit patients with fatigue or concentration problems. Outcome measures should be suitable for patient needs, such as using those specifically designed for patients with communication difficulties. Not only do these adjustments meet NICE guidelines (NICE, 2009, Recommendation 1.1.4.5) in adjusting intervention to meet patient needs due to a disability or impairment, these are also supported by previous studies which this chapter has drawn attention to.

2.7 Conclusion

The exclusion of patients with communication difficulties from research is known to be common (Townend et al. 2007). While the reporting of inclusion or exclusion or participants with aphasia is often inconsistent, a review of studies exploring depression after stroke found that the majority of papers providing this detail reported some exclusion of patients with communication difficulties, especially in those with severe communication difficulties (Townend et al. 2007). This highlights the extent of the lack of inclusion for this group of patients in an important area of research. In excluding patients with communication difficulties from depression studies, there is no way of knowing whether findings from such research can be generalised to this patient group. As is suggested from previous research, patients with aphasia after stroke may have a range of different physical and emotional outcomes compared to those with normal communication; therefore it is crucial to involve this group of patients in order to gain a true picture of their needs and experiences.

One reason patients with communication difficulties are excluded from research studies is because of the difficulty patients may experience in completing standardised measures. Studies often state from the outset that these patients will be excluded, leaving only patients with the ability to express themselves clearly in the study. Patients with severe communication difficulties, especially those with receptive difficulties, are often excluded due to their problems in understanding information. Patients with communication difficulties may therefore require alternative adaptations to assist them in communicating or in engaging in a psychological intervention.

A key conclusion to be drawn from this chapter is the dearth of studies evaluating psychological interventions for patients with communication difficulties post-stroke. Furthermore, there is a lack of guidance from health guidelines of which psychological interventions are the most appropriate for patients with post-stroke communication difficulties, or skills required from staff delivering these interventions. This thesis therefore aims to address this need by exploring; firstly, the feasibility of providing a psychological intervention, MI, to patients with moderate to severe communication difficulties after stroke; secondly, the level of communication ability required for patients to participate; and finally, the skills required from staff delivering this intervention.

This will begin in Chapter Three with a secondary analysis of data from a previous trial providing motivational interviewing to patients early after stroke to prevent depression. Data from this trial will be explored further in Chapter Three to examine the characteristics of patients involved in the original trial in relation to their communication ability.

Chapter Three: Secondary Analysis of MI Data

3.1 Introduction

This chapter aims to describe a secondary analysis of previously gathered data from a Motivational interviewing (MI) randomised controlled trial (RCT) trial in patients early after stroke (Watkins et al. 2007). The chapter will describe the original RCT to provide a context for the secondary analysis carried out. Aims of the analysis will be stated from the outset, and the findings from the analysis will be summarised at the end of the chapter. Implications for future research based on these findings will be discussed.

3.2 Previous MI Trial

The previous MI trial aimed to explore the impact on mood when MI was provided early post-stroke. A RCT was carried out in a single-centre with MI beginning within the first month post-stroke.

Four hundred and eleven patients following a stroke were recruited into the study, participants were aged between 29-97 years old, (age: median 70, interquartile range: 61 to 77 years; 58.4% male). Participants were excluded if they had severe communication or cognitive difficulties; however some patients with mild to moderate communication difficulties were included.

Of the 411 consenting patients, 207 participants were randomised into the control group where participants received care as usual, and 204 participants received MI (as well as care as usual). Patients in the MI arm received up to one hour of MI each week for four weeks. Measures were taken at baseline and three-months post-stroke.

Patients received a number of measures at baseline. Mood was measured using the General Health Questionnaire (GHQ-28, Goldberg and Hillier 1979) and the Yale single item (Mahoney et al. 1994). Cognition was measured using the Rivermead Behavioural Memory Test (RBMT, Wilson et al. 1989), communication was measured using the Frenchay Aphasia Screening Test (FAST, Enderby et al. 1987), and finally, physical dependence was measured using the Barthel Index (Wade and Collin 1988).

The primary outcome measure in this trial was mood, assessed using the GHQ-28, a 28 item self-administered questionnaire measuring emotional distress. The questionnaire aims to assess changes in normal function and detection of newly emerging symptoms of distress. The scale has four subscales; social dysfunction, anxiety and insomnia, somatic symptoms and severe depression. Each subscale has seven items, with a maximum score of seven. The scale measures responses on a four point Likert scale, with responses ranging from the least severe to most severe descriptor. The GHQ score is then calculated by assigning a two point score rating each problem as present or absent, coding a 0 score to those responding 0-1, with a code of 1 for those responding 2-3. This is referred to as the bimodal scoring system (Goldberg and Hillier 1979). Higher scores indicate increasing presence of psychological distress, however in the original RCT (Watkins et al. 2007), the total GHQ-28 score was dichotomised in to low mood (scores of ≥5) or normal mood (scores of <5).

A second measure of mood, the Yale single item (Mahoney et al. 1994) ("Do you often feel sad or depressed?") was also taken at baseline. This requires patients to respond "yes" or "no".

Cognition was measured using the Rivermead Behavioural Memory Test (RBMT) (Wilson et al. 1985). The RBMT is a short test of everyday memory problems including recalling a name, date, and details from a newspaper article. In total there are twelve areas which are tested with a point scored for a correct response, therefore allowing a maximum score of 12.

The FAST was used to measure communication. The tool is comprised of four subscales; Comprehension, Expression, Reading, and Writing. Each subscale can be scored 0-5, with higher scores indicating greater communication ability. The maximum score on the FAST is 30, with participants being classified as having 'communication difficulties' (scoring ≤27 if under 59 or ≤25 if aged 60 and over). Patients scoring over these cut-points are classed as having 'normal communication'.

The FAST is widely used and recognised as having strong psychometric properties which has been demonstrated in patients with aphasia (Enderby et al. 1987). The tool has excellent test-retest reliability. The Intra-rater reliability for patients with chronic aphasia who were tested at two separate time points by the same observer was excellent (Kendall's coefficient of concordance=0.97), (Enderby et al. 1987). The FAST has also demonstrated excellent inter-rater reliability across three independent observers (Kendall's coefficient of concordance =0.97, p<0.001) (Enderby et al. 1987).

Convergent validity of the FAST has been shown against similar language assessments for example the Functional Communication Profile (FCP) (Sarno. 1969) and Minnesota Test for the shortened Differential Diagnosis of Aphasia (MTDDA) (Schuell; Enderby and Crow 1996). Excellent positive correlations were found between the FAST and FCP (0.73, p<0.001) and

MTDDA (0.91, p<0.001). The FAST has shown good sensitivity (100%) and specificity (79%) in acute stroke patients, when administered seven days post-stroke using a cut-off of 25/30 (O'Neill et al. 1990). Thus it is suitable for administration early post-stroke.

The Comprehension subscale consists of two parts, which will be referred to as Comprehension A and Comprehension B. Comprehension A asks the participant to identify and point to certain objects on the riverboat scene picture card, for example, "point to the tallest tree". Comprehension B asks participants to point to shapes on the alternative picture card, asking participants for example to, "Point to the cone". The Expression subscale is also divided in to two parts which will be referred to as Expression A and Expression B. Expression A asks participants to describe the riverboat scene picture, with points awarded for objects named. Expression B does not refer to the picture cards or visual clues to prompt responses, and asks participants to name as many animals as possible, with a point scored for each one correctly named. Reading is assessed by asking participants to read instructions. Writing is assessed by the patient's ability to record responses in a written format.

The Barthel Index (Wade and Collins 1988) was used as a measure of stroke severity. This scale consists of ten items designed to measure an individual's level of daily living, with items focusing on tasks of daily living and mobility. The scale has a maximum score of 20, with a higher score indicating greater independence.

The effects of intervention on mood were analysed using logistic regression. Mood at three-months was the dependent variable, and FAST subscales, age, sex, Barthel Index score, mood at baseline (GHQ-28), treatment group, location and FAST category interaction with treatment group were all independent variables. The results of this original trial indicated that there was a benefit in mood for those who received MI compared to those receiving usual care (p=0.03, OR 1.6, 95% CI 1.04 to 2.46).There was an indication that those with abnormal communication may have benefitted more in terms of mood compared to those with normal communication (p=0.07, OR: 2.42, 95% CI 0.93 to 6.32).

Summary

The original trial showed motivational interviewing has a beneficial effect on patients' mood at three-months compared to those receiving usual care. A sub-group of patients with communication difficulties appeared to benefit more in terms of mood after receiving MI. Not only was this study one of the first to report a benefit of mood following a talk-based intervention, but it is also one of the first to report a benefit to mood in patients with communication difficulties after stroke.

However, little information is reported on this sub-group of patients with communication difficulties in this trial. It may be that there are other differences in this patient group which influenced the mood outcome, and therefore this requires further exploration. In addition, more information is needed about the impact of communication ability on mood. It remains unknown whether a specific component of communication ability impacts on mood outcome. In addition, while a benefit to mood was demonstrated for those receiving MI, it is unclear whether participants scoring within a particular sub-scale of the GHQ-28 benefit more than others. The next sections present findings from secondary analyses exploring these issues further.

3.3 Secondary Analysis

Aim

The aim of this analysis was to explore the communication characteristics of participants in the original RCT of Motivational Interviewing after stroke.

Objectives

Carry out quantitative analysis to:

1. Describe the communication characteristics of the study sample and the impact of communication characteristics of mood outcome
2. Explore if a single component of communication can account for changes in mood outcome for those who engage in MI
3. Explore the impact of a dichotomised method of FAST scoring on mood outcome
4. Explore mood outcome using a shortened version of the FAST communication screening tool
5. Explore patterns in scoring of mood subscales of the GHQ-28 for those with communication difficulty compared to those with normal communication

3.3.1 Describe the communication characteristics of the study sample and the impact of communication characteristics on mood outcome

Aim

This analysis aimed to explore the sample characteristics of all participants recruited to the trial and how communication ability may impact on mood outcome at three-months.

Methods

Measures

Communication was measured using the Frenchay Aphasia Screening Test (FAST). The FAST was taken on patient admission. In order to gain an overall picture of the level of communication ability, average scores for the communication test (FAST) were explored.

The Barthel Index was used as a measure of stroke severity. The scale has a maximum score of 20, with a higher score indicating greater independence.

The GHQ-28 measure of mood consists of four subscales including ‘Somatic Symptoms’, ‘Social Dysfunction’, ‘Anxiety and Insomnia’, and ‘Severe Depression’. Each GHQ-28 subscale is scored from a minimum of 0 to a maximum of 7, with a higher score demonstrating a greater presence of low mood symptoms. A score of -1 indicates a missing value.

Analysis

The analysis was in part descriptive and carried out using SPSS version 19 and 20. The first section of analysis explored the demographic characteristics of the sample, as well as exploring communication characteristics. Any missing data was explored.

Descriptive statistics explored the mood outcome based on communication ability and treatment. Logistic regressions were then carried out to explore whether communication ability impacted on mood outcome for participants receiving MI. Within the logistic regression, mood was the dependent variable, with independent variables including age, sex, location, stroke severity, intervention type, and communication ability. Descriptive analysis was then carried out for participants with abnormal communication, then for participants with abnormal communication receiving MI. Median results are presented throughout due to lack of normal distribution of FAST scores.

Results

Communication characteristics of the study sample

Four hundred and eleven stroke patients were recruited, 207 into the control group, and 204 received MI. Participants were aged between 29-97 years, with a mean age of 68.77 years (S.D. =11.34), and 242 (58.9%) were male.

As can be seen in Table 3.1 below, there were 135 individuals with abnormal communication and 240 with normal communication. The FAST scores ranged from 2-26, median score was 27.

Table 3.1: Communication ability as measured using the FAST

FAST Category	Frequency	Percentages
Normal Communication	240	64
Abnormal Communication	135	36
Total	375	100

FAST=Frenchay Aphasia Screening Test. 'Abnormal communication', ≤27 if under 59 or ≤25 if aged 60 and over. Scores over these cut-points indicate 'normal communication'.

The four subscales of communication were also explored (Comprehension (Subsections A and B), Expression (Subsections A and B), Reading and Writing.

Comprehension A and Expression B both scored a median of 4, while Comprehension B, Expression A, Reading, and Writing subscales had a median of 5.

Thirty-two (8%) of participants had no FAST score recorded, reasons included the patient being too ill (N=11), unable to understand (N=5), missing data (N=1), other (N=15). The majority of missing FAST scores are from females (n=22), aged 65 and over (n=30), with more severe strokes (n=15) as measured by the Barthel Index score, recruited within the acute stroke unit (n=23).

The impact of communication characteristics on mood outcome

Within the original RCT, mood was the primary outcome as measured by the GHQ-28 at three-months post-stroke. This was dichotomised into normal mood (< 5) or low mood (≥5). A good outcome was having a normal mood score at three-months.

In the previous trial, using logistic regression, there was a significant benefit in mood for patients participating in motivational interviewing over usual care at 3 months (p=0.03, OR 1.6, 95% CI 1.04 to 2.46). A significant interaction was also discovered between FAST category (normal or abnormal) and motivational interviewing on overall mood at 3 months (p=.07, OR 2.42 using a 10% significance level, CI 0.93 to 6.32). It can be seen in Table 3.2 that participants with abnormal communication had a higher incidence of low mood (66.7%) compared to those with normal communication (56.4), however, those receiving MI had lower incidence of low mood (49.2%) compared to those receiving usual care (66.7%) after 3 months.

Table 3.2: Mood outcomes at three-months for participants with normal or abnormal communication after receiving MI or usual care.

	Abnormal Communication				**Normal Communication**			
	Good Mood Outcome		**Poor Mood Outcome**		**Good Mood Outcome**		**Poor Mood Outcome**	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**	**Frequency**	**%**
Control	24	33.3%	48	66.7%	51	43.6%	66	56.4%
MI	32	50.8%	31	49.2%	55	44.7%	68	55.3%

MI=Motivational Interviewing. Frenchay Aphasia Screening Test=FAST, ‘Abnormal communication’, ≤27 if under 59 or ≤25 if aged 60 and over. Scores over these cut-points indicate ‘normal communication’. For General Health Questionnaire-28, ‘Good mood’ <5, ‘poor mood’ ≥5.

The findings shown in Table 3.2 provide an indication that those with communication difficulties receiving MI had a reduced prevalence of low mood at three-months than those with normal communication. It should be noted that there are a number of cases missing from the analysis. Seventy two cases were not collected at three-months due to patient death (n=21), patient withdrawn from study (n=15), no response (n=31) or patient not being followed up (n=5).

Overall therefore there is a suggestion that there was a benefit in mood at three-months for participants engaging in MI over usual care. Furthermore, there may be an increased benefit for those with communication difficulties.

To gain a greater understanding of the communication characteristics of participants with abnormal communication in this study, further analysis was carried out examining differences in FAST scores between groups with abnormal and normal communication.

Communication group and FAST scores

One hundred and thirty five participants were categorised as having abnormal communication. Of those with abnormal communication, participant age ranged from 39-96 years (mean=68.52, S.D. = 11.22), similar to the main trial, with n=70 males and a median score of 20/30 on the FAST. As would be expected, participants with normal communication scored considerably higher on the FAST than those with abnormal communication, scoring a median of 27/30 in comparison.

In terms of how participants scored each FAST communication subscale, Table 3.3 shows participants with abnormal communication scored just over a point below those with normal communication on all subscales, with the largest discrepancy in the writing subscale.

Table 3.3: Median FAST Subscale scores for those with normal and abnormal communication

FAST category	Comp A	Comp B	Exp A	Exp B	Reading	Writing
Normal (N=240)	4	5	5	4	5	5
Abnormal (N=135)	3	3	5	3	4	1

FAST=Frenchay Aphasia Screening Test. 'Abnormal communication', ≤27 if under 59 or ≤25 if aged 60 and over. Scores over these cut-points indicate 'normal communication'.

Abnormal communication in MI group

An examination of participants classified as having abnormal communication as judged by the FAST shows that 63 of the 135 were within the intervention group, while 72 were in the control group.

Of the 63 abnormal communication participants in the MI group, 36 were male and 27 female. The age range for this group was from 39-91 years (mean age = 68.52 years). From descriptive analysis it can be seen that the majority of participants with abnormal communication within the intervention group received the maximum number of four therapy sessions (n=43, 68.3%). This information is summarised below in Table 3.4.

Table 3.4: Number of MI sessions attended by participants with abnormal communication

No. of MI Sessions	Frequency	%
0	4	6.3
1	7	11.1
2	5	7.9
3	4	6.3
4	43	68.3
Total	**63**	**100**

MI=Motivational Interviewing

The time from stroke to first MI session for those with abnormal communication was recorded for the majority of patients (n=59). For the group as a whole, the time from stroke to first MI session was 18.5 days (median, inter quartile range=12-29 days), however for those with communication difficulties it was 23 days (median, inter quartile range 12-35 days). This indicates that for some patients there was a considerable time between having communication assessed on admission to hospital and the first MI session.

Summary

This analysis has explored the general characteristics of participants in the previous MI trial. The findings indicate that just over half participants were male, with age ranges reflective of a representative sample. The high median scores for the FAST total scores, as well as each of the FAST subscales indicates that most patients had normal communication, therefore were able to complete the screening test without difficulty. However, over a third of the participants were classified as having abnormal communication based on FAST scores. This result is comparable to other research suggesting that around a third of stroke survivors will experience communication difficulties (Tsouli et al. 2009).

The analysis showed that on average, patients with abnormal communication scored seven points lower on the FAST compared to those with normal communication. In exploring scoring differences for the FAST subscales, the greatest discrepancy is in the writing subscale. While this may be due to deficits in this area of communication for these patients, there may be another issue affecting the score. Patients who have suffered left hemisphere damage leading to language deficit may also have had right side weakness in their upper limb. As the right hand is often the dominant hand for tasks such as writing, this may be contributing to lower scores. Without an in-depth assessment of communication it remains unknown where in particular the areas of communication deficit lie with this group of patients. This issue needs to be considered in future studies.

In exploring the impact of communication on mood outcome, it was discovered that those with abnormal communication in the control group experienced a higher instance of low mood at three months compared to those with normal communication. This is consistent with previous findings (Kauhanen et al. 2000). However, those patients in the MI group experienced a lower incidence of low mood at three-months compared to patients who received MI with normal communication. This would suggest that those with communication difficulties may benefit more from MI.

While patients with abnormal communication scored lower on the FAST this did not seem to affect their engagement in the MI sessions, with 68% managing to complete all four sessions, this is compared to 71.6% for the group as a whole (Watkins et al. 2007). This positive result suggests that despite having notable communication difficulties, these individuals managed to engage in a talk-based therapy rather than choosing to decline participation. However, for all patients the FAST was collected on admission to hospital, but some patients may not have been recruited to the trial until 4 weeks post-stroke. Therefore for some patients there was a delay between having communication measured on admission to hospital and their first MI session. Thus there may have been a change in communication which was not detected, which potentially impacted on their ability to participate in sessions. This highlights the need for regular measures of communication in a future study to be administered in order to monitor potential changes in ability.

3.3.2. Explore if a single component of communication can account for changes in mood outcome for those who engage in MI

The findings from the initial study indicated that there may be a relationship between those receiving MI with abnormal communication and a reduced prevalence of low mood at three-months compared to those with normal communication or those receiving care as usual. Whilst the previous section highlighted that patients with communication difficulties engaged well in the therapy, they also scored lower on the FAST. This section will explore if these differences impact upon the primary outcome of mood.

Aim

To explore the communication subscales measured by the FAST to understand whether an individual element of communication could account for the difference in mood outcome at three-months.

Method

To give further insight into the components within communication which may impact on overall outcome of mood, logistic regression analyses were carried out to explore the interaction of individual FAST subscales (Comprehension A, Comprehension B, Expression A, Expression B, Reading and Writing) with MI on mood at three-months.

Analysis

For the regression analysis, mood at three months was used as the outcome variable. Mood (GHQ-28) was dichotomized into “normal” (<5) or “low” (≥5). In order to minimise the impact of confounding variables, age, sex, location, severity of brain injury, treatment group, mood at baseline were input as explanatory variables. In addition, each communication subscale score and its interaction with treatment group were added as a pair of explanatory variables using a forward selection strategy. Thus, six separate regression analyses were carried out, with one for each communication subscale and its interaction with treatment group. A 10% significance level was used for interpretation of interactions to allow a greater opportunity for an effect to be detected (i.e. increase power).

Results

There was no significant interaction between any of the FAST subscales and intervention arm. Individually, the FAST subscales did not have a significant interaction with the MI intervention and on overall mood at three-months (see Table 3.5).

Table 3.5: Logistic regression results for main FAST subscales

Interaction with treatment	**B**	**p**	**OR**	**CI (95%)**	
				Lower	**Upper**
Comprehension A	0.01	0.97	1.01	0.67	1.52
Comprehension B	-0.19	0.36	0.83	0.55	1.24
Expression A	0.25	0.91	1.03	0.65	1.61
Expression B	-0.23	0.28	0.80	0.58	1.20
Reading	-0.04	0.81	0.96	0.70	1.32
Writing	-0.08	0.51	0.92	0.73	1.17

B=beta value, p=level of significance, OR= Odds Ratio, CI=Confidence Interval

Summary

The analysis focused on exploring the subscales of the FAST, and their potential contribution to mood outcome at three-months for those engaging in MI. The analysis indicates that while overall communication ability seems to impact mood outcome, there are no individual components of communication as measured by the FAST subscales that can account for this difference.

However, the analysis will have low power due to low numbers, particularly within some FAST scoring categories, for example few participants scored below 3 on the subscales. In order to address this difficulty, further analysis was carried out with the FAST subscales dichotomised to those scoring 3 and below and those scoring four and above. A cut point of 3/ 4 was felt to be the lowest suitable cut off based on the cut points of ≤27 or ≤25 for the original FAST.

3.3.3. Explore the impact of a dichotomised method of scoring communication on mood outcome

In order to address the difficulty of low numbers in each of the FAST score categories from the previous analysis and consequently increase power of the analysis, each of the FAST subscales were re-coded. Scores of 3 or below were grouped together, as were those scoring 4 or 5.

Aim

This analysis aimed to explore whether a dichotomised method of scoring the FAST could impact on regression results for mood at three-months.

Method

Logistic regressions were carried out to discover whether the dichotomised scores for each subscale may have impacted mood scores at three-months for those participating in MI. The current analysis will be compared with the previous regression results to discover whether similar patterns emerged.

Analysis

The outcome variable in the regression was patient mood at three-months. In order to address possible confounding variables, the variables of age, sex, brain injury severity, location, treatment group, patient mood at baseline, and each of the recoded communication subscales were input explanatory variables. Communication subscales were added individually. In addition, the communication subscales and their interaction with treatment (MI or UC) at three months were inputted as explanatory variables. Interactions alone were interpreted using a 10% significance level.

Results

With FAST scores re-coded in a dichotomised system, regressions indicated that the interactions between FAST subscales and mood at three-months remained non-significant. Table 3.6 below summarises this result.

Table 3.6: Logistic regression scores for main FAST recoded subscales

Interaction with treatment	B	p	OR (CI 95%)
Comprehension A	0.58	0.27	1.79 (0.64-5.04)
Comprehension B	0.73	0.21	2.08 (0.66-6.60)
Expression A	0.14	0.84	1.15 (0.30-4.38)
Expression B	0.67	0.20	1.96 (0.70-5.51)
Reading	-0.10	0.88	0.90 (0.25-3.28)
Writing	-0.32	0.52	0.72 (0.27-1.92)

B=beta value, p=level of significance, OR= Odds Ratio, CI=Confidence Interval

Summary

The analysis shows that while communication overall appears to impact on mood at three-months for those participating in MI, no single subscale of communication as measured by the FAST could account for any change in mood at three-months. This finding remained the same when FAST scores were recoded to address the poor distribution of FAST subscale scores. This supports the previous analysis of FAST subscales which also found no individual subscale could account for changes in mood for those participating in MI based on original FAST scoring method.

An alternative scoring of the FAST was proposed (Enderby et al. 1987), removing the Reading and Writing subscales. This approach was a shortened way to identify aphasia in patients, as most patients with communication difficulties would have disruption of comprehension or expression, therefore the subscales of Reading and Writing could be removed with reliability maintained. For the current analysis, it was felt that using this shortened version of the FAST might be more relevant to patients engaging in motivational interviewing, where expression and comprehension skills may be more valuable to engage in sessions than reading or writing. This shortened measure will be explored in the next section.

3.3.4. Explore mood outcome using a shortened version of the FAST communication screening tool

Previous analysis from Section 3.3.3 suggested that the FAST subscales of Reading and Writing may have less influence on mood outcome for those engaging in MI. In order to explore the impact of the remaining subscales on mood outcome, we will use the alternative FAST scoring system; the ‘mini-FAST’.

Aim

To explore communication ability and mood change at three-months using the shortened version of the FAST (Mini-FAST).

Method

The mini-FAST was created by removing Reading and Writing subscales from the overall score, as suggested in the original FAST study (Enderby et al. 1987). This scoring system creates a total FAST score by combining scores from the remaining subscales; Comprehension A, Comprehension B, Expression A and Expression B. Using this scoring system, participants can score a maximum of 20. Adjusted cut-off points defining abnormal or normal communication have been suggested, which are again stratified by age. These cut off points are 17 (age 20-60), 16 (age 61-70) or 15 (age 71+).

Analysis

Logistic regression analysis was performed to explore the impact of the Mini-FAST total score, as well as individual Mini-FAST subscale scores on mood at three-months for all participants. Mood at three-months was the outcome variable, with age, sex, location, brain injury severity, mood at baseline, treatment group, communication subscale scores (comprehension a and b, expression a and b) inputted as explanatory variables. In addition, the interaction between treatment group and communication subscales scores was inputted as explanatory variables. Communication subscales and their interaction with treatment group were input individually. Interactions alone were interpreted using a 10% significance level.

Results

Using the Mini-FAST with alternative cut-points, fewer participants are classified as having abnormal communication (n=93), compared with the main FAST classifications (n=135). With the FAST communication subscales reduced to include only Comprehension A and B, and Expression A and B, it was expected that the effect might be stronger and therefore more powerful. However, despite the thought that the Mini-FAST, which measures comprehension and expression components, may be more relevant and therefore potentially more sensitive to the effectiveness of a talk-based therapy, no significant result was discovered. The logistic regression indicated that there was no longer a significant impact on the interaction of communication and MI on mood at three-months (p=0.47, OR 1.49, 95% CI 0.51 to 4.34 compared to the original FAST regression result of p=.07, OR 2.42 using a 10% significance level, CI 0.93 to 6.32). The comparison of the two results indicates that the odds ratio has reduced when the mini-FAST was used, therefore the result changed from significant to non-significant.

The individual subscales of the Mini-FAST were examined to explore whether mood outcomes at three-months could be accounted for by the subscales. However, no individual subscale could significantly predict the mood outcome at three-months as is shown below in Table 3.7.

Table 3.7: Logistic regression result for the Mini-FAST subscales

	B	**p**	**OR (CI 95%)**
Comprehension A	0.01	0.97	1.01 (0.67-1.52)
Comprehension B	-.12	0.36	0.83 (0.55-1.24)
Expression A	0.03	0.92	1.03 (0.65-1.61)
Expression B	-.23	0.28	0.80 (0.53-1.20)

B=beta value, p=level of significance, OR= Odds Ratio, CI=Confidence Interval

In this analysis, using the Mini-FAST, communication no longer has a significant interaction with mood at three-months for those participating in MI, whereas in the main FAST it was identified that those with communication problems who participated in MI were more likely to have a reduced prevalence of low mood than those receiving usual care. Using the Mini-FAST although all participants benefit from MI, the difference between groups, particularly the difference between those with abnormal communication and normal communication is less prominent than when the full FAST was used. These results are displayed below in Table 3.8.

Table 3.8: Mini-FAST mood outcomes at three-months for communication groups and treatment groups

	Abnormal Communication		**Normal Communication**	
	MI	**Usual Care**	**MI**	**Usual Care**
Poor outcome	**52.3**% n=23	**65.3**% n=32	**53.5**% n=76	**58.9**% n=83
Good outcome	**47.7**% n=21	**34.7**% n=17	**46.5**% n=66	**41.1**% n=58

FAST=Frenchay Aphasia Screening Test, 'Abnormal communication', ≤27 if under 59 or ≤25 if aged 60 and over. Scores over these cut-points indicate 'normal communication', 'Good mood' <5, 'Poor mood' ≥5. *MI=Motivational Interviewing.*

The results in Table 3.8 suggest that when using the Mini-FAST tool to assess communication ability, communication does not have a significant interaction mood at three-months. Using the Mini-FAST, it appears that MI has no significant benefit on participants' mood at three-months.

Summary

This analysis focused on exploring the use of the shortened FAST scale; the Mini-FAST, in assessing the potential impact of communication ability on mood outcome at three-months.

Due to the assumption that skills of reading and writing may be less relevant to engaging in a motivational interviewing session, it was felt suitable to remove these subscales and focusing the analysis on the remaining four subscales of comprehension and expression. This was not the case. Using the Mini-FAST, patients showed a benefit of MI, however the strength of this difference was smaller than when using the full FAST.

There are several explanations for this; it may be that the reading and writing subscales were skewing the results; it may be that there is no significant interaction with comprehension and expression elements. However, there is a lack of validation of the shortened version of the FAST tool, so until further validation studies are undertaken we are unsure of its psychometric properties and thus the degree to which it accurately identifies patients to have language difficulties. The mini-FAST may lack the sensitivity to detect changes which the full FAST may account for, therefore, this result must be interpreted with caution.

The lack of significant result may have been due to the smaller number of participants falling into the category of abnormal communication, the analysis was not powerful enough to detect a significant effect.

Analysis using the Mini-FAST indicated no interaction of communication with mood; the mini-FAST may be less suitable due to its lack of validation. However, using the well validated full FAST in the original analysis detected a significant interaction. Yet it is unknown whether there are particular aspects of mood which interact with communication. The next analysis will focus on the measure of mood used in the previous MI trial, the GHQ-28.

3.3.5. Explore patterns in scoring of mood subscales of the GHQ-28 for those with communication difficulty compared to those with normal communication

Previous analysis of the data from the MI trial indicated that there was a difference in mood outcome at three-months for those participating in MI compared to those receiving usual care. This effect was shown to be greater for those with communication difficulties participating in MI. However, while there was a difference in mood outcome (GHQ-28), it is unknown where these differences lie within the mood scale. Previous research of patients with aphasia after stroke have suggested that these patients may suffer difficulty with social functioning (Darrigrand et al. 2011) and may be more likely to experience depression than those with normal communication (Kauhanen et al. 2000), suggesting there may be specific areas where changes in mood may be detected more than others. With this in mind, it was felt appropriate to compare the subscales of the GHQ-28 for participants with both normal and abnormal communication.

Aim

To explore the scoring patterns across the GHQ-28 subscales for participants with normal and abnormal communication receiving MI.

Methods

Measures

The GHQ-28 measure of mood consists of four subscales including ‘Somatic Symptoms’, ‘Social Dysfunction’, ‘Anxiety and Insomnia’, and ‘Severe Depression’. Each GHQ-28 subscale is scored from a minimum of 0 to a maximum of 7, with a higher score demonstrating a greater presence of low mood symptoms. A score of -1 indicates a missing value.

Communication was measured using the full FAST. With a total score of 30 and scores below 27 (aged up to 60) or 25 (aged 61 and above) indicating abnormal communication.

Analysis

In order to compare whether there was a difference in mean scores of GHQ-28 subscales at three months post-stroke based on communication ability, line graphs were created comparing those in the MI group with normal communication to those with abnormal communication using the full FAST. Scores of each of the mood subscales taken at three-months for both communication groups were plotted against one another. Comparisons were carried out through visual inspection of the graphs, as well as through comparison of median GHQ-28 subscale scores.

Results

At three-months, there were a total of 375 participants who completed the GHQ-28. A breakdown of each of the four GHQ-28 subscale results will be presented in turn.

Somatic Symptom Subscale

In terms of somatic symptoms, the mean scores indicate no clear difference between the two groups, with participants with abnormal communication scoring a median=0, and those with normal communication scoring median=1. The percentage of participants scoring -1 to 7 on the GHQ subscale for Somatic Symptoms for each communication group can be seen below in Figure 3.1.

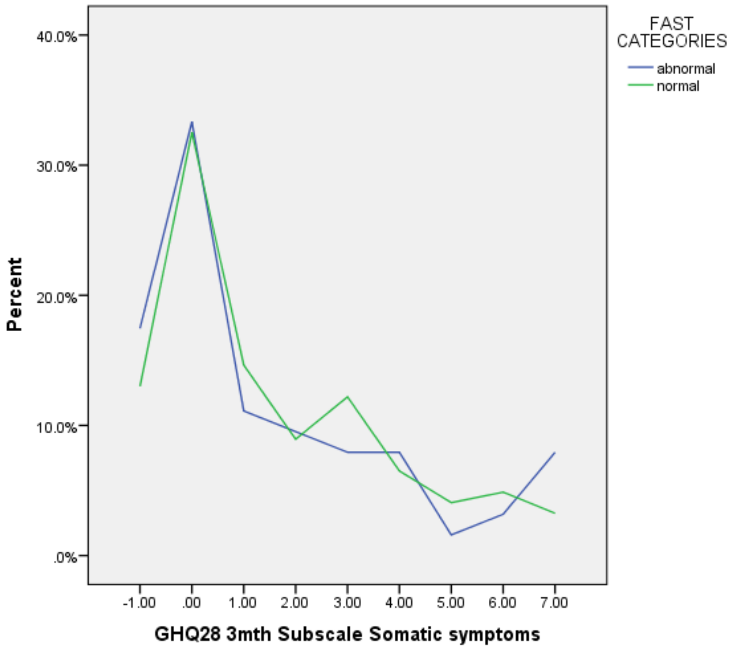


Figure 3.1: Somatic Symptom subscale scores at three-months for normal and abnormal communication ability

Social Dysfunction Subscale

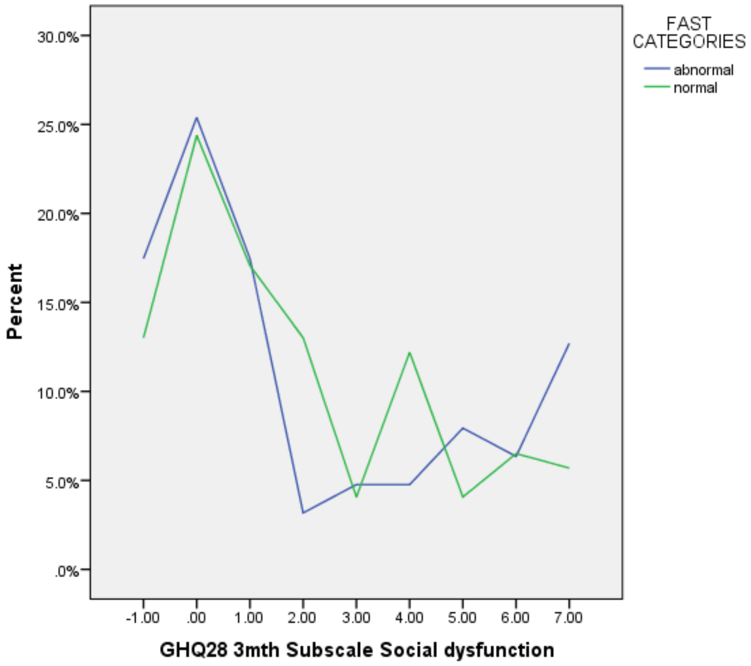


Figure 3.2: Social Dysfunction subscale scores at three-months for communication groups receiving MI

In relation to social dysfunction, the median score for those with abnormal and normal communication was 1.

There appears to be only a slight difference between the GHQ-28 subscale scoring for social dysfunction between the two communication groups, with those with normal communication scoring higher at the fourth point, but this is counter balanced with those with abnormal communication scoring slightly higher at the top end of the scale (7), indicating a higher presence of low mood symptoms. This is demonstrated in Figure 3.2.

Anxiety and Insomnia Subscale

Similarly there was no difference in the median scores on the Anxiety and Insomnia subscale. Those with normal and abnormal communication scoring a median of 0.

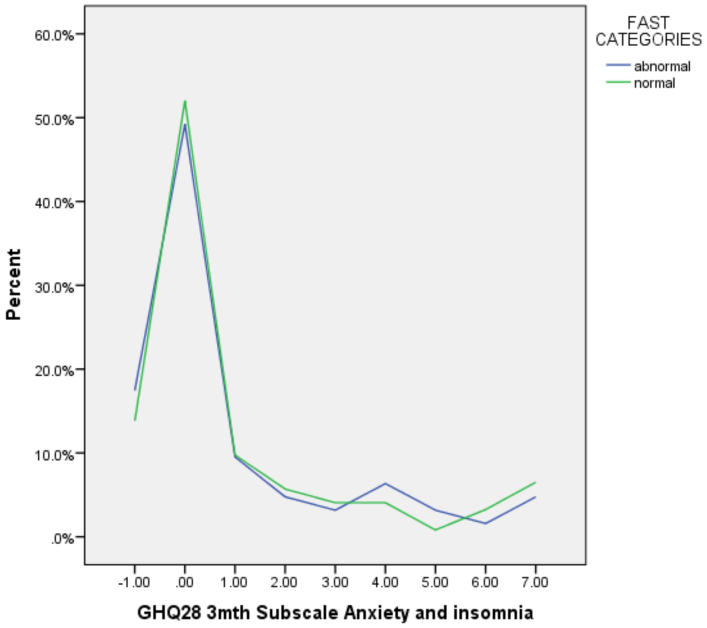


Figure 3.3: Anxiety and Insomnia subscale scores at three-months for communication groups receiving MI

Figure 3.3 demonstrates the close similarity of scoring the GHQ-28 Anxiety and Insomnia subscale for those with either normal or abnormal communication. The same low median score for both groups indicates that both groups were very similar in this aspect.

Severe Depression Subscale

The final GHQ-28 subscale Severe Depression indicates that those with normal communication score marginally higher, but overall both groups had the same median score for this subscale (median=0). The scores are shown in the Figure 3.4 below.

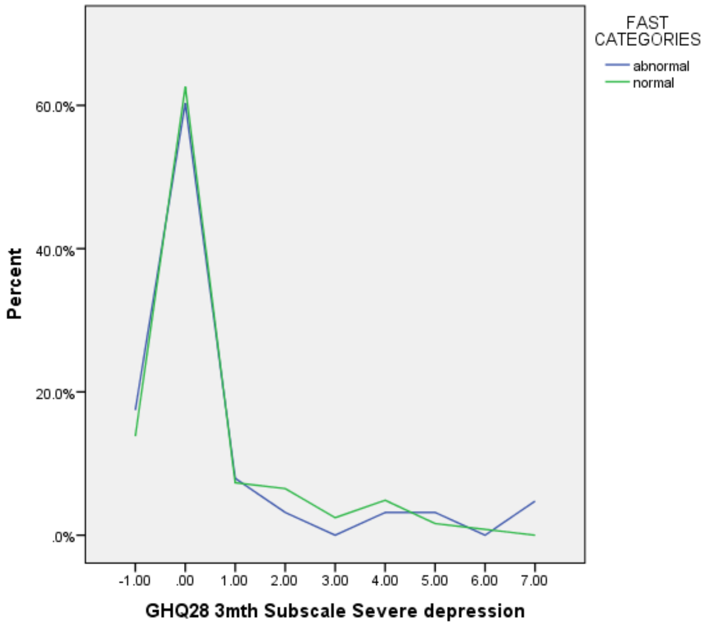


Figure 3.4: Severe Depression subscale scores at three-months for communication groups

A visual comparison of the two groups from Figure 3.4 reflects the similar scoring patterns of the two communication groups. The median score for both groups is 0.

Summary

The four mood subscales within the GHQ-28 were examined comparing those with normal communication to those with abnormal communication who participated in MI. The previous logistic regressions indicated a difference in the mood (based on GHQ-28 scores) between those with abnormal and normal communication receiving MI. In addition, previous research found that those with communication difficulties after stroke can have severely impaired interaction in their social life (Darrigrand et al. 2011), it was felt that there may be differences in scoring of social functioning. Due to this, the four subscales of the GHQ-28 were examined to explore whether one subscale in particular could account for this change, however no major differences in the subscales were detected. While minimal differences in scores were identified, there appears to be little difference between communication groups scoring of the GHQ-28 subscales. Therefore no individual GHQ-28 subscale could account for a change in mood at three-months between those with abnormal or normal communication.

This result contrasts with previous studies which identified that patients with communication difficulties are more likely to experience symptoms measured by the GHQ-28, such as social dysfunction, than patients with normal communication (Parr. 2007; Darrigrand et al. 2011). However this results was not replicated in this analysis.

3.4 Discussion

This chapter has explored data from a previous RCT delivering MI to patients early post-stroke (Watkins et al. 2007). Examination of the FAST scores highlights that participants with communication difficulties were included in the trial and were able to participate in MI at this early stage after stroke, with most participants completing all four sessions. However, the FAST scores were collected on admission and may have changed by the time the participant commenced the MI sessions; although with no follow-up measure of communication this cannot be proven. The secondary analysis of this data presented in this chapter has highlighted that participants who received MI were shown to have improved mood at three-months post-stroke, and this result was more prominent in those with abnormal communication.

Features of communication were then studied to discover whether there were any specific aspects of communication which could influence mood outcome.

The analysis showed that individually, there was no subscale of communication (as measured by the FAST) that interacted on mood outcome at three-months. It may be that all aspects of communication subscales interact, providing a combined effect on mood. Previous research has indicated patients with communication difficulties may have different mood outcomes compared to patients with normal communication, including an increased risk of depression (Kauhanen et al. 2000). Furthermore, patients with communication difficulties report experiencing more psychological distress at three-months post-stroke more than those with normal communication (Hilari et al. 2010). However, there is no evidence in previous research to suggest that a deficit in a particular area of communication leads to a difference in mood outcome, and similarly no such relationship was found in this analysis.

It was felt that the ability to read and write may not affect people's ability to participate in a talk based therapy. Therefore these subscales were removed and the shortened version of the FAST, the Mini-FAST was explored. The Mini-FAST explored if removal of the Reading and Writing subscales would increase the effect of the remaining subscales, however this was not the case. This result may be limited by the lack of validity of the Mini-FAST. While the FAST has been previously validated, there has been little validation of the mini-FAST. Until further studies confirm the validity of the Mini-FAST, future studies should continue to utilise the well validated FAST tool.

Finally, in examining GHQ-28 scores from the original RCT, subscales of the GHQ-28 were explored to discover where a particular subscale of the GHQ-28 could account for the overall difference in mood. The results indicated that patients with communication difficulties benefitted in mood at three-months more than those with normal communication. However, further to this, when exploring the individual subscale, no single subscale could account for this overall difference in mood.

In the original MI trial, communication was measured on admission to hospital, therefore it is unknown how severe any communication deficits were prior to commencing the MI sessions, and whether these had an impact on the patient's ability to participate. The FAST was used to measure communication in the study. While this is a validated screening tool, it is limited in the depth of information it can provide about communication ability. This necessitates further exploration to assess its suitability in this capacity.

Previous studies have explored depression in patients with communication difficulties compared to those with normal communication (Hilari et al. 2010). Patients with various levels of communication difficulties (as assessed using the FAST) were included in this study (Hilari et al. 2010) exploring factors predicting psychological distress at three-months and six-months post-stroke as measured by the GHQ-12. Results found the presence of communication difficulties was associated with psychological distress at three-months. However, results are only reported for patients with mild to moderate communication difficulties, and not for those with severe communication difficulties. As commonly occurs in research, patients with severe communication difficulties were not reported in this study, and it is unknown whether results can be applied to this group of patients. Future studies should include patients with communication difficulties in research, including those with severe difficulties to ensure all patients are represented in the results of such trials.

In a separate study exploring the prevalence of communication difficulties and associated deficits, patients were assessed for mood through psychiatric interview (Kauhanen et al. 2000). In this study, communication difficulties were assessed using the aphasia quotient of the Western Aphasia Battery (Kertesz. 1982). This was administered in the first week post-stroke. Follow up measures at three and twelve months found that those with communication difficulties were more likely to experience depressive symptoms than those with normal communication. However, this was not explored further to establish whether specific aspects of depression were experienced more than others. In addition, this study found that communication difficulties were often improved to less severe syndromes, or had completely resolved, by follow up. This emphasises the changeable nature of communication difficulties for some patients and the need for regular measures to be taken to measure such change.

Patients with communication difficulties are more likely to experience depression, therefore it is important to identify and treat it. The analysis carried out in this chapter found that those with communication difficulties in the MI group may have benefitted more. However, these patients are excluded from the majority of studies; therefore there is a lack of evidence to build on. To address this lack of evidence, studies must adapt to ensure they are inclusive to all patients, including those with communication difficulties.

In order to explore the potential for including patients with communication difficulties, future studies should include patients with a lower ability of expressive communication to better understand what level of communication is required to participate in MI, and whether those with more severe expressive communication difficulties can participate in a talk-based therapy such as MI.

In a future MI trial, recruitment will specifically target patients who have communication difficulties beyond the level recruited in the original MI RCT. In a future feasibility study, recruited participants will have a range of communication difficulties from moderate to severe difficulties.

3.5 Limitations

There have been limitations to the analysis described in this chapter. Firstly, this chapter has presented a secondary analysis, and therefore data was already collected. Due to this, the nature of the data originally gathered was not specific to the questions explored in this analysis.

The FAST is a screening tool designed to detect the presence or absence of communication difficulties, not as a comprehensive assessment of communication. The analysis was therefore limited in the level of detail of communication ability which could be drawn from baseline FAST scores. Data from the original trial using the FAST may not have been comprehensive enough for this secondary analysis to detect specific communication impairments that may have impacted upon mood. Furthermore, the FAST was only administered at admission and therefore was unable to detect any changes in communication over time.

Future trials, should consider more in-depth measures of communication across a number of time points, in addition to an aphasia screening tool. This will allow for any deficits in communication to be detected, as well as to monitor communication over the course of the study. If a comprehensive measure of communication is used in addition to an aphasia screening tool, a more complete explanation of the areas of communication impairment can be gained, and potentially an idea of which areas of communication are required for participation in MI. Therefore, while the analysis of the FAST used in the original MI RCT provided a crude measure of communication, in future studies, a more comprehensive measure of communication should be used to provide a more in-depth understanding of communication ability.

A further limitation to the analysis is that patients in the original MI RCT were excluded if they had severe communication difficulties. This may have been for practical reasons, such as the difficulties these patients would face in completing the study measures and communicating in sessions. Nevertheless, in excluding these patients, the benefit of MI for patients with severe communication difficulties remains unknown. The exclusion of patients with communication difficulties from research studies is not uncommon (Hackett et al. 2005), with inclusion in depression trials even poorer for patients with severe communication difficulties (Townend et al. 2007). However, results of psychological interventions will remain biased and may never be generalizable to patients with moderate to severe communication difficulties without their inclusion. This is therefore an area for a future intervention study to explore.

The GHQ-28 was used to measure mood in the original MI trial. This questionnaire requires patients to have the ability to read, comprehend and appropriately respond to questions, therefore despite its reliability and validity in stroke populations (Lincoln and Flannaghan 2003), its suitability for patients with communication difficulties may be limited. Future studies recruiting patients with more severe communication difficulties than those involved in the original MI trial may require alternative mood assessment tools to suit patient communication needs.

3.6 Summary

This chapter has described a secondary analysis of data from a motivational interviewing RCT trial for patients early after stroke. The chapter has described the original RCT, providing a context for the secondary analysis which has been completed. This study has identified that patients with communication difficulties were able to participate in MI sessions, however we are not sure how severe the communication impairment was before commencing MI, and whether this had an impact on the ability to participate. In addition, due to the exclusion of patients with moderate to severe communication difficulties in the original trial, the level of communication ability required for participation in MI remains unknown and therefore requires further exploration.

In addition, the original trial measured mood using the GHQ-28, a tool validated in patients with normal communication after stroke. However, this tool has not been validated in patients with communication difficulties and therefore may not be appropriate for this group of patients. Furthermore, the suitability of assessing communication using the FAST alone has been questioned in this chapter. As a result, the next chapter will review current aphasia screening tools, comprehensive language batteries and finally mood screening tools to identify applicable tools for patients with moderate to severe communication difficulties after stroke.

Chapter Four: Integrative literature review

4.1 Introduction

Chapter three presented a secondary analysis of data from a previous trial of MI after stroke. Results from the analysis suggested that patients with communication difficulties who participated in MI benefitted in mood at three-months compared to those with normal communication. Communication characteristics of patients recruited to the trial were then further explored. However, there was limited information regarding patients' communication ability, which was taken once at baseline using a screening tool. Therefore the level of communication ability required to participate in MI, and whether MI is suitable for patients with moderate to severe communication difficulties is unknown. The previous chapter highlighted that in order to gain a comprehensive understanding of language functioning, an aphasia screening tool alone may not provide enough information. This reflects the nature of screening tools, which are designed to provide a simple, short assessment of the presence or absence of a feature. An additional measure of communication is therefore required to provide a more comprehensive measure of language function.

In addition, chapter three emphasised the need for an alternative tool for measuring mood for use in a future trial which will recruit patients with more severe communication difficulties. While the previous MI trial used the General Health Questionnaire-28, this may not be suitable for patients with more severe communication difficulties. An alternative tool for mood screening may be required for use in a future feasibility study.

There are a number of tools available for screening and assessing language and mood in stroke patients, however there are fewer tools with evidence supporting their use in patients with post-stroke aphasia. It is therefore unclear which tools are the most suitable for use with patients who have communication difficulties after stroke.

This chapter aims to identifying and evaluate screening and assessment tools currently available and which are suitable for use with patients with post-stroke communication difficulties in a future feasibility study. The review will be divided into three sub-chapters exploring the identification of:

1. Aphasia screening tools
2. Comprehensive language assessment tools
3. Mood screening tools

The tools in this review were individually reviewed using a list of similar pre-defined criteria. These included some of the items mentioned below:

- Quick to administer
- Inexpensive to purchase
- Suitable for administration early post-stroke
- Suitable for administration by a non-SLT
- Valid
- Reliable

All tools used in the feasibility study should be quick to administer, as they will be administered to patients while on an acute stroke ward as well as in the community. In a hospital setting, time for staff to assess patients is often limited. In addition, patients at such an early phase post-stroke may not be able to tolerate lengthy assessments; therefore a quicker assessment may be preferable. In addition, tools should be suitable for administration by a non-specialist due to limited resources for specialists to allocate time for patient assessments. With such restrictions on staff time and availability in many stroke wards, it was felt preferable to select tools which were suitable for any member of the clinical or research team to administer.

Tools should not be expensive, as funds within hospital settings are commonly limited. It was therefore considered an important feature of tools that they should be in keeping with hospital priorities.

Tools should be suitable for administration early post-stroke, which is when patients will be seen in the feasibility study. For this reason, tools were assessed for their suitability for administration early post-stroke.

Integrative Review

Before selecting suitable screening and assessment tools, a review of the current literature is essential. A review establishes;

- The tools currently used and available;
- The properties of these tools;
- The content examined by the tools.

An integrative review allows information to be drawn from a wide range of sources, including different methodologies such as randomised controlled trials, reports or surveys. Traditional systematic reviews or meta-analyses can be more restrictive in the studies included, and may exclude information which is relevant to addressing the research question (Cooper et al. 1993)

Psychometric Properties

For any assessment to be useful clinically, it should be reliable and valid. Psychometric testing describes whether the tool is valid (measuring what it is designed to measure), and reliable (that multiple raters achieve the same result when administering the assessment independent of each other but at the same time, or that the same test will give consistent results when used repeatedly (Streiner and Norman 2008). Tools were also reviewed for their psychometric properties. A description of the properties examined will now be provided.

Validity

A valid tool measures what is says it will measure. There are various measures of validity. Those concentrated on in this review include criterion and convergent.

Criterion validity

Criterion validity considers whether a new measure finds comparable results to a definitive gold standard measurement of the same theme. This, for example, should establish whether the outcomes of a short, quick screening tool of aphasia replicates those of a SLT. The two measures can be compared and the level of agreement of the two discovered. Criterion validity can be divided into concurrent and predictive validity.

In concurrent validity, a test is given independently then compared with an expert opinion such as a clinician who is blinded to the results of the test. Analysis of these results can show how well the test agrees with the diagnosis. Concurrent validity is the most valuable for this review as this will compare aphasia screening against a gold standard. There is no single agreed assessment in this field which is considered to be the ‘gold standard’, therefore the best form of assessment considered in this review is the assessment of a SLT, and is therefore the reference standard. Concurrent validity provides the most accurate assessment of whether a tool is able to accurately diagnose patients correctly, if this validity matched perfectly in its diagnosis. This would also allow the establishment of sensitivity and specificity levels of a diagnosis cut-off point on the tool.

Predictive validity is used when the reference standard is not yet known. However because this review will focus on measures already taken in patients, this is not as relevant and will not be reported.

Convergent validity is also considered in this review. In demonstrating convergent validity, a test should demonstrate similarities with other tests measuring the same construct. For example, that an aphasia screening tool correlates positively against a test known to measure something similar. Divergent validity assumes that a test should not correlate with a measure testing a dissimilar construct. For example, an aphasia screening test should correlate poorly with a test designed to measure a different concept. Although not able to compare diagnosis of a problem such as communication difficulties, a suggestion that the tool is similar to others designed for a similar purpose would provide strength in its suitability.

Diagnostic accuracy is one method of assessing validity, measuring sensitivity and specificity, and NPV, PPV and overall accuracy (Parikh et al. 2008). In exploring these properties, the utility of the tool in diagnosing the presence of a problem, such as low mood, can be assessed.

Sensitivity and specificity

Sensitivity refers to the proportion of true cases (where the disease is present). For example, when compared to a reference standard, sensitivity would be demonstrated if the tool correctly identifies those with low mood. Specificity refers to the proportion of true non-cases (where the disease is not present). For example, in assessing low mood, the ability of the tool to correctly identify those who do not have low mood.

Positive and negative predictive values

Ideally, a test will always give an accurate result, with a positive test each time the disease is present, and a negative test when the disease is not present. However in reality diagnostic accuracy is unlikely to be perfect. Positive predictive value (PPV) and negative predictive value (NPV) are measures which are based on individual patient test results. With a positive test, the PPV is the percentage of patients who actually have the disease. A higher figure suggests the test is measuring accurately. The NPV is the percentage of patients with a negative test who do not have the disease. Again a higher NPV score is desirable. On occasions where the test incorrectly confirms the presence of a disease, this is known as a false positive. Alternatively, it the test incorrectly diagnoses the disease as absent, this is known as a false negative. A more sensitive test would be able to reduce the number of false positives, similar to the way sensitivity aims to ‘rule out’ the disease. A more specific test improves the PPV by reducing the number of false positives, similar to the way specificity can ‘rule in’ the disease.

Establishing a cut-off point will provide a threshold score to distinguish between the two groups (with and without the disease). In this review, results of ROC curves as well as diagnostic odds ratios (Glas et al. 2003) will be considered in identifying suitable levels of sensitivity and specificity. An odds ratio value of 1 indicates the test does not discriminate. Higher values indicate superior test performance.

Face Validity

Face validity refers to simply exploring whether a tool appears, at face value, to measure what it reports to measure. For example, a tool for depression which asks participants about their preferred mode of transport may not be seen to have face validity, because on the surface, the items do not appear related to the key construct of depression. Face validity is considered a more subjective measure, and therefore for the purpose of this review it has not been examined.

Reliability

Test-retest reliability is desired evidence for an aphasia screening tool, and is the primary focus of reliability in this review. Evidence of test-retest reliability would indicate that when a test is completed a number of times, it could accurately assess the given issue with consistent results. In this review, test-retest reliability could show that a patient assessed on two occasions with the same tool would give the same diagnosis. However, due to the potentially fluctuating nature of speech and language, especially in the acute stage after stroke, this may be difficult to demonstrate. Test-retest reliability assumes that the area being measured is constant, which may not be the case in patients with communication difficulties after stroke. Speech may fluctuate from measures taken from one time-point to the next, making test-retest reliability difficult to establish. For this reason, while it will be taken into consideration in this review, it was not a necessary requisite for tool selection. In order to assess test-retest reliability, measures of Pearson correlation or rank correlation were taken into account. Alternatively, intra-class correlations (ICC) were also accepted.

Inter-rater reliability will also be explored in this review. This would establish that different individuals assessing the presence or absence of aphasia in the same patient would come to the same conclusion. This establishes that the test is stable and valid for use by different members of the stroke team qualified to different levels. As a measure of inter-rater reliability, Kappa statistics and ICCs were accepted, as well as Kendall's index of concordance (w) for ordinal scales and Bland-Altman plots.

Tools were considered valid if they reached adequate sensitivity (80%) and specificity (60%) levels (Lincoln and Flannaghan 2003). Rating of other psychometric properties was taken from (Salter et al. 2005)

Identification and evaluation of papers

Each sub-chapter has used a similar strategy of identification and evaluation papers, with adaptations made to search terms and inclusion/exclusion criteria as appropriate. Within each search, papers were identified initially using electronic databases. Once identified, papers were filtered initially on title and abstract, with some papers being read in full. The references of selected papers were hand searched to identify further relevant papers.

Selected papers were evaluated using a critical appraisal tool. A critical appraisal tool reduces potential researcher bias, for example in positively evaluating studies which are consistent with the researcher's beliefs, and negatively evaluating those which are not (Russell 2005). An evaluation tool can thus increase the validity of findings. In this review, the Standards for Reporting of Diagnostic Accuracy (STARD, Bossuyt et al. 2003) has been utilised. The STARD checklist can be used to,

"*verify that all essential elements are included in the report of a study*" (Bossuyt et al. 2003, p.8)

Once evaluated, the standard of methodological quality reported in the study was described in the review.

Following selection of the final papers, a similar process of data extraction took place for all three sub-chapter reviews. Initial descriptions of tools were carried out, followed by a description of sample characteristics and psychometric properties of the tool from studies assessing the psychometric properties of the tool.

A final summary table was then constructed for each review, presenting whether each tool demonstrated whether they met the pre-defined criteria. In considering all available evidence for each tool, a final identification of the most suitable tools was then carried out.

In addition to evidence presented in the main paper for the tool, evidence from further papers evaluating the tool will also be considered.

The three reviews will now be presented individually.

4.A: Literature Review A: Aphasia Screening Tools

4.A1 Background

Data from a previous trial of MI early post-stroke suggested that patients with communication difficulties may have shown a benefit in mood outcome at three-months, more than those with normal communication, or those receiving usual care (Watkins et al. 2007) .

In this trial, patients with mild to moderate communication difficulties were recruited and took part in MI sessions. Communication was measured using the Frenchay Aphasia Screening Test (FAST), an aphasia screening tool. This study was limited in the measure of communication, using only the FAST at baseline. This provided limited information and no follow-up measure to monitor communication changes.

In order to explore these findings further, a feasibility study providing MI to patients with a greater level of communication impairment, including patients with moderate to severe communication difficulties was undertaken. This required an aphasia screening tool that would identify participants with moderate to severe post-stroke aphasia.

A suitable aphasia screening tool should be quick and easy to use, allowing non-SLT specialists the opportunity to administer the screen. This would allow increased opportunities for the tool to be used in an acute and post-acute setting, where SLT staff often have limited time or availability. In addition, the screening tool should have proven reliability and validity for use in a stroke population. A literature review was carried out to identify suitable aphasia screening tools for the next phase of the study.

A previous review of aphasia screening tools (Salter et al. 2006) identified six screening tools after searching published research specific to stroke. Based on an evaluation of the psychometric and administrative properties of each of these tools, the FAST was identified as the most suitable tool for use in patients post-stroke. Further to this, a more recent systematic review of nursing rehabilitation in stroke patients with aphasia came to a similar conclusion, finding that both FAST and Ullevaal Aphasia Screening (UAS) tools were suitable screening tools for use in patients post-stroke (Poslawsky et al. 2010).

For the purpose of this study, an updated review of aphasia screening tools will be undertaken.

Aim

This chapter describes a literature review allowing the identification an aphasia screening tool suitable for use in stroke patients with communication difficulties.

4.A2 Methods

Search strategy

A search strategy was designed to search electronic databases. This search strategy was then adapted for individual databases, including OVID Medline, PsychINFO, CINAHL and the Cochrane Database. Search terms were also used for free text searching using Google Scholar. Search terms used included Aphasia, Language Disorders, Communication Disorders, Stroke, Cerebrovascular Disorders, Language Tests, Questionnaire, Sensitivity and Specificity, and Psychometrics (see Appendix 1 for the full CINAHL search strategy). In addition, references from key texts were forward and backward searched to allow identification of other relevant papers.

Inclusion criteria

Papers were included if they:

- Evaluated an aphasia screening tool;
- Assessed stroke patients;
- Included adults;
- Were published in English.

Exclusion criteria

Papers were excluded if they:

- Had no inclusion of stroke patients with aphasia;
- Related to non-stroke disorders including neurological patients, dementia patients, elderly;
- Related to developmental language disorders, stammering, dysphagia;
- Evaluated the benefit of speech and language therapy on aphasia;
- Explored brain localisation relating to aphasia;
- Not published in English (due to requirement of interpreter);
- Evaluated a comprehensive language assessment;
- Related to outcomes of caregivers of a person with aphasia;
- Related to drug trials for aphasia.

Table 4.A1 below details the assessment of tools. The left column lists the desired tool criteria, and the right column provides information of how papers could provide evidence to show they met this criteria.

Table 4.A1: Desired tool criteria and data extraction for aphasia screening tools

Criteria Number	Desired Tool Criteria	Requisite Decision Criterion
1	Able to assess a range of language abilities.	Tool subscales.
2	Quick and easy to administer.	Time to administer (≤10 minutes).
3	Suitable for administration by a non-SLT.	Who administered the tool.
4	Validated in stroke patients.	Criterion validity including concurrent validity (correlation criteria: excellent ≥0.60, adequate 0.31-0.59, poor ≤0.30). Measures of sensitivity, specificity (criteria: sensitivity >80%, specificity >60%), positive predictive value (PPV), negative predictive value (NPV), overall accuracy. Convergent validity (correlation criteria: excellent ≥0.60, adequate 0.31-0.59, poor ≤0.30).
5	Reliable.	Test-retest reliability (ICC or Kappa statistics criteria: excellent ≥0.75, adequate 0.40-0.74, poor ≤0.40). Inter-rater reliability (as above).
6	Suitable for repeated use over time.	Note repeated administrations and any reported learning effects.

SLT=Speech and language therapist. ICC=Intra-class correlation coefficient

Information required for decision that criterion was met

The first stage of data extraction was to provide a generalised description of each aphasia screening tool, where data was initially extracted from a main paper describing the tool. Criteria 1-3 are presented in Table 4.A2.

The properties of the sample used within the main study are then described in Table 4.A3. This describes whether patients had a stroke and aphasia, and their age. It also details the date the test was given post-stroke. In the overall comparison of tools, the sample information presented in all papers for each tool was considered. Therefore, while the main paper may lack details about the sample properties, other papers evaluating the same tool may provide this information.

The next stage of data extraction involved examining the psychometric properties of the tools, which were then recorded from papers assessing the psychometric properties of the tool with stroke patients. This data is provided in Table 4.A4 and includes test-retest reliability, sensitivity and specificity, and discriminant or concurrent validity.

Finally, the aphasia screening tools were also evaluated for feasibility and utility when used in an acute stroke setting. This involved summarising results from the previous tables in a simple tick box format. Tools meeting the desired criteria were judged to be the most suitable for use in stroke patients with communication difficulties in a future trial. This data is shown in Table 4.A5.

In addition to evidence presented in the main paper for the tool, evidence from further papers evaluating the tool will also be considered (see Appendix 2 for the full table of evidence)

4. A3 Results

The search began in electronic databases (MedLine, CINAHL, PsychInfo and the Cochrane Library). This was supplemented by free text searching using Google Scholar. Following this search strategy, 846 articles were identified. Articles meeting inclusion criteria were read in full (n=44). References of key articles were read to allow identification of additional relevant papers. Overall, a total of 14 papers were included in the final selection. This review process is summarised in the flow chart in Figure 4.A1.

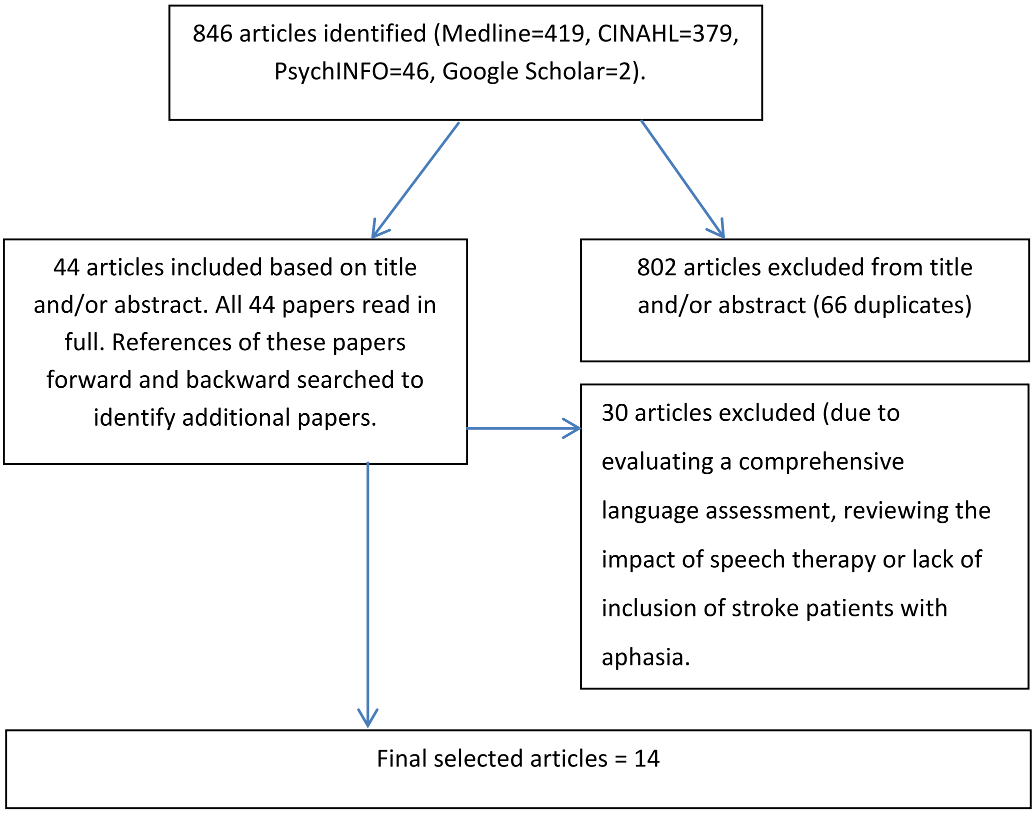


Figure 4.A1: Article identification Strategy for Literature Review a: Screening Tools for Post-Stroke Aphasia

From the final fourteen papers reviewed, a total of seven aphasia screening tools for aphasia were identified. These include:

- Frenchay Aphasia Screening Test (FAST);
- Sheffield Screening Test (SST);
- Ullevaal Aphasia Screening Test (UAST);
- ScreeLing;
- Mississippi Aphasia Screening Test (MAST);
- Addenbrooke’s Cognitive Examination – Revised, Language section only (ACE-RL);
- Language Screening Test (LAST).

Although there may be other aphasia screening tools used in clinical practice, this review has focused only on tools which have published evidence of their properties available. A number of tools were mentioned in the literature, however if there was insufficient reporting of the tool characteristics or of methods of administration of the tool, the tool was excluded from the review.

A generalised description of each of the seven tools is presented in Table 4.A2. Table 4.A3 presents the sample descriptors of papers administering each of the tools. Table 4.A4 presents psychometric properties of tools. Finally, Table 4.A5 presents a summary of the overall desired tool criteria, highlighting which criteria the aphasia tools fulfil.

Table 4.A2: Generalised Description of Aphasia Screening Tools as identified in Literature Review

Screening Tool	Subscales	Time Required	Equipment Involved	Maximum Score	Administration
Frenchay Aphasia Screening Test	Four subscales: comprehension, expression, reading, writing	3-10 minutes	Double-sided visual picture cue card	30	Non-SLT specialist
Sheffield Screening Test	Two subscales: expressive language, receptive language	10 minutes	No equipment – verbal screen	20	Non-SLT specialist
Ullevaal Aphasia Screening Test	Seven subscales: comprehension, expression, reading, repetition, reproduction of a string of words, writing, free communication	5-15 minutes	Picture stimulus card. In cases of severe aphasia, actual objects are used instead of the picture card	None (Patients are instead classified for each subscale as 'normal' or 'impaired', then given one of four outcome classifications of normal language, mild, moderate or severe language disorder	Non-SLT specialist
ScreeLing	Three subscales: semantics, phonology, syntax	15 minutes	No equipment – verbal screen	72	Not stated

Mississippi Aphasia Screening Test	Nine subscales: naming, automatic speech, repetition, yes/no accuracy, object recognition from a field of five, following verbal instructions, reading instructions, verbal fluency, writing and spelling to dictation	5-10 minutes	Photograph, five written instructions, five everyday objects	100	Non-SLT specialist (Experienced healthcare professional)
Addenbrooke's Cognitive Examination-Revised Language Component	Five subscales: naming, comprehension, repetition, reading, writing	2-5 minutes	Sheet with written words and instructions and pictures	26	Non-SLT specialist (Persons trained in ACE-R administration)
Language Screening Test	Five subscales: naming, repetition, automatic speech, picture recognition, following verbal instructions	2 minutes	Single sheet with picture cues for the patient	15	Non-SLT specialist

SLT=Speech and Language Therapist, ACE-R=Addenbrooke's Cognitive Examination-Revised

Aphasia Screening Tools

Frenchay Aphasia Screening Test (FAST)

Content

The FAST covers the broad spectrum of language abilities including subscales of expression, comprehension, reading and writing. The FAST uses a double-sided cue card around which questions are framed for each of the subscales.

Sample

Evidence from studies which have evaluated the use of the FAST included both stroke patients (Enderby et al. 1987; Enderby and Crow 1996; O'Neill et al. 1990; Al-Khawaja et al. 1996), as well as providing normative data from healthy adults (Enderby et al. 1987).

Administration

The FAST has evidence of administration from one day post-stroke (O'Neill et al. 1990). While some papers reported the FAST was administered by a SLT, this was for the purpose of research. Within clinical practice the FAST is suitable for administration by a non-SLT specialist. In all cases, the FAST has been shown to be quick and easy to use, with an administration time between 3-10 minutes.

Reliability

The psychometric properties of the FAST have been supported across a number of studies that provide support for the reliability of the tool. Evidence for the tool highlights strong test-retest reliability (Kendall's coefficient of concordance=0.97 (Enderby et al. 1987) for patients (n=9) with chronic aphasia who were tested on two occasions by the same observer, therefore demonstrating intra-rater reliability. However, the length of time between administrations is not reported. This result was further supported in thirty stroke patients who were seen at an average of 90 days post-stroke, and were tested an average of 24 days apart. Again, strong test-retest reliability was found (Kendall's coefficient of concordance =0.97 (Enderby et al. 1987).

Inter-rater reliability was tested with chronic stroke patients (n=17) by three independent observers, including a SLT, a doctor, and a research assistant. An excellent level of reliability was found between the three (Kendall's coefficient of concordance =0.97, $p<0.001$).

Validity

The FAST has shown concurrent validity through comparisons with other well established speech and language assessments. These include strong correlations with the Functional

Communication Profile (FCP), with a correlation coefficient (r) of 0.87 (p<0.001) (Enderby et al. 1987). The FCP is a structured interview carried out by a SLT, allowing the therapist to come to a clinical decision regarding the nature of the individual's impairment. In patients with chronic aphasia a similar result occurred, with a correlation coefficient (r) of FAST and FCP scores of 0.96 (p<0.001) (Enderby et al. 1987). While the study found good levels of concurrent validity, the result may be limited by the large time difference between the administration of the two tests (3-7 weeks). This time difference between tests limits the certainty of the diagnostic accuracy of the test, making it difficult to distinguish whether differences in results are due to the diagnostic sensitivity of the tool, or whether they are due to differences in language ability which may have altered over time.

Convergent validity of the FAST with similar language assessments including the FCP and Minnesota Test for the shortened Differential Diagnosis of Aphasia (MTDDA) have been demonstrated (Enderby and Crow 1996). Excellent positive correlations were found between the FAST and FCP (0.73, p<0.001) and MTDDA (0.91, p<0.001).

The sensitivity and specificity of the FAST have been established for acute stroke patients (O'Neill et al. 1990). Using a cut-off of 25/30, scores improved from administration one day post-stroke (sensitivity 96%, specificity 61%), to seven days post-stroke (sensitivity 100%, specificity 79%). This result suggests that the FAST is suitable for administration early post-stroke.

Similarly, another study supports high levels of sensitivity and specificity of the FAST (87% and 80% respectively (Al-Khawaja et al. 1996). While the study suggests the tests were administered early post-stroke, the exact time is not documented, which is a limitation of the study. A further limitation is that only comprehension and expression subscales of the FAST were administered. This limits the generalisablity of the results.

Additional Information

While the FAST has demonstrated good psychometric properties, there are areas where the test may be limited in its application to a stroke population. Due to the use of the visual cue cards, the FAST potentially restricts the use of the test in patients presenting with visual field deficit or visual neglect. The test also requires patients to write. Patients who had had their dominant hand affected by the stroke may struggle to complete this task due to a physical disability, rather than a communication difficulty.

In addition, evidence for the FAST may be limited due to the often minimal amount of description provided in papers. In some papers, information such gender of participants

(O'Neill et al. 1990), or time of administration from stroke date (Al-Khawaja et al. 1996) is not reported, therefore reducing the generalizability of this information.

However, the FAST is one of the few tools identified in this review which has evidence to support the repeated use of the test without learning effects. The FAST is also the only test to stratify scores based on respondent age, identifying that elderly patients may require an alternative cut-off score to provide more accurate discrimination of those with communication difficulties. This stratified scoring may allow increased accuracy of diagnosis when testing patients across a wide age range. Within a review of aphasia screening tests, the FAST has been reported to be the most thoroughly evaluated tool relating to evidence of reliability and validity (Salter et al. 2006).

Sheffield Screening Test (SST)

Content

The SST measures subscales of language including both expressive and receptive language. Little more information has been reported in the literature to describe the nature of these subtests.

Sample

The SST has been used in a large stroke sample (n=112) (Blake et al. 2002). There is additional supporting evidence for the SST being used in stroke patients (Al-Khawaja et al. 1996).

Administration

There is evidence supporting the administration of the SST early post-stroke, with one study administering the test within four weeks post-stroke (Blake et al. 2002). The SST is designed for administration by a non-SLT specialist, however published evidence does not report who administered the test. The SST is reported to take approximately 10 minutes to complete.

Reliability

There is no published evidence supporting reliability, or repeated use of the test.

Validity

There is some evidence providing psychometric data supporting the SST. Using a cut-off of <15 of a maximum 20, levels of sensitivity and specificity were shown to be high for the SST administered in the early stages post-stroke (within four weeks), with sensitivity 89% and specificity 88% (Blake et al. 2002b). Additional evidence supports this result, finding higher levels of sensitivity and specificity when compared to the FAST (89% and 100% respectively (Al-

Khawaja et al. 1996). This study explored the mean total scores of both tests, finding no significant differences between the FAST (9.7) and SST (9.4). This result suggests evidence for concurrent validity of the SST.

Additional Information

The description of the SST in the main study is limited, making it difficult to gain a comprehensive understanding of what the test entails.

The methods of delivering the SST presented in the main study (Blake et al. 2002) have a number of short-comings. There is a lengthy time delay between administration of the SST and other language assessments, with a time difference of up to three-months. This length of time between tests limits the certainty of the diagnostic accuracy of the SST. With such an extensive delay in tests, it becomes unclear whether differences in results are due to the diagnostic sensitivity of the tool, or whether they are due to differences in language ability which may have altered over time.

There is no further published evidence of papers evaluating the SST found within this review, leaving limited evidence to support the tool's characteristics and overall suitability.

Ullevaal Aphasia Screening Test (UAST)

Content

The UAST measures language using seven subtests including comprehension, expression, reading, repetition, reproduction of a string of words, writing, and free communication.

Sample

The UAST has evidence for administration in stroke patients although within a small sample size (n=37) (Thommessen et al. 1999).

Administration

The UAST was administered early post-stroke, between 3-8 days of stroke onset, and was developed for administration by nurses. Therefore a non-SLT specialist can administer the test, which is reported to take between 5-15 minutes.

Reliability

There is a 86% overall agreement on inter-rater reliability studies among the six nurses administering the UAST.

Validity

UAST was compared against a SLT assessment of language. Both tests were taken within 3 days of one another, minimising error in diagnostic accuracy. Concurrent validity of the UAST was assessed, with the UAST compared to a SLT assessment. An excellent level of agreement was found (weighted kappa coefficient= 0.83). Nurse administration of the UAST led to a sensitivity of 75%, and specificity of 90%.

Additional Information

While the initial evidence appears to support the diagnostic accuracy and practical feasibility of the UAST as an aphasia screening tool, there are a number of limitations to consider. It should be noted that the results of the properties of this tool are limited to a single study (Thommessen et al. 1999), carried out by the author of the tool. Further evidence is therefore required to support such results. In addition, the tool was designed for use in Norway, with currently no evidence to support the use of the tool in English speaking patients.

ScreeLing

Content

Each subscale consists of 24 items, with each subscale comprising of four tasks. While not described in full, these tasks are named within the main paper, for example, Semantic Test 1: word-picture matching.

Sample

Due to the early administration of the test, one hundred and four patients were eligible for the study. However 39% of these patients could not complete the test during this early phase post-stroke due to illness, visual difficulties or confusion (Doesborgh et al. 2003). Included in the study were acute stroke patients (n=63), seen between 2 and 11 days post-stroke. This result suggests ScreeLing may not be suitable for administration early post-stroke. However, both chronic and acute stroke patients were involved in a later study evaluating the ScreeLing (El Hachioui et al. 2012). The ScreeLing was administered in patients with both chronic stroke and aphasia (n=12) and acute stroke patients with aphasia (n=141) as well as healthy controls (n=138).

Administration

The ScreeLing was administered early post-stroke, with administration between 2-11 days post-stroke. The person administering the ScreeLing is not described in the main study, however in a more recent study the ScreeLing was administered by a SLT.

Reliability

The main study does not report reliability levels. In a more recent study (El Hachioui et al. 2012), test-retest reliability was demonstrated for chronic stroke patients (n=23) using Bland-Altman plots. However, this is not replicated for acute patients.

Validity

The main study suggests a cut-off of 65/70, providing a sensitivity of 86% and a specificity of 96%, with an AUC (0.92) suggesting test accuracy.

A more recent evaluation of the ScreeLing suggested a cut off of 68/70, leading to sensitivity of 94%, specificity of 81%, and overall accuracy of 88%. This study also found excellent concurrent validity between the ScreeLing and the Token Test (Pearson correlation coefficient 0.88) and the Spontaneous Speech Rating (Spearman's correlation coefficient 0.73) suggesting the tests have similarities. ROC analysis in this study indicated the ScreeLing was capable of discriminating between patients with aphasia and normal controls with accuracy (0.94).

Additional Information

While the ScreeLing shows good psychometric properties, evidence for this tool is limited, with only two published studies identified in the review (El Hachioui et al. 2012; Doesborgh et al. 2003), therefore any conclusions around the use of the tool must be considered carefully until further supporting evidence is published. The ScreeLing is a test originally developed for Dutch patients, and a translation into English has yet to be tested in stroke patients. Therefore the use of this test should be considered with caution.

It is also of concern that a large proportion of eligible patients in the main study were not able to complete the test early post-stroke. The suitability of administering the test during this acute phase post-stroke must be held in question until further supporting evidence is available.

Mississippi Aphasia Screening Test (MAST)

Content

The MAST measures nine subscales of language including naming, automatic speech, repetition, yes/no accuracy, object recognition from a field of five, following verbal instructions, reading instructions, verbal fluency, writing and spelling to dictation.

Sample

The MAST was administered to patients (n=58) who had suffered a stroke within 60 days therefore there is no evidence to support its use in the early stages post stroke of within 30 days. Patients who had suffered a bilateral stroke (n=10) were excluded. Patients were not approached consecutively, as only patients who had received neuropsychological consultation and who received the MAST as part of the bedside examination, or those who fully completed the MAST were included. A group of non-patient control participants were also recruited. There are therefore a number of limitations with this study sample.

Administration

The test itself can be administered by a non-SLT specialist; however the single published study describing evaluation of the MAST reported a neuropsychologist or specially trained psychometrician as administering the MAST to stroke patients (Nakase-Thompson et al. 2005). However, when the MAST was administered to non-patients, occupational therapy students trained in MAST administration were used. The test is reported to be quick to administer, taking 5-10 minutes.

Reliability

The reliability of the MAST was not reported.

Validity

The focus of validation within this study was in describing criterion validity. The paper identified the ability of the MAST to discriminate patients with left or right hemisphere damage post-stroke. The paper does not report the accuracy with which the MAST could accurately discriminate those with and without aphasia.

Additional Information

The evidence of the properties of this tool is limited to a single study (Nakase-Thompson et al. 2005), carried out by the author of the tool. The MAST is limited by the lack of evidence supporting test-retest reliability, inter-rater reliability or validity. The MAST was shown to be able to distinguish left to right hemisphere stroke patients, as well as differentiating healthy non-patients from stroke patients; however reliability and validity of the tool were not explored.

In addition, the test was developed for use by patients in the United States, and items are phrased to suit American-English speakers. For example, one question asks for the patient to finish the sequence, “I pledge allegiance to the …”, with a correct response of “Flag”. While this may be a familiar statement for American patients, this may not be suitable for English patients.

The MAST therefore requires further evidence in a number of areas to provide support for the suitability of the tool in a future feasibility trial.

Addenbrooke’s Cognitive Examination-Revised (Language component only) (ACE-RL)

Content

The ACE-RL is a subsection of a commonly used, well validated tool for diagnosing the presence of cognitive impairment, the ACE-R (Mioshi et al. 2006). This sub-section consists of five subscales of language assessment including; naming, comprehension, repetition, reading, and writing. The ACE-RL uses a number of visual and verbal cues to illicit responses to questions around each of the subscales.

Sample

The tool has limited evidence to support its use as an aphasia screen in stroke patients, with only one study including patients known to have post-stroke aphasia (Gaber et al. 2011). Patients in this study, n=59, received the ACE-RL between 3-7 days from stroke onset.

Administration

The test is described as suitable for administration by a non-SLT. The main study describes administration by two junior doctors who had received training in ACE-R administration (Gaber et al. 2011). The time for administration is one of the quickest of all tools identified in this review, taking approximately 2-5 minutes.

Reliability

There is no published evidence regarding reliability of the ACE-RL.

Validity

The main paper examined both sensitivity and specificity, with a cut off of 22/26 leading to sensitivity of 100% and specificity of 83.1%. An alternative cut point of 20/26 found high levels for both sensitivity and specificity (90% and 95% respectively). The comparison for the ACE-RL was a SLT assessment. Both testers were blinded to the results of one another, and both tests were administered within two days of each other.

Additional Information

The main paper (Gaber et al. 2011) acknowledges the potential limitation of practice effects from repeated use of the test. Further studies are required to support the findings, as well as to explore reliability of the test.

Language Screening Test (LAST)

Content

The LAST tool measures five subscales of language including naming, repetition, automatic speech, picture recognition, following verbal instructions. The tool assesses both expression and comprehension abilities.

Sample

There is evidence to support the use of the tool in both acute (n=300 tested within 24 hours of hospital admission) and chronic (n=104) stroke patients. There is additional support for the tool being administered to stroke patients (Flamand-Roze et al. 2011).

Administration

The LAST was designed for administration by a non-SLT specialist, with evidence supporting the use of the test within 24 hours from hospital admission by a SLT, a nurse, a student or a neurologist (Flamand-Roze et al. 2011). Administration itself takes approximately 2 minutes, making it the quickest tool to administer of all tools identified in this review.

Reliability

Inter-rater reliability of the tool was shown to be excellent (ICC, 0.998) across the four raters (Flamand-Roze et al. 2011).This suggests the tool is suitable for administration by a non-SLT.

Validity

Both sensitivity and specificity of the LAST were calculated against the Boston Diagnostic Aphasia Evaluation (BDAE). However this was only carried out using data from chronic patients. Both sensitivity and specificity were shown to be high when administered in 102 chronic stroke patients, including patients with aphasia (n=52) (98% and 100% respectively (Flamand-Roze et al. 2011). The validity for acute patients has not been reported.

Additional Information

It should be noted that the results of the properties of this tool are limited to a single study (Flamand-Roze et al. 2011), carried out by the author of the tool. While there is evidence to support the use of the LAST within 24 hours of hospital admission, the paper does not report the time from stroke onset to admission. This delay between the two may have an impact on LAST results. Therefore the results must be taken with caution as it is unclear at what point post-stroke the test was administered.

The BDAE was used as the reference standard aphasia test, referred to within the paper as the ‘gold standard’, however this may be another limitation of the study. While the BDAE is a well-used test, there is little published evidence available to support the psychometric properties of it. As there is no commonly agreed ‘gold standard’ test currently available, a SLT assessment may have been the most appropriate basis for comparison.

The sensitivity and specificity of the LAST were calculated based on chronic stroke patients; therefore it is unknown how suitable the tool would be for use in early post-stroke aphasia. Further validation studies need to be undertaken that includes acute stroke patients to gain an understanding of the validity of the tool in this patient group.

The test has two versions which can be administered, both of which have been partially validated. This would allow an alternative test to be used in repeated testing, reducing the potential for learning effects on repeat administration.

Table 4.A3: Sample description of main paper evaluating aphasia screening tools identified in literature review

Tool	Paper taken from	Sample	Age	Date of screen post stroke
FAST	(Enderby et al. 1987)	Total n=50 Stroke n=50 (100%) Aphasia n=20 (40%)	Not stated	8 days post-stroke
SST	(Blake et al. 2002)	Total n=112 Stroke n=112 (100%) Aphasia n=43 (38%)	70.8 Mean 38-92 range 12.2 S.D.	Within 28 days post-stroke
UAST	(Thommessen et al. 1999)	Total n=37 Stroke n=37 (100%) Aphasia n=9 (24%)	75.5 years, range 45-96 years	3-8 days post-stroke
ScreeLing	(Doesborgh et al. 2003)	Total n=63 Stroke n=63	62 Mean 16 S.D.	2-11 days post-stroke
MAST	(Nakase-Thompson et al. 2005)	Total n=94 Stroke n=58 (62%) Aphasia n=38 (40%, based on LH stroke)	Non-patient=46.6 Mean, 19.2 S.D. Left hemisphere stroke 61.7 mean, 12.7 S.D. Right hemisphere stroke, 58.7 mean, 15.7 S.D.	Within 60 days of stroke onset
ACE-RL	(Gaber et al. 2011)	Total n=59 Stroke n=59 (100%)	72 mean 11.9 S.D.	3-7 days from stroke onset

		Aphasia n=32 (54%)		
LAST	(Flamand-Roze et al. 2011)	Total n=102 Stroke n=102 (100%) Aphasia n=50 (49%)	Age=62.6 mean	Within 24 hours of admission

FAST=Frenchay Aphasia Screening Test, SST=Sheffield Screening Test, UAST=Ullevaal Aphasia Screening Test, MAST=Mississippi Aphasia Screening Test, ACE-RL=Addenbrooke's Cognitive Examination – Revised, Language Component, LAST=Language Screening Test. S.D.=Standard deviation. LH=Left hemisphere.

Table 4.A4: Psychometric properties of main paper describing the tool

Tool	Paper taken from	Cut-off	Concurrent validity: Sensitivity Specificity	Reliability (Test-retest)	Convergent validity
FAST	(Enderby et al. 1987)	25/30 or 27/30 (age dependent cut-off points)	Not reported	Test-retest reliability - Chronic patients tested found Kendall's coefficient of concordance =0.97.	Correlation coefficient (r) between FAST and FCP based on assessment of acute patients r=0.87 <0.001. Tests within 3 days. Chronic patients tested 1-3.5 years post-stroke with 3-7 weeks between each test. (r=0.96, p<0.001)
SST	(Blake et al. 2002)	<15/20	Sensitivity 89% Specificity 88% PPV=Not stated NPV=Not stated Overall accuracy=Not stated	Not reported	Not reported
UAST	(Thommessen et al. 1999)	N/A	Sensitivity 75% Specificity 90% PPV=67% NPV=93%	Inter-rater reliability =86%	Coefficient of agreement, weighted kappa = 0.83 agreement between nurse

			Overall accuracy=86%		
ScreeLing	(Doesborgh et al. 2003)	65/72	Sensitivity 86% Specificity 96% PPV=Not stated NPV=Not stated Overall accuracy=Not stated	Not reported	Not reported
MAST	(Nakase-Thompson et al. 2005)	<88/100	Not reported	Not reported	Not reported
ACE-RL	(Gaber et al. 2011)	20/26	Sensitivity 90% Specificity 95% PPV=Not stated NPV= Not stated Overall accuracy= Not stated	Not reported	Not reported
LAST	(Flamand-Roze et al. 2011)	<15/15	Sensitivity 98% Specificity 100% PPV= Not stated NPV= Not stated Overall accuracy= Not reported	Not reported	Not reported

FAST=Frenchay Aphasia Screening Test, SST=Sheffield Screening Test, UAST=Ullevaal Aphasia Screening Test, MAST=Mississippi Aphasia Screening Test, ACE-RL=Addenbrooke's Cognitive Examination – Revised, Language Component, LAST=Language Screening Test. N/A=Not applicable.

Table 4.A5: Practicalities of using an aphasia screening tool in an acute stroke setting

	Able to assess broad range of language abilities	Quick and easy to administer	Suitable for non-SLT administration	Tested in stoke patients	Concurrent/ convergent validity	Reliable (Test-retest)	Inter-rater reliability	Suitable for repeated use
FAST	✔	✔	✔	✔	✔	✔	✔	✔
SST	✔	✔	✔	✔	✔	X	X	X
UAST	✔	X	✔	✔	✔	X	✔	X
ScreeLing	✔	X	X	✔	✔	✔	X	X
MAST	✔	✔	✔	✔	X	X	X	X
ACE-RL	✔	✔	X	✔	✔	X	X	X
LAST	✔	✔	✔	✔	✔	X	X	X

FAST=Frenchay Aphasia Screening Test, SST=Sheffield Screening Test, UAST=Ullevaal Aphasia Screening Test, MAST=Mississippi Aphasia Screening Test, ACE-RL=Addenbrooke's Cognitive Examination – Revised, Language Component, LAST=Language Screening Test. SLT=Speech and language therapist.

4.A4 Discussion

The purpose of this review was to select a suitable aphasia screening tool for use in a feasibility study. Following review of the available published evidence, seven tools were evaluated against a list of pre-defined criteria, as well as through evaluating the methodological quality of papers using critical appraisal tools. Each of the seven tools was evaluated on tool characteristics, evidence of study sample, practical administrative properties, and finally evidence of the psychometric properties of the tools.

All seven screening tools could be administered between 2-15 minutes. Six of the seven tools could be administered by a non-SLT, allowing other members of the stroke team to administer the test. A short administration time, in addition to the potential for the tool to be administered by a non-SLT would allow for quicker screening to take place. Ultimately, this allows the patient to receive immediate support rather than waiting for a SLT assessment, which may be delayed due to the limited availability of SLTs within the stroke ward.

The review identified that all tests had evidence to support their administration within a stroke population. While five of the tools had evidence to support their use in acute stroke patients, the MAST lacked evidence and the ScreeLing was shown to be suitable for not all acute stroke patients, suggesting these tools may be more appropriate for post-acute stroke patients.

The information gathered in this review has been summarised in Table 4.A5 which demonstrates that the only tool meeting all of the pre-defined criteria of a suitable screening tool is the FAST. This finding supports previous reviews which have also reported that the FAST tool is the most suitable for use in stroke patients (Salter et al. 2006).

The FAST meets all the criteria set out for an acceptable screening tool for aphasia. The test measures the key areas of communication, expression, comprehension, reading and writing. It is quick to administer, with a non-SLT able to complete the test in less than ten minutes. The FAST has proven validity, demonstrated through studies which have included both acute and chronic stroke patients. The FAST also has proven inter-rater reliability as well test-retest reliability. This finding supports the decision for the FAST to be used as a screening tool in a future trial involving stroke patients with post-stroke aphasia. The FAST is also the only tool shown to have no learning effects following repeated use. While the FAST has limitations, on balance with the strengths of the tool, it is felt the FAST is the most suitable aphasia screening tool to use in a future trial.

4.A5 Limitations of the studies included

There are a number of limitations to the studies included in the review. The studies varied in quality, including one study which selected participants non-consecutively, with others recruiting chronic rather than acute stroke patients. As a result, findings such as these may not be generalizable to other clinical populations.

In addition, within speech and language research, there is no single language battery which is considered the 'gold standard' assessment. Rather, a speech and language therapist's assessment is the closest to a 'gold standard' of assessing communication ability. In studies where the tool was instead compared against a language battery as the 'gold standard' measure of communication there are limitations to the validity of the results. Without proved reliability and validity of the language battery used as the comparison measure, an accurate comparison of presence or absence of communication difficulties is limited. The results must therefore be taken with caution. Of the seven tools reviewed, the MAST provided the weakest quality of methodological research, being the only tool which had not been directly compared for diagnostic accuracy against any other measure. This therefore limited the validity of the evidence of the tool.

There were papers included in this review that lacked the reported detailed methodology used within the study to provide a full understanding of the administration of the test or the study sample. This again limits the generalizability of results.

4.A6 Limitations of the review

The review was limited to published research only, therefore publication bias may have influenced the results.

The review excluded papers not published in the English language due to lack of resources to pay for papers to be translated into English. As such, there may have been evidence excluded from the review.

A number of assessment tools were identified which could not be included due to the lack of published evidence. This may mean there are tools used within current clinical practice which were excluded from this review.

Finally, the use of the critical appraisal tool, the STARD, may have limited the results. While critical appraisal tools are supported when conducting a review, no individual tool is considered the gold standard. In this respect, another tool may have evaluated the screening tools slightly differently, and may have altered the overall result of the review in identifying the FAST as the most suitable tool.

4.A7 Summary

The purpose of this review was to select a suitable aphasia screening tool for use in a future feasibility study involving acute stroke patients. The aphasia screening tools identified in the literature search were evaluated based on the desired tool criteria outlined earlier. The criteria selected for a desired tool were based on psychometric evidence for the tool, as well as issues which may impact on the practical utility of using the tool early post-stroke.

The results of this evaluation are summarised in Table 4.A5, highlighting which of the desired tool criteria were met through published studies. The results of this review indicate that the aphasia screening tool fulfilling the majority of the desired criteria is the FAST; therefore the FAST will be used in a future feasibility trial described further in Chapter Five.

In the following chapter, a review will be carried out to identify a suitable comprehensive language assessment for use in acute stroke patients.

4.B Literature Review B: Comprehensive Language Assessments

4. B1 Background

In a previous trial exploring MI in stroke, it was found that patients with communication difficulties may benefit more in mood outcomes than patients with normal communication. In this original trial, communication was screened at baseline using the FAST.

In Chapter Three, secondary analysis of data from the original MI trial identified that no individual component of communication as measured by the FAST was associated with the change in mood. This may suggest that individually, the different aspects of communication do not have a significant impact on mood at three-months. However, whilst the FAST is a commonly used tool in detecting the presence or absence of communication difficulties, perhaps it was not sensitive enough to detect specific aspects of communication ability that may interact with mood for those engaging in MI. This finding highlighted that in a future feasibility trial, an additional comprehensive tool to measure communication was required.

A comprehensive language assessment would provide in-depth information around the level of language impairment, and to identify which areas of language were impaired. In gaining this information, communication aids and adaptations for communication difficulties would be identified and passed on to MI therapists in order to facilitate MI sessions. A literature review was therefore carried out to identify an appropriate comprehensive language assessment tool.

While there are many language assessment tools available, a suitable comprehensive language assessment for the feasibility study should have particular features in order to meet the needs of the study. These needs have been developed based on the premise that this feasibility study may inform a larger, multi-centre trial. Practical issues of adopting the tool into clinical practice were therefore considered, and relevant issues were taken into consideration including: time and staffing constraints, financial limitations, storage and transportation. In addition, psychometric properties of a suitable tool were also considered. Based on this information, these following criteria were therefore required:

- Ability to assess a range of language modalities, with a focus on expression and comprehension abilities;
- Quick and easy to administer (≤90 minutes);
- Requires minimal equipment;
- Inexpensive to purchase;
- Suitable for administration by a non-SLT;
- Used in stroke patients;

- Able to discriminate patients with and without aphasia;
- Suitable for use early post-stroke;
- Reliable;
- Suitable for administration in the UK.

Aim

To identify a comprehensive language assessment suitable for use in stroke patients.

4. B2 Methods

Search Strategy

A search strategy was carried out beginning with electronic databases including Medline, PsychINFO, CINAHL (see Appendix 1 for the CINAHL search strategy). Search terms were also entered in to Google Scholar for additional searching. Eight hundred and forty six papers were identified in the search. Papers were initially excluded based on title and abstract, with 44 papers being read in full. Of the final tools selected, references were also backwards and forwards searched for additional relevant papers. The final eighteen papers were each evaluated using the critical appraisal tool STARD. The identification process is summarised in the flow chart shown in Figure 4.B1.

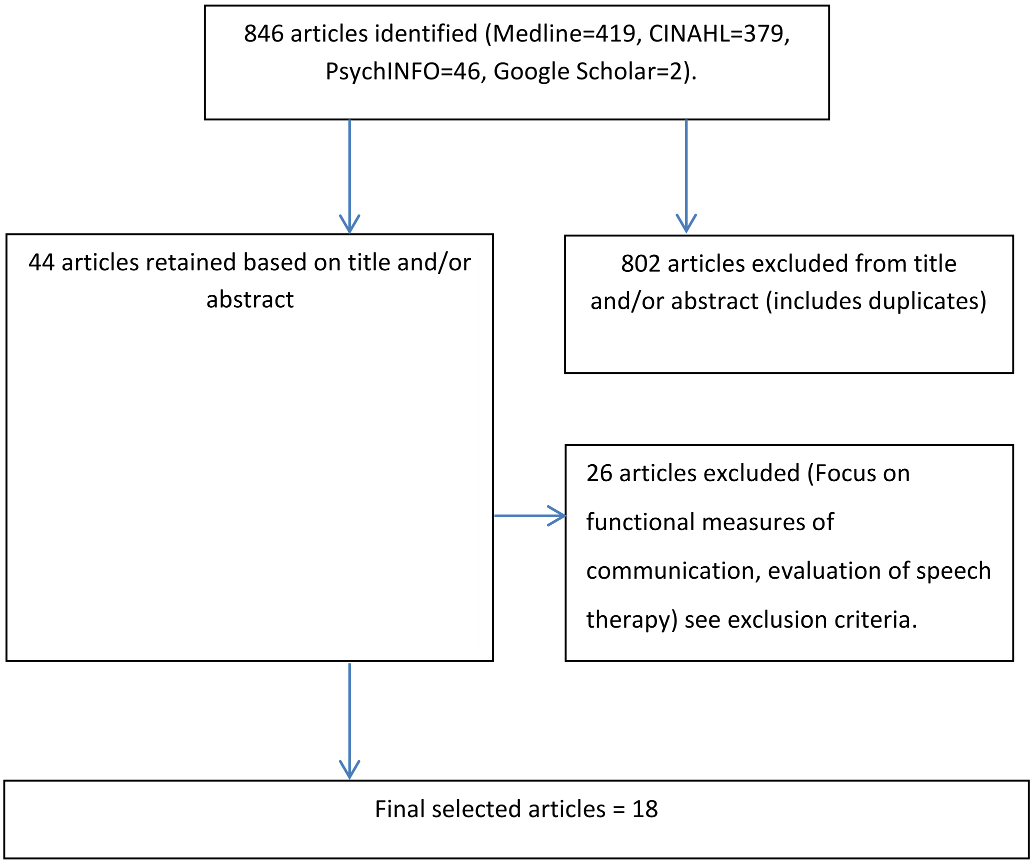


Figure 4.B1: Article identification Strategy for Literature Review B: Comprehensive Language Assessments

Inclusion criteria

- Evaluation of comprehensive language assessment;
- Stroke patients (as assessed using the World Health Organisation definition of stroke);
- Adults (aged 18 or over);
- Written in English.

Exclusion criteria

- Tools being used as an outcome measure;
- Articles with only abstracts available;
- Non-adult participants.

Language Assessment Tool Desired Criteria

A suitable language assessment tool for patients with post-stroke aphasia should meet a number of criteria as described earlier. These are summarised in Table 4.B1 below.

Table 4.B1: Desired Tool Criteria and Requisite Decision Criteria used to evaluate language assessment tools

Criteria number	Desired Tool Criteria	Requisite Decision Criteria
1	Able to assess a range of language abilities.	Tool subscales.
2	Not time consuming and easy to administer.	Time to administer (≤90 minutes)/equipment involved.
3	Suitable for administration by a non-SLT specialist.	Administration.

4	Validated in stroke patients.	Sample description.
5	Able to discriminate those with and without aphasia.	Criterion validity, specifically concurrent validity (correlation criteria: excellent ≥0.60, adequate 0.31-0.59, poor ≤0.30). Measures of sensitivity, specificity (criteria: sensitivity >80%, specificity >60%), positive predictive value (PPV), negative predictive value (NPV), overall accuracy. Convergent validity (correlation criteria: excellent ≥0.60, adequate 0.31-0.59, poor ≤0.30).
6	Reliable.	Test-retest reliability (ICC or Kappa statistics criteria: excellent ≥0.75, adequate 0.40-0.74, poor ≤0.40). Inter-rater reliability (as above).
7	Inexpensive.	Cost (≤£150).
8	Suitable for administration early post-stroke.	Date test administered post-stroke.
9	Suitable for use in England.	Tool description.

SLT=Speech and Language Therapist, ICC=Intraclass correlation coefficient

Statistical criteria for reliability and validity is previously described in section 4.1.

Requisite Decision Criteria

Data extracted for each language assessment tool included providing a generalised description of each tool. This included a description of tool subscales, time required for administration, who administered the tool, equipment involved, costs of the tool, scale properties, and diagnosis categories, and where the tool was developed (see Table 4.B2).

A second stage of data extraction involved examining papers which had evaluated the assessment tools. This stage involved extracting data describing the participant sample characteristics. This included whether the tool had been validated in stroke patients, including stroke patients with aphasia, reporting the sample size, age, and date of test post-stroke. This information is presented in Table 4.B3.

The final stage of data extraction involved reporting the psychometric properties of the tool. This included identifying if papers reported the optimal cut-off points of the tool; sensitivity and specificity, test-retest reliability, and validity (see Table4. B4).

Using all of the information mentioned above, tools were assessed for their overall suitability, combining psychometric properties and practical criteria for utilising the tool in an acute stroke setting. This resulted in an overall summary of suitability which will inform the decision of which tool would be chosen for use in a feasibility trial with stroke patients with aphasia (see Table 4.B5).

4. B3 Results

The literature review identified six language assessment tools;

- Boston Diagnostic Aphasia Examination (BDAE, Goodglass and Kaplan 1972),
- English Aachen Aphasia Test (EAAT, Miller et al. 2000),
- Comprehensive Aphasia Test (CAT, Swinburn et al. 2004),
- Porch Index of Communication Ability (PICA, Porch. 1967),
- Western Aphasia Battery (WAB, Kertesz. 1982)
- Psycholinguistic Assessment of Language Processing in Aphasia (PALPA, Kay et al. 1996).

Although there may be other comprehensive language assessments used in clinical practice, the review has focused only on tools which have published evidence of their properties available.

Each assessment tool was evaluated based on criteria presented in Table B1. The first stage of evaluation allowed for a generalised description of the six comprehensive language assessment tools.

A generalised description of each of the six tools can be seen in Table B2. This identifies the tool and its subscales, time required for administration, equipment involved, scale properties, administration information, possible diagnosis categories, as well as the group the tool was originally tested with.

Following this each tool will be discussed in more depth and described with regards to the tool content, administration, sample description, reliability, validity and finally any other additional information. In addition to evidence presented in the main paper for the tool, evidence from further papers evaluating the tool will also be considered (see Appendix 3 for the full table of evidence).

Table 4.B2: Full Aphasia Assessments: Generalised description of assessment tools

Tool	Tool Subscales	Time Required	Equipment involved	Scale properties	Administration	Diagnosis categories
Boston Diagnostic Aphasia Examination	Consists of eight subscales: 1.Fluency 2. Auditory comprehension 3. Naming 4. Oral reading 5. Repetition 6. Automatic speech 7. Reading comprehension 8. Writing	1.5-3 hours	Manual. Stimulus cards used with a range of images, words and sentences. Record booklets Cost to buy test: $450 (£295)	Each subset is scored 1-7, with a maximum score of 49	Administration by SLT	Nine classifications – has been criticised in the past as not all patients will fit into these classifications
English Aachen Aphasia Test	Six subscales; 1.Spontaneous speech, 2. Token test (comprehension of verbal instructions), 3.Repetition, 4.Written language, 5. Naming	Not stated	Sample of spontaneous speech used for first assessment Token Test Other stimulus materials including written	Spontaneous language rated on a six point scale where 0=non scorable and 5= normal speech. Token test items scored yes/no.	SLT administration or those with adequate EAAT administration training.	Four classifications: Broca's Wernicke's Global Anomic

	6. Comprehension		text, pictures, response sheets.	Subsequent four subscales scored on four point scale, where 0=non response and 3=normal performance.		
Comprehensive Aphasia Test	1.Cognitive deficit 2. Language performance including: Auditory comprehension Written comprehension Oral reading Verbal expression Written expression Repetition 3. Patient self-rating of their perceived degree of disability	1-2 hours	Equipment required: manual, cognitive and language test book, disability questionnaire test book, scoring books. Cost to buy test: Approx £150	Most of language battery scored on a three point scale, with 2=correct response following repetition or delay of 5 seconds, 1= or self correction, 0=incorrect answer. Scores are then turned to t-scores	Does not require a SLT specialist	Does not classify aphasia types. Instead the best measure of presence or absence of language disorder is the modality mean (the mean t-score across language areas measured)

				to allow for comparison of performance across subscales. Means and standard deviations are provided in CAT manual.		
Porch Index of Communication Ability	18 subtests, ten item tests including 4 verbal, 8 gestural and 6 graphic subtests as well as involving object manipulation, visual matching, and copying abstract forms.	1-2 hours to administer	18 subtests using cards, scoring sheets, graph sheets, manual. Cost to buy test: $210 (£137)	16-point scoring system for each item. Scores can range from 1=no response, to 16 for a complex response. Performance is summarised through mean scores, or score level for each of the three	Requires 40 hour training programme to administer the PICA as the scoring of the test is intricate	Does not provide aphasia categories but rather is used to provide useful information for the planning of treatment or to measure progress. Provides more quantitative data and little descriptive information

				subscales as well as overall score Scores of below 15 indicate presence of aphasia		
Western Aphasia Battery	1.Fluency, 2.comprehension, 3.naming, 4.repetition	Approximately 1-4 hour to administer	Manual, stimulus cards, recording forms, coloured blocks (test props), carry case Cost to buy test: Approx $340 (£223)	Each domain scored 1-10, with a maximum score of 40 Or is it each quotient scored out of 100. Scores of 93.8 and above are considered non-aphasic, with those below considered aphasic.	Administration training or profession not stated.	Test can provide aphasia classification, as well as ranking the severity of the aphasia Language test scores used to classify into eight classifications Gives ‘quotients’ on four different areas including: 1.Aphasia quotient 2.Reading quotient 3.Writing quotient

						4.Language quotient (which is combination of the previous three quotients) Or 1. Aphasia quotient 2. Language quotient 3. Performance quotient 4. Cortical quotient

Psycholinguistic Assessment of Language Processing in Aphasia	60 subtests within four main subscales; 1. Auditory processing 2. Reading and spelling 3. Picture and word semantics 4. Sentence comprehension	Not stated	Instructions for use, descriptive information for normative data, stimulus materials, marking forms. Cost to buy test: $460 (£302)	Each of the four subscales assessed for both word frequency and imageability. This is then mapped onto the psycholinguistic model as is described in the PALPA manual. Judgement of presence of aphasia is not by one method. Suggestion of scores two standard deviations below non-brain damaged patients scores	Administration by SLT/Cognitive or Clinical Psychologist	Does not provide aphasia classification. Allows exploration of the area of deficit in aphasia. Provides basis for further language testing.

				(Normative data only available for some subtests)		

SLT=Speech and Language Therapist. BDAE=Boston Diagnostic Aphasia Examination, EAAT=English Aachen Aphasia Test, CAT=Comprehensive Aphasia Test, PICA= Porch Index of Communication Ability, WAB= Western Aphasia Battery, PALPA=Psycholinguistic Assessment of Language Processing in Aphasia. SLT=Speech and Language Therapist.

Boston Diagnostic Aphasia Examination (BDAE)

Content

The BDAE tests a wide range of language modalities through individual subscales, including the desired areas of expression and comprehension, which it assesses in a number of differing subtests.

Sample

The BDAE has been administered in a number of studies to a variety of patient groups. The BDAE has evidence of administration with stroke patients, while the sample size is reasonably small (n=47), all participants included had post-stroke aphasia (Crary et al. 1992). The test has been administered to stroke patients, with n=89 being the largest sample size (Larson et al. 2005).

Administration

The administration of the test is estimated to taken between one and a half to three hours. While there is no specified training time suggested for using the BDAE, it is designed for administration by a SLT.

Patients recruited in this study were a number of months post-stroke; therefore it is unclear whether this tool would be suitable for administration during the acute stages post-stroke. The test has been administered to patients in the early stages post-stroke (Crary et al. 1992), with the test being administered within two weeks of the stroke.

Reliability

There is no published freely available evidence to support the reliability of the BDAE.

Validity

Convergent-Discriminant validity of the BDAE was explored through cluster analysis comparing classification of aphasia from the BDAE with that of the WAB (Crary et al. 1992). The analysis used a factor analysis approach, Q-methodology. The result from this analysis suggested that, when comparing the BDAE to the WAB, the tools classify patients with identical presentation of aphasia into different aphasia diagnoses. This result implies that contrary to the aim of the tools in both assessing and classifying communication impairment, the tools appear to do so in very different ways. However this analysis was based purely on test classification and gave no option for input from a SLT, which may, in clinical application, alter the aphasia diagnosis.

Convergent validity of the BDAE was demonstrated by comparing the BDAE subtests with that of the (Larson et al. 2005) the Repeatable Battery for the Assessment of Neuropsychological

Status (RBANS) Language Index. The RBANS Language Index was found to be significantly and positively correlated with BDAE subtests of Commands (n=86, r=0.24) and Repetition of Phrases (n=89, r=0.45).

The updated version of the BDAE, the BDAE-3 Short Form (Goodglass et al. 2001) has been tested in stroke patients with aphasia (Tucker et al. 2012). This study recruited a small sample of patients (n=37) at 3-months post-stroke. The BDAE Language Competency Index was found to significantly positively correlate with the Stroke Impact Scale Communication Component (r=0.67). This finding provides evidence of scale validity, indicating that both language scales are measuring comparable constructs. However, the authors report a limitation to the study in that the sample was not reflective of the overall stroke population with regards to ethnicity and educational attainment.

Additional Information

The published studies which have administered the tool to patients post-stroke have not evaluated the reliability of the test. Without evaluation of the properties of the tool such as reliability, the tool may not be the most suitable tool for future use in stroke patients. Further published evidence supporting the psychometric properties of the tool is required before the tool can be considered for future use. Additional psychometric data regarding the BDAE are reported in the BDAE manual, which is not freely available and has, therefore not been considered within this review and may be considered a limitation to this review.

The BDAE was developed for use by American patients; therefore caution must be taken in using this test in countries outside the US. This fact is perhaps reflected in a review carried exploring clinicians’ use of aphasia assessment tools. While the BDAE was one of the most regularly used tools within the US private sector (65%) and Canada (61%), it was rarely used (<3%) used in the UK (Katz et al. 2000). The test was developed for use in the USA; therefore caution must be applied in using this test in other countries. The cost to purchase this assessment tool is estimated at £295 ($450).

English Aachen Aphasia Test (EAAT)

Content

The EAAT is able to assess both expression and comprehension abilities through a number of subscale measures. The EAAT consists of the written test as well as pictorial cues.

Sample

The EAAT has been tested in one study in stroke patients (n=228), including patients with aphasia (n=135). The study also included healthy patients as a control group. Patients recruited in this study were a number of months post-stroke (mean 15.9 months); therefore it is unclear whether this tool would be suitable for administration in the earlier, more acute stage post-stroke.

Administration

Only one paper reports details of EAAT administration. It makes reference to the test being administered by either a SLT or those with adequate administration training; however the length of this training is not specified. The time taken to administer the test is not stated.

Reliability

The reliability data for this tool is derived from the German version. There is no evidence demonstrating the reliability of the English version of this tool.

Validity

Discriminant validity was measured when the EAAT was compared with clinical assessment, considered to be the reference standard due to no ‘gold standard’ of diagnostic tool having been agreed within the field. The EAAT was shown to have high rates of agreement of patients considered to have aphasia (93.9%).

Additional Information

There is support for the EAAT on a number of the desired criteria. One published paper (Miller, et al. 2000) provides evidence that the tool has been tested with stroke patients, and can distinguish patients with aphasia and those without. However there is vital information missing relating to the reliability of the tool for the English version. Details such as administration time would need to be considered. More research is required before a judgement can be made regarding the potential utility of this tool.

The EAAT is an English adaptation from a German test, and as such, it is designed for use in the English language and therefore would be suitable for the future feasibility study.

No purchase costs could be found for the EAAT therefore it was not possible to judge the tool on this criterion.

Comprehensive Aphasia Test (CAT)

Content

The CAT assesses both expression and comprehension through subscales of auditory comprehension, written comprehension, oral reading, verbal expression, written expression, and repetition. In addition, the tool provides a measure of cognitive deficit, and a patient self-report of perceived level of disability. The cognitive screen may explain poor scores on the language test not linked with aphasic deficit.

The tool itself consists of a number of ring bound cue books which can be easily flipped over during presentation. Scores for the test are then marked on a separate booklet.

Administration

The administration of the CAT is known to take between 1-2 hours, with no stipulation of who should administer the tool and the level of training required for administration.

The CAT has evidence of administration with stroke patients, including some patients with aphasia (Swinburn et al. 2004). This evidence is presented in a number of papers as secondary reviewing of data which is originally presented in the test manual. The test manual is not freely available, therefore only results presented in published papers has been considered.

Reliability

The results of inter-rater reliability suggest good correlations (with inter-rater agreement above 0.9 in 4/5 elements of the cognitive screen, 23/26 elements of the language battery, and 7/10 elements of the Disability Questionnaire (Howard et al. 2010).

The test-retest reliability of the CAT has not been reported in any of the papers identified in this review; therefore the test is limited in the evidence indicating whether it meets the desired tool requirements relating to psychometric properties. In addition, participant data reported in the published papers is taken from the original manual of the test, and no supporting data was found within the literature.

Therefore, while the CAT does meet some of the desired criteria, use of the tool must be considered with caution due to lacking information.

Validity

The concurrent validity is reported for subtests within the CAT and similar tests including the Morris Word-Picture Verification Test, the Nickels Naming Test, and the Test for Reception of Grammar (TROG) (Howard et al. 2010). All tests were carried out in sixty four patients with aphasia who were at least one year post-stroke onset. In addition to receiving the CAT, patients also received the Morris Word-Picture Verification test, the Nickels Naming Test, and the TROG. The CAT spoken word comprehension was shown to be positively correlated with the Morris Spoken Word-Picture Verification (0.68), and CAT written word comprehension correlates with the Morris Written Word-Picture Verification test (0.71).

Additional Information

The CAT is primarily a language assessment; however there are additional measures of both cognition and disability impact which are not seen in the other tools in this review. These include a cognitive test (in order to screen for cognitive deficits which might impact on language test results). In addition, the CAT incorporates a 'Disability Questionnaire', to assess the level of patient perceived disability due to communication impairments. This provides an additional viewpoint of level of impairment, as the individual's self-perceived disability may differ from a standardised tests judgement of impairment. These additional measures, while not part of the desirable criteria for a language assessment tool in this review, may be considered an added benefit to using the CAT.

Rather than assigning patients into an aphasia syndrome based on test scores, the CAT instead provides an overall indication of the strengths and weaknesses across a variety of language areas. This therefore avoids some of the difficulties experienced by other tests which classify patients into an aphasia syndrome with differing results such as the EAAT or the WAB.

The CAT is an English test designed for use in the English language. The cost to purchase the CAT from new is estimated to be £150.

Porch Index of Communication Ability (PICA)

Content

The PICA assesses language across a number of subsets, including reading, writing, auditory, verbal and visual scales, allowing assessment of both expression and comprehension.

Sample

The PICA has evidence to support administration in stroke patients (n=36), including those with aphasia (n=18), as well as in healthy adults (n=18) (Ross et al. 2003).

Administration

The PICA takes between 1-2 hours for administration, however training staff to administer the PICA takes forty hours.

Reliability

The only test-retest reliability data relating to the PICA has been found within a secondary source, a review of language assessment tools (Skenes and McCauley 1985). This review reports that within the PICA manual, the tool demonstrated a reliability correlation coefficient of 0.99 for 40 patients. However no further information is presented regarding the sample of the methods of administration of the test. With no access to the manual for this test, this data could not be explored further.

Validity

The PICA has been evaluated in only one study which was identified in the current review. This study established limited discriminant validity in the PICA tool, testing a reasonably small sample size (n=36), with half healthy controls and half stroke patients with aphasia. The stroke patients recruited in this study are beyond the acute phase of stroke, with mainly chronic stroke patients recruited. The study compared against other established language tools (WAB, American Speech and Hearing Association Functional Assessment of Communication Skills (ASHA FACS) and Communication and Activities of Daily Living (CADL2)), and found that the PICA had limited ability to discriminate those with and without aphasia, with 17% being misclassified (Ross et al. 2003), however for some subscales, such as the visual modality, this overlap was 89%.

Additional Information

The PICA test was originally developed for use in the USA. Studies publishing evidence of the administration of the PICA have recruited patients from countries outside of England; therefore it is unclear whether the results can be generalised to an English population. Further evidence is required to explore the PICA in an English population.

The cost of the PICA is estimated to be approximately £137 ($210), therefore falling within the suitable price range for the feasibility study.

The wide ranging levels of overlap in discriminating patients with and without aphasia (Ross et al. 2003) suggest that caution must be taken in interpreting PICA results. The PICA may not be the most suitable tool for future use if it cannot accurately discriminate between patients with or without aphasia.

Western Aphasia Battery (WAB)

Content

The WAB is known to test both expression and comprehension through subscales of fluency, comprehension, naming, and repetition. The test requires the use of test props, including coloured blocks.

Sample

The WAB has evidence for administration in stroke patients with aphasia (n=67, (Bakheit et al. 2005)), administered to patients who were a little over a month post-stroke (mean 32.1 days).

Administration

The tool takes between 1-4 hours to administer. Identification of professional of staff groups recommended to administer the WAB was not possible in this review because this information could not be identified within the literature. However, administration of the tool has been previously carried out by a SLT (Bakheit et al. 2005). The WAB is a test developed in the USA; therefore caution should be applied in administering the test in patients from outside this country.

Reliability

Measures of reliability were not carried out within the papers identified in the literature search.

Validity

A study exploring the psychometric properties of the tools included a combination of stroke patients as well as stroke patients with aphasia. The WAB was shown to be able to discriminate patients with and without aphasia in both stroke patients and Alzheimer’s dementia (Horner et al 1992). While the aim of this study was the ability of the WAB to discriminate aphasia presence in either stroke or dementia patients, it was found that overall, of the forty patients examined, the WAB was able to correctly classify twenty nine patients with and without aphasia.

Additional Information

While the WAB has been compared against similar measures (Communicative Effectiveness Index (CETI) (Lomas et al. 1989), its validity has not been measured against another language battery, or against SLT assessment. Without such evidence of validation, there is no information to support the WAB as suitable for assessment of language impairment.

The relationship between the WAB was and the CETI, a measure of functional communication, was tested in one study (Bakheit et al. 2005).It was found that the WAB significantly correlates with the CETI (r=0.71), and was found to be a suitable measure to assess change over time. This result suggests there is a positive correlation between language impairment and an individual's functional level of communication.

The WAB tool was designed for use with American patients; therefore caution must be taken in administering this test with patients from other countries. This may be reflected in the results of a review of aphasia assessment tools (Katz et al. 2000), which found that while the WAB was regularly administered in a number of countries; no survey respondents reported using the WAB in acute aphasic stroke patients.

The cost to purchase the WAB was estimated to be around £223 ($340).

Psycholinguistic Assessment of Language Processing in Aphasia (PALPA)

Content

The PALPA tests both comprehension and expression among other areas using sixty tests covering four subscales. This is assessed using a number of stimulus cards, with scores recorded separately on scoring booklets.

Sample

The PALPA has preliminary evidence of administration with a small sample (n=57) with just under half the sample consisting of stroke patients with aphasia (n=25, 44%) (Kay et al. 1996).

Administration

The tool is not designed to be administered as a whole test, therefore it is difficult to state administration time, and no stated administration time for the test in the literature could be discovered. The administration of the PALPA is described in the literature as being previously carried out by either a SLT, or by a Clinical Psychologist. It is reported that administrators of the test should be familiar with the test (Kay et al. 1996), however administration is not restricted to administration by a SLT. Few studies which have tested the psychometric properties of the tool, however it has been used in stroke patients, including patients those with post-stroke aphasia.

Reliability

The reliability of the PALPA has not been demonstrated in the papers identified within this review. However, the difficulty of reporting test-retest reliability in patients with aphasia is discussed within one of the papers (Kay et al. 1996). The paper discusses the difficulty of distinguishing test-retest reliability in a sample of patients who may have inconsistent symptoms, for example having difficulty with one area of language one day which may not be present on another occasion. Within this paper however, while this difficulty is acknowledged, it is argued that test-retest reliability should still be taken in order to detect any difficulties the patient may have, rather than as a sign of a poor test.

Validity

Information regarding the validity of the PALPA is reported to be described fully in the test manual; however this is not freely available and therefore has not been taken into consideration within this review.

Additional Information

In an international survey of clinicians exploring aphasia assessments in use with acute aphasic patients, the PALPA and the Boston Naming Test most commonly reported assessment tool in use in the UK. These tools remained less popular than the reported use of 'informal assessment tools' (Katz et al. 2000). However this survey is limited by its small number of UK respondents (n=37).

The PALPA is a test which is designed for use in England, and is therefore suitable for use in an English population. The cost to purchase the PALPA is £302 ($460).

The next phase of evaluation focused on the psychometric properties of each of the full language assessment tools. Papers administering the tools and assessing measurement properties were studied. The finding are summarised in Tables 4.B4 and 4.B5.

Table 4.B3: Sample characteristics of main paper administering the language assessment

Tool	Paper	Sample	Age	Date of test post-stroke	Administration
Boston Diagnostic Aphasia Examination (BDAE)	(Crary et al. 1992)	Total n=47 Stroke n= 47(100%) Aphasia n=47 (100%)	57.68 (mean) 10.98 (S.D.) 26-84 (range)	1-80 months post-stroke mean 16.8 months post-stroke	Not stated ('standard administration procedures')
English Aachen Aphasia Test (EAAT)	(Miller et al. 2000)	Total n=228 Stroke n= 135(59%) Aphasia n=135 (59%)	Patients with post-stroke aphasia Mean=60.0	Mean of 15.9 months post-stroke	SLT or those given 3 days+ test training
Comprehensive Aphasia Test (CAT)	(Howard et al. 2010)	Total n=64 Stroke n=64 (100%) Aphasia n=64 (100%)	Not stated	≥One year post-stroke	Not stated
Porch Index of Communication Ability (PICA)	(Ross et al. 2003)	Total n=36 Stroke n=18 (50%) Aphasia n=18 (50%)	Aphasia patients mean =60.78 S.D.= 7.84 range=48-79 Healthy Non-stroke Mean=60.61 S.D.=9.42	≥6 months	Not stated

			Range =41-75		
Western Aphasia Battery (WAB)	(Bakheit et al. 2005)	Total n=67 Stroke n=67 (100%) Aphasia n=67 (100%)	71.9 years Range=38-92	Mean 32.1 days	SLT administered tests
Psycholinguistic Assessment of Language Processing in Aphasia (PALPA)	(Kay et al. 1996)	Total n=57 Stroke n=25 (44%) Aphasia n=25 (44%)	Not stated	Time post-stroke not limited	Those trained in PALPA administration

*BDAE=Boston Diagnostic Aphasia Examination***,** *EAAT=English Aachen Aphasia Test, CAT=Comprehensive Aphasia Test***,** *PICA***=** *Porch Index of Communication Ability***,** *WAB***=** *Western Aphasia Battery, PALPA***=***Psycholinguistic Assessment of Language Processing in Aphasia. SLT=Speech and Language Therapist. S.D.=Standard deviation.*

Table 4.B4: Psychometric Properties from main paper administering the language assessment

Tool	Paper taken from	Optimal cut off	Reliability	Validity
BDAE	(Crary et al. 1992)	Each subset is scored 1-7, with a maximum score of 49.	Not stated.	Not stated.
EAAT	(Miller et al. 2000)	Not stated.	Not stated.	Differential validity found an overall agreement rate of 93.9% between EAAT and clinical judgement

				Compared to clinical assessment, agreement rate was 79.2% when ratings for spontaneous communication were included.
CAT	(Howard et al. 2010)	No cut point used.	Not stated.	Concurrent validity established between subtests of CAT and Morris Word-Picture Verification tests (0.68, 0.71), with the Nickels Naming Test (0.899, 0.748), and Tests for Reception of Grammar (TROG) (0.0.885).
PICA	(Ross, Wertz 2003)	15/16.	Not stated.	PICA shown to have limited ability to differentiate those with and without, with only 17% of patients classified as aphasia scoring above the suggested cut-off point.
WAB	(Bakheit et al. 2005)	93.8 ≤	Not stated.	Not stated.
PALPA	(Kay et al. 1996)	Not stated.	Not stated.	Not stated.

BDAE=Boston Diagnostic Aphasia Examination, EAAT=English Aachen Aphasia Test, CAT=Comprehensive Aphasia Test, PICA= Porch Index of Communication Ability, WAB= Western Aphasia Battery, PALPA=Psycholinguistic Assessment of Language Processing in Aphasia.

Table 4.B5: Summary of suitability criteria for language assessment tool

Test	Tested with stroke patients	Assesses comprehension and expression	Suitable for administration by non-SLT specialist	Quick to administer (<= 2 hours)	Cost			Reliable	Valid	Suitable for use in England
					>£100	<=£150	Unknown			
WAB										

	✔	✔	X	X	✔			X	X	X
CAT	✔	✔	✔	✔		✔		X	✔	✔
BDAE	✔	✔	X	X	✔			X	✔	X
PALPA	✔	✔	X	X	✔			X	X	✔
PICA	✔	✔	✔	X		✔		✔	X	X
EAAT	✔	✔	✔	X			✔	X	✔	✔

BDAE=Boston Diagnostic Aphasia Examination, *EAAT=English Aachen Aphasia Test, CAT=Comprehensive Aphasia Test*, *PICA= Porch Index of Communication Ability*, *WAB= Western Aphasia Battery, PALPA=Psycholinguistic Assessment of Language Processing in Aphasia. SLT=Speech and Language Therapist.*

4. B4 Discussion

This section has focused on identifying and reviewing comprehensive language assessment tools used with patients with post-stroke aphasia. The aim of this section was to identify and select a suitable language assessment tool for use in a future feasibility study involving patients with aphasia.

The literature search identified six comprehensive language assessment tools which had papers evidencing their psychometric data or clinical utility. The six tools were then reviewed based on desirable criteria relating to psychometric properties and features relating to clinical application. Following comparison of the six tools, no single tool was able to meet all of the desired criteria.

Many of the tools were limited in their practical utility, with many taking a number of hours to complete. Due to the known difficulties of fatigue after stroke (Ingles et al. 1999), this may be challenging for patients to endure, especially during the acute phase post-stroke. Another practical limitation of a number of the assessment tools is the extensive training period required for those administering the test, such as the PICA which requires 40 hours of training. Tests designed for patients in other countries, such as the WAB designed for patients in the USA, were considered potentially less appropriate, due to the possible misunderstandings this may lead to. However, despite the limitations recognised across all the tools evaluated in this review, the CAT was felt the most appropriate. This result reflects previous studies evaluating language assessment tools. Previously, the CAT assessment has been shown to be the most popular tool selected by clinicians (Bate et al. 2010).

4. B5 Limitations of studies

There were a number of papers included in the review which lacked detail in reporting information pertinent to the study. This included detail of methods, such as which comparison assessment was used, who administered the assessments, how they administered it and whether raters were blinded to diagnosis of the alternate assessment. Therefore the quality of the research and consequently the results from such studies are reduced due to potential bias.

4.B6 Limitations of the review

This review has a number of limitations. The review has been limited in its inclusion of only published journal articles. Many of the tools included in the review have published information such as psychometric data within the tool manual which is not freely available. Many of the manuals can be accessed at a significant cost, therefore due to the limitation of funds available for this review, it was not possible to gain access to data presented in manuals. Another consequence of limiting the review to articles selected from published journal articles is that publication bias may have influenced results.

Finally, the review excluded papers not published in English due to lack of resources to pay for papers to be translated into English. As such, there may have been evidence excluded from the review.

4. B7 Summary

In summary, the CAT was found to be validated in stroke patients, including stroke patients with aphasia. The CAT assesses a range of language modalities, including expression and comprehension. The CAT is suitable for administration by a non-SLT specialist, although a minimal amount of training with the CAT is required for a non-specialist to administer. The CAT was one of the few assessments priced under £150, therefore not placing a financial burden on a hospital required to purchase the test. The CAT was shown to be suitable for administration in the early stages post-stroke. The CAT will be used to assess language impairment in a future feasibility study.

The following sub-chapter will review tools used to assess mood in patients with communication difficulties post-stroke. The review aims to identify a suitable tool for use in a future feasibility trial.

Literature Review C: Mood Screening Tools

4. C1 Background

Depression after stroke is common and can have a debilitating impact on an individual. Therefore the need to identify and manage depression early after stroke is crucial, and is recognised as such in government health policies. It is identified in government guidelines (RCP, National Clinical Guidelines for Stroke, 2012 p.111) that screening of patient mood early after stroke is essential, and that all patients, including those with communication difficulties, entering rehabilitation should be screened for depression. However, while the screening for depression in patients following stroke is recommended, the tools to carry out this screening are not identified.

While screening for depression after stroke is vital, there are a number of challenges in this task. A key difficulty is the accuracy of standardised assessments used in patients suffering neurological impairment. Often mood screening relies on the patient's ability to report on their own symptoms. However following a stroke this may be challenging for two reasons. Firstly, the stroke itself may have caused a number of impairments reducing the ability for patients to self-report, such as neglect, denial of the stroke, or cognitive or communication difficulties making it difficult for patients to respond. Further, somatic symptoms which may identify the presence of depression may reflect changes caused by stroke, such as differences in concentration, eating or sleeping. Due to this crossover, symptoms of depression may be difficult to separate from changes experienced following a stroke (de Coster et al. 2005). Yet despite these difficulties, the screening for depression after stroke must be carried out.

There are various methods of detecting depression. These include clinical interview, patient self-report, and proxy or observational rating scales. Each of these approaches will now be described, highlighting the strengths and weaknesses of each method for patients following stroke.

Clinical interview

When detecting depression, the most suitable comparison, or 'gold standard', method for an accurate diagnosis is a clinical psychiatric interview. A clinical interview gives an accurate diagnosis of the presence of depression. The two main diagnostic criteria to detect depression are the Diagnostic and Statistical Manual for Mental Disorders, 5thth edition (DSM-V) and the International Classification of Disease and Health Related Problems – Version 10 (ICD-10, World Health Organization 1996). Both manuals contain a section to assess depression due to a general medical condition or brain damage and dysfunction and physical disease. This method of assessment allows depression to be diagnosed despite the presence of symptoms caused by stroke. However, in addition to requiring a trained and qualified individual to administer, a clinical interview is also time-consuming. For these reasons, clinical interview is impractical when screening large patient numbers. In such circumstances, a mood screening tool may be a more suitable method.

Patient self-report measures

It is considered best practice for patients to be able to self-rate their mood. Self-report measures have been used in research to assess depression after stroke. In contrast to clinical interview, self-report measures are quick and easy to administer. However where a patient has communication difficulties this may not be possible through standard mood measures. National Clinical Guidelines for Stroke (2012) suggest that for patients who experience communication difficulties after stroke, specific assessment tools should be used.

Patients with communication difficulties may find a standard questionnaire format challenging to understand and respond to. In order to deliver an accessible mood screen, an alternative format may be required. This may involve adjustments to meet the needs of patients with aphasia (RCP, 2012, p.112). While no particular recommendations are made for patients with mild to moderate communication difficulties, it is recommended that patients with severe aphasia use specifically designed tools such as the Stroke Aphasic Depression Questionnaire (SAD-Q, Sutcliffe and Lincoln, 1998) or Depression Intensity Scale Circles (DISCs, Turner-Stokes et al. 2005). Adjustments to the method of assessment may include a simplified format, such as a yes/no response choice.

Visual Scales

Another adaption to self-report measures is the use of visual analogue scales. These scales often involve a 10cm line which is subdivided or has polarised descriptors of the issue being measured at either end of the line. Patients can then point to the line to rate where they feel they are on the scale. This allows patients the opportunity to respond without requiring a verbal response. While this is clearly an advantage, there again are a number of limitations to such measures. Visual analogue scales have been accused of being unreliable, with patients not understanding the concept of the rating scales (Price et al. 1999) In addition, patients with visual difficulties or experiencing neglect may struggle to complete such measures.

Proxy-ratings

Given the difficulties associated with assessing depression after stroke through patient self-rating, alternative methods of assessment should be considered. Using a proxy-rater of depression in place of the patient self-report may reduce exclusion of patients with communication and cognitive difficulties from research. To ensure reliable proxy-ratings, an individual who has regular contact with a patient rates depression symptoms based on observable symptoms and behaviours (Carota and Bogousslavsky 2003). The issue of ensuring reliability of proxy-ratings is perhaps especially important when ratings are taken from individuals who may not know the patient very well. Previous research indicates mixed results, with some studies finding caregivers are able to detect depression in their loved one accurately (House. 1989) while others found proxy-raters scored their loved one higher than the patients themselves (Berg et al. 2009), therefore scores from these ratings must be interpreted with caution and perhaps should not be the single method of assessing depression.

However all of these methods are complicated due to the concomitant neurological sequel of stroke. There are both strengths and limitations to each method of assessment of depression after stroke, in particular for patients who may experience difficulties caused by the stroke which limit their responses, such as those with communication difficulties. Due to the complicated nature of post-stroke depression screening, it is recommended that multiple methods of assessment should be used to assess mood (Gordon and Hibbard 1997). Therefore, in addition to a patient self-rated measure of depression, supplementary proxy-measures could also be used. These measures could be completed by a carer of the stroke patient. Using two methods of assessment would allow for comparisons to be drawn between patient and carer points of view, which may well differ.

Previous reviews of assessing depression after stroke

Previous reviews have been carried out evaluating mood screening tools for patients after stroke, as well as evaluating mood screening tools for patients after stroke, including those with communication difficulties (Bennett et al. 2006). This review compared four mood screening tools for assessing mood after stroke. These included the Stroke Aphasic Depression Questionnaire (SADQ), Signs of Depression Scale (SODS), Visual Analogue Mood Scale (VAMS) and Visual Analogue Self-Esteem Scale (VASES). The review found that for patients with normal communication, the SADQ was a reliable and valid tool, and was superior to the SODS. Consistent with previous research (Price et al. 1999), patients experienced difficulties in completing the VAMS. The review concludes that there remains no ‘gold standard’ of assessing depression in patients with communication difficulties after stroke. Therefore, a useful strategy to assess mood is to use a combination of methods, supplementing observational proxy-reports with additional measures.

In a more recent review of the assessment of depression after stroke (Berg et al. 2009), patient self-report, proxy-report and clinical interview method were compared. The review indicated that in comparing self-rating scales and clinical interview, there was no individual tool which could be identified as superior. For patients with communication difficulties, the Visual Analogue Mood Scales was found to be unsuitable; criticising previous studies validating this tool for small sample size or for not testing with stroke patients. This finding is consistent with the previous review (Lincoln et al. 2003). Recommendations of suitable mood screening tools from this review are therefore limited, especially for those with communication difficulties.

In conclusion, there are a number of methods for screening for depression following stroke. Each method holds strengths and weaknesses, and these are perhaps more apparent when applied to patient with communication difficulties. In order to build the most accurate understanding of a patient's state, using a combination of assessment methods may be the most appropriate strategy. The justification for this approach is based on government recommendations. However, it remains that individual tools to carry out this task have yet to be identified and validated. It is therefore necessary to carry out a literature review with the aim of identifying both self-report and proxy methods of screening depression after stroke suitable for those with communication difficulties.

Chapter structure

This chapter will present the literature review. It will describe the tool criteria and methods of assessing whether tools meet these criteria. The results of the review will be presented with a generalised description of each tool. The tools will be divided into carer-rated or patient self-report tools, and information regarding the samples used, as well as psychometric properties of each tool described within papers will then be described.

Aim

To review mood screening tools for patients with post-stroke communication difficulties.

Objectives

To identify:

- A tool suitable for carer-report on patient mood
- A tool suitable for patient self-report

4.C2 Methods

Search strategy

A search strategy was developed for use in Ovid MedLine, searching dates from 1946 to 2012. This search strategy was then adapted for use in CINAHL (See Appendix 4), PsychInfo and

Cochrane Library. Citation searching, backward and forward, was carried out for all studies evaluating psychometric properties of a mood screening tool for patients with post-stroke communication difficulties.

Inclusion criteria for papers

Papers were included if they:

- Evaluated characteristics of screening tool;
- Screened for low mood/depression;
- Included stroke patients with aphasia;
- Published in English.

Exclusion criteria

- Used the mood tool as an outcome measure;
- Papers not in English language;
- Only abstract available.

Table 4.C1: Desired mood screening tool criteria and data extraction for mood screening tools

Criteria number	Desired Tool Criteria	Information Required for Decision that Criterion was Met
1	Accessible presentation of self-report tool* (simplified language/pictures supporting written information)	Description of tool
2	Quick to administer (<5 minutes)	Administration time
3	Used in stroke patients	Sample description
4	Used in stroke patients with aphasia	Sample description
5	Given early post-stroke (within 4 weeks)	Date given post-stroke
6	Free to use	Costs
7	Reliability	Test-retest reliability
8	Valid (Sensitivity 80%, Specificity 60%, concurrent/ discriminant)	Sensitivity and specificity, concurrent/discriminant validity

**only applicable to patient self-report measures*

Information required for decision that criteria was met

To provide a generalised description of each tool, data was initially extracted from the main paper describing the tool. Practical issues around using this tool were also taken into consideration here, therefore criteria such as ‘Quick to administer’ and ‘Free to use’ were also reported (criteria 1 and 2).

The second stage of data extraction involved reporting the properties of the sample used (criteria 3, 4 and 5) including whether participants were stroke patients, and how many within the sample had aphasia.

In addition to this, psychometric properties of the tools were examined (Criteria 7 and 8). This included whether the tool had been validated in stroke patients, and specifically in stroke patients with aphasia, reporting levels of sensitivity and specificity.

In total, 286 articles were found from three databases, OVID Medline, CINAHL and PsychINFO. Papers were initially scanned for title and abstract. This was then supplemented by scanning reference sections from papers, as well as hand searching papers. Two hundred and forty eight articles were excluded and 38 articles were then read in full. Following exclusion of papers which did not include patients with communication difficulties, 27 articles were used for this review. This process is summarised in Figure 4.C1 below.

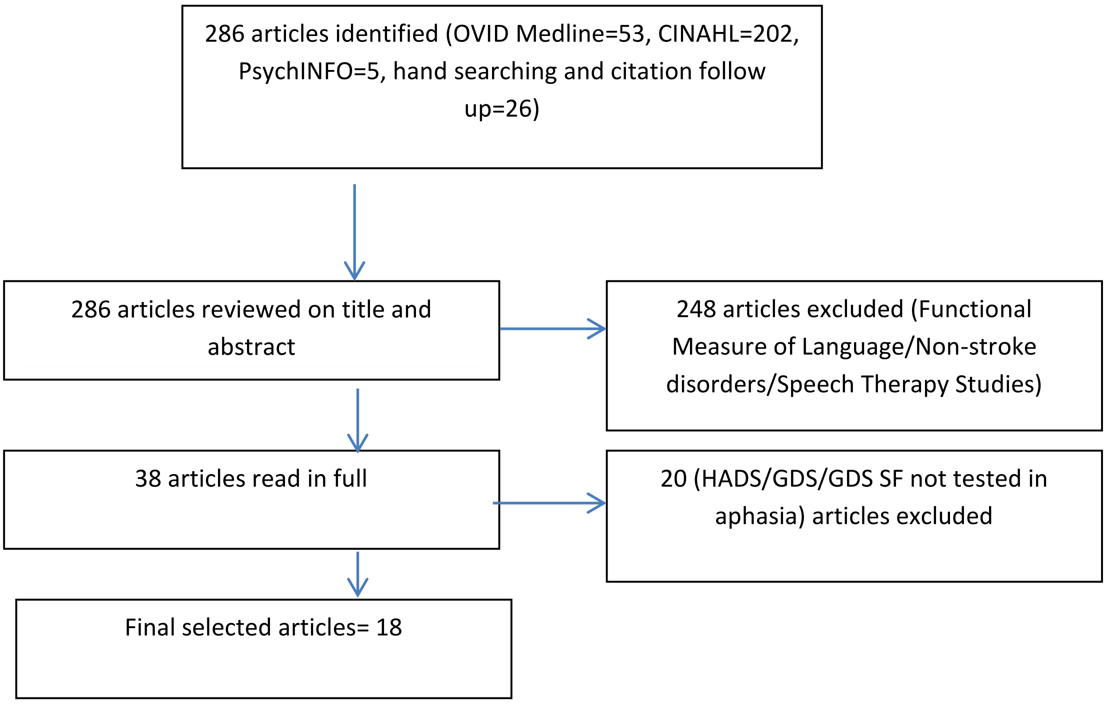


Figure 4.C1: Article identification strategy for literature review C: Mood Screening Tools

4. C3 Results

Eighteen papers reviewed eight mood screening tools. These include:

- Stroke Aphasia Depression Questionnaire (SADQ);
- Stroke Aphasia Depression Questionnaire Hospital version (SADQ-10);
- Signs of Depression Scale (SODS);
- Depression Intensity Scale Circles (DISCs);
- Yale Single Item;
- Visual Analogue Mood Scale (VAMS);
- Aphasic Depression Rating Scale (ADRS);
- Visual Analogue Self Esteem Scale (VASES).

A generalised description of each of the eight tools, taken from the main paper describing the tool is presented below in Table 4.C2.

Tab le 4.C2: Generalised description of mood screening tools for those with post-stroke communication difficulties

Screening Tool	**Format**	**Time Required**	**Items**	**Maximum Score**	**Original use**	**Free to use**	**Completed by**
Stroke Aphasic Depression Questionnaire (SADQ-21)	21-item questionnaire with items relating to observable signs of low mood. Respond on a 4-point Likert scale of 'often, sometimes, rarely, never'. Higher scores indicate greater distress.	4 minutes	21	63	Stroke/Aphasia after stroke	Yes	Other
Stroke Aphasic Depression Questionnaire Hospital (SADQ 10)	10-item questionnaire developed from the SADQ-21 for patients in the community based on patient observation. Each question rated 0-3 Likert scale (often, sometimes, rarely, never), with higher scores indicating greater emotional distress.	2-4 minutes	10	30	Stroke/Aphasia after stroke	Yes	Other
Signs of Depression Scale (SODS)	Six questions about patient mood based on observations – score of 1 for 'yes' response, 0 for 'no'.	2 minutes	6	6	Elderly medical patients	Yes	Other
Aphasic Depression Rating Scale (ADRS)	A nine-item measure with each item containing different scoring (maximum six response options).	Not reported	9	32	Stroke and aphasia	Yes	Other

Depression Intensity Scale Circles (DISCs)	Single page visual analogue scale. Shows six circles of increased area of shading. Darker circles and higher scores indicate increased depression.	2 minutes	1	5	Stroke/ acquired brain injury	Yes	Self
Yale Single Item	Single item questioning ‘Do you often feel sad or depressed?’, response ‘yes’ or ‘no’	1 minutes	1	1	Medically ill	Yes	Self
Visual Analogue Mood Scale (VAMS)	Eight faces depicting various moods with verbal indicators. Faces are placed on a 10cm line, with a neutral face at the opposite end of the line. Participants are asked to mark on the line where they feel they are on a particular dimension.	<5 minutes	8	80	Healthy adults - for potential use in clinical settings with patients with aphasia	No	Self
Visual Analogue Self-Esteem Scales (VASES)	Shows ten bipolar pictures showing evaluations of the self, scored from 1-5. A higher score indicates higher self-esteem.	>5 minutes	10	50	Healthy adults	No	Self

SADQ-21=Stroke Aphasic Depression Questionnaire-21, SADQ-10=Stroke Aphasia Depression Questionnaire-10, SODS=Signs of Depression Scale, ADRS=Aphasia Depression Rating Scale, DISCs=Depression Intensity Scale Circles, VAMS=Visual Analogue Mood Scale, VASES=Visual Analogue Self-Esteem Scales.

Each tool will now be discussed in more depth, beginning with tools administered by a carer through observations of the patient. Each tool will be described with regards to the tool content, administration, sample description, reliability, validity and finally any other additional information pertaining to the tool. In addition to evidence presented in the main paper for the tool, this evidence will be supplemented with evidence from further papers evaluating the tool (see Appendix 5).

Carer-report Measures

Stroke Aphasic Depression Questionnaire (SADQ-21)

Content

The SADQ-21 is a 21-item questionnaire designed to assess the presence of depressive symptoms. Each of the items is rated on a 4-point Likert scale of ‘often’, ‘sometimes’, ‘rarely’, or ‘never’. Cut-off points are not reported.

Administration

The SADQ-21 is designed to be administered by care givers rating their perceptions of the patient’s mood. This care giver can be a member of the clinical team, or a carer of the patient. The tool takes an estimated four minutes to complete.

Sample

The SADQ-21 has been administered by a number of groups, including carers of stroke patients (Sutcliffe and Lincoln 1998) The reliability and validity of questionnaire has been examined with carers rating stroke patients (n=70) (Sutcliffe and Lincoln 1998). However this includes patients seen on average 18.6 months post-stroke, with no evidence supporting the use of the tool in patients within 4-weeks of the stroke. This initial study also excluded patients with communication difficulties.

Reliability

Further to this, the test-retest reliability of the SADQ-21 was carried out based on a small sample of patients with communication difficulties, with their carers (n=17) completing the measure on two occasions four weeks apart (Sutcliffe and Lincoln 1998). Results indicated a good level of reliability (Spearman’s correlation coefficient $r_s=0.72$, $P<0.001$) between the two.

Validity

The sensitivity, specificity, NPV, PPV and overall accuracy of the questionnaire have not been identified in papers within this review.

The concurrent validity of the questionnaire has been tested comparing the SADQ-21 against the subscales of the Hospital Anxiety and Depression Scales (HADS) and the Wakefield Depression Inventory (WDI). This found that the SADQ-21 correlated with the Depression subscale of the HADS ($r=0.22$, $p=0.04$), and with the Anxiety subscale of the HADS ($r=0.42$, $p<0.001$). The SADQ-21 was also compared against the Wakefield Depression Inventory (WDI, $r=0.52$, $P<0.001$). While positively correlating these mood scales, it is reported that the correlations accounted for less than 27% of the variance, suggesting there is the opportunity for increasing validity of the measure. Therefore there is inconsistent evidence of concurrent validity of the SADQ-21.

Additional Information

While the SADQ-21 was validated against well-established measures of depression (HADS and WDI), this was only carried out in patients with no communication difficulties. In order to explore the validation of the tool further, future studies are required to compare the tests in patients with communication difficulties.

Despite poor to adequate results of concurrent validity of the SADQ-21, the results led to the development of the SADQ-10, a tool which is described in more detail below.

Stroke Aphasic Depression Questionnaire-10 (SADQ-10)

Content

The SADQ-10 was developed from the original 21-item SADQ questionnaire following analysis of test validity. The remaining questions are the ten items which were best able to discriminate between depressed and non-depressed patients. Responses to the items of the SADQ-10 are ‘often’, ‘sometimes’, ‘rarely’, or ‘never’. With a maximum score of 30, a cut-off of 14 has been suggested (Leeds et al. 2004).

Administration

The SADQ-10 takes between 2-4 minutes to complete, and is designed for completion by a caregiver based on observations of the patient.

Sample

The SADQ-10 has been administered to carers of stroke patients with aphasia (n=17). Those patients who were under one year of stroke onset were excluded; however length of time post-stroke was not stated.

Reliability

The test-retest reliability of the SADQ-10 was carried out using repeat measures taken four weeks apart (Sutcliffe and Lincoln 1998). The measures from the two occasions correlated well (Spearman's correlation coefficient r_s=0.69, P=0.002).

Validity

The sensitivity and specificity, NPV, PPV and overall accuracy were not reported in studies within this review.

The concurrent validity of the tool was demonstrated in comparison with the HADS Depression subscale (r_s=0.32, p<0.003), and with the WDI (r_s=0.07, p<0.001).

Additional Information

The SADQ10 was developed from the SADQ-21, based on items which could best differentiate patents with and without depression. A factor analysis of the tool found all items clustered, indicating they measure the same construct.

While the reliability of the original SADQ-21 appears to be very similar to the SADQ-10, the latter remains a shorter tool to administer. In this respect, the SADQ-10 may be a more suitable tool for administration.

The SADQ-10 has also been adapted for use in hospital settings, the SADQ-H10 (Sutcliffe and Lincoln 1998). The hospital version altered response categories to frequencies behaviours are observed ('4-6 times a week', '2-4 times a week', and 'less than twice a week').

While the evidence of the SADQ-10 is limited to a small sample, the initial results appear to be positive in supporting the use of the tool in carers/staff working with patients with communication difficulties.

Signs of Depression Scale (SODS)

Content

The SODS is a six-item scale originally designed to screen for depression in elderly medical patients (Hammond et al. 2000). The scale is rated based on observations of the patient by a carer/other. The SODS responses are scored in a simple yes/no format, with possible scores ranging from 0-6. Suggested cut-points on the SODS range from >1 (Watkins et al. 2001) to 4 for carer completion (Lightbody et al. 2007), with a suggested cut-point of 2 indicating depression if rated by nursing staff (Lightbody et al. 2007).

Administration

The SODS takes an estimated two minutes to complete. This tool has evidence of administration in the acute phase post-stroke, although time post-stroke was not reported within the paper (Watkins et al. 2001; Lightbody et al. 2007).

Sample

The SODS has evidence to support its administration by others observing the stroke patient, including those caring for patients with communication difficulties post-stroke (Lightbody et al. 2007)

Reliability

There is no evidence to support the test-retest reliability of the SODS.

Validity

The SODS was compared against diagnosis from a psychiatrist, the ‘gold standard’ of mood assessment. It was found that the sensitivity, specificity and efficiency when completed by nurses was (64%, 61% and 62% respectively) and for carers completion a higher sensitivity was found than nurses but a lower specificity (90%, 35% and 53% respectively (Lightbody et al 2007). While these levels of sensitivity and specificity do not meet the desired criteria (80% and 60% respectively), these results come close to this level. This will be taken into consideration in the final selection of a mood screening tool.

The SODS has been correlated with the Hamilton Depression Rating Scale, showing a strong correlation (Spearman’s Correlation Coefficient=0.79) (Hammond et al. 2000).

Additional Information

The SODS has been shown to be suitable for administration by both nurses and carers (Lightbody et al. 2007). This allows a higher chance for mood to be screened for during this acute period post-stroke. The inter-rater agreement of the SODS has been demonstrated between nurses and carers’ assessments which were shown to be fair (ICC=0.43, 95% CI: 0.09-0.68). When rated by nurses, the validity of the tool was reasonably poor, despite using the previously recommended cut-off of 1 to 2. This may indicate the staff required additional training to screen patients. While the specificity of carers’ ratings was found to be low (35%). A higher cut off of 4 was suggested to be most appropriate for carers.

Aphasic Depression Rating Scale (ADRS)

Content

The ADRS is a scale designed for the screening of depression. The tool consists of nine-items covering different aspects of mood (insomnia, anxiety, somatic symptoms, hypochondriasis, loss of weight, apparent sadness, mimic, and fatigue. Each item is scored differently (with a maximum of six response options). There is a total maximum score of 32, with a higher score indicating increased depression.

Administration

The tool is designed for patient self-report. The time to administer the tool is not reported. The tool is suitable for administration early post-stroke, from sixty days post-stroke (range 4 to 147 days (Benaim et al. 2004).

Sample

The ADRS has been used in stroke patients (n=50), including those with communication difficulties (n=29, (Benaim et al. 2004).

Reliability

The test-retest reliability of the ADRS was found to be adequate (k coefficient = 0.58) when taken two weeks apart.

Validity

When compared to a clinical interview to assess depression, the ADRS was found to have excellent sensitivity (83%) and specificity (71%).

Additional information

The ADRS holds the benefit of having been validated in patients with communication difficulties after stroke, and of having been validated by clinical interview. However, one limitation to the ADRS is that it was developed from three existing depression scales. Each item has retained the original scoring response scale, leading to each item being scored differently. This inconsistent response pattern may be confusing for raters.

This section has so far summarised proxy rated mood screening tools. The following section will describe mood screening tools which can be self-rated. These include the DISCs, the Yale, VAMS, VASES and ADRS. Each tool will now be discussed in more detail.

Patient self-report measures

DISCs

Content

The DISCs is a six-point visual analogue scale designed for rating symptoms of depression, with a score of 2 or more indicates depression. The scale comprises six circles with increased grey shading. Participants are asked to point to the circle closest to their mood, with the bottom circle indicating least depressed, and the top fully grey circle Indicating most depressed.

Administration

The DISCs is designed for patient self-rating. Administration of the DISCs takes an estimated two minutes. Administration took place on average 12 weeks post brain injury onset (Turner-Stokes et al. 2005).

Sample

The DISCs has evidence to support its administration in patients with acquired brain injury (n=114), with the majority of patients having suffered a stroke (n=76). The sample included patients (n=84) with communication difficulties (Turner-Stokes et al. 2005).

Reliability

The test-retest reliability of the DISCs was tested on two occasions with a group of ABI patients (n=66) 24 hours from the original test by same assessor. The findings showed excellent agreement between the two measures (weighted Cohen’s k test k=0.84). However the proportion of stroke patients within this group of patients is not reported.

Validity

The sensitivity and specificity of the DISCs were taken measured against DSM-IV criteria, finding good levels of sensitivity (60%) and specificity (87%). PPV, NPV and overall accuracy were not reported.

The concurrent validity of the DISCs was taken by comparing the tool against the Beck Depression Inventory –II (BDI-II r= 0.66), and against the Numbered Graphic Rating Scale (NGRS r= 0.87) and also against the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV r= 0.59). These results indicate the strong correlations between the DISCS and the three mood assessment tools, including another visual rating scale.

Additional Information

Due to the visual nature of the scale, it may allow increased accessibility to patients who find verbal and written information difficult or even impossible. The DISCs may be limited in its use with patients post-stroke, limiting the application of the tool for those who have visual neglect or impairment.

The patients tested within this study suffered from ABI, however only some of these patients had suffered a stroke. While there may be similarities between the nature of patients presenting with ABI and those who have more specifically suffered a stroke, there may also be differences which influence the results. Therefore results must be taken with a degree of caution.

Patients in this study were seen on average 12-weeks post brain injury, therefore the application of the test in the earlier stages post-stroke are unknown. Further research is required to establish this information.

While the DISCs does not meet the requisite decision criteria for sensitivity and specificity, it does come relatively closer to meeting desired targets than other visual analogue measures of mood presented in this review. Therefore the DISCs can be considered potentially useful for a feasibility study.

It must be considered a limitation that information regarding the DISCs comes from a single paper, therefore more evidence is required.

Yale Depression Screen (Single Item)

Content

The Yale single item tool (Lachs. 1990) consists of one question to screen for the presence of depression: ‘Do you often feel sad or depressed?’. Patients can then respond either ‘yes’ or ‘no’. Originally designed to screen for depression in older adults, the tool has also been used in stroke.

Administration

The tool is designed to allow the patient to self-report their mood state. The question can either be spoken or can be shown in written form to allow the patient to understand the question. This tool takes less than one minute to administer and has evidence to support its administration early, from 14 days, post-stroke (Watkins et al. 2001).

Sample

The Yale Single Item has been administered in patients with acquired brain injury (ABI, n=114), including stroke patients (n=76), including stroke patients with aphasia (n=84) (Turner-Stokes et al. 2005).

Reliability

There is no evidence to support the test-retest reliability of the Yale.

Validity

The Yale was tested in a number of patients with ABI (n=114) who were also assessed using the DSM-IV criteria for depression (Turner-Stokes et al. 2005). Based on DSM-IV criteria, the Yale question was shown to demonstrate fair sensitivity (68%) and specificity (73%).

In a separate study (Watkins et al. 2001), the Yale question was shown to demonstrate higher levels of validity (sensitivity 86%, specificity 78%) when compared against the Montgomery Asberg Depression Rating Scale. NPV, PPV and overall accuracy were all 82%.

There is no evidence to support the concurrent or discriminant validity of the Yale.

Additional Information

The Yale is the only tool presented in this review utilising a single question as a method of briefly screening for the presence of depression. This simplistic approach allows a quick screen of the patient mood, which has been shown to be indicative of a comparable outcome to in-depth psychological assessment. Such a simplified technique follows one of the recommendations in the RCP report.

However there are limitations to the Yale tool. While the Yale has been tested in stroke patients, in one study (Turner-Stokes et al. 2005) this was within a sample of ABI which may have impacted on the result. Due to this, some of the results must be interpreted with caution as they may not be generalizable to stroke patients.

Other studies of the Yale (Watkins et al. 2001) have excluded patients with severe communication difficulties, therefore there may have been patients with mild to moderate communication difficulties included in this study, however this was not reported. Again, this is a limitation of the study, and it remains unknown whether patients’ level of communication could have impacted on the use of the tool.

However, it must be considered that the simplicity of this tool allows the test to be administered by a variety of individuals with little or no training. The patient response required for this tool would allow responses from individuals with little or no verbal communication, and does not require patients to provide a written response. This may be a benefit in using the tool in patients with communication difficulties.

Visual Analogue Mood Scale (VAMS)

Content

The VAMS is a visual analogue scale designed for the screening of depression. The tool consists of eight cartoon faces and verbal descriptors. Faces are placed at the end of a 10cm line with a neutral face at the opposite end of the line. Participants should mark the point on the line they feel reflects their mood.

Administration

The tool allows for patient to self-rate, taking less than five minutes to complete. The tool has been administered early after stroke; from 0-28 days post-stroke (Arruda et al. 1996).

Sample

The VAMS has been tested between a relatively small sample of stroke patients (n=41, Arruda et al. 1996) with just over half (n=22) of this sample having communication difficulties. Of this number, only n=2 participants were diagnosed with aphasia. In a separate study, a larger sample of stroke patients with aphasia (n=71) was used (Kontou et al. 2012), with n=20 being diagnosed with dysarthria.

Reliability

Test-retest reliability of the VAMS was demonstrated (r=0.75, SD=0.9) when compared over a 20-minute interval (Arruda et al. 1996).

Validity

The ability of the tool to discriminate changes in patient mood over time was assessed following a 30-day interval (Benaim et al. 2010). When compared against assessment from a psychologist on the same occasions. It was found that the VAMS correlated highly with clinical assessments from baseline ($r=0.71$, $p<10^{-6}$) to 30 days post-stroke ($r=0.52$, $p<10^{-3}$), however was only able to discriminate between patients who deteriorated or improved, but was unable to distinguish patients who remained stable.

Tested in stroke patients VAMS also significantly correlated to HADS total ($r_s=0.45$, $p<0.001$) (Bennett et al. 2006). The VAMS was shown to be significantly correlated with the HADS anxiety (p<.01) and depression (p<.01) subscales, as well as total HADS (p<.01).

The VAMS-R was shown to have excellent convergent validity against the VASES (r_s=-0.69, p<0.001) (Kontou et al. 2012) and adequate correlation with the SADQH-21 (r_s=0.43, p<0.001) demonstrating convergent validity.

Additional Information

A revision to the original VAMS which removed two items (‘happy’ and ‘energetic’) demonstrated improved internal consistency from 0.45 to 0.73 (Bennett et al. 2006). Both items would ordinarily have the scales reversed, so that for example the happy face is at the top of the line. However it was noted that often patients with communication difficulties misunderstood the reversed scale, and tended to score the scale as if the neutral face was at the top. This may have influenced the lower internal consistency when these items were included. This also reflects the difficulty of ensuring patients have understood the nature of a visual scale, and that it may be beneficial to use a more simplistic scale with less room for error and misunderstanding.

In another study (Benaim et al. 2010), one of the limitations discussed within the paper was that the results may have been influenced by the communication difficulties of the patients. The authors describe that of a number of the patients (n=9, 19%) had difficulty understanding the instructions for the VAMS. This again highlights the difficult of adapting measures for patients with communication difficulties. These results suggest that the VAMS may not be suitable for patients with more severe communication difficulties.

While the test-retest reliability has been demonstrated, this reflected testing over a 20-minute interval. This may not be the most suitable method of testing test-retest reliability.

Visual Analogue Self-Esteem Scales (VASES)

Content

The VASES is a visual analogue ten item scale, designed for patients’ to self-rate self-esteem; however the scale has also been used as a screening tool for depression. The scale uses written words of opposite meaning at each end of the scale (e.g. ‘Confident’ – ‘Not confident’).Patients are then asked to score each scale with either ++ (very like me) or + (like me), or they can score the scale with a 0, a neutral point of their mood.

Administration

The VASES has evidence to support administration by a SLT (Brumfitt and Sheeran 1999). There is evidence to support the administration of the VASES within the first 30 days post-stroke

(Vickery. 2006). The time required to administer the VASES is not stated within the papers identified within this review.

Sample

The VASES has evidence of its administration in acute stroke patients (n=156), including those with communication difficulties (n=76) including severe communication difficulties (Vickery. 2006)

Reliability

Test-retest reliability of the VASES demonstrated in a group of healthy students. When comparing results of the VASES administered one month apart, the tool demonstrated good test-retest reliability ($r=0.73$, $p<0.01$) (Brumfitt and Sheeran 1999). Not tested in stroke patients with aphasia.

Validity

The convergent and discriminant validity of the VASES was demonstrated, comparing the VASES with another self-esteem scale, as well as a depression scale in a group of healthy students. The VASES was shown to correlate with another measure of self-esteem, the Rosenberg Self-esteem Scale (RSE) ($r=0.61$, $p<0.05$), as well as with the depression subscale of the GHQ ($r=-0.85$, $p<0.05$). Further analysis however indicated that correlations for self-esteem were stronger than those with depression (Brumfitt and Sheeran 1999). In addition, the participants in this study were chronic stroke patients between 3-months to 2.5 years post-stroke.

Additional Information

When the VASES have been used in acute stroke patients with communication difficulties, it appears there may have been misunderstanding of the scale. Patients with more severe language impairment tended to score a reduced range of scores, with a tendency to score the items more positively, suggesting they may not have understood the nature of the scale (Vickery. 2006). In another paper, the psychometric properties were tested with stroke patients, however chronic rather than acute stroke patients. The VASES therefore may not be suitable for patients with more severe communication difficulties or patients in the acute stage post-stroke.

Table 4.C3: Sample description from main study of Carer-rated patient mood screening tool

Mood Screening Tool	Main Paper	Sample	Age Mean (S.D., Range)	Date of Screen Post-Stroke
SADQ-21	(Sutcliffe and Lincoln 1998)	Total N=87 Stroke N=70 Aphasia N=17	Mean 72.4 years, range 49-94	18.6 months
SADQ-10	(Sutcliffe and Lincoln 1998)	Total N=17 Stroke N=17 Aphasia N=17	Not stated	Not stated
SODS	(Watkins et al. 2001)	Total N=137 Stroke N=137 Aphasia = not stated (severe aphasia excluded)	Median 74 years	Acute phase post-stroke – specific dates not reported.
ADRS	(Benaim et al. 2004)	Total n=50 Stroke n=50	Mean 60 Range 28-80	4-174 (mean 60 days)

		Aphasia n=29	(S.D. 13)	

SADQ-21=Stroke Aphasic Depression Questionnaire-21, SADQ-10=Stroke Aphasia Depression Questionnaire-10, SODS=Signs of Depression Scale, ADRS=Aphasia Depression Rating Scale. S.D.=Standard Deviation.

Table 4 .C4: Sample description from main study of patient self-report mood screening tool

Mood Screening Tool	Main Paper	Sample	Age Mean (S.D., Range)	Date of Screen Post-Stroke	Adapted for communication difficulties
DISCs	(Turner-Stokes et al. 2005)	Total n=114 Stroke n=76 Aphasia n=84	Mean 42.8 years (S.D. 14.8)	3 months (median)	Yes – visual scale
Yale Single Item	(Watkins et al. 2001)	Total n=79 Stroke n=79 Aphasia = Not reported	Median 75 years, Range 70-79	14 days	Yes – Single item scale
VAMS	(Arruda et al. 1996)	Total n=41 Stroke n=41 Aphasia n=22	22-92 years (S.D. 12.2)	0-28 days	Yes – visual scale
VASES	(Vickery. 2006)	Total n=156 Stroke n=156 Aphasia n=76	Mean 68.5 years, Range 18-92	2-84 days	Yes – visual scale

DISCs=Depression Intensity Scale Circles, VAMS=Visual Analogue Mood Scale, VASES=Visual Analogue Self-Esteem Scales. S.D.=Standard Deviation.

Table 4.C5: Psychometric properties of carer-rated patient mood screening tools from main paper administering tool

Mood Screening Tool	Paper	Cut-off	Sensitivity/ Specificity PPV/NPV / Overall Accuracy	Reliability (test-retest)	Concurrent/Discriminant Validity
Stroke Aphasia Depression Questionnaire (SADQ-21)	(Sutcliffe and Lincoln 1998)	Not reported	Not reported	SADQ on two occasions correlated at (r_s=0.72, P<0.001)	SADQ compared against HAD Depression (r_s=0.22, p=0.04), with HAD Anxiety (r_s=0.42, p<0.001) and with WDI (r_s=0.52, P<0.001).
Stroke Aphasia Depression Questionnaire (SADQ-10)	(Sutcliffe and Lincoln 1998)	14	Not reported	SADQ10 given on two occasions and correlated at (r_s=0.69, P=0.002).	SADQ10 correlates with HAD depression scale (r_s=0.32, p=0.003) and WDI (r_s=0.07, p<0.001)
Signs of Depression Scale (SODS)	(Watkins et al. 2001)	>1	Sensitivity 81% Specificity 38% PPV=Not reported NPV=Not reported When compared to MADRS	Not reported	Not reported

ADRS	(Benaim et al. 2004)	9/32	Compared to clinical interview Sensitivity 83% Specificity 71%	Test-retest reliability was adequate (k=0.58).	Not reported

SADQ-21=Stroke Aphasic Depression Questionnaire-21, SADQ-10=Stroke Aphasia Depression Questionnaire-10, SODS=Signs of Depression Scale, ADRS=Aphasia Depression Rating Scale. S.D.=Standard Deviation. PPV=Positive Predictive Value, NPV=Negative Predictive Value. r=reliability, k=kappa.

Table 4.C6Psychometric properties of patient self-report mood screening tools from main paper administering tool

Mood Screening Tool	Paper	Cut-off	Sensitivity/ Specificity/ PPV/NPV / Overall Accuracy	Reliability (test-retest)	Concurrent/Discriminant Validity
Depression Intensity Scale Circles (DISCs)	(Turner-Stokes et al. 2005)	≥2	Compared to DSM-IV criteria Sensitivity 60% Specificity 87%	Tested 24 hours from original test by same assessor – weighted Cohen's k test showed excellent agreement (k=0.84)	Concurrent validity – compared to Beck Depression Inventory-II (BDI-II) (0.66), Numbered Graphic Rating Scale (NGRS) (0.87) and DSM-IV (0.59).
Yale Single Item	(Watkins et al. 2001)	1	Compared to Montgomery Asberg Depression Rating Scale (MADRS) Sensitivity 86% Specificity 78% Overall accuracy 82%	Not reported	Not reported
VAMS / VAMS-R	(Arruda et al., 1996)	Not reported	Not reported	Test-retest Reliability for VAMS items Happy, Tired, Afraid, Confused, Sad, Angry, Energetic	Validated against the Profile of Mood States (POMS)

				are (0.71, 0.60, 0.84, 0.43, 0.83, 0.75, 0.44, overall 0.66, SD=16). By removing Confused and Energetic items, the mean test=retest reliability increased to r.0.75, S.D.=0.9.	
VASES	(Vickery. 2006)	<32	Not stated	Not stated	Not stated

DISCs=Depression Intensity Scale Circles, VAMS=Visual Analogue Mood Scale, VASES=Visual Analogue Self-Esteem Scales. S.D.=Standard Deviation. PPV=Positive Predictive Value, NPV=Negative Predictive Value. r=reliability, k=kappa. DSM-IV=Diagnostic and Statistical Manual of Mental Disorders-IV.

Table4.C7 Summary of suitability criteria for carer-rated patient mood measures

Tool	Free to use	Tested in stroke patients	Tested in patients with communication difficulties	Suitable for use early post-stroke	Reliability	Validity	
						Convergent or Discriminative Validity	Sensitivity and specificity
SADQ-21	✔	✔	✔	X	✔	✔	X
SADQ-10	✔	✔	✔	X	✔	✔	X
SODS	✔	✔	✔	✔	X	✔	X
ADRS	✔	✔	✔	✔	✔	X	✔

SADQ-21=Stroke Aphasic Depression Questionnaire-21, SADQ-10=Stroke Aphasia Depression Questionnaire-10, SODS=Signs of Depression Scale, ADRS=Aphasia Depression Rating Scale.

Table 4.C8: Summary of suitability criteria for patient self-report mood measures

Tool	Accessible presentation		Quick and easy to administer	Free to use?	Tested in stroke patients with aphasia	Suitable for use early post-stroke	Test-retest Reliability	Concurrent or Discriminant Valid	Sensitive and Specific
	Short	Visual and written							
DISCs	✔	✔	✔	✔	✔	X	✔	✔	X
Yale Single Item	✔	X	✔	✔	✔	✔	X	X	✔
VAMS	✔	✔	X	X	✔	✔	✔	✔	X
VASES	✔	✔	X	X	✔	✔	X	✔	X

DISCs=Depression Intensity Scale Circles, VAMS=Visual Analogue Mood Scale, VASES=Visual Analogue Self-Esteem Scales.

4. C4 Discussion

This review has highlighted the depression screening tools currently in clinical use with supporting published evidence for the in stroke patients with communication difficulties. Within previous research (Gordon and Hibbard 1997) as well as government guidelines, multiple sources of information to assess patient mood should be used, rather than one single assessment. In light of this suggestion, the aim of the review was to select a suitable tool to assess mood from both the patient and proxy (carer/staff) perspective. In addition to using multiple sources, the tools designed for self-report should be presented in a variety of methods, including both written questions and visual scales. Finally, screening tools should also meet the requisite decision criterion stated in section 4.C2.

Of proxy-rated tools, four tools were identified. These included the SADQ-21, the SADQ-10, SODS, and the ADRS. All four of the tools were able to meet the criterion of being free to use, with versions available for download online. All tools had evidence to support their use in stroke patients; with the majority of studies including patients with communication difficulties. All self-report tools had been tested in stroke patients, including those with communication difficulties. The DISCs and Yale had the advantage of being quick to administer and free to use. In addition, both of these tools met the criteria of having adaptations to suit patients with communication difficulties.

The tools were examined for their psychometric properties, including their level of sensitivity and specificity. Tools were expected to show a score of 80% or above sensitivity and 60% or above for specificity. In relation to proxy-rated measures, the SODS had been widely used, and was able to demonstrate validity, but did not have evidence to support both sensitivity and specificity. Carers were shown to achieve higher sensitivity (90%) than when rated by nurses (64%), suggesting the accuracy of the tool may be dependent on who is rating (Lightbody et al. 2007), however specificity levels for both carers and nurses was lower than desired. The ADRS demonstrated positive psychometric properties; however the mixed scoring method of this scale was considered a limitation. Both SADQ and SADQ-10 were able to demonstrate reliability and validity, although both lacked indication of sensitivity and specificity of these measures.

Of the self-report tools, the SODS and the Yale were both able to meet this criterion. However, due to the nature of the patient needs in the feasibility study, a visual analogue scale was required for use. Of the three visual scales, DISCS, VAMS and VASES, no single scale was able to meet the requirements. It was felt that when compared against the other requisite decision criteria, the DISCs was more appropriate for use. This DISCS is freely available, quick to use in clinical practice and suitable for patients with aphasia to self-rate. The scale has been shown to have strong test-retest reliability after a 24hour delay. In addition, previous studies had identified concerns of the use of the VAMS in patients with communication difficulties post-stroke, with many patients unable to complete the measure. The psychometric properties of self-report tools were also considered. Both the DISCs and VAMS demonstrated test-retest reliability, but only the Yale single item was able to report sensitivity and specificity measures.

Based on criteria set out in section 4.C2, no single tool was able to meet all the desired criteria. However, informed by the information reported in studies evaluating each tool and any additional relevant information, a number of tools which best suit the requirements were identified. In using a combination of both patient self-rated and proxy-rated tools, as has been suggested to be the most recommended process due to the difficulties of measuring post-stroke depression (Gordon et al. 1997). In terms of proxy-rated tools, it was felt the most suitable tools are the SODS and SADQ-10. Both tools had practical strengths, such as being quick to administer, as well as having evidence to support their psychometric properties. The most suitable self-report tools for patients with communication difficulties were felt to be the DISCs and Yale single-item. Both tools use different adaptations to allow completion by patients with communication difficulties (visual and shortened format), and both demonstrated strength in aspects of their psychometric properties.

4. C5 Limitations of the review

While there may be a number of mood assessment tools in clinical use for stroke patients with communication difficulties, this review only included tools with supporting published evidence. Tools have therefore been excluded from this review based on the lack of published evidence. These tools include the Profile of Mood States (POMS, (McNair et al. 1971).

4. C6 Summary

In summary, evidence suggests multiple methods of assessing mood should be employed to screen for depression after stroke. In particular adjusted measures should be used for patients with communication difficulties. Furthermore, measures should be administered over a number of time points and not limited to a single administration.

To this end, tools examined in this review included both proxy and self-rated. Self-rated tools included those adapted to widen accessibility for those with communication difficulties.

Three of the tools are designed for observation of the patient by another (SADQ-21, SADQ-10, SODS, ADRS). Of these three tools, none had sufficient evidence to support its validation in stroke patients to a desired standard. The SADQ-10 and SODS have therefore been selected as two suitable screening tools for observation of the patient.

Four of the tools were designed for the stroke patient to self-administer (DISCs, Yale, VAMS, VASES).

This review highlights that tools used in patients with communication difficulties have often had limited validation in such a patient group. There is a need for future research that identifies which tools are suitable for use in this population, and the reliability and validity psychometrics which reflect the tool's suitability. The review has also shown that while tools may not have evidence to support validity and reliability in this population, the limited number of such tools mean that these tools continue to be used. Results of studies which employ these tools must therefore be interpreted with caution as to their accuracy.

The results of this review will inform the choice of measures used within the patient feasibility trial. This will be described further in the next chapter. Chapter Five will describe the methods and methodologies behind conducting MI sessions with patients with communication difficulties after stroke.

4.2 Discussion

Overall this chapter has carried out three integrative literature reviews to identify screening and assessment tools of communication and mood suitable for use in patients with communication difficulties post-stroke.

The first review focused on language screening tools. This review established that while there are a number of tools available, the published evidence to support the validity of these tools is often in stroke patients with normal communication, and evidence to support the use of the tools in patients with communication difficulties is limited. A number of the tools had only a single study presenting results of psychometric properties. In addition, there were methodological weaknesses in of some validation studies, such as one study not recruiting patients consecutively. Despite these limitations, the screening tool found to be the most suitable was the FAST.

The second review focused on comprehensive language assessment tools. The review highlighted that while there are numerous tools which were available, the evidence to support these tools in stroke is limited and may not be robust. Furthermore, many validation papers refer to the tool manual for evidence supporting the validation of the tool. However, to access this information would entail purchasing the manuals and therefore due to the costs which would be incurred, for the purpose of this thesis this data was not considered. Based on information of the studies published in academic journals, the CAT demonstrated suitable properties both practical and psychometric and was therefore considered the most suitable tool.

Finally, the third review explored mood screening tools. While many papers were discovered which evaluated the psychometric properties of the tools in stroke patients, finding them to be reliable and valid, these studies often excluded patients with communication difficulties. In excluding these patients it is unclear whether these tools would accurately screen those with communication difficulties. Of the tools which had been developed for and tested in a stroke population with communication difficulties, the validation studies of these tools are not extensive, with most tools having one to two validation studies, generally undertaken by the people who have developed the tool. Therefore while there is an indication of how well the tools will work, further validation studies are required. In spite of the limited information, tools were identified which would allow for patient self-report and for proxy-ratings, allowing multiple method of assessment to be considered (Gordon et l. 1997). In terms of patient self-report measures, the DISCs and Yale single item. Observer rated tools were also examined and the SADQ-10 and SODs were identified as the most suitable tools.

The identification of these tools informed the decision of which tools would be suitable for use in a feasibility study involving patients with moderate to severe communication difficulties. This feasibility study will be described further in Chapter five.

Chapter Five: MI Sessions with patients with communication difficulties post-stroke

5.1 Introduction

In the previous chapter a literature review was undertaken to summarise the existing literature exploring stroke measures in relation to communication screening and assessment tools, and mood screening tools. While there is evidence to support the use of a small number of validated measures, this is frequently limited to stroke patients with normal communication. The review emphasised that while there are measures with excellent reliability and validity when tested in patients with communication difficulties, these remain few in number. Therefore results from such measures should be taken with caution, as the validity of a tool may alter when applied to a different participant group than those designed for. The review aided the selection of suitable tools to measure both communication and mood in a feasibility study providing MI to patients with communication difficulties after stroke. This chapter will present the feasibility study.

Within this chapter, the aims and objectives will be presented; followed by a description of methods used and data analysis. Results will be presented as individual patient case studies. Each case study will provide a patient biography, details of patient communication and mood, followed by results of the MI session analysis. A summary for each patient will then be provided, documenting any changes occurring over time, or themes emerging from session analysis. The MI content presents which MI techniques have been used, whether these have been adapted, and how consistent these are within and across sessions. An overall summary of the main findings across participants will then be reported. Finally, the main strengths and weaknesses of this phase will be discussed.

Aim

- To explore the feasibility of providing Motivational Interviewing in stroke patients with moderate to severe communication difficulties.

Objectives

- The minimum level of communication ability required by stroke patients to participate in MI sessions;
- Explore the adaptation of MI in sessions and the impact this has;

- Describe communication strategies employed by both patients and therapists during MI sessions.

5.2 Methods

Design

A series of single patient case studies.

Setting

Recruitment took place in the acute stroke unit within a hospital situated in the North West of England. The hospital has a 21-bed stroke unit, which is slightly lower than the national median of 23-beds per stroke unit (Stroke Sentinel National Audit Programme (SSNAP), RCP, 2012 p.36). Of the 21 beds, 12 were used for patients in the first 72-hours post-stroke, with 9 beds solely used for patients beyond 72-hours. Between April 2011 and March 2012, the ward admitted 401 stroke patients. This falls slightly below the national median of 413 patients (SSNAP 2012 p39).

While the hospital had access to a clinical psychologist (0.1 work time equivalent (WTE)), there was no clinical psychologist dedicated to the stroke ward. Similar to many hospitals across the country, there was a waiting list of over five days to access this service (SSNAP 2013, p12). With such limited access to psychological support for stroke patients, there was a need for additional support to be made available. This was one of the reasons for selecting the hospital for the study.

The hospital demonstrated its involvement in stroke research, with the Research and Development department being registered with six stroke studies. This was higher than the national median of 4. The hospital allocated a research nurse at 1.5 WTE to support with data collection. This again falls above the national median of 0.8 WTE for data collection (SSNAP 2012, p64).

Within the clinical stoke team; both the lead stroke physician and a stroke specialist nurse were interested in psychological support after stroke. The focus on research within this hospital was another reason for choosing this site for the current study.

Sample

Consecutively presenting patients with a suspected stroke admitted to the study hospital. Screening logs were maintained for the duration of the study, recording the number of patients who were suitable to enter the study, the number who refused or were unsuitable and the reason why if given.

Inclusion criteria included that the patient:

- was aged 18 or over;
- had a diagnosis of stroke (based on the World Health Organisation (WHO) criteria);
- was medically stable based on clinical assessment;
- had moderate to severe communication difficulties based on the Communication Observational Assessment Tool, COAT);
- had the capacity to consent (based on clinical staff judgement);
- lived within the hospital catchment area.

Exclusion criteria for patients in this study included if the patient:

- lacked capacity to consent (based on clinical staff judgement);
- was receiving current psychological input;
- had no verbal expression.

Patients meeting these criteria were approached to participate in the study. The original aim was to recruit the first six consecutive patients meeting inclusion criteria, with the following six patients selected using purposive sampling with a view to select patients across the range of the three communication ability levels.

Participants were selected based on communication ability using the COAT which was developed for this study. The development of the tool is described below. The study aimed to recruit approximately 1/3 of participants from categories of poor, 1/3 moderately severe, and 1/3 severe communication, with between six to twelve participants wanted for recruitment. Carers of these participants were recruited where possible to provide supporting information.

Development of the COAT

The Trust did not administer a communication screen as part of standard clinical practice; however it was felt that some form of communication assessment was required to describe the level of communication ability. A method of assessing communication was required which was not disruptive to staff or patients. This led to the development of the COAT (see Appendix 6).

The COAT was developed with the aim of providing a description of a patient's communication ability without the need for a formalised assessment. The tool allows clinical staff to judge patient communication impairment based on routine interactions.

Development of the tool began by examining videos of patients with aphasia in order to view the nature of communication difficulties occurring during conversation. Independent viewings of these videos by the author, trained MI therapists, and a SLT were undertaken. Raters were asked to rate communication ability and identify those who may be able to participate in the feasibility study, and those who definitely would not be able to participate. Taking into account all three views, the level of which participants may be able to participate and those definitely excluded were established. The criteria for the three levels of severity of communication difficulty were described, outlining the communication characteristics patients at each level of severity may demonstrate. The development of these criteria was led by the SLT. Within the inclusion criteria for communication ability, impairment was broken down into three levels (poor communication/moderately severe/severe). Once these criteria were established, the SLT provided a checklist of symptoms which corresponded to each level of communication difficulty.

Procedure

Screening

Patients were screened for suitability for the study based on communication ability. Using the COAT (see Appendix 7 for the finalised COAT tool), clinical staff were able to observe the patient's symptoms, and judge which level of communication difficulty they felt the patient may have. If levels of communication difficulty matched with the COAT, as well as other inclusion criteria, they were approached for inclusion in the study.

Invitation

Patients meeting eligibility criteria were approached by a member of the clinical/research team who provided the patient with an information sheet regarding the study. Study information was adapted for patients with communication difficulties. Following Good Clinical Practice procedures, patients were provided with a minimum of 24 hours to consider participation. Those expressing an interest in participating were seen by a member of the research team to answer any questions. This procedure has been shown to be the most effective method of ensuring research participants understand the consent process (Flory. 2004). When possible, carers were present during information giving.

Consent

Patients agreeing to take part were asked to provide written informed consent by the Research Nurse or member of the research/clinical team. At this point, the person taking consent re-checked capacity. A witness consent form was made available for patients who may have had capacity to consent but were not able to sign. Witnessed consent was sought from clinical staff, or a family member.

A copy of the consent form was given to the patient and a second kept in the case notes. The original copy of the consent was kept by the research team. In all instances, consent was sought with the support of a SLT if the member of the research/clinical team felt it was required. Carers of the participants were also asked to sign a consent form in order to collect depression ratings. With the patient's permission, a letter was sent to the patient's GP informing them of the patient's participation in the study.

Measures

There is a current focus in research to seek the views of service users and their caregivers when developing health services. Consulting patients about services is important in all stages of care development, and is essential if the health care is to meet their care needs and expectations (Damschroder et al. 2009; Rycroft-Malone 2004). In addition, service users themselves will have a good idea of relevant questions to be asked, and how to ask these questions (Goodare and Lockward 1999). To finalise measures used in this study, a panel of stroke service users and caregivers were involved in evaluating the final measures used in this study. All measures used within the study were approved by this group.

Therapist Measures

Communication was measured using the FAST (Enderby et al. 1987). The FAST is a well-established aphasia screening tool used in clinical practice (the FAST is described in more depth in section 3.2). To provide a more in-depth measure of communication, the Comprehensive Aphasia Test (CAT, Swinburn et al. 2004), was undertaken by a SLT. The CAT is an aphasia battery, designed to assess language impairment in people with aphasia (the CAT has been described in more detail in 4.B3)

The Addenbrooke's Cognitive Examination-Revised (ACE-R, Mioshi et al. 2006) is a well-used measure of cognition (the ACE-R is described in more detail in section 3.2).

The Barthel Index (Wade and Collin 1988) is a measure of functional independence. The Barthel is a ten-item scale rating the patient's level of dependence in activities relating to activities of daily living. Scores can range from 0-30. Patients with a higher score have a higher level of independence.

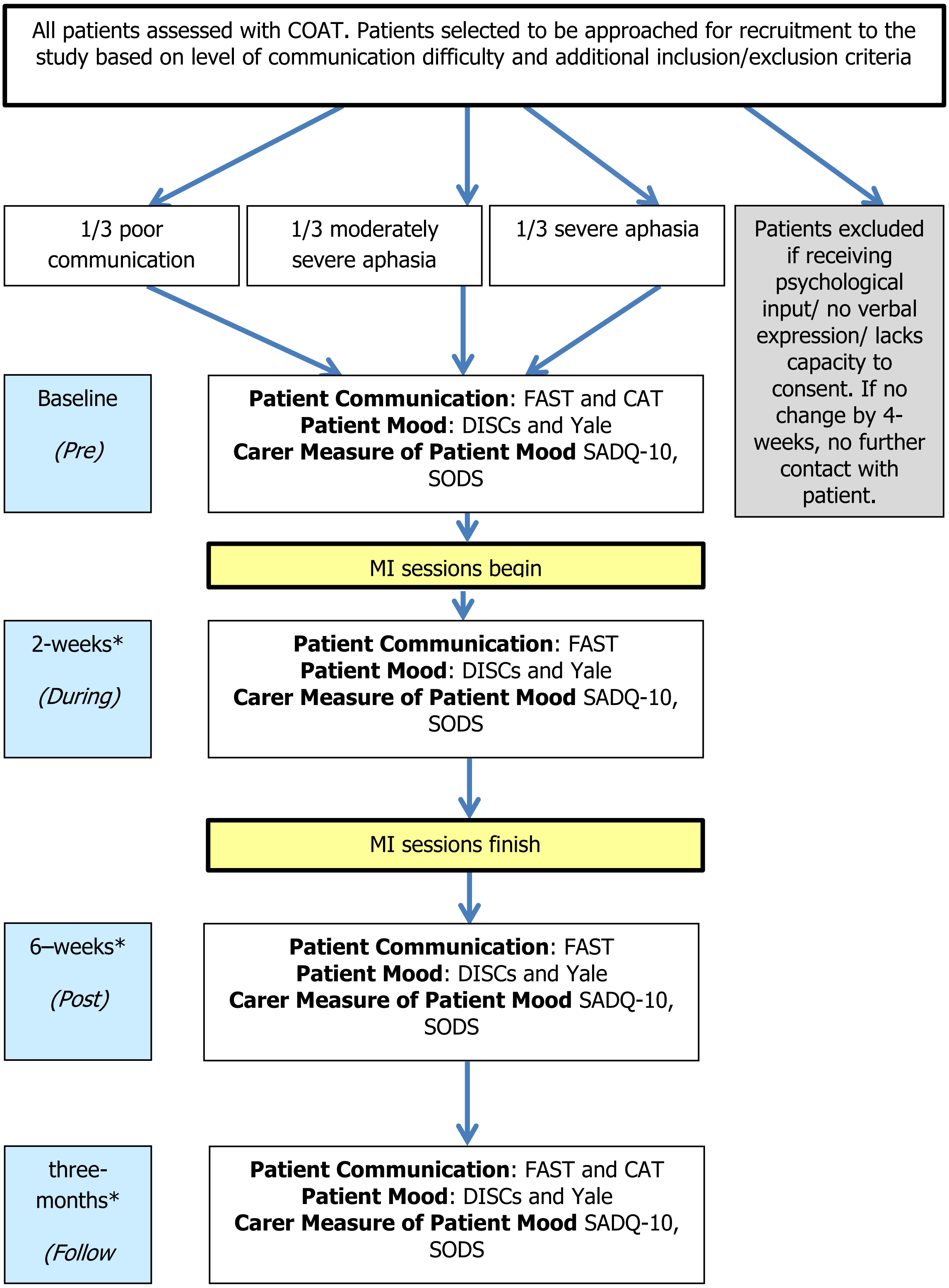
Self Report

Mood measures taken included the Yale Brown single item (responding yes/no to, 'Do you often feeling sad or depressed?'), and the Depression Intensity Scale Circles (DISCs, Turner-Stokes et al. 2005). Both measures are described in more depth in section 4.C3.

Carer Measures

Measures of mood include the Stroke Aphasia Depression Questionnaire (SADQ-10, Sutcliffe and Lincoln 1998) and the Signs of Depression Scale (SODS, Hammond et al. 2000). These tools have been described in more detail in section 4.C3.

Table 5.2.1: Flowchart showing timeline of patient and carer measures for the study



***+/- 2 weeks**

MI=Motivational Interviewing. COAT=Communication Observational Assessment Tool, FAST=Frenchay Aphasia Screening Test, CAT=Comprehensive Aphasia Test, DISCS=Depression Intensity Scale Circles, SADQ-10=Stroke Aphasic Depression Questionnaire, SODS=Signs of Depression Scale.

Intervention

Baseline

All basic demographic details (age; sex; stroke severity; history of psychological problems) were taken from medical notes by the Research Nurse or Therapy Assistant. Assessments were taken as soon as possible after the patient consented and within one month of stroke onset. As mentioned above, these included:

- Communication (Frenchay Aphasia Screening Test (FAST));
- Cognitive Function (Addenbrooke's Cognitive Examination-Revised (ACE-R));
- Functional Dependence (Barthel Index);
- Mood (Yale Single item, Depression Intensity Scale Circles (DISCS)).

In addition, a SLT also provided a comprehensive assessment of communication at baseline:

- Communication (Comprehensive Aphasia Test (CAT))

Where there was a carer involved, carers were asked to provide measures of the patient mood, beginning at baseline:

- Mood (Signs of Depression Scale (SODS), Stroke Aphasic Depression Questionnaire (SADQ 10))

Any field notes which were considered pertinent to the study were documented and are available in Appendices 11 and 12.

Motivational Interviewing

Motivational Interviewing (MI) is a person-centred, directive, talk-based therapy. Using specific MI techniques, the MI therapist increases awareness and the importance of change through sensitively amplifying the discrepancy between current issues and the person's goals or personal values. Then confidence is built through supporting self-efficacy, enabling the person to develop motivation and readiness to change. In essence, MI is a way of being with and interacting with a person that helps them move towards change and adjustment to life after stroke. MI therapists communicate in a way that elicits the person's own reasons for change and view of the advantages of change.

Traditionally, MI is used in the context of changing problematic behaviour, where MI is directed at a specific problem behaviour, such as in the field of addictions (Miller et al. 1991). MI therapy techniques in the feasibility study will be used in a different context, early after stroke. The MI in this context will aim to develop motivation to engage in the rehabilitation process, to facilitate adjustment to having had a stroke and to promote a sense of self-efficacy in managing life after stroke.

MI communication is used to address the concept of adaptation and personal adjustment and to elicit the patient's realistic goals for the future. These goals can relate to personal, interpersonal or social issues and may involve behavioural, psychological or emotional changes. The barriers to achieving goals are identified, and the person's ambivalence and conflicts about overcoming these are addressed. Self-efficacy is encouraged through eliciting the person's own solutions and previously successful strategies.

The original trial of MI in stroke (Watkins et al. 2007) provided weekly hour-long sessions of MI over four weeks. In order to meet the needs of the patients in the current study, sessions were altered to instead provide a greater number of shorter MI sessions. The eight half-hour sessions of MI provided in this feasibility study had a guided structure. The first session was an introductory session, where the therapist sets the agenda and the patient talks about their experience of the stroke and current concerns. One key aim of this initial MI session is to allow the therapist to build a rapport with the patient, leaving the patient feeling comfortable and able to discuss any issues. The second to the seventh sessions involved working through patients concerns. There was no set topic list for the interviews; rather the therapist was to allow and encourage the patient to express their current concerns. Therapists also elicited patients' personal, realistic goals for recovery and perceived barriers to attaining these. Therapists needed to express empathy, identify and highlight discrepancies in the patient's cognition or behaviour, explore resistance and support self-efficacy. They did this through asking open-ended questions, reflective listening, affirmations, and reframing. By working with patients' difficulties and ambivalence, and through supporting and reinforcing optimism and self-efficacy, therapists enabled patients to identify their own solutions. The eigth and final session used a review-and-conclude approach to terminate the intervention in a mutually satsifactory manner.

Any alterations to the delivery of MI were documented in video recordings of the sessions, as well as in session notes.

Communication Aids

In order to facilitate communication within sessions, a number of strategies were used. Strategies were suggested by the SLT who had assessed patients, or from SLT staff in the hospital who had worked with the patients.

One communication aid used was Talking Mats (Murphy. 1998). Talking Mats is a simple low-tech method of facilitating communication, using a set of cards with written words and a corresponding picture. The resource has been developed based on the World Health Organisation's International Classification of Functioning, Disability and Health framework (World Health Organization. 2001). The nine categories of the ICF (domestic life, relationships, work and education, leisure, learning and thinking, ways of coping, communication, mobility, and self-care) have been converted into cards for Talking Mats to provide a starter topic of conversation. Within these nine categories, symbols further explore each topic. Emotion symbols allow patients to express their views on a particular topic, such as 'happy' or 'angry'. Finally, pictures can be moved on the mat to demonstrate their thoughts on a topic, for example choosing whether they feel 'happy', 'unhappy', or 'unsure'. While Talking Mats may not be suitable for all participants; it has previously been used with success in patients with communication difficulties after stroke (Murphy 2000), and therefore may be a useful resource to provide a conversation starter for some.

Other communication strategies used were using pen and paper to write or draw, use of gesture and facial expression. Therapists were advised to slow speech if necessary, or to use multiple methods to express a point.

Intervention Design

Patients received up to eight sessions of MI, consisting of two half-hour sessions per week for four weeks. The delivery of MI sessions was altered from the original trial due to the predicted cognitive demand that engaging in MI sessions would entail for these patients, and the additional fatigue that may be experienced. All sessions were video and audio recorded where possible.

MI sessions were delivered by the same therapist in hospital or at home, depending on patient preference. Patients who have been discharged home could choose to return to the hospital as an outpatient for their MI session. Sessions were video-recorded to allow therapists to reflect on, and prepare for, the next sessions, and check consistency of technique. Video footage was later analysed. Therapist competence in MI was assessed using the Motivational Interviewing

Skills Code (MISC version 2.1, Miller et al. 2008). Data collected included the location, duration and overall content of each of the sessions. On concluding the intervention, participants reverted back to usual care.

MI Therapists

Three Therapy Assistants were recruited from the multi-disciplinary team (MDT) based on the stroke ward. In order to ensure comparability of therapists, interventions were delivered by staff with comparable skills and comparable interaction within the MDT. Having recruited three staff, basic training was then provided.

Training Programme for MI Therapists

Staff received training in MI via introductory workshops, delivered by MI therapists from a previous study (Watkins et al. 2007). The training lasted one day a week for up to nine weeks, including independent learning sessions. Training incorporated the theory behind the intervention and the psychological mechanisms that effect change. Introductory training was followed by practice sessions with each other, with standardised patients and finally ten practice sessions with volunteer patients until confidence and threshold competency in delivering the intervention was achieved. The practice sessions were audio recorded to assess competency (using the MISC) and adherence to the MI manual. Practice sessions were discussed during individual supervision as part of the training programme. On-going supervision was provided. Therapists provided MI sessions to patients with normal communication after stroke for approximately five months in order to increase confidence before working with patients with communication difficulties.

Follow-up Measures

Follow-up measures were taken by therapists and SLT over a number of time points. These are displayed in Table 5.2.1. Measures taken at each time point are discussed below.

2-weeks (Mid therapy measure)

Patients were asked to complete follow up measures including FAST, Yale and DISCs. Where possible, carers were asked to provide follow-up measures including the SADQ-10 and SODS.

6-Weeks (Post-therapy measure)

Patients were asked to complete follow up measures including FAST, Yale and DISCs. Where possible, carers were asked to provide follow-up measures including the SADQ-10 and SODS.

Three-months (Final follow-Up)

At three months post-stroke, patients were asked to complete follow up measures including FAST, Yale and DISCs. In addition, the SLT carried out a final CAT to assess communication. Where possible, carers were asked to provide follow-up measures including the SADQ-10 and SODS.

Safety

Patients

If a patient expressed to a member of the research team (including the therapists), either verbally or in writing, psychological issues that are of concern because they were indicative of emotional distress that may lead to harm, the member of the research team would inform the clinician responsible for the patient's care immediately. The patient would be informed of the actions taken.

Responses to mood questionnaires were reviewed. Any participants indicating low mood on the DISCs (scoring 2 or above) had their GP contacted. Any further action was left to the GP.

Staff

In discussing a participant's emotional response to the effects of stroke, the MI therapists may themselves have become distressed. Therapists had regular supervision and de-briefing to ensure issues raised were dealt with in a timely manner.

Finance

No payment was made to participants involved in this study. All appointments were scheduled as far as possible during routine patient pathways. However if additional costs were incurred as a result of extra travel, participants were reimbursed the equivalent cost of public transport.

Ethics and Governance

Ethical approval was sought and granted from NRES Committee North West – Preston (See Appendix 8), as well as University of Central Lancashire's ethics committee (Ethical Committee for Building, Sport and Health (BuSH) (See Appendix 9)). In addition, ethical approval was sought and granted from the Research and Development department within the study hospital (See Appendix 10).

Patient, Carer and Public Involvement (PCPI)

A PCPI group was consulted during the development of the study protocol. A patient representative from the Stroke Research Network rehabilitation study group was also involved in reviewing drafts of the study protocol.

Study withdrawal

Participants could withdraw from the study at any time without providing a reason. Conversely, a member of the clinical team may identify a change in patients' physical or mental status and withdraw a participant from this study in the interest of a participant's care. Staff were provided with information regarding such potential patient changes through the training package. Data collected prior to withdrawal could continue to be used for analysis with the participant's consent. Participants wishing to stop the intervention without withdrawing from the study would be asked to complete follow-up questionnaires.

Data storage

All information collected during the course of the study has and will be kept confidential. All information collected had identifiers removed where possible so that the participants could not be recognised from it. Patients and staff were allocated a unique identifier in the form of a study number by the screening staff. The identifier key was stored separately to the data collection forms and interview transcripts in a locked cabinet. A study file held original consent forms and was also stored in a separate locked cabinet. The patient log was kept at the study hospital and stored in a secure cabinet in a locked room for the duration of the study. On completion of the study, this was then transferred to the University of Central Lancashire where it was stored securely along with other study data. Other research staff (i.e. members of the research team) may have access to the data when anonymised. The collected data will be stored in a locked cupboard in a locked room for ten years. After ten years, the data will be destroyed.

As part of this study, video-recordings of MI sessions were taken. It was not possible to anonymise video recordings; however participants were made aware of this during the consent process. Participants were asked to consent to having their sessions video-recorded for analysis by the research team; to having these videos used for future training purposes: as well as possibly using these videos in presenting results. At the end of the study, participants had the option to withdraw their video data.

Audio or video recordings and transcriptions of interviews were stored on an encrypted storage device in a secured room with controlled access. Information held on the University of Central Lancashire (UCLan) network was secured with password-protected access. Only members of the research team had access to this data and all access was monitored by the Project Coordinator. All data storage and transfer followed the University Data Protection Code of Practice.

5.3 Analysis and Interpretation of Findings

Analysis was based on video recorded MI sessions, in addition to quantitative measures of communication and mood taken throughout the study.

All MI sessions were video recorded for analysis. Data was analysed using the qualitative data management programme NVivo 10. The analysis investigated the impact of communication ability on MI, as well as exploring communication strategies used by therapists in sessions to facilitate participation.

All video footage was independently assessed by a member of the research team and the author. The analysis was carried out using the MISC.

Motivational Interviewing Skills Code (MISC)

The footage was also used to assess fidelity to MI principles using the MISC (Miller. 2000). This included providing global MISC ratings for the therapist, patient and the interaction between the two. Global scales take a holistic view of the MI session, and allow evaluation of the therapist of seven aspects; MI spirit, empathy, acceptance, egalitarianism, genuineness and warmth. Scores range from 0-7 for both therapist and patient in each session and overall provide an overall view of these seven aspects within each of the sessions (MISC 2.1, 2008).

An additional way to establish fidelity to MI in sessions was to code utterances individually. Following MISC guidelines, counts of behaviours were taken, breaking down therapist responses into MI consistent, inconsistent, or other. Calculations could then be carried out to establish the proficiency of the therapist, with the MISC (2000) providing recommendations for minimum levels to be reached for both ‘expert’ and threshold scores for novice MI therapists, with expert therapists expected to achieve higher MI consistency. For the purpose of this analysis, both global ratings and per cent of MI consistent behaviours will be considered. These are presented below in Table 5.3.1.

Table 5.3.1: MISC suggested performance indicators

MI Behaviour	Ideal (Expert) level	Threshold proficiency
Therapist global ratings	>0.6	>0.5
Per cent of MI consistent	>90%	>80%

MI=Motivational Interviewing

In addition to MISC analysis of video footage, quantitative measures of mood and communication were taken. Descriptive analysis will be used to explore change of mood and communication over the study. A comparison between patient scales and carer scales of mood will be carried out to explore any disparity between the two.

This analysis will examine patterns in communication ability over time, patterns in mood over time and relationships between patient and carer measures of mood over time.

Results from qualitative and quantitative measures will be triangulated to observe any relationships. Triangulation of the results will build a stronger evidence base for findings.

5.4 Results of Patient MI session analysis

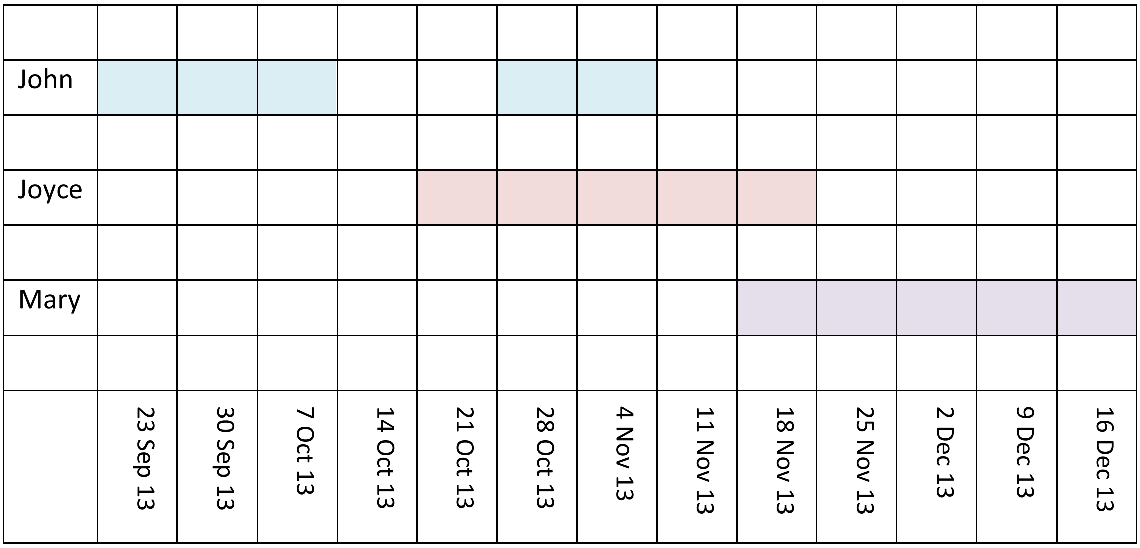
Screening and recruitment

Information on screening and recruitment is described in detail in section 6.3.1.

Delivery of the sessions

The information displayed below in Table 5.4.1 displays the timescale of the study intervention, highlighting the weeks sessions were held with each patient. An overlap of sessions across the three patients can be observed. The timescale for John deviated from protocol in the time from screening to consent. There was a delay in gaining written consent from this patient due to staff concerns. The patient had been screened as suitable and approached with a study information pack. On providing verbal consent to the study, members of the clinical team disputed his capacity to consent due to his communication difficulties. This led to a delay until SLT members of the team were able to ensure his ability to consent. The delay in gaining consent therefore led to further measures being taken later than planned. In addition, the timespan of delivering MI sessions was longer than planned due to participant illness; therefore sessions were delivered over seven weeks in total, deviating from the four weeks originally planned. This is described in more detail in Appendix 11. Joyce had sessions delivered across four weeks and one day, and Mary had sessions delivered within four weeks.

Table 5.4.1: Dates of MI sessions for the three participants



John	🟦	🟦	🟦			🟦	🟦						
Joyce					🟥	🟥	🟥	🟥	🟥				
Mary									🟪	🟪	🟪	🟪	🟪
	23 Sep 13	30 Sep 13	7 Oct 13	14 Oct 13	21 Oct 13	28 Oct 13	4 Nov 13	11 Nov 13	18 Nov 13	25 Nov 13	2 Dec 13	9 Dec 13	16 Dec 13

MI=Motivational Interviewing

Results from the feasibility study will now be presented for each patient in turn.

5.5 MI Session Analysis: 'John'

5.5.1 Patient Biography

For the purpose of discussion, this patient will now be referred to as John. John is a gentleman aged 44 at the time of his stroke. Prior to the stroke he had separated from his wife, with whom he had four children, aged from teenagers to early twenties. Prior to the stroke, the children lived with their mother, while he lived in a shared house with a number of male housemates. He worked as a roofer, and enjoyed spending his spare time watching Liverpool FC, playing five-a-side football, doing photography and socialising with friends.

Following the stroke, John had very limited verbal communication (1/30 on FAST at baseline) including reduced verbal expression (0/10) and comprehension (1/10 on FAST). He had physical weakness on his right side, and was unable to use his upper and lower limbs without support. Table 5.5.2 provides details of measures of communication (Frenchay Aphasia Screening Test (FAST), Comprehensive Aphasia Test (CAT)) for John which will be discussed further below. In addition, mood scores (Depression Intensity Scale Circles (DISCs) and Yale Single Item) for John were taken from baseline to three-months post-stroke. These are shown in Table 5.5.3. It was not possible to obtain carer measures of patient mood for John. A test of cognition was taken at baseline with John (ACE-R) with results displayed in Table 5.5.2.

In the early stages of his stroke, John had severely limited expressive language, and would often vent his frustration through swearing. Over time however he was able to control this, and would replace swearing with the word ‘eek’. The stroke had also weakened John’s right side, leaving him unable to walk or to use his right hand. At baseline, John scored 4/20 on the Barthel Index of Activities of Daily Living, reflecting the severity of physical disability and high level of dependency he suffered. However not all questions were completed, therefore this score may be unreliable (see Appendix 11 for further details).

Over the course of the MI sessions John had improved in a number of areas. In his speech, he became able to say numbers, and the names of his children, along with a small number of other words. Physically John became able to move from sitting to standing, although he remained unsteady and required support to do this. He remained unable to use his right arm despite continuing physiotherapy.

5.5.2 Cognition

Table 5.5.1: ACE-R scores for John taken at baseline

ACE-R Sub-tests	**Baseline Scores**
Attention and Orientation	2/18
Memory	0/26
Fluency	0/14
Language	9/26
Visuospatial	1/16
Total	**12/100**

MI=Motivational Interviewing

The scores shown in Table 5.5.1 displays John’s scores from the ACE-R test for cognitive ability. The scores suggest that at baseline, John was functioning at a very low level, being unable to gain any score for the subsections of memory or fluency. However, there are a number of factors which may have impacted on these scores, such as the test design, as well as administrative staff training and confidence. The design of the ACE-R assumes that patients are able to communicate independently; therefore the test is not fully suitable for patients with communication difficulties. For example, a patient may score poorly due to their inability to read or write a section, rather than due to cognitive difficulty. In addition, in John’s case, there were a number of issues which may have compromised the validity of the data (further details provided in Appendix 11).

5.5.3 Communication

As previously described, John's communication was assessed using the FAST and CAT. The results from these measures are presented below in Table 5.1.1. The scores from the FAST indicate a very slight improvement from baseline (1/30) to three-months post-stroke (7/30). However a score of 7/30 on the FAST would still indicate a patient with severe difficulties.

Scores from the CAT indicate that John's communication was severely affected when tested at baseline, scoring only minimally on subtests of comprehension and failing to score in subtests of expression. When re-tested at three-months, John's language shows minimal improvement, with slightly higher scores of comprehension and expression. The area of improvement for expression scores fall in to include the 'repetition' category, a process which within the psycholinguistic model of language would bypass cognition and consequently would not impact on comprehension or expression of communication within conversation.

Table 5.5.2: Communication scores for FAST and CAT for John from baseline, mid-therapy, post-therapy and three-months.

FAST Subscales	**Baseline**	**Mid-Therapy**	**Post-Therapy**	**three-months**
Comprehension	1/10	1/10	4/10	6/10
Expression	0/10	0/10	0/10	1/10
Reading	0/5	0/5	0/5	0/5
Writing	0/5	0/5	0/5	0/5
FAST total	1/30	1/30	4/30	7/30
CAT Comprehension	**CAT: Language Comprehension**			
Written language	10/62	n/a	n/a	10/62
Spoken language	15/66	n/a	n/a	21/66
CAT Expression	**CAT: Language Expression**			
Written language	0/76	n/a	n/a	0/76
Spoken language: Repetition	0/50, 0/74	n/a	n/a	6/50, 12/74
Naming	0/29, 0/58	n/a	n/a	0/29, 0/58
Reading	0/35, 0/70	n/a	n/a	0/35, 0/70

FAST=Frenchay Aphasia Screening Test, CAT=Comprehensive Aphasia Test

Patient communication difficulties and repair strategies

Verbal behaviour

Reliable yes and no responses

The validity of John's 'yes/no' responses is examined by the therapist initially through the use of the photo book. John's photo book contains pictures of his hobbies and interests, and is an aid used in his SLT sessions. The therapist uses John's photo book by going through each activity and John responds 'yes' or 'no' as to whether he can still complete the activity following the stroke. His responses appear consistent to their discussion of his hobbies earlier in the session.

John's yes/no responses may be considered inconsistent at times, such as at the start of one session when he is asked whether the music on his iPod being updated. He appears to change his response from 'no' to 'yes'. There may be a number of reasons for his change of response making it unclear whether John is inconsistent or not. For example, it appears rather that when he has taken time to process the question, and given the time to consider it, he alters his response to his intended meaning, i.e. 'yes' instead of 'no'. However at other times, he does not respond with yes/no. His lack of response may be because replying with a 'yes', 'no' or 'don't know' isn't suitable. It may be that he wants to give a more detailed response, perhaps including 'yes' and 'no' at the same time, but does not have the means to express this. Where this occurs, John seems to display frustration, shrugging his shoulders, sighing or lifting his arms up.

John demonstrates reliable yes/no responses because he appears able to disagree with the therapist if she has misunderstood him. For example, when asked if he missed reading newspapers he responds saying 'no', which the therapist interprets as 'no I didn't read them so don't miss them'. When she reflects this back to him, he realises he has been misunderstood and is able to disagree until she reflects the correct statement back to him.

Raise awareness of an error

John demonstrates his awareness of an error or his inability to provide an appropriate response. He seems to express his frustration in these instances through either repeated use of the word 'eek', or through swearing. During the time prior to MI beginning with John, he would often swear. This happened less frequently in the following MI sessions.

Mutual understanding despite errors

There are occasions during the sessions when John tries to express a point, however sends conflicting messages. For example, during session four, he tries to explain the care package he will receive when he leaves the care home. He seems to be expressing that he will have four carers coming to visit him as he says the word ‘four’. Whilst saying ‘four’ he raises three fingers, therefore providing mixed messages. The therapist seeks to clarify his point, and despite his incorrect hand gesture of raising three fingers, he is able to confirm the therapist has understood him correctly when she says “four carers” he agrees verbally, giving a thumbs up at the same time.

Unsuccessful repair – ‘Give up and move on’

At one point in the session, John tries to express something which the therapist is unsure of. This lack of understanding between the two appears to create frustration for John. While this is addressed by the therapist, the lack of understanding is not resolved and the conversation must move on.

Patient non-verbal behaviour

Eye contact

John appears to be listening and interested in what the therapist says, which is indicated through his gaze toward the therapist and supporting non-verbal communication.

Facial expression

John uses facial expressions to express his thoughts. For example, when he appears to be providing a positive response, he may nod, give a thumbs-up sign, or raise his eyebrows. Alternatively, when John is providing a negative response, in addition to shaking his head, he may also crinkle his nose or furrow his brow.

Gesture

While he gives minimal verbal responses, John’s non-verbal supporting behaviours are consistent with appropriate responses, e.g. a thumbs-up for a positive, shaking his head for something negative, shrugging shoulders etc. John often gives the thumbs up gesture when he is saying ‘yes’ or agreeing with something. This reiteration of positive response suggests he has understood and is responding appropriately with yes/no responses.

Head movements appear to signal on a basic level whether John is in agreement (nods) or disagrees (shakes head) with what has been said.

Visual Aids

The therapist uses visual aids to reinforce her verbal meaning with a visually similar picture. Visual aids used in sessions included Talking Mats®, the visual rating scale and the photo book.

These are described in more detail in the therapist visual aids; communication strategies sections.

Therapist communication repair strategies

Verbal behaviour: Interpretation and paraphrasing

If the therapist required clarification, she may ask John "*Is this what you're trying to say*". John appears able to disagree when needed; therefore this method is successful in gaining mutual understanding. The therapist also rewords her questions to ensure the meaning has been understood. For example when discussing his physiotherapy, the therapist asks "*Are you not having enough practice, is that what you're trying to say?*" and then goes on to rephrase the point "*You're not getting enough*" and finally "*You'd like more*". John is able to respond consistently suggesting they have understood each other.

Topic management

Topics of conversation change rapidly in the first session. The therapist takes a lead in establishing topics of conversation. However in subsequent sessions, the topics move at a slower pace, and the therapist at times tries to coincide topic change with the matching visual aids from Talking Mats®.

Offering strategies

The therapist offers strategies during these sessions aimed at helping John communicate his thoughts. For example, when he is struggling to get his point across, she points to the visual aids he has and says "*you need to use these things to do that*".

Non-verbal behaviour

Allowing additional time

The therapist shows an awareness that John may need more time to consider what has been said or to respond. The therapist may therefore allow additional time for John to either comprehend or to reply.

Visual aids

Talking Mats

Due to the severe nature of John's expressive language difficulties, the therapist uses Talking Mats during the session. Talking Mats allows visual prompts to aid interaction and to involve John in a way not possible through verbal interactions. John is encouraged to move the pictures on the mat to answer questions.

Talking Mats is present throughout the sessions, however is used more frequently in some than others. For sessions where the therapist has anticipated topics which may be discussed, she has prepared appropriate cards. The therapist uses the cards associated with each topic as she discusses them, for example using the ‘walking’ card when she asks him about walking in physiotherapy. By using the correct visual card for each topic, this slows the pace of topic changes. John appears to follow each topic discussed and seems happy to engage with this format, moving the cards independently to different areas on the mats according to his response.

The therapist uses Talking Mats to engage John in more open conversation, including open or semi-open questions. For example, when she asks how he is feeling in one session, she lays out cards of different emotions, allowing John to choose a card. In that instance, the strategy was effective, allowing a discussion of John’s mood. However this approach is not always successful, with John being unable to pick a suitable response to some questions. Despite its mixed success, this strategy of asking questions remains an alternative method to allow John to both understand and respond to a question.

In a later session, individualised visual cards were prepared for John to aid the conversation. These included pictures produced in anticipation of the topics discussed which included moving out of hospital. In this example, pictures for ‘home’ and ‘residential home’ are used while the topic of discharge from hospital is discussed. John was able to pick up the pictures and move these as required to help express his point. When the therapist mentions “*You’re leaving*” when discussing him moving out, he picks up the picture of the residential home, lifts it in the air waving it for emphasis, and smiling says “eek, eek”. He is clearly very happy at the thought of leaving the residential home to go somewhere new, and has been able to express his feelings to the therapist.

Photo book

In order to engage in conversation with John in session one, as well as to build rapport, the therapist uses John’s photo book as another visual prompt. The photo book contains pictures of John’s interests including sport, photography and holidays. The therapist uses the photo book to establish the interests and goals of John, to understand what is important for John to continue after his stroke.

Visual rating scale

The visual rating scale is an A4 sheet with a scaled line from 0-10. The rating scale is designed to allow John to rate the importance or his confidence of an issue. Initial sessions used a scale with only numbers 0 and 10 marked. However, in using the scale, John appeared to understand the nature of the tool, and it was felt that adding additional number markers on the scale may make the scale easier to use. Therefore these changes were made for future sessions.

The therapist uses the visual rating scale to ask questions in order to allow John a means of expressing himself. At one point she asks John how he feels about moving somewhere which is not his home. John rates on the visual scale about 6 about his feelings of going somewhere new when he leaves hospital. This then provides a platform for the therapist to begin probing deeper into why he feels this way and what his concerns regarding this may be.

Communication Summary

John is limited in his verbal expression; however he demonstrated a number of alternative methods to ensure he was understood. The use of visual aids was responsible for facilitating John's expression and comprehension of issues discussed in sessions.

5.5.3 Mood

Patient self-report measures of mood were taken across the study from baseline, following up over three further time points including at three-months post-stroke (although as in Appendix 11 these were taken at a later point post-stroke for John). Table 5.5.3 details John's self-report of mood taken from ratings of the DISCs and Yale single-item at baseline, with follow up measures taken at 16 weeks, 22 weeks and a final measure at just over six-months post-stroke. Both measures suggest John's mood may have declined over the course of the MI sessions, as indicated through increases in scores of the DISCs and Yale taken during the mid-therapy point. The study follow-up measures taken at 22-weeks (post-therapy) and six-months post-stroke, indicate that John's mood improved, which is reflected in lower scores of both the DISCs and Yale. However it should be considered that a score of 2 or more on the DISCs suggests low mood, therefore John may have been experiencing symptoms of low mood throughout this time. Following ethical procedures, with John's knowledge his GP was contacted and alerted to his measures of mood from this study.

Table 5.5.3: Patient self-report mood scores from DISCs and Yale for John at baseline, mid-therapy, post-therapy and three-months

	Baseline	Mid-therapy	Post-therapy	Three-months
DISCs	0	5	2	2
Yale	0	1	0	0

DISCs=Depression Intensity Scale Circles (≥2=depressed), Yale (1=depressed).

Unfortunately, due to John's personal situation, there was no carer able to complete carer ratings of John's mood. The results therefore focus on John's self-report measures alone. Results from MI sessions with John will now be presented.

5.5.4 Session 1

At the time of the first MI session, the therapist had previously worked with John through her Therapy Assistant (TA) role on the stroke ward. Due to this, they had established a good rapport. John did know his potential date of discharge, where he would be discharged to, or what support he would require. The session took place in a side room off the stroke ward. The first session was held 89 days, 12 weeks and five days post-stroke.

Summary

Date of Session: 27.9.13 Session duration: 20 minutes 17 seconds

In this initial session, the therapist begins by asking John how he feels about being in hospital. John indicates he is coping in hospital, and that he is looking forward to going home and being with his family. He seems to suggest that if he could go home he could manage, although at the same time appears to understand that he is not able to go home until it is safe for him. John is desperate to get home with whatever support he may require.

Later in the session, John appears to become more frustrated and changes his mind stating that he is not coping in hospital. The therapist tries to establish why it is so important for him to go home. He suggests that he wants to be with his family, but also that he is bored in hospital. They discuss his current visual difficulties and that this makes watching TV more challenging and his stay in hospital more boring.

The therapist spends time in session building a rapport with John by discussing his interests including sport, photography and holidays.

John's interest in music is discussed. They discuss this as a way for him to pass time in hospital to address his boredom. There is some misunderstanding of John's thoughts, and this leads to some frustration from John.

MI content

This initial session is used for the therapist to build her rapport with John, finding out about him and his experiences. This session is also used to establish how he responds to the communication aids.

The therapist begins the session by asking how John is feeling about being on the ward. John clearly has very limited verbal expression. Using only open questions would leave John unable to respond fully, however the therapist uses an adapted approach to deliver MI strategies in a more suitable method by using an adaptation of an open question within the first few minutes. The therapist uses Talking Mats and lays out four ‘emotion’ cards, allowing John to select from a limited number of suitable responses. This allows John to then respond in a ‘multiple-choice’ type response. He chooses the ‘coping’ card, and this is discussed. John seems to explain that he is coping on the ward, and feels he is coping and able to go home. Using the emotion cards, it later becomes clear that John is not happy in hospital, and it is very important to him to go home. John’s ability to openly discuss his emotions and frustration at being in hospital led to high scores for patient MISC scores as seen in Table 5.5.6.

On occasions when an open question is used, it is followed up with a series of closed questions, which appear to further clarify John’s response. The use of closed questions would not follow a standard MI consistent approach, however at times this allows John to respond in a format that he is capable of through using a simple ‘yes’ or ‘no’ response. On other occasions, the therapist over uses closed questions, leading to John being bombarded with closed questions, and a quick pace of topic change.

The therapist uses Talking Mats to talk through John’s hobbies and interests, to discuss what is important for him to return to, and which he feels he would be able to return to. This leads to John stating he would be unable to return to many of his interests. While this seems a negative conversation to have, focusing John on what he cannot do, it also establishes John’s realism. He understands that at the moment he is unable to read, or to do photography. This leads to a conversation about the music on his iPod, which he felt he could still engage with. At this point, the therapist seems to struggle to communicate with John, being unable to understand his point. The therapist responds to this with a series of closed questions attempting to guess what he is trying to express. This lack of understanding seems to frustrate John, who responds with repeatedly saying the word ‘eek’. After failed attempts at understanding John, the therapist then addresses their difficulty in communicating, moving on the conversation to a new topic. This led to a positive score for genuineness as seen in Table 5.5.4.

The therapist uses reflections to both clarify and show she is actively listening to what John has said. These are used often and throughout the session. These often occur when John has provided only a minimal response, ‘no’ for example. However in combination with non-verbal behaviour such as pointing to a picture, the therapist is able to reflect back the message John has conveyed. The therapist often reflects what she thinks John is trying to express, and therefore may not always have reflected exactly what John intended. For example, when discussing the importance of seeing his friends again, the therapist is unclear on John's message and reflects back what she thinks he is saying "*Seeing your friends isn't that important*". The therapist has misunderstood, however John is able to disagree and therefore clarify this is not what he meant.

The therapist asks a number of questions requiring John to verbally indicate how important or how confident he felt about something. While this is a standard MI technique, delivered in this way the rating technique may be unsuitable for John due to his limited communication. However with no visual scale used in this session; this may not be the most appropriate method of delivery to use with John who is unable to respond to these questions.

Summaries are used in the session, however, rather than summarising a topic to clarify for both herself and John, she often moves on to another topic. This leads to topics changing rapidly, with John giving little input into the conversation topics. On the occasions the therapist does use summaries, they appear to function in a similar way to an MI session in a patient with normal communication. They summarise what has been discussed, and the overall views of John.

The therapist engages in MI inconsistent behaviours a number of times during the session. For example, when John becomes clearly frustrated with his situation and seems to be expressing that he wants to return home, expressing that this is his only focus. The therapist responds with an MI inconsistent approach, confronting John by saying,

"*I know you wanna go home but you can't right now, you can't just go home now*".

This displays a lack of empathy in appreciating John's difficult situation. Rather than discussing what he is finding difficult, the topic of conversation is then changed. On another occasion when discussing John's boredom on the ward, he expresses that he does not want to do anything. This suggests his lack of motivation and may be linked to his low mood. The therapist responds with another confrontational response,

"*but don't you want to do anything while you're here waiting…but why?*".

These MI inconsistent responses led to a low score in collaboration shown in Table 5.5.6. As well as low therapist ratings for empathy and MI spirit seen in Table 5.5.4.

When looking at the MI behaviour counts from MISC coding, an exploration of specific MI behaviours displayed by the therapist can be explored. The therapist uses a high number of simple reflections as well as a number of open questions. The therapist uses a high number of closed questions in this session (n=71). While in a standard MI session open questions are preferred, the use of closed questions at times is an adaptation of the MI for John's communication ability, while on other occasions is a barrier to open discussion. The therapist employs several supportive utterances. This suggests the empathetic and positive tone the therapist displays during some of the session, however there are a number of utterances which are confrontational. Overall in this session there is more frequent use of MI consistent behaviours (88%) from the therapist than MI inconsistent. A full breakdown of MI behaviour counts can be seen in Table 5.5.7.

Table 5.5.4: Therapist MI Global Ratings for Session 1 with John

Empathy/understanding	4
MI Spirit	4
Acceptance	4
Egalitarianism	4
Genuineness/congruence	5
Warmth	6

MI=Motivational Interviewing

Table 5.5.5: Patient MISC ratings of Session 1

Affect	6
Co-operation	5
Disclosure	5
Engagement	5

Table 5.5.6: MISC Patient and therapist interaction in Session 1

Collaboration	4
Benefit	5

Table 5.5.7: MISC therapist behaviour counts for Session 1

Session 1: MI Behaviours	**Number of occurrences**	**Percentage of session coverage**
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=2	0.8%
Emphasise control	N=0	0%

Open questions (including semi-open)	N=8	5%
Semi-open questions	N=2	2%
Reflections: Simple	N=18	4%
Complex	N=1	0.3%
Reframe	N=0	0%
Support	N=7	3%
Total	**N=38**	**15%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=3	1.5%
Direct	N=1	1%
Raise concern without permission	N=1	0.5%
Warn	N=0	0%
Total	**N=5**	**3%**
Questions Closed	N=71	19%
Summaries	N=7	5%
Other		58%
Overall MI consistency	88%	

MI=Motivational Interviewing

5.5.5 Session 2

Date of session: 2.10.13 Session duration: 15 minutes 55 seconds

At this point, John was still in hospital and did not have details of discharge plans. The session started shortly before visiting time on the ward and ended with a nurse knocking on the door to alert John that his family had arrived (earlier than planned). This appeared to disrupt his concentration and therefore the final few minutes of the session may not be reliable.

Summary

The therapist begins by following up on an issue discussed in the previous session; his music. When asked whether the music on his iPod had been updated following last week's session, John initially says 'no', however then changes his mind and says 'yes' it has. It is unclear whether John had initially misunderstood what was being asked, or whether there is another reason for changing his mind.

The therapist asks how John is feeling, if he is coping in hospital. John appears positive, seemingly focusing on the positive aspects of his rehabilitation including his physiotherapy, and his plans for moving out of the hospital. John indicates that he is not fully independent which he suggests is because of his mobility.

This session focuses mainly on John's interests and hobbies that were mentioned in the first session. These include music, seeing friends and going out, and the topic of returning home/leaving hospital. The therapist focuses the conversation on what he would like to return to after his stroke and on returning home. The visual rating scale is used a number of times to rate the importance of these things, as well as his confidence in returning to them.

They discuss his return to home including where he will live he states that he would not be able to return to his previous home. The therapist questions him about his plans and how he feels. The therapist gathers from John that arrangements are being organised, and John is currently focused on getting out of hospital, to wherever that may be.

Towards the end of the session, there is an interruption informing them visiting time is about to start. This seems to distract John who is expecting visitors. Following this, when asked to use the rating scale, he appears distracted and seems to want to end the session so he can see his family. This is where the session ends.

MI Content

The therapist begins the session with the introduction of the visual rating scale, informing John it is there for him to indicate the point on the scale he feels appropriate. Before finishing her explanation, John points to the ten on the scale. He is clearly in a positive mood this session and this is reflective of his score. The therapist affirms his positivity.

The therapist then sets up Talking Mats, explaining to John that she has laid out the board to allow positive things to be placed on one side, and negative things on the opposite side, with a 'not sure' space in the middle. John appears to grasp this format, and is able to move the card representing 'music' into the positive side. The therapist uses this format to ask John about how he is managing with activities, including walking and washing. She is then able to ask how he feels about struggling with some of these activities.

The therapist asks John which activities he could continue when he returns home. She is able to establish what activities are important to him and which he hopes to return to using the visual rating scale. The therapist begins with an open question, '*How confident are you that*…', allowing John to respond using the scale. John appears to grasp the use of the scale. For example, John rates seeing his friends and going to the pub as of high importance at 10/10 and his confidence at getting back to this as reasonably high at 8/10. The therapist is then able to follow up by asking what he can do to get up to a ten. This allows John to think about how he himself can find a solution to this. When asked about returning to playing computer games as he did before the stroke, he rates this as lower importance at 4/10. These visual ratings also seem to correspond with John's verbal responses to the therapist. John's engagement using the rating scale, and his openness of response led to scores between 4-6 of patient MISC scores seen in Table 5.5.9.

The therapist also uses the rating scale to reflect back John's responses. This allows her to reflect back to John if he has stated that something is important to him, or whether he feels confident in returning to an activity. In doing this, the therapist can be sure she has understood John.

On discussing discharge from hospital, they talk about how John feels about moving somewhere other than his home, in order to receive the level of care he needs. He responds that he does not mind the idea of going somewhere other than his home. The therapist then uses the visual rating scale to measure how he feels about this, he rates 6/10. The therapist responds with MI inconsistent behaviour with a confrontational response. Rather than asking an open question, the therapist leads John with a negatively framed question '*Does it make you sad'* instead of perhaps asking 'How does it make you feel'. This however does not seem to affect John, who is able to disagree with the therapist. MI inconsistent behaviours such as this led to low scores for MI spirit and understanding from the therapist, which are shown in Table 5.5.8. It seems that while he does not feel happy about going somewhere that is not his home, he feels he just wants to leave hospital. The therapist's responses indicate poor collaborative effort, as she fails to show support for John's responses, and reacts instead with negatively framed statements and questions. These statements suggest the therapist has reverted to the voice of 'Therapy Assistant' rather than 'MI therapist', with a suggestion that the therapist knows best and will therefore question the patient's statements. This response overlooks the possibility of avoiding confrontation and creating a collaborative interaction with the patient, or 'dancing' in MI therapy. These scores can be seen in full in Table 5.3.10. The therapist attempts to affirm John's positive attitude and his determination with his rehabilitation.

Towards the end of the session, the staff interrupted informing us that visiting time was starting. John was expecting a visit from his son, which was very important to him and which he was clearly anxious to leave for. The therapist continues with the final part of the session, using the rating scale to ask how important it was for John to use his arm and leg again. John rated this surprisingly low at 4/10. However this low score may have been biased by his distraction of visiting time. On this occasion, the therapist is confrontational towards John's response, saying "*Just a four…it's not a ten?*" when she could have given a more MI consistent response, perhaps by openly asking John about why he rated low or emphasising the discrepancy with his rating from his earlier statements of the importance of using his arm and leg again. This approach led to a low MI spirit score as seen in Table 5.5.8.

Again in this session we see a higher rate of MI consistent behaviour counts (22.2%) compared to MI inconsistent behaviours (1.6%). The therapist uses no complex reflections but does use a number of simple reflections. Similarly to the first session, while open questions are used (n=13), there are far more closed questions used (n=59) and this again reflects the adaptation to John's level of communication ability. The therapist neglects to use summaries in this session, and this is perhaps an area which may have supported communication within the session. A full breakdown of MI behaviour counts can be seen in Table 5.5.11.

Table 5.5.8: Therapist MI Global Ratings for Session 2 with John

Empathy/understanding	5
MI Spirit	4
Acceptance	5
Egalitarianism	5/6
Genuineness/congruence	5
Warmth	5

MI=Motivational Interviewing

Table 5.5.9: Patient MISC ratings of Session2

Affect	5
Co-operation	5
Disclosure	4
Engagement	6

Table 5.5.10: MISC Patient and therapist interaction in Session 2

Collaboration	5
Benefit	4

Table 5.5.11: MISC therapist behaviour counts for Session 2

Session 2: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=6	4%
Emphasise control	N= 3	1.8%
Open questions (including semi-open)	N= 13	8.5%
Semi-open questions	N= 2	2%
Reflections: Simple	N= 18	5.5%
Complex	N= 0	0%
Reframe	N= 0	0%
Support	N= 2	0.4%
Total	**N= 44**	**22.2%**
MI Inconsistent behaviours		
Advise without permission	N= 1	0.1%
Confront	N=3	1.2%
Direct	N= 0	0%
Raise concern without permission	N= 1	0.3%
Warn	N= 0	0%
Total	**N= 5**	**1.6%**
Questions Closed	N= 59	23.3%
Summaries	N= 0	0%
Other		52.9%
Overall MI consistency	90%	

MI=Motivational Interviewing

5.5.6 Session 3

Date of session: 4.10.13 Session duration: 15 minutes 48 seconds

John was still in hospital at this point but discharge had been discussed with him. John and his family visited a potential residential home. Although most residents were much older than

John, the home had support at a level suitable for John's needs. A date for discharge had not been confirmed at this point.

Summary

The session begins with the therapist discussing the topic of John leaving hospital. They discuss his feelings about the residential home he recently visited and concerns he may have around this. John seems to express that his current goal is to return home.

John's concerns around moving into a residential home are then discussed. He shows he feels concerned about communicating with new people when he moves out; however there is little follow up about this concern by the therapist. John seems accepting of adjustments he has to make in order to leave the hospital.

John's experience of his stroke is discussed. The therapist asks John what he recalls about the stroke. He says he can't remember what happened, and his family have not discussed this with him. John becomes upset when discussing this. He tells the therapist this is something that upsets him, but he feels there is not much he can do to change things so he just has to get on with it. He seems to accept that this is a big event. The therapist explores what he is most concerned about from the stroke. He says his weak arm and leg bother him the most. He rates regaining his arm and leg use as high on the visual rating scale. They discuss his reliance on others and that this is also something that bothers him.

In summary, John has been able to talk about two emotional issues which are important to him: moving out of hospital, and the experience of his stroke. John has been able to use the visual rating scale and Talking Mats to express his goal of moving out, and his concerns about his weak arm and leg and his ability to communicate. While unhappy in hospital, he seems realistic about requiring support to allow him to be discharged from hospital.

MI Content

The session begins with the therapist discussing the topic of John leaving hospital. The therapist is able to use more open questions throughout this session (n=17) than in previous sessions. These are often carried out through the use of the visual rating scale. Rather than using the scale as a method of determining John's level of importance or confidence with a particular issue, the rating scale has been adapted by the therapist to allow John to respond to an open question.

This technique is used when the therapist asks John to rate the residential home he had recently visited, asking him what he thought about the home. John seems to express that while he doesn't really want to go to a home, he understands that he has to. John indicates his feelings of being in hospital, placing the picture of the hospital below the '0' on the scale, showing just how unhappy he feels being there. John is able to demonstrate that getting home is his goal at the moment, moving the picture of home to the top of the scale at '10' indicating high importance.

John's concerns around moving into a residential home are then discussed, again using the visual rating scale to gage John's feelings towards different aspects of this future situation. John shows he feels concerned about communicating with new people when he moves out. The therapist asks John to rate his feelings on the scale. John's response is to point to move the picture indicating 'meeting new people' to the bottom end of the scale, around 2/3. While this is identified as a concern for John, there is little follow up about this concern by the therapist who moves the conversation to other concerns he may have with his physical disability.

John seems to accept that some of the adjustments he requires, including having carers, is not what he wants but he seems to recognise this is what he needs in order to leave hospital. He feels he has been able to make his own decisions about what happens when he leaves hospital.

In using a greater number of open questions, the therapist is able to identify how John is feeling, and also identify a number of concerns and goals, such as meeting new people, or becoming more independent. This is a more open and engaged conversation than had occurred in previous sessions, leading to high therapist and patient MISC scores shown in Table 5.5.13.

However on other occasions, the therapist fails to follow up on John's concerns or current difficulties. For example, in identifying that John is not able to use his mobile phone, the therapist uses the scale to discover that this is a difficulty for John and he would like to be able to use his phone again. The therapist attempts to explore this further with John, however does not explore how he can manage this difficulty.

The therapist asks John how important returning to walking is to him, which he rates as very high using the scale. She asks John where he currently rates his ability to walk, which he indicates as poor, moving the picture to the bottom of the scale. The therapist is able to use affirmations to assert the progress he has made, stating he previously could not stand up independently which he now can. She praises his engagement in his rehabilitation and his persistence in his rehabilitation. This again reflects her strong MI spirit as see in Table 5.5.12.

The therapist asks about a number of issues which are seemingly less emotional, including watching television, using his mobile phone and reading newspapers.

For the first time in the MI sessions, John's memory of the stroke is discussed. John appears to express that he has little memory of the stroke, however he has thought about this. John becomes visibly upset on discussing this, leading the therapist to move away from the topic. The therapist appears unsure of how to continue the conversation at this point, hesitating in her continuation of the topic. She is able to address that John became upset in discussing this, clearly indicating that this is a sensitive and upsetting topic for him to think about and discuss, which he agrees with. However, the therapist then moves away from this emotional topic, moving to discuss his concerns about the impact of the stroke. This does however allow John to express his main concern about the stroke, when the therapist asks, "*What bothers you the most?*". In response to this John points to his weak arm and leg, indicating that not being able to use his arm or leg is his main concern. This reinforces what John said earlier in the session about the importance of returning to walking.

Overall the therapist and John show collaboration in their shared discussion of topics, covering a small number of significant issues for John including discharge from hospital, as well as the experience of this stroke and his concerns around this. However, there are occasions where the therapist fails to support John in discussing his role in finding a solution to his concerns and the discussion lacks encouragement of his self-efficacy. For this reason, the MI interaction scores for collaboration and benefit have both been rated at 5, shown in Table 5.5.14.

The therapist goes on to discuss going out for meals with John. She asks John whether he would rely on other people to do this. Given John's level of disability this will clearly be something he requires assistance with. John uses the rating scale to indicate he feels very badly about reliance on others, but seems to indicate that he knows he needs this help and so will receive the support he needs. The session ends here.

A full breakdown of MI behaviours demonstrated in this session is shown in Table 5.5.15.

Table 5.5.12: Therapist MI Global Ratings for Session 3

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	5
Genuineness/congruence	5
Warmth	6

MI=Motivational Interviewing

Table 5.5.13: Patient MISC ratings of Session 3

Affect	6
Co-operation	6
Disclosure	6
Engagement	6

Table 5.5.14: MISC Patient and therapist interaction in Session 3

Collaboration	5
Benefit	5

Table 5.5.15: MISC therapist behaviour counts for Session 3

Session 3: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=6	3.9%
Emphasise control	N= 1	0.4%
Open questions (including semi-open)	N= 17	13%
Semi-open questions	N= 0	0%
Reflections: Simple	N= 23	8.0%
Complex	N= 2	3.1%
Reframe	N= 0	0%
Support	N= 3	0.9%
Total	**N =52**	**28.3%**
MI Inconsistent behaviours		
Advise without permission	N= 1	0.3%
Confront	N=2	1.4%
Direct	N= 0	0%
Raise concern without permission	N= 0	0%
Warn	N= 0	0%
Total	**N= 3**	**1.7%**

Questions Closed	N= 48	23.9%
Summaries	N= 1	2.4%
Other		43.7%
Overall MI consistency	95%	

MI=Motivational Interviewing

5.5.7 Session 4

Date of session: 1.11.13 Session duration: 20 minutes 57 seconds

The session is held in the nursing home to which John has recently moved. The session was held in John's bedroom, as this was the only place offering privacy. Talking Mats was set up with 'yes' 'no' and 'not sure' card along the top of the card. A number of communication prompt cards the residential home had made for John were also laid out. On setting up for the session, John was keen to show us how his speech had developed. His improvements had clearly boosted his mood and confidence.

Summary

Since the last session, John seems to be in a positive upbeat mood. He has made some progress with his speech since the last session and can now count, which he demonstrates. He has been given some basic communication cards by the residential home. They discuss his communication and how he feels about this.

The therapist asks about his moving out into another more suitable home. John does not seem to have a clear idea of exactly what this will entail, but seems happy at the thought of moving out. They discuss his carer set-up in the new home, and John seems accepting that he needs this care.

They discuss John's birthday which he has recently celebrated. He appears very positive about this, and is able to express that he went for a meal with his family, which he really enjoyed. His family are clearly very important to him and have an impact on his mood.

In summary, John appears to be in good spirits in this session. He is positive about plans for his move to another home, even though he does not have much information about this. John appears to be in the mind set of 'the stroke has happened and now I just need to get on with it' and remains optimistic in his outlook.

MI Content

The session begins with the therapist recapping the aim of the study to ensure John understands. This was mentioned due to his apparent uncertainty during a previous visit.

Since the last session, John has made some progress with his speech and can now count, which he demonstrates. John has previously mentioned that communicating with people is a concern for him; therefore his progress with his speech has clearly made him feel happy with his progress. The therapist affirms his progress.

Since the last session, staff in the residential home have given John some basic communication cards. He expresses that he is frustrated by his communication difficulties but feels it is not getting him down. Again the therapist uses affirmations around his determination to continue his speech therapy. The therapist asks if the progress he has made has increased his confidence using the visual rating scale. John feels his speech developments have increased his confidence, which he rates at 7. The therapist reflects this back to John, emphasising the positivity of his progress and his positive attitude. This interaction in the session raised the scores for both collaboration and benefit to 5, which can be seen in Table 5.5.18.

The therapist asks about John moving out into another more suitable home. John does not seem to have a clear idea of exactly what this will entail, but seems happy at the thought of moving out. He seems realistic in his understanding that this view may not be immediate. He expresses that he has found it difficult in the residential home partly because there are mainly elderly people. When asked about the arrangements of his care in a new home, the therapist initially struggles to understand what John is trying to explain. However, using a series of closed questions it becomes apparent that he is trying to explain there will always be a carer there, and that these will rotate. He seems accepting that this is the care he needs in order to move out.

While the session begins with a positive and predominantly MI consistent approach from the therapist, this does not occur throughout the session. There are a number of instances where the therapist is MI consistent. For example, the therapist confronts John when they discuss his move to new accommodation. The therapist asks,

“*You must be wondering what it’s gonna be like, ‘cos you can’t get up and walk yet can you?*”.

Not only does this directly confront John around how he is feeling and what his concerns are, it also uses a negative tone, focusing on what he cannot do rather than on what he can. John does not seem to be negatively impacted by this MI inconsistent approach. His response to this comment is to focus on the positive and try to explain about the carers he will have set up.

Instead, John’s approach seems to be positive and accepting, it appears as though he is trying to explain ‘Yes I know I can’t just get up and walk, but I will have carers to help me there all the time, so I can move on and out of here with their support’.

Another MI inconsistent approach used by the therapist is in raising concerns with John without consent. This occurs when describing the carers he will have in his new home and the therapist misunderstanding John’s thoughts. It seems John is trying to explain he will have carers there all the time. Initially the therapist gets the impression he is only having carers visit four times a day. She then says to him,

“*I know but what if you need to go to the toilet or anything like that*”.

She suggests this system would not be suitable because John would need support all the time, in case he needed to go to the toilet. This MI inconsistent approach again does not appear to bother John, who responds with further attempts to get his point across. With further explanation from John, the therapist is able to understand John’s message correctly and the conversation moves on. While the MI inconsistencies in this session do not appear to have negatively impacted on John’s attitude, they led to lower scores this session for the therapist MISC scores, with MI spirit rated at 4/7. This can be seen in Table 5.5.16. The lack of engagement with the communication aids on the part of the therapist also potentially limits John’s engagement in conversation, as John is forced to rely on verbal communication to express himself. This session has the lowest MI consistency rating of all John’s sessions at 71%.

This session uses the highest number of closed questions (n=99) than all previous sessions. In some circumstances, as in past sessions, closed questions are at times used as a strategy to follow up from an open question, or to clarify understanding of a point. However, it appears that in this session closed questions are relied upon as the main strategy to gain information from John. Few open questions (n=5) have been used, and this includes semi-open questions, where John has been given a multiple choice style response. For example, when she asks John “so is it going to be like this place or, or is it a flat, a house?”. The high number of closed questions from the therapist reduces the opportunities for John to become engaged and take direction of the session. For example, on one occasion the therapist asks ‘Do you get upset about that?’, instead of a more open question such as ‘How does that make you feel?’, which would have opened up John’s response and placed the emphasis on his expression of how he feels about that particular issue. With a closed question he is limited to ‘yes’, ‘no’ or ‘not sure’. While this limited response set may work on occasion, with repeated use such as in this session it becomes MI inconsistent.

At times in this session the therapist returns to discussion of everyday subjects, such as television or football, leading to a general chat rather than MI topics. There are a number of possible explanations for why the therapist has chosen to do this, which will be considered further in the discussion.

In summary, while the percentage of MI inconsistent behaviours in the session (2.7%) remain similar to previous sessions, the percentage of MI consistent behaviours (9.1%) has taken a large decrease compared to the previous week (28.3%). This finding contributed to lower global ratings of empathy/understanding and MI Spirit shown in Table 5.5.16. However this approach does not appear to have a negative effect on John, who remains in good spirits throughout and who continues to display his positive and accepting attitude following his stroke while maintaining his primary goal of moving out of the residential home. A full breakdown of MI behaviours can be seen in Table 5.5.19.

Table 5.5.16: Therapist MI Global Ratings for Session 4 with John

Empathy/understanding	5
MI Spirit	4
Acceptance	4
Egalitarianism	4
Genuineness/congruence	5
Warmth	5

MI=Motivational Interviewing

Table 5.5.17: Patient MISC ratings of Session4

Affect	5
Co-operation	5
Disclosure	5
Engagement	6

Table 5.5.18: MISC Patient and therapist interaction in Session 4

Collaboration	5
Benefit	5

Table 5.5.19: MISC therapist behaviour counts for Session 4

Session 4: MI Behaviours	Number of occurrences	Percentage of session coverage

MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=12	2.8%
Emphasise control	N= 0	0%
Open questions (including semi-open)	N= 5	2.2%
Semi-open questions	N= 3	1.5%
Reflections: Simple	N= 10	1.7%
Complex	N= 0	0%
Reframe	N= 0	0%
Support	N= 7	0.9%
Total	**N =37**	**9.1%**
MI Inconsistent behaviours		
Advise without permission	N= 0	0%
Confront	N=13	1.9%
Direct	N= 0	0%
Raise concern without permission	N= 2	0.8%
Warn	N= 0	0%
Total	**N= 15**	**2.7%**
Questions Closed	N= 99	24.9%
Summaries	N= 0	0%
Other		63.3%
Overall MI consistency	71%	

MI=Motivational Interviewing

5.5.8 Session 5

Date of session: 8.11.13 Session duration: 29 minutes 33 seconds

Patient appeared distressed on our arrival. He appeared frustrated at his prolonged stay in the residential home when he wants to be at a more suitable home, or ideally at home. His son had cancelled his visit, which may have had an impact on John's mood. John agreed for a three-month follow up visit and is happy for us to contact his son to arrange these visits.

Summary

John appears to be very low in mood this session and indicates this is because he has not yet moved out of the residential home. In addition, his son cancelled a visit that day which also made John feel down.

They discuss his plans of moving out of the residential home. At this point John still did not have much information about arrangements for his move, and this lack of information seemed to be as much of an issue as his continued stay in the residential home. They discuss his goal of achieving greater independence and how this might happen.

John has difficulty expressing himself and becomes quite agitated and frustrated at this difficulty. His visible frustration leads to a discussion around his use of communication aids and how he feels about this.

They talk about John's low mood and the causes of this. It seems that a lack of control of the situation is difficult for John. They begin to discuss coping strategies he might use, however this topic is not explored further by the therapist.

In summary, this final session ends with John feeling low about his current situation. He wants to return to normality and is struggling to find this in his current situation. The therapist tries to keep him focused on his plans for the future. It seems unclear whether John feels he has benefitted from the MI as his housing situation dominates his thoughts.

MI Content

John appears very down in this session and before filming had started, John indicated to the picture of the residential home. The therapist is able to reflect back to him his identification of the residential home as something he may want to discuss further. John confirms that one reason he feels down is because he remains in the residential home and has not yet moved out.

The therapist uses a series of closed questions to try and engage John in conversation. This continues throughout the session and dominates the therapist's mode of interaction within this session, with a disproportionate amount of closed questions use in this session (n=131). John is unable to express his thoughts, and is forced to respond with a yes/no response, therefore minimising his level of input in the session.

John's communication and his use of the visual prompt cards given to him by the residential home are discussed. John seems to express that he can't read the words on the cards and appears agitated and down about this. The therapist responds using an MI inconsistent approach, advising John without permission on how he needs to use the communication aids effectively. It is unclear exactly what he is trying to express at this point.

The topic of conversation turns to John's continued focus of leaving the residential home. The therapist again takes an MI inconsistent approach with John, confronting him on what he thinks will change when he leaves the residential home. The therapist asks,

"*What do you think'll be different when you get out… you're still not gonna be able to sort of get up and walk and do whatever you want*".

This approach not only focuses on the negative issues John has to adjust to, it is also belittling of his positive attitude and his goal. John appears to react defensively and seems heightened in his frustration. The use of such MI inconsistent approach led to low scores of both empathy/understanding and acceptance, which can be seen in Table 5.5.20.

While not coded as MI inconsistent using MISC coding, the therapist reduces her opportunity for increasing her MI consistent approach by her repeated use of framing questions negatively. In doing this, the therapist assumes John has something negative to convey, rather than focusing on positive points. For example, the therapist asks 'Does it upset you?', rather than asking an open, neutrally framed question such as 'How does that make you feel?', and another time asks 'Is it difficult for you?' instead of asking 'How do you find that?'.

John did not have much information about arrangements for his move, and this lack of information was clearly a problem for John which he demonstrated clearly using Talking Mats. On discussion, it seems that John does not like living in the residential home because there are mainly elderly residents. He also expressed that he would like more independence, which he feels he doesn't have in the residential home, and which he feels is limited by his weak arm and leg. While he feels he tries to be independent, he knows his mobility difficulties means he can't do this safely.

When asked where he would prefer to be, using the pictures for hospital and residential home, John chooses hospital. This choice indicates just how unhappy he is in the residential home as he has discussed in previous sessions how unhappy he was in hospital. The therapist asks more about John's low mood. John uses the Talking Mats pictures to pick out 'mood'. John expresses that others around him are unaware of how he feels; however this topic is not explored further by the therapist. The patient's display of his low mood and discussion of this led to high scores for affect and disclosure as seen below in Table 5.5.21. When asked to rate his mood using the visual rating scale, he points around five, and confirms he feels bad when asked. John also voices he feels angry, the first time he has expressed this in the MI sessions. On discussing what would lift his mood, he says only moving out, or learning more information about moving out, would improve the way he feels. It seems like the lack of control of his situation, which appears helpless to John, is dominating his thoughts.

One positive feature of this session is that, while John feels low in mood, he is able to clearly demonstrate how he feels to the therapist. This is something he states he would not do this with others, even close family.

The session ends here, with the therapist closing by attempting to gain feedback from John his experience of the sessions. John seems to indicate that while he thinks it is good to communicate with others, he remains in his situation and therefore talking cannot change his real problem; being in the home, so he seems unsure that the sessions have benefitted him.

Overall, this final session ends with John low in mood and appearing to lack in motivation or positive attitude which he has shown in previous sessions. There may be a number of reasons for this, which will be discussed further in the discussion. John remains in the home but continues with his goal of leaving the residential home for somewhere more suitable. He is able to discuss his emotions openly about how this makes him feel. The therapist has engaged in an increased amount of MI inconsistent behaviours, and much lower amounts of MI consistent behaviours than in some sessions. This session is one of the lowest for overall MI consistency, reaching just 72% as shown in Table 5.5.23. This may have impacted on interactions within the session, and the level of possible collaboration with John.

Table 5.5.20: Therapist MI Global Ratings for Session 5 with John

Empathy/understanding	4
MI Spirit	4
Acceptance	3
Egalitarianism	4
Genuineness/congruence	6
Warmth	4

MI=Motivational Interviewing

Table 5.5.21: Patient MISC ratings of Session 5

Affect	6
Co-operation	4
Disclosure	5
Engagement	4

Table 5.5.22: MISC Patient and therapist interaction in Session 5

Collaboration	3
Benefit	4

Table 5.5.23: MISC therapist behaviour counts for Session 5

Session 5: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=1	0.5%
Affirmations	N=1	0.4%
Emphasise control	N=0	0.0%
Open questions (including semi-open)	N=2	0.7%
Semi-open questions	N=0	0.0%
Reflections: Simple	N=28	6.5%
Complex	N=0	0.0%
Reframe	N=0	0.0%
Support	N=12	3.5%
Total	**N =44**	11.6%
MI Inconsistent behaviours		
Advise without permission	N=1	0.7%
Confront	N=10	4.1%
Direct	N=4	1.0%
Raise concern without permission	N=2	0.7%
Warn	N=0	0.0%
Total	**N=17**	6.5%
Questions Closed	N=131	31.2%
Summaries	N=4	3.5%
Other		47.2%
Overall MI consistency	72%	

MI=Motivational Interviewing

John: Cross session summary

John was greatly affected by the stroke and the impairments it caused. The stroke left John with significant disability, affecting him physically with reduced use of his right and dominant side arm and leg, and severely limiting his expressive verbal communication. Impairment to his verbal expression was sustained throughout the study, as is indicated through the measures of communication taken from baseline to three-months post-stroke. While John made improvements in his communication, his level of impairment remained severe and had a significant impact on his day to day life and level of independence. The disability caused by the stroke led to substantial changes to his living circumstances, with John no longer able to return to his home which he shared with a number of other men. Across the five sessions, we see John move from hospital to a residential home, and in the final session he is awaiting a move to a more suitable home.

On the surface, John often appeared positive and gave reassurances that he accepted the impact of the stroke and the changes that would have to happen as a consequence. In sessions he was able to discuss a potential change in home, and the care package that would be put in place in order for him to live in his own home or another residential home. He seemed accepting that this would have to happen, and understanding of why this had to happen. However, John also expressed contradictory feelings in sessions, suggesting that he was unhappy in his situation, and he was unable or unwilling to express this to those around him. However both emotions of acceptance and disbelief are understandable; perhaps the two approaches are not mutually exclusive. It may be that John’s contradictory explanation of emotions is due to a misunderstanding because of communication limitations. However it may also reflect the complexity of emotions and the adjustment process. Therefore it is conceivable that at different times, John experienced both feelings of acceptance and disbelief; desperation and determination, but was not able to verbally express this.

The topics discussed in John’s initial MI sessions explored his hobbies and interests, however John’s primary goal throughout the sessions remained his desire to ‘go home’. During sessions in hospital, this appeared to refer to going somewhere other than hospital. However, when John was discharged and moved the residential home, he remained unhappy and maintained his goal of going home, which appeared to apply to moving somewhere other than the residential home. Although focused on his desire to move out, John appeared to appreciate the difficulties preventing him from leaving, such as organising carers.

John was able to discuss his experience of the stroke in sessions; expressing his main frustration of being unable to use his right leg and arm, and the reduced independence this left him with. Although John made progress with his rehabilitation across various areas which is discussed in sessions, this progress was not enough for John. Instead, he appeared to remain overwhelmed in his frustration of his limited independence and being unable to return home.

John appeared to be unable to discuss his feelings with anyone outside of the therapist. Through discussions we understand he is close to his family, including his four children and ex-wife. However he also felt he cannot talk openly with his family, and he expresses that staff in the home do not talk with him. There may have been a number of reasons which are not explored in sessions; however the outcome of this is that John lacks this emotional support from those around him. They may be unaware of how John feels, and John can only talk openly in the MI sessions. This may have contributed to John's mood and adjustment of his situation.

Despite John's low mood in sessions, which is also demonstrated in mood measures taken throughout the study, he is able to engage in sessions when appropriate communication methods are used. MI sessions could be highly MI consistent (as indicated by overall MI consistency for sessions, ranging from 71%-95%) as can be seen in Table 5.5.24 below.

Table 5.5.24: MI consistency across sessions for John

Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & patient collaboration rating	Overall MI consistency
1	3	8	72	4	5	4	88
2	7	13	59	4	6	5	90
3	14	17	49	6	6	5	95
4	2	5	99	4	6	5	71
5	5	2	131	4	4	3	72

MI=Motivational Interviewing, Sess.=session, VRS=visual rating scale

In particular, use of the visual rating scale appears to be associated with higher MI consistent sessions (Sessions 2 and 3). The visual rating scale is used not just to rate importance or confidence as in a standard MI session, but also to allow John to respond to open questions, and rate his feelings on a given topic. This also appears to increase ratings of patient engagement and collaboration between therapist and patient. In sessions where the visual aids are encompassed within the conversation, there is a clear difference in MI consistent approaches on the part of the therapist, as can be seen above in Table 5.5.24. When the visual strategies are not use in sessions as part of the conversations, there is a reduced level of MI consistency, with a considerable difference seen between sessions three and four. The use of the visual aids displays a striking difference to MI consistency in sessions. In addition, the lower MI consistent sessions have a higher number of closed questions, indicating an over-reliance which limits John’s ability to express himself. The use of visual aids provides the therapist a method of delivering MI to John, and for John these visual strategies are crucial in allowing him a format he can understand and respond to. This result highlights the importance of adjusting the session to meet the communication needs of the patient to remain MI consistent.

It should be noted that a successful MI session requires not just high MI consistency, but also high MISC ratings. In some of John’s sessions, while we see high MI consistency, there are lower MISC scores, some of which fall below threshold competency of 5/7. This implies that while the therapist was able to deliver technically consistent MI sessions, she may have lacked in the personal attributes of a therapist, such as warmth, genuineness and egalitarianism. However, there may be a number of reasons for this discrepancy. An earlier MI study (Moyes et al. 2005) found that therapist interpersonal skills were positively related to patient involvement (cooperation, disclosure and affect), and therefore this may have also impacted on sessions.

Firstly, this may be influenced by the therapist’s main job as TA which may require a different set of personal qualities to those of an MI therapist. For example, the role of TA may require a higher level of authoritarianism, in directing patients and informing them of what they must do in their rehabilitation. If the therapist returns to her TA persona whilst delivering sessions, this may have led to lower MISC therapist ratings. Another cause of low MISC scores could be due to the therapist confidence and ability to relate to John. Due to his severe communication difficulties the therapist may have struggled in sessions to connect with John and consequently found it difficult to express empathy and acceptance. A final explanation low MISC scores is the possibility that the therapist was lacking in confidence to engage with patients, regardless of their level of communication ability. If this was the case, it may be that the therapist would have struggled to score highly on MISC ratings with any patient. Again, with only one therapist in this trial, comparisons across therapists are impossible, and this is a weakness of the study.

Conversely, rather than adherence to MI consistent behaviours, an important factor for a positive session may be avoiding the use of MI inconsistent behaviours. In a review of MI interventions exploring factors associated with positive outcomes, the single consistent factor which could be identified was the avoidance of MI inconsistent behaviours, rather than the frequency of MI consistent approaches (Gaume et al. 2009).

On completing the final MI session, John was able to feedback his feelings of the intervention. He appears to express that while he has enjoyed talking to somebody, he is unsure whether the sessions have benefitted him. This is a reasonable conclusion for John to reach, because while he may have enjoyed his discussions with the therapist, he remains in his situation which continues to dominate his thoughts. His overriding sense of unhappiness due to his situation was perhaps too great for MI to improve his mood, potentially leaving him feeling the sessions have not helped him.

Summary

This chapter has presented results from analysis of MI sessions with John. The following section will present the results and discuss findings from MI sessions with the second patient case study, Joyce.

5.6 MI Session Analysis: 'Joyce'

5.6.1 Patient biography

For the purpose of discussing her results, this patient will be referred to as Joyce. Joyce was 65 years old at the time of the stroke. She lived with her husband in their own home; both were retired. They lived in a suburban area, and based on the property post code were considered to have a higher than average affluence rating (www.checkmyarea.com true as of 02.04.2014). They have two adult children, one son and one daughter, and two young grandsons. Joyce presented as a quiet and unassuming individual, with a gentle and caring nature. She spent time with family, often with her elderly mother, who she would visit regularly. The patient and her husband were also involved in looking after their grandchildren on occasions. This lady had a strong relationship wither her family, and an especially close relationship with her husband who was now acting as her carer.

Joyce spent her time volunteering for the church where she led with communications, spending part of her time online and using emails to keep in touch with other churchgoers, planning hymns for services and taking prayer requests. This was a large part of her social life and she participated in other social activities run through the church.

The stroke had left Joyce with little physical impairment; however her speech had been severely altered as was identified in her communication assessment scores seen in Table 5.6.2. Joyce scored 20/20 on the Barthel Index of Activities of Daily Living at baseline, reflecting her lack of any physical disability and indicating that she was fully independent in her activities of daily living.

5.6.2 Cognition

Results of the cognitive test carried out at baseline for Joyce are presented below in Table 5.6.1. The results indicate that Joyce had evidence of cognitive impairment. While her language (incorporating tasks of repetition, comprehension, reading, writing and naming) appears intact, scores of verbal fluency are much lower. This section asks the patient to identify words beginning with a particular letter.

Table 5.6.1: ACE-R scores for Joyce taken at baseline

ACE-R Sub-tests	Baseline Scores
Attention and Orientation	13/18
Memory	15/26
Fluency	2/14
Language	26/26
Visuospatial	16/16
Total	**72/100**

ACE=R=Addenbrooke's Cognitive Examination

5.6.3 Communication

Joyce demonstrated high levels of comprehension throughout the MI sessions. She was always able to understand the therapist, and was able to detect when she made any errors in her speech. The main area of deficit for this patient lay in her ability to verbally express herself. She explains that while she knows what she wants to say, she has difficulty expressing this when she speaks or writes. These difficulties are reflected in her baseline communication scores as seen in Table 5.6.2.

At baseline Joyce experienced reduced expression (6/10 on FAST) with no obvious difficulties in comprehension (10/10 on FAST). Joyce's communication improved over the course of the study, which can be seen in the final FAST scores taken at three-months post stroke. Her three-month FAST score had increased to 26/30 (9/10 expression and 9/10 comprehension).

Similar improvements were indicated by the Comprehensive Aphasia Test (CAT), which was administered at baseline and three-months. Table 5.6.2 presents all communication scores for Joyce. CAT scores have been separated into comprehensive and expressive written and spoken language. The main area of impairment was in Joyce's language expression. From baseline to three-months, improvements across all areas of expressive language can be seen. The CAT indicates that impairment of Joyce's language comprehension was minimal; however there was a slight improvement by three months.

Table 5.6.2: Communication scores for FAST and CAT for Joyce from baseline, mid-therapy, post-therapy and three-months.

FAST Subscales	**Baseline**	**Mid-Therapy**	**Post-Therapy**	**three-months**
Comprehension	10/10	10/10	9/10	9/10
Expression	6/10	8/10	8/10	9/10
Reading	5/5	5/5	5/5	5/5
Writing	2/5	3/5	3/5	3/5
FAST total	23/30	26/30	25/30	26/30
CAT Comprehension	**CAT: Language Comprehension**			
Written language	52/62	n/a	n/a	55/62
Spoken language	52/66	n/a	n/a	55/66
CAT Expression	**CAT: Language Expression**			
Written language	54/76	n/a	n/a	70/76
Spoken language: Repetition	27/50, 54/74	n/a	n/a	49/50, 73/74
Naming	16/29, 29/58	n/a	n/a	29/29, 54/58
Reading	26/35, 56/70	n/a	n/a	28/35, 54/70

FAST=Frenchay Aphasia Screening Test, CAT=Comprehensive Aphasia Test

Throughout the sessions, the communication strategies used by Joyce and therapist were recorded. A communication strategy was considered a device used by either patient or therapist to maintain or repair conversation. These included both verbal and non-verbal communication devices. The communication strategies used by both patient and therapist in the session will now be discussed.

Patient communication difficulties and repair strategies

Verbal behaviour

Reliable yes and no responses

Joyce shows she can reliably answer yes/no throughout sessions. When there is a misunderstanding of what Joyce was trying to express, Joyce can disagree to make sure the correct meaning has been taken. For example, in session two they discuss the family's understanding of Joyce's communication needs. The therapist referring to her family says, “*they don’t have an understanding of why you’re having difficulties* “

The therapist has misinterpreted what Joyce was intending to say, and Joyce is able to voice this disagreement by sating “*oh no they do*”. Joyce’s ability to clearly disagree with the therapist adds more reassurance that when she does not stop the therapist, the therapist has taken the correct interpretation.

Raise awareness of an error

Joyce is able to show an awareness of her errors of speech. During the sessions, there were a number of utterances which were a source of difficulty which disrupted the flow of the conversation, and Joyce was able to identify and repair such difficulty herself in many of these instances. For example, when Joyce has said something incorrect, she is able convey this to the therapist by saying out loud ‘*no*’, or ‘*I don’t want that one’*. This highlights to the therapist that she is actively trying to repair her mistake and that she is considering what she should have said. In doing so, this conveys the message to the therapist that she may need more time to think about her response before another attempt is made.

In the second MI session, Joyce continues to attempt repairs on errors she has made. She explains that she prefers to have time to attempt to say something right if she knows it is incorrect, rather than have people guess what she is trying to say. Similarly to the first session, she attempts her verbal repairs aloud, indicating to the therapist that she is aware she has made a mistake and that she is in the process of correcting herself. For example, when she is explaining what happened before her stroke she says,

“*I went upstairs and e-rm showered e-rm not showered just changed*”

By saying “*erm not showered*” indicates to the therapist that she is aware of her mistake, and that she is thinking of the correct word. This allows her additional time to find the right word before the therapist tries to aid her.

Mutual understanding despite errors

Joyce sometimes produces errors in her speech yet despite this; her meaning is conveyed correctly to the therapist. Due to this lack of disruption to the conversation, and a mutual understanding from both parties over the intended meaning, neither patient nor therapist stops to correct the error, as there seems to be no need. With a shared understanding the conversation can once again move on. For example, when Joyce is describing her difficulty in expressing her thoughts to others she says,

“*yeah e-rm but it’s alright yeah eventually erm-ther-ba-panch-manage to er can do it so*”

The therapist is able to take the correct meaning from this, and after ensuring she has correctly understood what Joyce as trying to say, the conversation moves on.

Unsuccessful repair – 'Give up and move on'

Due to her ability to detect when she has said something incorrectly, Joyce will attempt to repair this error if it disrupts the flow of conversation or impacts on her meaning. For example, when she is asked about whether she enjoys having her family visiting on a weekend she says,

"*oh yeah cos they all, all n-n-n-nat-n they all like it so you know*"

It appears in this utterance that she begins to say something which she struggles with "*n-n-n-nat*". After several unsuccessful attempts at verbalising this word she chooses to give up and move on. Despite being unsuccessful in conveying her initial point here, she is able to move on the conversation and maintain the steady flow of turn-taking.

When Joyce makes an error which she cannot repair, it can disrupt turn taking and hence the flow of the conversation. In such circumstances, it falls upon the therapist to take the next step in repairing or moving the conversation on without repair. For example, the therapist asks Joyce how her husband knew something was wrong (when she was experiencing the stroke). Joyce replies, making errors which she is clearly aware of,

"*just e-r-r-r I've no idea [laughs] I think he was a lot nee-not-n-anot I had a lot e-rm-e-rm-mu-[whispers-no]e-rm the [whispers no] do*"

While it seems clear that she was trying to say that she was unsure how her husband knew she was unwell, she is trying to suggest how she thinks he might have known. She struggles in explaining this thought however and after several attempts to repair it she cannot. The therapist at this point intervenes and the conversation is able to move forward.

Patient non-verbal behaviour

Eye contact

Joyce and therapist are able to use eye contact throughout the sessions. This is used appropriately to indicate attention is directed at the other.

Facial expression

Both therapist and patient are able to use facial expression to reflect their feelings or attitude, or to reflect what has been expressed verbally. For example, both therapist and patient smile when discussing something that makes them feel happiness, such as when discussing family.

Joyce expresses her frustration with her speech by rolling her eyes. Facial expressions appear to be understood by both, and consequently aid communication.

Gesture

Failures in word retrieval sometimes result in Joyce miming the word she was thinking of. For example, when she is trying to explain that she can read a word but can't write or type, she mimes typing on a keyboard to express her point. The therapist is able to understand her point, and the repair strategy has been successful.

Visual Aids

Joyce engages in non-verbal behaviour in order to aid her expression. Often when she has difficulty expressing her point verbally she prefers to use her pen and notepad.

We see this strategy used when Joyce has difficulty in saying numbers, when trying to explain how old her grandchildren are. Joyce attempts to verbally express this statement, and is able to identify that she has said it incorrectly.

"we have erm Oliver who's twen no"

This error is now a disruption to the conversation, the main point of her utterance is not conveyed, and this therefore must be repaired or the topic changed for the conversation to continue. Joyce chooses to use her non-verbal ability to convey this information, by simply writing the number down in her notebook for the therapist to read. This repair strategy is successful, as the therapist can read and repeat back what Joyce had intended to say, "six". With this repair successfully managed, the conversation can move forward.

Therapist communication repair strategies

During the sessions, Joyce indicates that she is aware that she has made an error in her speech, and following this she is at times able to repair the error herself. On other occasions, the therapist attempts to repair the conversation. Repair strategies used by the therapist will now be discussed.

Verbal behaviour

Interpretation and paraphrasing

One method the therapist uses to aid repair Joyce's speech is the use of interpretation and paraphrasing. The therapist paraphrases what she thinks Joyce is trying to express. For example, at one point Joyce says, "*so yesterday we were out the err out of the hospital with erm the monitors so*"

This sentence is grammatically incorrect, yet alongside her use of gesture, it manages to convey key points of information that Joyce wants to express. In order to clarify Joyce's meaning here, the therapist rephrases what it is she thinks Joyce is trying to express, saying,

"*so you had an appointment at the hospital yesterday*"

This strategy can be useful even when Joyce's meaning is quite clear, and is even more important when Joyce's meaning is unclear. This use of interpretation or paraphrasing allows Joyce to either agree or disagree with the therapist's interpretation of her statement. If the therapist has misunderstood what Joyce is trying to say, and has rephrased something incorrectly, Joyce shows the ability to disagree.

If the therapist has been able to understand some of the meaning conveyed by Joyce, she can rephrase what Joyce was trying to say, to see if she has understood correctly. For example, when Joyce is describing her communication difficulties she says,

"I realise what I think should be going on an then an obviously er it's not really what's going on e-rr"

The therapist is able to check she has understood by rephrasing what she thinks Joyce is trying to express "*what's in your head isn't coming out of your mouth and you realise that*". Joyce then has the option to confirm that is what she was trying to say, or to disagree and reattempt to make her point.

Offering strategies

The therapist suggests a strategy for Joyce to use when she cannot find the correct word. This is specific to when Joyce struggles with days of the week and also with numbers. The therapist suggests Joyce counts the days/numbers out on her fingers until she finds the right one. Following this, Joyce uses this strategy and successfully finds the days she wants and the conversation can flow, despite a minor delay while she considers the correct answer. This is a technique which Joyce tries and uses successfully in sessions.

Non-verbal behaviour

Allowing additional time

When Joyce realises she has made an error in her speech, she will attempt repair. In these instances, the therapist will remain silent, allowing Joyce time to consider how she can best repair, and make a number of attempts to repair without interruption. This often leads to successful repair by Joyce and the conversation can move on.

Visual aids

The therapist encourages Joyce to use the visual rating scale to rate her confidence around different issues, her level of importance of issues, as well as to respond to other questions. Joyce is able to use the scale and rate her feelings along the 0-10 scale. This allows a method for gauging change and progress across the sessions. On one occasion in session four the therapist asks about the level of importance, in this instance about returning to driving, without using the rating scale. Joyce responds by expressing this is ‘very important’, but without using the scale, a 0-10 figure is not selected, therefore follow up around this in future sessions is reduced.

The scale is used effectively in the first session. The therapist presents the visual rating scale to Joyce. After explaining the scaling, she asks Joyce to rate her confidence of her ability to improve following the stroke. Joyce rates herself as a seven of where she would like to be, but is able to convey that at that current moment she felt she was at a five. This rating of her confidence opens the dialogue between patient and therapist about what might influence her confidence and how she can change this.

5.6.4 Mood

Measures of mood were taken over four time points during the study from baseline to the final measure at three-months post-stroke. Table 5.6.3 shows Joyce and carer ratings of mood. The Yale result indicates that Joyce experienced symptoms of low mood once the sessions had finished, during the follow-up period. The mid-therapy Yale score is missing; therefore it may be that Joyce was experiencing the same symptoms during the mid-therapy measure. When observing DISCs scores, it appears that Joyce was experiencing the highest level of low mood symptoms at the mid-therapy point, scoring 3/5. However, when comparing Joyce’s mood scores against her carer’s scores, there is a slight disparity. Based on the SADQ scores, it appears Joyce’s carer felt she was the most depressed at baseline, with scores slightly decreasing following this point indicating an improvement in mood until three-months.

Table 5.6.3: Patient and Carer assessments of patient Joyce’s mood

	Baseline	Mid-Therapy	Post-Therapy	three-months
Patient measures				
DISCs	1	3	1	1

Yale	0	missing	1	1
Carer measures				
SADQ	8/30	6/30	6/30	7/30
SODS	1/6	1/6	2/6	2/6

DISCs=Depression Intensity Scale Circles (≥2=depressed), Yale (1=depressed), SADQ=Stroke Aphasic Depression Questionnaire (≥14=depression), SODS=Signs of Depression Scale (≥2=depression).

5.6.5 Session 1

The first MI session took place at Joyce's house, approximately a week after discharge from hospital and 17 days post-stroke. Her husband was present throughout the session as requested by Joyce. At this point, she still had difficulties verbally expressing herself, and was on the waiting list to be followed up by the Speech and Language Therapy team.

Date of session: 25/10/13 Session duration: 29 minutes 5 seconds

Summary

The session begins with the therapist asking Joyce to recall what happened when she had her stroke. Joyce explains that she had been unaware of the stroke and it was her husband who rang for help. She describes feeling happy with the care at the hospital. Later in the session, the therapist asks how she feels about having had a stroke. Joyce seems to be trying to say 'It is what it is, I've had a stroke and now I need to get on with it'. They discuss how she feels about her progress in her recovery and what she can do to build her confidence.

Joyce's main concerns appear to be around writing and typing, and return to driving. She is keen to get back to writing and typing as this is her main way of communicating with friends and family. She explains that returning to driving is important to her. She uses the car to attend the church she volunteers with. Due to her current situation, she has not been able to attend and this is something she wants to change.

Joyce then discusses her family life and explains that she would usually be with her family on a Sunday. Since the stroke however she has been unable to do this, but she is hoping to manage to host the following Sunday. Joyce appears to feel supported by her family, and rather than feeling she has been overprotected, she feels they have helped her.

Joyce explains her difficulty at having to explain to her grandchildren about having her stroke, and this was upsetting for her. She describes that overall their contact with the family remains about the same following the stroke.

The session ends here.

MI content

The therapist engages in an in-depth discussion around various emotional issues using a number of open questions during this first session (n=11), allowing an. These open questions facilitate the discussion of Joyce's experience of the stroke (”How did the stroke happen”), what her difficulties have been (How have you managed with everything personally when you've come home,”) and how she feels she is managing these difficulties (“How does that make you feel?”).

Joyce is able to respond to these open questions, and reveals personal information in relation to each of the topic she is questioned about. This openness led to a high score for MISC patient ratings, in particular for disclosure (See Table 5.6.5).

The therapist is able to gage confidence and importance with Joyce using the visual rating scale in this session. The therapist asks about her feelings about the improvement she has made since the stroke, using the visual rating scale. Joyce rates that she currently feels like she has improved (5/10) but that she would like to make further improvements (7-10/10), but feels she lacks confidence with this (5/10).

Joyce explains she rated herself currently at 5/10 because she is struggling to write or type, so cannot send emails. The therapist follows this up by asking Joyce to rate how important this is to her, and while a number is not given Joyce explains that returning to this is very important to her. The therapist is able to reflect this back to Joyce by saying “You feel you're a five at the moment”. This reflection is based on the non-verbal message conveyed by Joyce (pointing to the visual rating scale), rather than reflecting what she said. The use of a reflection here allows Joyce to listen back to what she has expressed non-verbally, and initiates her explanation of why she has given this rating. She is then able to discuss her frustration at not being able to write or type, and that one of her goals is to get back to using her computer for emails.

The therapist uses some MI inconsistent techniques in this initial session, however these are very low (n=3, 1%). These occur when the therapist displays a ‘Therapy Assistant' rather than ‘MI therapist' approach to communicating, advising Joyce without permission on strategies to use to aid communication. However, Joyce does not seem to resist her advice. This is reflected in the reasonably high MI interaction scores seen below in Table 5.6.6, suggesting that overall Joyce and therapist were able to hold an open discussion composed of genuine empathy, openness and co-operation in working together to discuss the issues needed.

Overall, this initial MI session has very few instances (n=3) of MI inconsistent behaviours, as well as high levels of therapist empathy and understanding leading to high MISC rating scores (See Table 5.6.4). The overall MI consistency for this session is the highest of all sessions, at 93%. These features may have contributed to the open attitude of Joyce (See Table 5.6.5) who appears to find this session valuable in being able to discuss her experiences and voice concerns with the support of the therapist. A comprehensive breakdown of MI behaviour counts can be seen in Table 5.6.7.

Table 5.6.4: Therapist MI Global Ratings for Session 1

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	5
Genuineness/congruence	6
Warmth	7

MI=Motivational Interviewing

Table 5.6.5: Patient MISC ratings of Session 1

Affect	6
Co-operation	6
Disclosure	5
Engagement	6

Table 5.6.6: MISC Patient and therapist interaction in Session 1

Collaboration	5
Benefit	5

Table 5.6.7: MISC therapist behaviour counts for Session 1

Session 1: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=1	1.3%
Emphasise control	N=0	0%

Open questions (including semi-open)	N=11	3.8%
Semi-open questions	N=0	0%
Reflections: Simple	N=24	3.9%
Complex	N=2	0.5%
Reframe	N=0	0%
Support	N=4	0.9%
Total	**N =42**	**9.4%**
MI Inconsistent behaviours		
Advise without permission	N=2	0.7%
Confront	N=0	0%
Direct	N=1	0.3%
Raise concern without permission	N= 0	0%
Warn	N=0	0%
Total	**N=3**	**1%**
Questions Closed	N=78	14.6%
Summaries	N=7	3.2%
Other		71.8%
Overall MI Consistency	93%	

MI=Motivational Interviewing

5.6.6 Session 2

Date of session: 29/10/13 Session duration: 22 minutes 39 seconds

Session 2 took place in Joyce's home, with her husband present throughout the session. Joyce was in her second week at home following discharge from hospital.

Summary

This session begins with the therapist summarising a discussion from the previous session, focussing on Joyce's experience of the stroke and allowing Joyce to correct any information which was misunderstood.

They discuss Joyce's communication, and Joyce explains what her difficulties are. She describes she sometimes thinks she has said something right but it comes out wrong and she is aware of this. She goes on to explain how she currently manages these difficulties, stating she prefers to have more time to correct herself.

They discuss how her communication difficulties impact on her day to day activities such as using the phone or typing. Joyce appears positive, and Joyce is able to identify her own coping strategies, such as using the answer machine so she can listen back to a message a number of times, instead of answering the phone.

With regards to Joyce's goal of being able to type, she explains that it is important for her to return to emails so she can keep in contact with people from church. She is unable to do this currently so her husband is helping her.

Joyce is aware her recovery may be slow and that she feels she needs to have patience to continue with it. Joyce identifies being able to get people's names correct as a goal of hers and as something important to her.

In briefly discussing her mood, she explains she sometimes feels frustrated with her communication and this can make her feel down, although this does not happen often.

The session ends here.

MI content

In this session the therapist engages in mostly MI consistent behaviours (n=41, 15.6%), with an overall MI consistency of 95% and a very small number of MI inconsistent behaviour counts throughout (n=2, 1.0%).

The session begins with the therapist summarising Joyce's experience of the stroke as described in the previous session. The use of a summary to begin the session not only allows clarification of the facts presented in the previous session, but also sets the tone of the session in enabling another open discussion of the stroke experience and issues following from this.

Open questions are used in this session (n=10) allowing for a candid discussion of her experience of the stroke, her difficulties with communicating, how she feels about her concern around communication ("*how does that make you feel?"… "how have you feel like you've been coping with mood wise")* and why her goals are important to her ("*what's the reason why it's so important to you to use the computer*").

While open questions are used in this session, closed questions are much more frequent (n=36, 9.0%). These questions are used well in session, for example when aimed at clarifying something Joyce has said, or in seeking further information from a statement made by Joyce.

In addition, these questions are often positively framed, allowing Joyce to focus on positives. For example, "*Did it give you a boost?*". Open questions are sometimes used in conjunction with the visual rating scale, particularly when the therapist is asking Joyce to rate her confidence or importance of an issue. Joyce is able to rate her confidence in her ability to continue with her rehabilitation. The rating indicates Joyce is lacking in confidence but feels she has further to go in this area. The therapist is able to use this strategy to involve Joyce in finding her own solution to this lack of confidence. Joyce identifies for herself that getting people's names correct would improve her confidence. The level of patient involvement in this session such as in this example led to positive ratings of cooperation (see Table 5.6.9) and collaboration (see Table 5.6.10).

The therapist uses affirmations in this session mainly to encourage Joyce in relation to her concern around communication. The therapist takes the opportunity to affirm Joyce's progress with her communication, and her use of strategies which allows her to communicate successfully. In addition, there is also a number of supportive utterances from the therapist in this session (n=5), acknowledging how difficult her communication difficulties must be for her and encouraging Joyce's perseverance in her rehabilitation. This positive and supportive approach from the therapist led to the high therapist scores for empathy and MI spirit (see Table 5.6.10).

There are however instances of the therapist engaging in MI inconsistent behaviours, however these are minimal (n=2, 1.0%). There are two instances of the therapist confronting Joyce; however Joyce does not seem affected by these MI inconsistent behaviours. This may be due to the positive rapport they have developed, or perhaps the optimistic approach Joyce seems to take acts as a buffer to these MI inconsistent behaviours. In this session, the confronting behaviour occurs as the therapist is asking Joyce to rate her confidence. When she rates herself as not feeling confident (5/10) the therapist confronts her, asking why Joyce rated herself so low. Her intentions therefore were most likely to try to make Joyce see that she has made progress and could perhaps have rated herself higher, however her approach is confrontational and therefore MI inconsistent. Overall, the low number of MI inconsistent behaviours in this session is a positive feature. A full breakdown of MI behaviours is shown in Table 5.6.11.

Table 5.6.8: Therapist MI Global Ratings for Session 2 with Joyce

Empathy/understanding	6
MI Spirit	6
Acceptance	5

Egalitarianism	5
Genuineness/congruence	6
Warmth	7

MI=Motivational Interviewing

Table 5.6.9: Patient MISC ratings of Session 2

Affect	5
Co-operation	5
Disclosure	6
Engagement	6

Table 5.6.10: MISC Patient and therapist interaction in Session 2

Collaboration	5
Benefit	5

Table 5.6.11: MISC therapist behaviour counts for Session 2

Session 2: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=4	2.4%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=10	4.2%
Semi-open questions	N=1	1.5%
Reflections: Simple	N=20	7.4%
Complex	N=1	0.5%
Reframe	N=0	0%
Support	N=5	1.6%
Total	**N =41**	**15.6%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=2	1.0%
Direct	N=0	0%

Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=2**	**1.0%**
Questions Closed	N=36	9.0%
Summaries	N=3	3.2%
Other		71.2%
Overall MI consistency	95%	

MI=Motivational Interviewing

5.6.7 Session 3

This session was held later in the second week of Joyce's discharge from hospital. Following the previous session Joyce's husband had mentioned a number of areas of progress Joyce had made but had failed to mention in the session. These points were to be discussed further in this session. Since the last session Joyce had attended an appointment with regards to returning to driving, one of her goals she mentioned in the previous MI session.

Date of session: 30/10/2013 Duration: 17 minutes 54 seconds

Summary

The therapist begins the session by discussing progress Joyce has made, beginning with her experience of speaking to workmen who had called at the door in the last week. Joyce seemed pleased with her progress, but felt that her husband was in the house which gave her reassurance to just '*get on with it*'.

Another positive issue she had not mentioned in the previous session was that she had talked with her husband on the phone. Joyce does not discuss this further but instead informs the therapist of other progress she had made, sending a text for the first time. While she knew the text was spelled incorrectly, the message was understood.

Joyce talks encouragingly about seeing her family and explains a situation where she had to unexpectedly babysit her grandson on her own. She described this situation as being unplanned and difficult for her, although she feels she was able to cope.

Joyce describes that this experience has helped prepare her for hosting Sunday lunch for her family (one of her goals mentioned in the previous session) the following weekend. Joyce explains that she is looking forward to having her family on the weekend. They go on to discuss her concerns around this, such as feeling overwhelmed by too many conversations at once, and how she might manage.

The therapist asks how Joyce feels about the MI sessions. Joyce explains that she feels the sessions help her by focusing her to talk about things, and allows her to say what's on her mind. The session ends at this point.

MI content

The session begins with the therapist mentioning the progress Joyce has made, which has been passed on to the therapist by Joyce's husband. Joyce has been able to talk with people outside of her family, answering the door to workmen working at her house. Joyce seems happy with how she coped but expresses that she did not feel comfortable answering the door, however she felt the conversation was made easier because she knew the reason for their call. The therapist assesses her confidence on this; however she still does not feel she has the confidence to do this again despite having coped well. She states that she would find it more difficult in future; explaining that if strangers called she may not know why they were calling and she would find this more challenging. Joyce and therapist work well together here, discussing her achievements, concerns, and confidence. This led to the higher scores for patient and therapist interaction which can be seen in Table 5.6.14.

They discuss her talking on the phone. Again, this information is initiated by the therapist, suggesting Joyce has either forgotten to mention these in the previous session, or perhaps she is unaware of her progress. Joyce has spoken on the phone, which is something she was previously avoiding but wanted to return to. Perhaps this prompts Joyce to recall her progress, as she then goes on to explain that she sent a text message to her daughter successfully. This is the first text she has sent a text since her stroke. However when asked how she feels about this, Joyce again suggests she is able to text with family who know her situation, and may struggle communicating with others. She discusses her concerns openly, explaining her thoughts behind these. It is this engagement and disclosure which contributed to Joyce's patient MISC ratings seen below in Table 5.6.13.

Joyce explains that her family will be coming for Sunday dinner that coming weekend and that she feels ready to try this. The therapist uses a summary to recap that this is a goal she had mentioned in session one that she wanted to return to since her stroke. The therapist provides supportive statements encouraging Joyce. The therapist uses open questions to probe what her concerns are around this. The use of such techniques contributed to her MI therapist global ratings in Table 5.6.12. Joyce explains she is concerned about getting all her cooking times correct as she cooks alone. She is also concerned at becoming overwhelmed if everyone talks at once. She can only cope with one person talking at a time so she may struggle with this. The therapist asks how she might cope with this and Joyce is able to come up with her own solutions to this difficulty by explaining to her family how she feels.

The therapist does engage in some MI inconsistent behaviours in this session, but again these are minimal (n=2, 1.4%). Overall MI consistency remained high in this session at 96%.

A summary of all MI behaviour counts for this session can be seen in Table 5.6.15.

Overall in this session, despite her achievements Joyce appears to remain low in confidence. This may be due to lack of self-confidence, or perhaps a lack of self-awareness of her achievements. It therefore falls to the therapist at times to bring up the progress Joyce has made.

Table 5.6.12: Therapist MI Global Ratings for Session 3 with Joyce

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	5
Genuineness/congruence	5
Warmth	6

MI=Motivational Interviewing

Table 5.6.13: Patient MISC ratings of Session 3

Affect	5
Co-operation	5
Disclosure	6
Engagement	6

Table 5.6.14: MISC Patient and therapist interaction in Session 3

Collaboration	5
Benefit	6

Table 5.6.15: MISC therapist behaviour counts for Session 3

Session 3: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=2	1.4%
Affirmations	N=0	0%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=6	1.7%
Semi-open questions	N=0	0%
Reflections: Simple	N=17	4.6%
Complex	N=4	1.7%
Reframe	N=0	0%
Support	N=14	6.4%
Total	**N =43**	**15.8%**
MI Inconsistent behaviours		
Advise without permission	N=2	1.4%
Confront	N=0	0%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=2**	**1.4%**
Questions Closed	N=26	11.3%
Summaries	N=2	2.8%
Other		68.7%
Overall MI Consistency	96%	

MI=Motivational Interviewing

5.6.8 Session 4

This session took place the following week. This allowed the therapist to enquire into the events occurring over this time.

Date of session: 05/11/2013 Session duration: 17 minutes 52 seconds

Summary

The therapist begins the session by following up on Joyce's attempt at a previously stated goal of hosting Sunday lunch for her family. Joyce describes the day, explaining she managed to avoid being involved in too many conversations at once, which she had previously felt would overwhelm her.

The therapist asks Joyce how she feels she has improved since the last session. Joyce describes that difficulty processing her words is her main challenge. She then goes on to expand on her progress around talking with new people and how she felt around this. She is positive in her approach to her difficulties.

Joyce mentions her appointment later that day with the doctor for assessment of return to driving. Returning to driving is clearly an important goal for her to achieve.

Joyce is prompted by her husband to discuss a strategy she has started to use to help her with her emails. Her strategy allows her to read and write emails independently, as she had previously been relying on her husband to help her. This is another example of her progress. Joyce describes her remaining difficulties with using the computer but feels she will persevere with. The session ends here.

MI content

In this session, the therapist engages in MI consistent behaviours (16.1% of the session), with no instances of MI inconsistent behaviours and an overall MI consistency of 100%. A full breakdown of MI behaviour counts for this session can be seen below in Table 5.6.19.

Joyce describes a number of areas where she has made progress. The session begins with a discussion of the Sunday lunch, including how it went and how Joyce coped with the concerns she mentioned in the previous session. Joyce was worried she could only manage to talk to one person at a time and may struggle to achieve her goal of hosting the lunch. Using open questions, the therapist is able to probe into how Joyce coped and how this made her feel.

The therapist asks Joyce how she feels she has improved since the last session. Joyce describes her main problem expressing herself verbally. However, following an affirmation from the therapist regarding her progress, Joyce then goes on to discuss her progress, stating that she had spoken to two people in the last week. She also explains that she was able to order drinks in a shop. She explains that the situation was unplanned as she had expected her husband to re-join her in the queue. When he hadn't returned in time, she had to order the drinks alone.

She describes feeling nervous about this however she planned a coping strategy if she could not manage. She had her aphasia awareness card ready to show if she struggled with her words, although she did not need to use this.

Despite making progress with talking to others, her confidence in this area remained low. When asked verbally about her confidence to do this again, she feels unsure whether she could. The therapist provides numerous supportive statements and affirmations of her progress in her speech "*you're persevering and it's paying off*'. This positive and encouraging approach from the therapist contributed to the high scores of MI global ratings as seen in Table 5.6.16.

Joyce mentions her appointment later that day with the doctor for assessment of return to driving. When asked about the importance of returning to driving, Joyce is able to explain it is important so she can visit her elderly mother. She also feels this would leave her more independent as her husband is currently driving her where she needs to go.

The therapist uses the visual rating scale to ask Joyce how she feels she is doing. In previous sessions Joyce has rated herself at a 5. She again points to 5, stating that she feels she has not more further progress because of her difficulty reading. She explains this has stopped her reading magazines and books, which she previously enjoyed. This lack of progress makes her feel she can't rate herself any higher.

The therapist alters the rating question, asking Joyce to rate her confidence, allowing Joyce to rate herself higher at a 7 point. This brings a more positive focus to her progress and the therapist provides affirmations and supportive statements to reinforce her positive development. Joyce appreciates that her difficulties could be worse, demonstrating again her positive attitude and acceptance of the stroke and its impact on her life.

Joyce is prompted by her husband to discuss a strategy she has started to use to help her with her emails. Again, Joyce did not raise this topic, suggesting that perhaps she forgot she made this progress, or perhaps she did not consider this progress. She has been using a function on the iPad to read aloud what has been typed. This allows her to listen back, identify and change mistakes so she can read and write emails independently without assistance from her husband. This is another example of her progress. The therapist provides affirmations and support here "*I can see you're really determined to get the hang of going back onto the computer again*". Joyce describes that the keyboard remains a problem but this is something she will persevere with.

In this session Joyce has made progress in various areas. She has hosted Sunday lunch for her family, one of her goals mentioned in previous sessions. She has also managed to progress with talking to people outside of her family, and has a strategy in place to deal with her concern of her difficulty speaking. She is hoping to get medically cleared to return to driving, therefore moving towards another goal. Finally, she has made progress towards her goal of using emails independently, discovering a strategy which allows her to do this. Joyce is clearly making progress and the session allows her to reflect on this. This is reflected in the high patient MISC ratings seen in Table 5.6.17.

Table 5.6.16: Therapist MI Global Ratings for Session 4 with Joyce

Empathy/understanding	5
MI Spirit	6
Acceptance	6
Egalitarianism	6
Genuineness/congruence	6
Warmth	6

MI=Motivational Interviewing

Table 5.6.17: Patient MISC ratings of Session 4

Affect	4
Co-operation	6
Disclosure	6
Engagement	6

Table 5.6.18: MISC Patient and therapist interaction in Session 4

Collaboration	5
Benefit	6

Table 5.6.19: MISC therapist behaviour counts for Session 4

Session 4: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=8	4.8%

Emphasise control	N=1	0.2%
Open questions (including semi-open)	N=3	1.2%
Semi-open questions	N=0	0%
Reflections: Simple	N=14	4.2%
Complex	N=1	0.1%
Reframe	N=0	0%
Support	N=16	5.6%
Total	**N =43**	**16.1%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=0	0%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=0**	**0%**
Questions Closed	N=19	7.5%
Summaries	N=4	4.3%
Other		72.1%
Overall MI Consistency	100%	

MI=Motivational Interviewing

5.6.9 Session 5

This session took place immediately after Joyce had completed the mid-therapy follow up measures (FAST, Yale and DISCs). Joyce was able to attempt all sections of these measures which she did not do at baseline, and she did so quicker than at baseline. Joyce appeared disappointed with her performance on the FAST, in particular with her writing skills.

Date of session: 07/11/2013 Session duration: 21 minutes 56 seconds

Summary

The therapist asks how Joyce feels about having completed the follow up measures. Joyce appears a little upset about her performance however she remains positive and accepting of her current situation.

The therapist asks Joyce about the visit to the doctor regarding her driving assessment which was discussed in the previous session. Joyce describes is as not going well and the doctor is sending her to the optician later that day. Joyce discusses her concerns around this and her strategy she has thought of to cope.

On struggling with her speech, the therapist asks what might be impacting on her. Joyce explains it is because she feels anxious thinking about her appointment regarding the eye test. The importance of the eye test is explored further.

Joyce mentions she will be going out again for coffee and they discuss the potential for Joyce to speak with new people. They discuss her confidence around this and what issues might impact on her confidence to speak to someone in a shop.

The therapist enquires about Joyce's progress with speech and language. Joyce explains she has been continuing with her strategy of listening back to emails. She recognises that she needs to continue practicing and that her progress may take time. Her difficulties have not stopped her using the computer because her husband can help her where needed.

Joyce mentions that she must wait for the doctor to medically approve her so she can drive. At this point she mentions that she had thought the appointment with the doctor would have been more positive. The session ends here.

MI content

The therapist begins the session by addressing how Joyce feels having completed the follow up measures. Joyce explains she struggled to write the correct sentences and that this is something that upsets her. However, she recognises her improvements, stating "*that's more than I have done*", and the therapist affirms her progress. This is a topic she has previously mentioned as a goal, and this is therefore an acknowledgement of her progress in this area, while recognising that she has further to go.

The therapist asks Joyce about the visit to the doctor regarding her driving assessment which was discussed as a concern in the previous session. Joyce describes the appointment as not going well, although suggests that the doctor was happy with her. She explains she has been referred to the optician later that day. Joyce voices her concern about this, explaining she is worried that she may perform badly because of her difficulty speaking rather than due to her vision. While this is not explicitly expressed verbally, it seems this was the intended message, and Joyce agrees with the therapist's reflection of this statement. Joyce indicates her perseverance, positivity and her ability to find her own solutions to problems as she informs the therapist she could write down her responses instead of speaking.

When struggling with her speech during this session, the therapist asks what the cause of her problem is. Joyce explains she is feeling concerned about her appointment regarding the eye test.

Therapist (T): "*Is there anything causing that?*"

Patient (P): "*That was probably the erm specs*"

Joyce goes on to further explain the importance of the eye test, that driving would allow her to visit her mother who has been ill. At this point she discusses her desire to return to driving,

P:"*I don't wanna erm…loads and loadsa miles I just want to be able ter erm*…"

T: "*Nip out"*

P: "*Yeah, yeah*"

Again Joyce remains positive stating that if she wanted to see her mother now, she could walk instead of driving. She independently considers solutions to her difficulties. She also mentions that now she can call her mum on the phone and check on her, Joyce here states her own improvements as she was unable to talk on the phone shortly after her stroke.

Joyce mentions she will be going out again for coffee, however she states she will not be ordering drinks again as she had completed successfully the previous week. The therapist asks how Joyce would cope with lots of people talking in the shop, which Joyce has previously mentioned is a concern for her. She responds saying this would be fine. She then makes a point which is unclear, suggesting that she can talk as long as there is no wait to speak, so if there is no queue where the pressure builds for her to speak she can manage.

Instances such as this indicate Joyce is open and willing to discuss her concerns or goals voluntarily in the session. This approach led to strong patient MISC scores as seen in Table 20. The therapist often responds to such disclosures with statements of support (n=22) of affirmations (n=2), highlighting some of the reasons for the ratings of empathy and understanding and MI spirit as seen in Table 5.6.20.

The therapist asks about Joyce’s progress with speech and language. Joyce explains she has been continuing with her strategy of listening back to emails. She is realistic yet upbeat as she recognises that she needs to continue and that her progress may take time. She explains her difficulty is not in writing individual words, where her spelling is acceptable. Her difficulty is placing the words correctly within a sentence, whether written or typed. However she continues to use the computer for tasks that don’t involve typing, such as ‘copy and paste’ and manages the rest with the help of her husband.

Joyce returns to the topic of the eye test. At this point she mentions that she had thought the appointment with the doctor would have been better and they would have approved her to drive. This perhaps explains why she is feeling disappointed and anxious, and her repetition of the subject highlights the prominence she has placed this subject in her mind. The session ends here.

While this session is highly MI consistent (96%), there are areas where the therapist may have improved her interactions. There are a large number of closed questions (n=22, 8.3%) compared to open (n=5, 1.9%) or semi-open questions (n=2, 1.0%). While an increase in open questions rather than closed may have increased the amount of MI consistent behaviours and thus the session interactions, Joyce’s responses do not appear to be negatively impacted. The overuse of closed questions do not appear to trouble Joyce, rather these are often answered as though they had been asked in an open question format. A comprehensive account of MI behaviours in this session can be seen below in Table 5.6.23.

Table 5.6.20: Therapist MI Global Ratings for Session 5 with Joyce

Empathy/understanding	6
MI Spirit	5
Acceptance	5
Egalitarianism	6
Genuineness/congruence	6
Warmth	6

MI=Motivational Interviewing

Table 5.6.21: Patient MISC ratings of Session 5

Affect	5
Co-operation	5
Disclosure	6
Engagement	5

Table 5.6.22: MISC Patient and therapist interaction in Session 5

Collaboration	5
Benefit	5

Table 5.6.23: MISC therapist behaviour counts for Session 5

Session 5: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=2	0.8%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=5	1.9%
Semi-open questions	N=2	1.0%
Reflections: Simple	N=13	6.7%
Complex	N=4	1.5%
Reframe	N=0	0%
Support	N=21	7.9%
Total	**N =47**	**19.8%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=0	0%
Direct	N=2	0.5%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=2**	**0.5%**
Questions Closed	N=28	8.3%
Summaries	N=0	0%
Other		71.4%
Overall MI Consistency	96%	

MI=Motivational Interviewing

5.6.10 Session 6

Date of session: 12/11/2013 Session duration: 19 minutes 31 seconds

Summary

The session begins with the therapist asking Joyce about her weekend. Joyce describes her first visit back to the chapel since her stroke. This is a goal she mentioned in previous sessions.

The therapist asks about the eye test. Joyce describes it as ‘absolute rubbish’. It seems that the optician has referred her for further tests with the specialist at the hospital; therefore she has a further delay to find out whether she can drive. The therapist asks if Joyce feels disappointed by this. She responds that she does, however she also feels it can’t take much longer to resolve. She suggests she is trying not to think about it because it is out of her control.

The therapist asks how confident Joyce is feeling. Joyce describes that she still feels the same. Returning to the topic of her eye test, it appears Joyce was very anxious before this appointment, and now that is over she seems to feel relieved. She describes that she managed to get around her concern of saying the wrong thing during the test, as the optician asked her to respond in other ways not requiring her to speak.

When asked how she would manage not driving for a little while longer, she explains that her husband will help her. She would previously drive her mother to hospital appointments but discusses how other family members may do this for now. She seems accepting of this.

The session finishes with the therapist summarising about Joyce’s eye test and its implications. It seems that while it is disappointing for Joyce, she knows it will get resolved in time and seems accepting of this and remains positive in her attitude. The session ends here.

MI content

Since the last session, Joyce has managed to achieve one of her goals of returning to chapel. She describes that it was busy with ‘lots of people’ there. The chapel was not only a cause she dedicated her time to prior to the stroke, but a social network which she was keen to return to.

Another topic which continued from the previous session is that of the eye test. This was a major concern for her and she was anxious about how a test would be carried out when she has difficulty speaking. On discussion of her eye test, she appears very relieved at how she was tested. Despite not having her usual optician, she was able to write down her responses instead of saying them aloud. It appears test results have been inconclusive and further tests need to be carried out. The process also involved the Driver and Vehicle Licensing Agency (DVLA), which was another concern for Joyce who was afraid of the length of time it would take for her results to be processed and returned. The therapist responds with sympathetic and supportive statements. She then asks about how Joyce is coping with this situation by asking "*are you just pushing that aside?*". This is an MI inconsistent approach and is almost leading in its phrasing of the question. However this MI inconsistent question does not appear to impact negatively on Joyce who seems to agree that this is the coping strategy she is using. It seems that she feels the decision is out of her control; therefore she is refraining from thinking about returning to driving until she has a response from the DVLA.

Joyce goes on to discuss achieving another goal of walking to her mother's independently. While she is unable to drive, Joyce suggested in a previous session that she could walk there if the weather was fine. She has been able to achieve this and managed.

During the course of the session, Joyce struggles to say numbers. She discusses this is something she is struggling with ("*Yeah I'm doing doing slowly about this one erm*"). She describes that saying numbers is more difficult that other words, and while she can write numbers down she struggles to say them out loud. The therapist uses supportive statements to reinforce the strategies Joyce has in place for her speech difficulties. This leads Joyce to inform the therapist of her further progress in using the computer to help with reading, speaking and writing.

Joyce informs the therapist of her strategy to read independently. If she has a word she is unsure of how to say, she will use the computer software to read the word aloud. She has been able to use this strategy to allow her to practice reading books. This approach demonstrates the determination of this lady to persevere with her rehabilitation and make progress in her speech and language. She is able to openly discuss her feelings around this, explaining that while it can be very frustrating not being able to get a word out, she appreciates now that her progress may be a slow process.

The therapist asks about any change in Joyce's confidence. The question is only asked verbally with no use of the visual rating scale for reinforcement. The lack of visual rating scale for this question means Joyce responds without providing a number of 0-10 with regards to her confidence, therefore this cannot be compared to previous sessions. However Joyce at this point responds by referring back to her eye test. She describes herself as "fine" and reiterates that despite being very nervous and stressed before her eye test it went well *"so he was ok so that was alright so I wasn't particularly nice about going cos that was really a -a-a thing to do I think going out to do the alphabets so erm"*.

She is clearly relieved about this and this is reflected in the quote above. Her honest discussions in this session and her ability to openly disclose her feelings led in part to the high ratings of patient MISC scores as seen below in Table 5.6.25. The therapist uses reflections of her statements to reiterate the positive nature of the test and uses open questions to explore how Joyce will manage following the inconclusive nature of the test outcome.

Joyce is then able to discuss how she has adjusted her life to cope with her changes from the stroke. Previously she had taken a lead role in looking after the family, food shopping, caring for her elderly mother and taking her to hospital appointments. Due to her inability to drive she has accepted that other family members have to take over this role. She describes that either her husband or daughter are now taking on these roles, and appears accepting that this is the case and does not appear concerned about this.

During this session Joyce seems to be able to voice her concerns and disclose her emotional state to the therapist, and appears to benefit from this. The therapist is able to respond in an appropriate supportive manner, hence the scores for patient and therapist interactions seen below in Table 5.6.26.

A full breakdown of MI behaviour counts from session 6 can be seen in Table 5.6.27 below. This highlights that while there are few instances of MI inconsistent behaviours in this session (n=3, 1.3%), there was also the potential for an increase in MI consistent behaviours, hence the scores of 5 for MI therapist ratings of MI spirit (see Table 5.6.24).

Table 5.6.24: Therapist MI Global Ratings for Session 6 with Joyce

Empathy/understanding	5
MI Spirit	5
Acceptance	5
Egalitarianism	5
Genuineness/congruence	5
Warmth	5

MI=Motivational Interviewing

Table 5.6.25: Patient MISC ratings of Session 6

Affect	6
Co-operation	5

Disclosure	6
Engagement	6

Table 5.6.26: MISC Patient and therapist interaction in Session 6

Collaboration	5
Benefit	6

Table 5.6.27: MISC therapist behaviour counts for Session 6

Session 6: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=1	0.2%
Affirmations	N=1	0.3%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=6	3.0%
Semi-open questions	N=1	0.7%
Reflections: Simple	N=25	5.2%
Complex	N=1	0.2%
Reframe	N=0	0%
Support	N=13	3.2%
Total	**N =48**	**12.8%**
MI Inconsistent behaviours		
Advise without permission	N=2	1.0%
Confront	N=1	0.3%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=3**	**1.3%**
Questions Closed	N=19	6.9%
Summaries	N=0	0%
Other		79%

Overall MI Consistency	94%	

MI=Motivational Interviewing

5.6.11 Session 7

Date of session: 14/11/2013   Session duration: 29 minutes 22 seconds

Summary

This session begins with the therapist asking about Joyce's progress since the last session. Joyce is able to describe positive experiences since the last MI session including talking with new people and using the phone. They discuss how these situations have impacted on her confidence.

She further discusses her difficulties with speech, how this makes her feel. Her concern for the future is that this problem may not return to normal. They discuss how she is coping with this.

Joyce discusses her frustration at not driving. They discuss her next steps with this.

The therapist asks Joyce about her declining to go out with her friends (which happened after the previous session after filming had stopped). They discuss her concerns around this, how Joyce feels about going out in busy public places and about socialising.

The session ends here.

MI content

This session begins with the therapist asking what progress Joyce has made since the last session. Joyce is positive and explains that she had taken her mother out alone. She had been able to order drinks for the two of them without difficulty, and had then been able to use her phone to contact her husband to arrange to be picked up. When asked, she explains she feels she has the confidence to do this again. She explains that as long as she doesn't overthink the situation she can manage.

Joyce explains that she her speech difficulties make her most stressed when she struggles with tasks in her home. She describes her frustration at using the computer and that she had become upset about this, crying with frustration. Her disclosure led to high patient MISC scores as seen in Table 5.6.29. When asked about her level of patience, she replies that as before, she has little patience. However, despite saying this, she has demonstrated patience through her other statements in sessions.

Joyce appears to express that when someone says a word, this gets stuck in her head and can put her off thinking of the word she wants. However this is not explored further by the therapist. Joyce explains that there isn't a time benchmark of when her speech and language will resolve, which she finds difficult. She initially thought she would have improved by this point but now realises it will take longer. On describing her perseverance with reading and writing, the therapist affirms this. When asked whether this helps build her confidence, Joyce explains some days it helps, but she has bad days where it knocks her confidence, for example not being able to read with her grandson. She is concerned her reading may not return to normal, and that while this isn't life threatening, it is still very important for her. She feels that seeing the speech and language team would give her something to work towards. The therapist tries to focus on the positives for Joyce.

Joyce discusses her frustration at not driving. The therapist asks if she is waiting for an appointment with the eye specialist, which was suggested in the previous session, but Joyce explains she is just waiting for a decision from the DVLA but this may take weeks.

The therapist asks Joyce about her declining to go out with her friends (which happened after the previous session after filming had stopped). Joyce explains she was concerned about lots of people being there and that she may not have been able to talk to both friends at the same time. She explains if they were going for a quiet coffee she could have managed better. The therapist asks how she feels about this and Joyce explains it does bother her but at the same time she seems accepting of the situation.

The session ends here.

The session has a high overall MI consistency (95%), with a high number of open questions and simple reflections used. A full breakdown of MI behaviours for this session is show below in Table 5.6.31.

Table 5.6.28: Therapist MI Global Ratings for Session 7 with Joyce

Empathy/understanding	5
MI Spirit	5
Acceptance	6
Egalitarianism	6
Genuineness/congruence	6
Warmth	6

MI=Motivational Interviewing

Table 5.6.29: Patient MISC ratings of Session 7

Affect	5
Co-operation	6
Disclosure	6
Engagement	6

Table 5.6.30: MISC Patient and therapist interaction in Session 7

Collaboration	5
Benefit	5

Table 5.6.31: MISC therapist behaviour counts for Session 7

Session 7: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N= 3	0.9%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=12	3.9%
Semi-open questions	N=0	0%
Reflections: Simple	N=23	4.3%
Complex	N=2	0.2%
Reframe	N=0	0%
Support	N=15	4.0%
Total	**N =55**	**13.3%**
MI Inconsistent behaviours		
Advise without permission	N=2	0.2%
Confront	N= 1	0.3%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=3**	**0.5%**
Questions Closed	N= 26	6.0%
Summaries	N=0	0%

Other		80.2%
Overall MI Consistency	95%	

MI=Motivational Interviewing

5.6.12 Session 8

Date of session: 19/11/2013 Session duration: 23 minutes 00 seconds

As this was the final MI session, the therapist and researcher spent some time after the session had ended in gathering feedback from Joyce and carer on their experiences of the sessions overall.

Summary

This final session begins with the therapist asking Joyce how she feels the sessions have been. Joyce feels they have been good and have pushed her to have a conversation with someone. She also feels it has been good talking with someone. On being asked, she says she would not discuss the same things with her family.

The therapist asks about the improvements Joyce has made and she remains optimistic about this. The therapist uses the visual scale to rate Joyce's confidence. They discuss factors that impact on her confidence to use the telephone.

They talk about Joyce's weekend. Joyce discusses her attendance at church, one of her goals. She discusses her difficulties in this situation, but overall maintains her positive attitude to her recovery.

Joyce mentions her wait for the DVLA driving approval and eye test which she has the following week. This is clearly important to her as she has mentioned in previous sessions. She explains that she is managing without the car by walking to visit her mother. She is adjusting to her difficulties and not allowing them to prevent her undertaking activities.

The therapist summarises their discussion in this and the previous sessions and her progress overall. The therapist reiterates Joyce's progress with her speech. She also summarises Joyce's current situation of waiting to return to driving, and how important this is to her.

The session ends and is followed up with some questions from therapist and researcher about feedback on the sessions.

MI content

During this final session, the therapist asks about the improvements Joyce has made and she remains optimistic about her progress. The therapist provides the visual scale for Joyce to rate her confidence. She scores seven for her current situation but feels she would like to reach ten, explaining that she is motivated to continue with her rehabilitation and to continue to improve.

The therapist affirms Joyce for her progress, and they discuss her using the telephone. It seems Joyce feels confident to use the telephone when she knows her husband is nearby. He is a source of reassurance, although from what she has said in all sessions she has not needed his support so is perhaps making more progress than she realises. This display of empathy and understanding led to therapist MISC scores as shown in Table 5.6.32.

Joyce suggests she is adjusting to the length of time required for her recovery. At one point she says she thought things would,

"*just click into place somehow or other but obviously it doesn't*".

This is supported by her description of her recovery as being aware that it will take a "*long time*". Her frank discussion of her emotions and concerns led to scores for patient MISC ratings as seen in Table 5.6.33.

The therapist asks about Joyce's weekend, however asks with a negative approach "Is there anything you struggled with?", rather than something like "Tell me about you weekend". Joyce explains about attending a church event where she was in a busy, noisy situation. She describes that while overall she enjoyed it, she also found it a bit overwhelming. Again she remains positive in her approach, describing how she feels it might get better now people at church have seen her and won't need to ask her how she is following the stroke. Again the therapist takes a negative approach, asking "*Are you going to avoid…will it restrict*?"; however Joyce is able to disagree with the therapist. She maintains her affirmative attitude explaining that she won't let her stroke hold her back "that would do me in not going there". The church is clearly important to her, and socialising there is something she values and wants to continue. She appreciates people talking to her is their caring nature and they just want to make sure she is ok.

Joyce raises the topic of waiting for the DVLA driving approval and eye test which she has the next week. This is clearly important to her as she has mentioned in previous sessions. She explains that she is managing without the car by walking to her visit her mother.

The therapist summarises what they have discussed and of the previous sessions and her progress overall. The therapist reiterates Joyce's progress with her speech, with her waiting to get back to driving, and how important this is to her.

Despite one MI inconsistent statement from the therapist, the session has a high MI consistency (96%), with a full breakdown of behaviours shown in Table 5.6.35.

The session ends and is followed by questions from therapist and researcher about feedback on the sessions and anything she might have changed or any suggestions she has.

Table 5.6.32: Therapist MI Global Ratings for Session 8 with Joyce

Empathy/understanding	6
MI Spirit	6
Acceptance	5
Egalitarianism	5
Genuineness/congruence	4
Warmth	4

MI=Motivational Interviewing

Table 5.6.33: Patient MISC ratings of Session 8

Affect	5
Co-operation	6
Disclosure	6
Engagement	6

Table 5.6.34: MISC Patient and therapist interaction in Session 8

Collaboration	6
Benefit	6

Table 5.6.35: MISC therapist behaviour counts for Session 8

Session 8: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N= 2	1.1%
Emphasise control	N=0	0%

Open questions (including semi-open)	N=4	1.9%
Semi-open questions	N=2	1.0%
Reflections: Simple	N=8	1.6%
Complex	N=2	0.9%
Reframe	N= 0	0
Support	N= 4	4.4%
Total	**N =22**	**10.9%**
MI Inconsistent behaviours		
Advise without permission	N= 0	0
Confront	N= 1	0.8
Direct	N= 0	0
Raise concern without permission	N=0	0
Warn	N=0	0
Total	**N=1**	**0.8**
Questions Closed	N=18	6.7
Summaries	N=2	7.6
Other		74%
Overall MI Consistency	96%	

MI=Motivational Interviewing

Joyce: Cross session summary

On first having the stroke, Joyce suffered no physical disability however she was left with moderately severe communication difficulties. Over the course of the study, her communication improved, in particular her verbal expression, as can be seen from her communication measures taken over a number of time points up to three-months post-stoke. Her lack of physical disability and social support network meant she could return home from hospital and continue to engage in many, but not all, of her previous activities.

Although the stroke came as a shock to Joyce, she seems to have an accepting approach to her situation. She is able to talk through her experience of the stroke in sessions. Joyce experienced difficulties which she found frustrating, mainly involving her communication. However she was able to deal with this calmly and worked hard to continue in her usual activities. We see her adjust to the length of time her recovery may take, realising and accepting that it may be a slow process over a long period of time. She maintains overall optimistic in her view of the future and this is evident throughout the sessions.

Joyce makes progress in her speech and language, and this leads in part to her increasing her level of independence. She is also able to identify strategies which help her in areas she has not yet improved, therefore adapting to her difficulties.

During the sessions, Joyce identifies a number of goals which are important to her, including writing emails, attending chapel, making Sunday lunch for her family, and returning to driving. At times, she is able to rate the importance or her confidence with some of these issues using the visual rating scale. For example, we see her ratings of confidence with regards to talking with new people slowly increase over the sessions in line with her successful attempts to do this. Ratings of importance and confidence allow her progress to be studied more markedly across the sessions; however ratings are not taken in every session so a full follow up of her progress is difficult to track. As sessions continue, Joyce progresses with her goals, some of which are achieved by the final session (hosting Sunday lunch, attending church) and others she continues to work towards (return to driving, sending emails).

She has a very supportive husband who has helped her cope, however she has throughout been able to identify her own strategies to enable her to cope and progress with her independence. Joyce has an understanding attitude, feeling whatever the problem, it will get resolved but it may take time. She demonstrates this approach in her difficulty speaking, where she explains that she can talk with people, it just takes her a little longer. While at times the therapist frames her questions with a MI inconsistent approach, Joyce seems unaffected by this and instead responds by focusing on the positives.

Across the sessions, the relationship between patient and therapist appears to develop. The rapport between the two allows Joyce to disclose her concerns and achievements, and this allows for an open discussion of these issues in sessions. The progress made by Joyce over these sessions is shared between the two, promoting a positive and encouraging nature to the sessions.

When asked about her experience of the study she appears positive about their impact. She suggests that they helped her to have a conversation with someone one-to-one, something she wanted to practice and build confidence with. She also suggests the sessions have allowed her to talk candidly about what is on her mind, something she would not really do with others outside of her husband. It appears the sessions have been helpful to her.

Overall, the MI sessions with Joyce were highly MI consistent (range 93-100%). The session with the lowest level of MI consistent behaviours was session one. In this session, although still a high level of MI consistent instances, there is also the highest number of closed questions (n=78) of all eight sessions. However this session also includes the highest number of open questions, summaries, and use of the visual rating scale, which are all MI consistent behaviours. This finding supports previous studies which have shown that regardless of MI consistent behaviours in sessions, just one MI inconsistent utterance can negatively alter the session. Thus, the overuse of closed questions may have reduced the MI consistent content of the session. Despite this, the therapist consistently achieves expert level sessions based on overall MI consistency and global MISC ratings.

Table 5.6.36: MI consistency for Joyce over sessions

Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & Patient collaboration rating	Overall MI consistency
1	6	12	78	6	6	5	93
2	2	11	36	6	6	5	95
3	1	6	26	6	6	5	96
4	1	3	19	6	6	5	100
5	0	5	28	5	5	5	96
6	2	6	19	5	6	5	94
7	0	4	26	5	6	5	95
8	2	4	18	6	6	6	96

Sess.=Session number, MI=Motivational Interviewing, VRS=Visual rating scale.

Summary

This section has presented the results of analysis of data from MI sessions with Joyce. The following section will present the results from MI sessions with the final case study, Mary.

5.7 MI Session Analysis: Mary

For the purpose of describing this patient, she will now be referred to as Mary. This section will provide a brief biography of Mary, presenting details of their communication and mood, and will finally report results of the MI session analysis. This will display results for each MI session. A summary will then document any changes occurring over time, or themes emerging from session analysis.

5.7.1 Patient biography

Mary was 87 at the time of her stroke. She was a widow who lived alone in her own home. She lived in a suburban area considered as having an affluence rating in line with the UK average (www.checkmyarea.com true as of 02.04.2014). She has three adult daughters, one lived abroad and two lived nearby, with one daughter in particular who was involved in with her day to day well-being. Mary remained very independent and socially active, and was involved in her church and associated church groups. As a keen church-goer she regularly read at services, and attended many of the social events run by the church. This lady had a zest for life, took pride in her appearance, and was clearly an outgoing and popular individual among friends and family.

Mary's stroke had impacted on her communication primarily her expressive speech, but also her reading and writing. Her levels of comprehension remained intact. The stroke had also altered Mary's concentration, and had prevented her from driving. She suffered no physical changes following the stroke and she remained mobile and independent with all aspects of her self-care. She continued to require support with her medication.

In her baseline scores on the Barthel Index of Activities of Daily Living, Mary scored 19/20 indicating her high level of independence in her activities of daily living and lack of physical disability.

5.7.2 Cognition

The scores in Table 5.7.1 present the cognitive scores from the baseline ACE-R. The scores shown below indicate that Mary experienced significant cognitive difficulties at baseline. Mary shows reduced function in all aspects of cognition. In particular this appears to have impacted her language and fluency, as would perhaps be expected.

Table 5.7.1 ACE-R scores for Mary taken at baseline

ACE-R Sub-tests	Baseline Scores
Attention and Orientation	11/18
Memory	7/26
Fluency	0/14
Language	14/26
Visuospatial	11/16

Total ACE-R	**43/100**

ACE-R=Addenbrooke's Cognitive Examination-Revised

5.7.3 Communication

Mary demonstrated high levels of comprehension throughout the MI sessions. She was always able to understand the therapist, and showed insight of errors in her speech. The main area of deficit for this patient lay in her ability to verbally express herself. She explains that while she knows what she wants to say, she has difficulty finding the right word, or expressing words either verbally or in writing. These difficulties are reflected in her baseline communication scores as seen in Table 5.7.2. However despite these difficulties, Mary is able to express herself. Therefore while she may have difficulty with word finding or with pronunciation, her meaning is expressed and she is able to expand her points into a conversation.

At baseline Mary demonstrated communication impairment scoring 16/30 on the FAST. This included reduced expression (4/10) and difficulties with comprehension (6/10). This result is echoed in CAT scores which indicate that while comprehension of language was impaired for Mary, the most significant impairment was in her expressive language.

Despite initial impairment, Mary's language improved over the course of the study, which is reflected in improved FAST scores over the time points, as well as the follow-up CAT at three-months post-stroke. At three-months, Mary scored 27/30 (8/10 expression and 10/10 comprehension) improving in expression, and demonstrating no impairment in comprehension. While the FAST is not timed, it should be noted that Mary became increasingly fluent in her expression and was able to complete the test with greater ease by three months than she had at baseline. Again, these improvements are reflected in CAT scores which indicate that by three-months, Mary's spoken language comprehension impairment is negligible, whilst her spoken language expression has greatly improved, with some scores greatly increasing.

Table 5.7.2: Baseline communication assessments for Patient 445

FAST Subscales	**Baseline**	**Mid-Therapy**	**Post-Therapy**	**Three-months**
Comprehension	6/10	10/10	9/10	10/10
Expression	4/10	9/10	9/10	8/10
Reading	5/5	5/5	5/5	5/5
Writing	1/5	3/5	4/5	4/5
FAST total	16/30	27/30	27/30	27/30

CAT Comprehension	**CAT: Language Comprehension**			
Written language	46/62	n/a	n/a	53/62
Spoken language	56/66	n/a	n/a	63/66
CAT Expression	**CAT: Language Expression**			
Written language	49/76	n/a	n/a	76/76
Spoken language: Repetition	20/50, 38/74	n/a	n/a	46/50, 67/74
Naming	13/29, 24/58	n/a	n/a	29/29, 57/58
Reading	27/35, 54/70	n/a	n/a	35/35, 70/70

FAST=Frenchay Aphasia Screening Test, CAT=Comprehensive Aphasia Test.

Patient communication difficulties and repair strategies

Verbal behaviour

Reliable yes and no responses

Mary demonstrates her ability to provide reliable yes/no responses. This is demonstrated through her ability to disagree with the therapist if she has been misunderstood. This is important to confirm that Mary can disagree to make sure the correct meaning has been taken.

Raise awareness of an error

Mary was able to show an awareness of her speech errors in sessions and was able to identify and repair difficulties herself in many of these instances. The strategies used by Mary to do this will be discussed further.

If Mary said something incorrect, she was able convey this to the therapist. For example, in one session Mary attempts to describe where a particular church is. On struggling to say the name of the street she addresses her difficulty by saying to the therapist "*no no it's me, I can't, well, it's a big well-known church opposite the university*". In doing this, Mary informs the therapist that while she knows what she wants to say, she is struggling to get the words out. This strategy allows Mary to express her point and the therapist understands her meaning, allowing the conversation to move on.

Mutual understanding despite errors

During the sessions, Mary occasionally produces errors in her speech yet her meaning is conveyed correctly to the therapist. Due to this lack of disruption to the conversation, and a mutual understanding from both parties over the intended meaning of Mary, neither patient nor therapist stops to correct the error, as there seems to be no need. With a shared understanding the conversation can once again move on. For example, at one point Mary is asked about goals she has. She is trying to explain that she feels returning to reading in the church service is out of her range at the moment. She expresses this by saying, "*Hmm well it's a bit beyond my my range fromho still able to rees in church in in the service*". While this is incorrect, the meaning is correctly conveyed. The therapist is able to understand and without questioning what Mary intended to say, or correcting what has been said, the conversation continues without interruption.

Unsuccessful repair – 'Give up and move on'

Due to her ability to detect when she has said something incorrectly, Mary will attempt to repair this error if it disrupts the flow of conversation or impacts on her meaning. For example, Mary tries to explain that when she had the stroke, people possibly thought she had been intoxicated. She may be trying to say the word 'champagne', however after a number of unsuccessful attempts, she verbally addresses her difficulty. After unsuccessful repair attempts from the therapist she moves on "*I'm trying to say clompla-plain and I'm not getting it there anyway I don't often say it do I anyway [laughs]*".

Patient non-verbal behaviour

Eye contact

Both therapist and patient maintain an appropriate level of eye contact throughout sessions. This indicates that each individual is attending to the other.

Facial expression

Throughout the sessions, Mary is very expressive with her facial expressions. She is able to convey a range of feelings and this is expressed to the therapist along with her verbal communication. For example, Mary spends a lot of the sessions smiling and laughing. This is alongside either an anecdote she feels is funny, or is perhaps laughing at herself when she is making light of a situation. This may indicate her happiness and enjoyment of the session.

She is also able to express her frustration (furrowing her brow), and concern (raised eyebrows)

Gesture

Mary does use gesture throughout the sessions to reinforce what she is trying to say verbally. For example, she may nod her head for a positive message, shake her head for a negative response, or lift a finger in the air to add emphasis to a message.

Visual Aids

Mary does not use visual aids in these sessions unprompted. She is able to express herself verbally to a level where this seems unnecessary for her. She does however respond to the introduction of the visual rating scale by the therapist. This is used across the sessions to rate the importance of an issue as well as her confidence in different areas.

Therapist communication repair strategies

During the sessions, Mary indicates her awareness that she has made an error in her speech, and following this she is at times able to repair the error herself. Repair strategies used by the therapist will now be discussed.

Verbal behaviour: Interpretation and paraphrasing

One method the therapist uses to aid repair of Mary's speech is the use of interpretation and paraphrasing. The therapist paraphrases what she thinks Mary is trying to express throughout the session. For example, at one point, Mary is trying to express that one of her difficulties of completing her goal of returning to church is lack of transport. While this is expressed Mary's meaning is ambiguous. The therapist is able to clarify this with Mary by asking "*Are you saying there is no one to take you?*". When Mary responds confirming this, the point is understood and the conversation continues.

Offering strategies

The use of communication strategies is discussed openly in the sessions. The therapist does not suggest a particular strategy for Mary to use because Mary appears able to identify which strategies work best for her, such as taking her time or thinking of an alternative word. Due to this, the therapist takes an encouraging approach to remind and reinforce the initiative taken by Mary to manage her speech difficulties.

Non-verbal behaviour

Allowing additional time

The therapist uses this strategy throughout the sessions, allowing Mary more time to either consider what she wants to say so she can choose the correct word, or to attempt pronunciation of a word. This appears to be an effective strategy as Mary is often able to make successful repair of her own mistakes. On the occasions when she has been unsuccessful, she will often thank the therapist for providing the correct word, indicating she is happy with this form of support.

Visual aids

In the initial session, the therapist has Talking Mats prepared for Mary to use. However, it becomes clear that despite her difficulties, she is able to communicate well enough without this visual aid. This is discussed with Mary who feels she did not need the visual prompts to communicate. In the following sessions, the only visual aid used is the visual rating scale as mentioned earlier.

5.7.4 Mood

Mood measures were taken over four time points from baseline to the final measure at three-months post-stroke. Table 5.7.3 displays results of patient and carer ratings of mood taken throughout the study. The Yale result indicates that Mary appeared to feel she was not feeling depressed throughout the study. However when observing the DISCs scores, which allow for greater variation of rating feelings of mood, Mary appears to have varying levels of mood. While at baseline Mary has indicated she felt no symptoms of low mood, this fluctuates over the further time points, suggesting she felt some level of low mood at these points.

In comparison, the carer measures of mood suggest that Mary as experiencing low mood, especially at the final time point (See field notes in Appendix 12 for further details on this).

Table 5.7.3: Patient and Carer Mood Scores for Mary

	Baseline	Mid-Therapy	Post-Therapy	three-months
Patient measures				
DISCs	0	2	1	2
Yale	0	0	0	0
Carer measures				
SADQ	12/30	11/30	10/30	13/30
SODS	1/6	3/6	0/6	3/6

DISCs=Depression Intensity Scale Circles (≥2=depression), Yale (1=depression), SADQ=Stroke Aphasic Depression Questionnaire (≥14=depression), SODS=Signs of Depression Scale (≥2=depression).

The results from Mary’s MI sessions will now be presented.

5.7.5 Session 1

Date of session 19/11/2013 Session duration: 30 minutes 58 seconds

The first MI session took place one month exactly after Mary's stroke and while she was still on the stroke ward. The therapist had worked with Mary in her capacity as Therapy Assistant for speech and language services. She had provided worksheets for Mary and spent time going through these before the MI sessions started and therefore had already built up rapport prior to this first MI session.

This session was held in a room just off the stroke ward. Following baseline measures but prior to beginning the MI sessions, Mary had a period of illness which prevented her from taking part. She had spent approximately two weeks in a side room with reduced contact with others. This session was conducted when Mary had been allowed back into the shared ward and was recovered from her illness. At this point in time, Mary did not have a date for discharge, although it had been suggested that this would be imminent.

Summary

The session begins with Mary talking about her experience of the stroke. She remembers that she was out with friends at a birthday party when it happened. She felt unaware of being ill except for experiencing speech difficulties; however her friends became concerned for her. She returned home, however her friends had informed her daughter who lives nearby of their concerns. Her daughter then called at the house and took her to hospital. She describes feelings of shock at realising she had suffered a stroke. They discuss how Mary feels about being in hospital and needing help and support from others. They talk about Mary's return home including her plans for this.

Mary sets herself a goal of returning to church and in particular to reading at church. She explains she previously read poetry at the church and would like to get back to this. She is able to discuss her concerns around this but describes herself as seeing the lighter side of life and this appears to be keeping her focused positively. She is also aiming to attending the church Christmas party in a couple of weeks and discusses her concerns about this. Her friends from church have provided strong support following the stroke. These are the friends she hopes to see when she at the party.

When discussing family, she explains she has three daughters, one who lives abroad, another who lives in England and the youngest who lives closest to her. It is with this daughter she has the most contact and who is supporting her return home. They discuss how Mary feels about this relationship with her daughter.

She expresses a concern for what the cause of her stroke may have been and that she does not want to do anything to bring her back into hospital once she is discharged.

At the end of the session, the therapist asks how Mary has felt. She describes feeling able to talk openly and that she did not feel she needed to rush if she struggled with her speech.

MI content

In this first session, Mary talks very openly about her experience of the stroke. The therapist uses open questions (n=6, 2.3%) in this session to explore her feelings around this ("How does that make you feel?"…"*How are you finding being the patient?*"). Closed questions are used often for clarification of a point made by Mary, or to probe into more detail ("*have you got concerns about going to it*?"). In this context, closed questions are not overused and Mary appears able to express her thoughts and feelings openly. This in part contributed to high scores in patient MISC scores as seen in Table 5.7.5 below.

The ability of the therapist to correctly summarise Mary's experience of the stroke is noticed by Mary as she comments on how well the therapist has done to take in all the information and correctly relay in back.

The therapist uses summaries (n=9) effectively in this session. They are used to clarify the narrative given by Mary around her experience of the stroke. The summary allows gaps of information to be filled, or ambiguities to be clarified. The use of summaries in this session slows the pace of conversation as well as the pace of topic change. This allows for an in-depth conversation of Mary's current situation with few distractions.

In this session, they discuss how Mary feels about being a patient and needing help, having been a very independent person before the stroke. Mary realises she needs to be able to accept help "*well I was prepared to be telling er myself that I'd got to have help*". However, while she realises she needs help, she is unhappy with the thought of requiring long-term help.

Mary discusses her goal to return to church and in particular to reading poetry at the church, which she explains is important to her. This is an activity she previously enjoyed and took pride in, and was something that she received compliments from others about. Her concern about returning to reading at the church is that her communication may prevent her from doing this.

The therapist uses the visual rating scale to ask about Mary's feelings of confidence of getting back to reading poetry. Mary rates herself as 5, because while she has made some progress, she still feels she has further progress to make. She states she would like to be able to pronounce her words correctly and manage words she describes as 'finding difficult'. However, once she has recognised her progress, she demonstrates her lack of confidence by following with a negative comment, explaining that while she has improved that does not mean her speech is good. The therapist responds with affirmations around Mary's positive approach and engagement to her rehabilitation. The therapist's ability to support Mary in this way led to the scores for empathy and overall MI spirit (both scoring 6) as are shown in Table 5.7.4. The rapport the two have established allowed high ratings of therapist genuineness and warmth.

Mary discusses another concern of returning to church; which is travel. Prior to the stroke she would drive to church. While this is a concern, she also describes that her friends at church have offered to help take her. She feels she wants to wait a little while before returning to church. She has chosen the Christmas party as her goal to return to church (around 3 weeks ahead). This approach indicates how driven an individual this lady is, as she is creating her own goals and has a strong sense of 'normality' she is aiming to return to.

Mary describes a visit to her home with the physiotherapist and occupational therapist. The visit was to assess how Mary would manage on returning home after discharge and assess what support she may need. Returning home is another goal for Mary. She describes her visit positively explaining that it all came 'naturally'. The therapist is able to reflect this positive statement back to Mary to reinforce her progress.

While the therapist does engage in a small amount of MI inconsistent behaviours (n=4, 1% of session time), these do not appear to have a negative impact on the session. Although the therapist advises without permission, these utterances come across either with humour or with a sympathetic tone. Due to this, any confrontation or negative response from Mary is averted. When carried out with humour, Mary is able to engage and join in, seeing the humour in her situation. This is an example of the interaction in the session leading to the high scores of interaction seen in Table 5.7.6. This fits in with how she has described herself earlier in the session. Overall, there is far more MI consistent interaction from the therapist (n=36, 9.1%) in this session. A breakdown of all MI behaviours is reported below in Table 5.7.7.

Table 5.7.4: Therapist MI Global Ratings for Session 1 with Mary

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	6
Genuineness/congruence	7
Warmth	7

MI=Motivational Interviewing

Table 5.7.5: Patient MISC ratings of Session 1

Affect	5
Co-operation	6
Disclosure	6
Engagement	6

Table 5.7.6: MISC Patient and therapist interaction in Session 1

Collaboration	6
Benefit	6

Table 5.7.7: MISC therapist behaviour counts for Session 1

Session 1: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=2	0.5%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=6	2.3%
Semi-open questions	N=0	0%
Reflections: Simple	N=10	2.8%
Complex	N=1	0.2%
Reframe	N=1	0.2%
Support	N=16	3.1%
Total	**N =36**	**9.1%**
MI Inconsistent behaviours		
Advise without permission	N=3	0.7
Confront	N=0	0%
Direct	N=1	0.3%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=4**	**1.0%**
Questions Closed	N=28	5.3%

Summaries	N=9	9.6%
Other		75%
Overall MI Consistency	90%	

MI=Motivational Interviewing

5.7.6 Session 2

This session took place in Mary's home. At this point, she had been discharged for a number of days. Prior to the video recording being set up on the day of the session, Mary had mentioned that she was feeling slightly overwhelmed on her return home. She felt there were too many people visiting her and she had struggled to find time to keep up with visits from her family and friends between sessions with the early supported discharge team and carers.

Date of session 25/11/2013 Session duration: 13 minutes 24 seconds

Summary

The therapist begins the session by summarising Mary's experience of the stroke discussed in the previous session. They discuss her move home and talk through issues she is struggling with as well as what she feels she is coping well with.

They discuss the care package that is now in place for her on returning home and how she is adjusting to this. She explains how busy she has been since returning home partly due to this package of care but also socially.

Mary talks about her speech and is able to explain her concerns around this, and her strategies to deal with this. She is able to set herself goals, such as attending the church Christmas lunch, and she discusses working towards this goal.

The session is concluded abruptly due to an unexpected visitor. This interruption highlights the busy nature of her life following discharge from hospital.

MI content

The session contains a large amount of input from Mary, who while she makes mistakes is still able to express verbally and is open to sharing her thoughts and feelings in this short session. The therapist often responds with simple reflections of statements made by Mary (n=8, 4.5%) to reinforce her positive statements or to demonstrate active listening within the session. She also responds with supportive statements (n=11, 5.1%) to encourage Mary ("I think you're doing really well…you're communicating well you know"). This positive and understanding approach from the therapist led to scores of therapist MISC ratings seen in Table 5.7.8 below.

Mary is able to talk about her return home and the support she is receiving. At this point she had carers coming in a number of times a day to support her in particular with her medication. She seems to feel that while she feels independent in a lot of areas, she recognises she needs support with her medication and needs to accept the help from the carers. She explains that her medication will be delivered in blister packs, which will allow her independence to administer them herself, however this will not happen for six weeks. In this time, she will have the daily support of carers. She feels her goal is to become independent with her medication so eventually she no longer needs the support of the carers. Her current concern is that the carers are interrupting her usual daily routines and she finds this difficult to manage. In addition, the carers are often different people, making it increasingly difficult to build a rapport than if the same people supported her.

Mary and the therapist discuss her speech and she describes a visit from the SLT. She explains that while the SLT felt she was making good progress, Mary felt she was doing "*very badly*". At this point the therapist is able to provide supportive statements, building her confidence of her ability to communicate. The therapist mentions the impact fatigue may have on her speech. This prompts Mary to explain that her speech deteriorates when she is tired. Mary explains that her coping strategy for such a situation is to see the lighter side of the situation and laugh.

Mary identifies another goal at this point; to attend the church Christmas meal in a few weeks. She again mentions her concern of not being able to speak correctly. Mary's engagement with the therapist and disclosure of her thoughts and feelings led to the high patient MISC ratings seen in in Table 5.7.9. Through a series of closed questions and reflections by the therapist, Mary is able to suggest her own solutions or ease her own anxiety around this, commenting that she will be with friends and that in a group there is less chance she will be solely relied upon for conversation so there will be "*not so much demanded*" from her. The therapist is able to provide supportive statements around her comments to reinforce her positivity. At this point the session is terminated.

This session contains no MI inconsistent behaviours on the part of the therapist; with overall MI consistency of 100%. A full break down of MI behaviour counts for this session can be seen in Table 5.7.11. However it must be considered that therapist interactions were fairly minimal during this session, with Mary speaking for long stretches of the short session. The two appear to work well together despite this and Mary appears to engage in and enjoy the session, which is reflected in the interaction scores presented in Table 5.7.10, as well as high ratings for therapist genuineness and warmth as seem in Table 5.7.8, with both scoring seven.

Table 5.7.8: Therapist MI Global Ratings for Session 2 with Mary

Empathy/understanding	5
MI Spirit	5
Acceptance	6
Egalitarianism	5
Genuineness/congruence	7
Warmth	7

MI=Motivational Interviewing

Table 5.7.9: Patient MISC ratings of Session 2

Affect	4
Co-operation	6
Disclosure	6
Engagement	7

Table 5.7.10: MISC Patient and therapist interaction in Session 2

Collaboration	5
Benefit	6

Table 5.7.11: MISC therapist behaviour counts for Session 2

Session 2: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=0	0%
Affirmations	N=0	0%
Emphasise control	N=0	0%
Open questions (including semi-open)	N=0	0%
Semi-open questions	N=0	0%
Reflections: Simple	N=8	4.5%
Complex	N=1	0.5%
Reframe	N= 0	0%
Support	N=11	5.1%
Total	**N =20**	**10.1%**

MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=0	0%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=0**	**0%**
Questions Closed	N=6	2.1%
Summaries	N=1	3.9%
Other		83.9%
Overall MI Consistency	100%	

MI=Motivational Interviewing

5.7.7 Session 3

Date of session 27/11/2013 Session duration: 27 minutes 41 seconds

Summary

The therapist begins by recapping what was discussed in the previous session, including the problem Mary had regarding the number of people visiting her at home, specifically the carers who visited several times a day. They discuss why she finds this difficult but also why the carers are necessary, and strategies to manage this.

Mary explains the challenges she is facing due to the stroke, including her lack of concentration and reduced ability to multitask and the impact this may have on her lifestyle.

They discuss how she feels she has coped following her stroke, as well as how she feels in relation to her speech difficulties caused by the stroke and the impact this has on her social interactions.

Mary again mentions her shock of having the stroke and her concern she may have another. However she expresses relief to have been able to recover as well as she has in comparison to others on the same ward as her.

They discuss her goals, and Mary mentions her long term goal is to return to speaking at church, but that an easier goal for her will be to read poetry at the church lunch group.

MI content

The therapist beings by recapping on the previous session, beginning with the problem Mary is experiencing with the number of people visiting her at home. Mary explains that this was tiring especially in relation to the carers. Her strategy was to hurry their visits by showing them she was able to do what they came to observe. She explains that on one occasion she pretended to be dressed for bed by putting her dressing gown on over her clothes so that once the carers had seen her ready for bed they would leave her alone. In reality she found this time was too early for her to go to bed but did not inform the carers.

She explains that before the stroke she was familiar with her medications and was able to manage independently, however since the stroke she is unsure whether she would take it correctly and therefore needs support. When asked whether she was able to tell the carers that their visits were too early, she explains she wanted to go along with the support to satisfy the carers, but found this difficult. This has clearly been a source of stress for her and she explains that this increased her concern of possibly having another stroke.

Mary explains that she has been able to inform the carers that despite her speech difficulties she is more independent than they realise with domestic issues. She informs the therapist that one of her difficulties since the stroke is her inability to divide her attention. She explains that while this was possible before, she now finds she must concentrate on one thing at a time. They discuss how this makes her feel. She explains that she finds the idea of slowing down difficult because she has a lot going on in her life. However, she accepts that she needs to slow down for her health. In addition, she finds that it is not possible for her to do too much after her stroke because of decreased concentration. She gives the example of answering the telephone which can be too much for her and she instead chooses to let it go to answer phone which she would not have done before the stroke.

They discuss how she is coping and she demonstrates her determined nature by describing herself as ‘fighting back’. She refuses to feel ashamed of her speech difficulties, and feels that in social interactions her friends and family should feel grateful she is trying to speak at all; therefore any mistakes she makes are irrelevant. This is fitting with her attitude as a positive lady who is keen to persevere. She discusses her difficulty in doing crossword puzzles, something she enjoyed completing daily before the stroke. Again, she remains optimistic in her progress saying that each day she may get one or two words, and remains positive that she will improve with this.

They discuss her shock over having the stroke and her concern she may have another. However while this is a concern of hers, she remarks that she cannot spend her time dwelling on this as it would ‘*ruin her life*’. It seems therefore that although she is concerned at the possibility of suffering another stroke, she also wants to move on with her life. Seeing the positive side of her situation, she expresses her relief at recovering as well as she has in comparison to others on the same ward.

Mary talks of her luck with her health and how she has managed with health difficulties in the past. The therapist uses open questions to draw on this information “*What did you do to get yourself through that*”. Mary describes how her determination to recover helped her in the past with her hip replacement. The therapist enquires which strategies she would use to help her through her current situation. Mary responds that she would draw on this determination again to which the therapist provides affirmations.

Mary discusses her goal of attending the church Christmas lunch and her concerns of people’s expectations. She feels as long as people have low expectations of her she will cope. The therapist provides support regarding the patient’s intelligibility and Mary appears to respond positively. She is encouraged by the therapist’s interpretation that while she has difficulty speaking she remains intelligent as a person. On discussing some of her speech difficulties, the therapist again provides affirmations on Mary’s engagement in her rehabilitation through her use of strategies and provides support around how effective they have been for her. We can see the relationship between the two grow closer this session, as Mary says,

> “*yes I'm the same oh wonderful that somebody understands*”.

This strong sense of collaboration is reflected in MISC patient and therapist interaction scores shown in Table 5.7.14.

The therapist asks whether Mary has other goals. She explains that reading to her church group is something she would like to return to but feels she is not ready for this. Speaking in front of the church congregation is something she is clearly proud of and is respected for within her group of friends. She describes feeling very nervous about returning to this due to her speech difficulties. The therapist continues to focus on Mary’s goals, asking whether she had a goal that was more achievable. Here Mary mentions reading poetry at the lunch club is easier and this could be her goal, however she is unsure whether this is possible due to transport.

Mary explains that she needs to learn to slow down her life suggesting she needs to do less and not take on as much. Later in the session when discussing her aims, she explains that while she'd like to be able to read at church, she realises this may be too much for her now and takes her own advice, saying no and having a less socially demanding lifestyle. This is an example of potential adjustment.

The therapist ends the session with a summary of the main topics discussed. They touch on how Mary feels about the sessions and she remains positive that they are helping her and she feels she is able to freely discuss what is on her mind. The session ends here. A full breakdown of MI behaviours is shown in Table 5.7.15.

Table 5.7.12: Therapist MI Global Ratings for Session 3 with Mary

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	5
Genuineness/congruence	6
Warmth	7

MI=Motivational Interviewing

Table 5.7.13: Patient MISC ratings of Session 3

Affect	5
Co-operation	6
Disclosure	6
Engagement	7

Table 5.7.14: MISC Patient and therapist interaction in Session 3

Collaboration	6
Benefit	6

Table 5.7.15: MISC therapist behaviour counts for Session 3

Session 3: MI Behaviours	Number of occurrences	(Percentage of session coverage)
MI Consistent behaviours		
Advise with permission	N= 0	0%
Affirmations	N= 5	2.2%
Emphasise control	N= 0	0
Open questions (including semi-open)	N= 4	1.4%

Semi-open questions	N= 0	0
Reflections: Simple	N= 1	0.1%
Complex	N= 2	1.0%
Reframe	N= 0	0
Support	N= 5	1.6%
Total	**N =17**	**6.3%**
MI Inconsistent behaviours		
Advise without permission	N= 0	0%
Confront	N= 0	0%
Direct	N= 0	0%
Raise concern without permission	N= 0	0%
Warn	N= 0	0%
Total	**N= 0**	**0%**
Questions Closed	N= 21	4.7%
Summaries	N= 3	5.2%
Other		83.8%
Overall MI consistency	100%	

MI=Motivational Interviewing

5.7.8 Session 4

Date of session 02/12/2013 Session duration: 26 minutes 33 seconds

The session took place the following week allowing the therapist to enquire what Mary had done over the weekend. As we called at the door for this session, Mary answered whilst at the same time talking to someone on the telephone. She appeared surprised at our visit despite us having pre-arranged the session and having written this on her calendar. She explained that because of her confusion with the calendar she had arranged to go to meet her friend in town at lunchtime (after the session) and had family visiting in the afternoon. This is reflective of a usual day for this highly social lady.

Summary

In this session, they begin by discussing Mary's weekend. She describes that she spent time with her daughter buying a rail for her bath following recommendations from the occupational therapist (OT).

She discusses her aim to attend the church lunch group later that week. She is concerned about coping with the amount of people there who will want to speak to her.

In discussing her speech she mentions she has been trying to complete crosswords which she previously enjoyed and did daily. This is something she finds difficult but wishes to persevere with.

She informs the therapist that she went into town independently since the last session. While she managed this she describes herself as looking but not feeling 'normal'.

They discuss finding a balance between pushing herself to make progress whilst also staying safe and following the advice of the medical staff.

The therapist asks about Marys feelings on returning to drive and rates her confidence and importance of driving. The implications of driving again are explored further.

MI content

Within this session, Mary discusses one of her aims of attending the lunch club. Her daughter has warned her she may struggle and she feels concern about how she might cope with lots of people trying to talk with her. She mentions that her sister is also going which reassures her. The therapist is able to reinforce this using reflections and supportive statements ("*you've got back up…that's a good strategy*").

Mary goes on to demonstrate her dedication to her recovery. She appears to have understood and accepted the medical advice given to her to try to take life a little easier. She has declined lunch with her brother and sister, explaining that while she felt she could, she realised she had other more important things to do (the MI session and meeting another friend).

She also demonstrates this understanding of her safety when she explains that over the weekend she went with her daughter to buy a rail for her bath. She admits that initially she felt she didn't need this however she realised she needed to take the medical staffs' advice on board and needed to use aids such as the hand rail to protect herself. This indicates adjustment to her current needs.

Mary talks about an achievement she has made since the last session; going into town by herself. She was able to shop independently. She explained that while she may look '*normal'* she does not feel it inside, explaining she can feel lightheaded and a little overwhelmed being out in public. While she has not done this since, she feels she would do it again, suggesting this has boosted her confidence. When the therapist asks her whether she felt she had overdone it, Mary displays her perseverance and determination by explaining that she did not know how she would feel until she did it, therefore wanted to try. Such open voicing of information from Mary led to the high patient MISC scores as seen in Table 5.7.17.

She discusses her difficulties with her speech and goes on to explain that she has been trying to return to completing crosswords, something she enjoyed doing daily before the stroke. She now finds this difficult and '*stressful*', but describes that she will attempt them, even if she can only get one or two words. The therapist affirms her perseverance "*Well you're a very determined lady I can see that you won't be beaten"*.

Mary discusses that while she wants to push herself to recover, she is also making a conscious effort to be more careful and not take risks, as advised by hospital staff "*I don't want to be beaten…but I wouldn't take risks*". She is doing as advised, such as using the rails in her home and reducing her busy lifestyle. The therapist is able to reflect these statements back to her.

Finally they discuss returning to driving. Mary has previously stated that driving is of great importance to her lifestyle, as she does a lot of travelling for her medical appointments, for socialising, and for church. Using the visual rating scale, Mary rates her confidence of returning to driving as around five. She explains that while she sees driving as important, she does not feel safe to drive due to her slower processing. She has identified alternative travel arrangements help her cope without driving, such as accepting lifts from others. Again this indicates adjustment.

The therapist ends the session with a summary of Mary's progress, using affirmations to reinforce the positive steps Mary is making in her recovery. Mary responds well to this, replying "it's an achievement all the while". This positive interaction between the two is reflected in the high scores for collaboration seen in Table 5.7.18.

Overall, Mary appears to be aware of her difficulties and concerns and discusses these openly. She has described making progress in some areas (shopping independently) and has goals she is working towards (attending church lunch group). The therapist engages in MI consistent behaviours throughout the majority of the session (n=14, 4.3%), while instances of MI inconsistent behaviours remain minimal (n=1, 0.2%) and this is highlighted in global ratings seen in Table 5.7.16. A full breakdown of therapist MI behaviours is shown in Table 5.7.19.

Table 5.7.16: Therapist MI Global Ratings for Session 4 with Mary

Empathy/understanding	6
MI Spirit	5
Acceptance	4
Egalitarianism	5
Genuineness/congruence	5
Warmth	5

MI=Motivational Interviewing

Table 5.7.17: Patient MISC ratings of Session 4

Affect	6
Co-operation	7
Disclosure	6
Engagement	7

Table 5.7.18: MISC Patient and therapist interaction in Session 4

Collaboration	6
Benefit	6

Table 5.7.19: MISC therapist behaviour counts for Session 4

Session 4: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N= 2	0.4%
Affirmations	N= 3	0.9%
Emphasise control	N= 0	0%
Open questions (including semi-open)	N= 1	0.3%
Semi-open questions	N= 0	0%
Reflections: Simple	N= 3	0.6%
Complex	N= 2	0.5%
Reframe	N= 0	0%

Support	N= 3	1.6%
Total	**N = 14**	**4.3%**
MI Inconsistent behaviours		
Advise without permission	N= 0	0%
Confront	N= 1	0.2%
Direct	N= 0	0%
Raise concern without permission	N= 0	0%
Warn	N= 0	0%
Total	**N= 1**	**0.2%**
Questions Closed	N= 18	3.6%
Summaries	N= 1	1.6%
Other		90.3%
Overall MI Consistency	93%	

MI=Motivational Interviewing

5.7.9 Session 5

Date of session: 10/12/2013 Session duration: 29 minutes 34 seconds

This session took place the following week. Since the previous session, Mary attended the Christmas lunch held by her church. This was one of the goals she was working towards, and was one of the first social events she had returned to following her stroke. Before the session began, Mary had answered the door while talking to someone on the telephone. When she was came off the telephone she described feeling flustered because she was too busy. She felt too many people wanted to see her and she had lots of appointments.

Summary

The session begins with Mary informing the therapist about the church Christmas party. This was a goal she had set in a previous session. The party was a positive experience and she felt a sense of achievement from attending. They discuss her plans for future social events.

They discuss her goal to return to church. Transport is one of the main barriers to her returning. They discuss her difficulty in accepting help from others with regards to transport.

She clearly values the support from her friends but accepting lifts is something of an adjustment for her.

They discuss her speaking at church however Mary feels too nervous to work on this currently. This is a goal she aims to achieve in the New Year. Mary mentions her progress with crosswords as she was almost able to fully complete one since the last session.

MI content

This session begins with Mary describing her achievement of one of her goals mentioned in session two; attending the church Christmas party. The therapist is able to use an open question to begin the discussion "*how did the party go*..." followed up by further open and closed questions to gain more information from Mary. Despite her concerns that she would be overwhelmed by people talking to her, she describes the experience positively. While she felt that people viewed her as having recovered well due to her physical appearance, she felt they didn't realise she was still a bit "squiffy" over things. This suggests she feels her friends did not realise she still struggles with her words and her with slower reactions. Nevertheless, she explains "I really felt I'd achieved something going there".

The therapist takes the opportunity to ask Mary to rate her confidence using the visual rating scale. She states that her confidence of socialising has now increased from previous sessions, which she explains is because she did not know what to expect before. The therapist provides support and affirmations at this point, reflecting back the positivity Mary has expressed "*it's been really good for you to go and do that*". Mary describes being able to get dressed up smart which she enjoyed and describes herself as having "*held me head high*". This event was significant for her, providing a chance to show others she is recovering well. She explains that her next possible social event is to attend the church christingle service with her daughters.

She describes that she has been trying and struggling to write Christmas cards. She is critical of herself, describing that she writes the wrong words and is much slower than she used to be. The therapist responds to these comments with positive affirmations such as "*you're persevering*". This in turn leads Mary to give details of a friend who called her to tell her "*you will get better because you're very strong*". Mary seems to appreciate this positive encouragement, and the tone of the conversation is more optimistic.

The therapist uses summaries throughout the session to clarify what has been discussed and to ensure she has understood Mary correctly. This allows for the main points of conversation to be reiterated. In this session, the focus is her return to the church party. They go on to talk about the potential for Mary to return to her regular church service as she did prior to the stroke. Mary talks through a number of barriers preventing her from returning to church. She feels she will return, but she currently feels it may be too much for her to stand up and sit back down as is expected during the service. She also feels transport is a barrier, as she would have to book a taxi, which she is disinclined to do due to the cost; or she would require a lift from someone, which she feels reluctant to accept. Mary explains that she doesn't want to be a burden to others, and admits she feels like a "*nuisance*" despite previously being happy to drive others to places before the stroke. She finds it hard to accept that "*it's my turn*", however at the same time accepts that this is what she may have to do in order to attend church. Here we see some deliberation and adjustment from Mary to her new lifestyle with the limitations she now has to face as a non-driver. This level of disclosure and engagement led to high patient MISC scores as seen in Table 5.7.21.

Despite the frustrations with driving, Mary is choosing not to drive so she can stay safe. She feels her reactions are not fast enough to drive safely. However, she is considering returning to driving in a few months when she feels more confident. Mary explains driving is important to enable her to attend her numerous social events. The therapist reflects these points back to her, and the patient responds by stating she feels she will be able to do this successfully if she "*builds it up bit by bit*". Through reflecting back Mary's statements of what is important to her, Mary is able to devise her own solution. Mary's engagement and cooperation in this session led to the high patient MISC scores shown in Table 5.7.21.

Mary returns to the topic of completing crosswords, describing that she nearly completed one the previous night. She describes her progress here as she has discussed in earlier sessions that she could only complete one or two words. This was a newspaper crossword, rather than a crossword sent out as an exercise from the Speech and Language team. The therapist jokes with Mary that if she is completing the newspaper crossword she no longer needs Speech and Language crosswords. While this is an example of the therapist engaging in MI inconsistent behaviour (advising without permission), due to the humour the therapist applies the comment with, Mary responds to this comment as a joke rather than as if the therapist were speaking confrontationally. Mary goes on to explain that the SLT crosswords are easier, and while she is aware of this they leave her with a sense of achievement for having come close to fully completing them. She tells the therapist that her philosophy in life is that she always wants to do her best with everything, and this applies to her rehabilitation as well as any other aspect of her life.

The therapist summarises the topics discussed in the session and ends the session here. The therapist has used a number of MI inconsistent statements in this session which reduced the overall MI content to 88%. However, as in the previous session, these statements are delivered with humour, and therefore are not received negatively by Mary. A full breakdown of MI behaviours can be seen in Table 5.7.23.

Table 5.7.20: Therapist MI Global Ratings for Session 5 with Mary

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	6
Genuineness/congruence	6
Warmth	5/6

MI=Motivational Interviewing

Table 5.7.21: Patient MISC ratings of Session 5

Affect	5
Co-operation	6
Disclosure	6
Engagement	6

Table 5.7.22: MISC Patient and therapist interaction in Session 5

Collaboration	5
Benefit	6

Table 5.7.23: MISC therapist behaviour counts for Session 5

Session 5: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N= 0	0%
Affirmations	N= 5	1.6%
Emphasise control	N= 0	0%
Open questions (including semi-open)	N= 2	0.4%
Semi-open questions	N= 0	0%
Reflections: Simple	N= 7	1.2%
Complex	N= 5	1.4%
Reframe	N= 0	0%

Support	N= 4	0.6%
Total	**N = 23**	**5.0%**
MI Inconsistent behaviours		
Advise without permission	N= 1	0.2%
Confront	N= 1	0.2%
Direct	N= 1	0.5%
Raise concern without permission	N=0	0%
Warn	N= 0	0
Total	**N= 3**	**0.9%**
Questions Closed	N= 20	3.7%
Summaries	N= 2	4.4%
Other		86%
Overall MI consistency	88%	

MI=Motivational Interviewing

5.7.10 Session 6

Date of session: 13/12/2013 Session duration: 34 minutes 21 seconds

Before beginning the session Mary explained she felt tired and flustered, and she felt this made her speech worse. Before this session began, mid-therapy measures were taken. It was clear in this session that she was experiencing greater difficulty in finding the correct words, and in expressing the word once identified.

Summary

This session begins with the therapist addressing that Mary looks tired. Mary has experienced a busy week, with numerous appointments which have left her feeling stressed. She has started sessions with the SLT team since the last session, adding to her busy schedule. They discuss Mary’s concerns around these visits and how she is coping with the stress of them.

They discuss the discrepancies Mary has in accepting visits from the carers. Mary describes an incident involving the carers which caused Mary stress and anger, and discuss how she coped with this. They discuss Mary’s future goal of gaining independence in managing her life, and how she can progress with this.

Mary describes continuing to try to write Christmas cards. They talk about the difficulties she has had with this task, but why she feels it is important to her.

MI content

In this session, Mary begins by openly voicing her concerns and frustrations she has experienced since her last session the previous week. She describes having a busy week, with too many appointments and regular visits from the team of carers which she describes as 'disruptive'. Mary has been managing her medication independently since receiving the blister packs; however the carers continue to visit despite this. She has found herself rushing to avoid visits clashing, or missing her lunch so a health professional can visit. She overall describes the situation as "*too much*".

Mary also mentions her sessions with the SLT team have begun, however this was another source of stress as she had become confused and forgot the appointment. Her daughter in trying to help her organise her time has switched Mary's appointments to a new calendar. Mary had forgotten to add in the SLT appointment and therefore missed the first visit but has since had another.

Using a summary of what Mary has said, the therapist is able to present back to her the discrepancy between accepting help from others which she knows is good for her, while at the same time feeling that if she accepts help she feels more tired and stressed due to having more appointments. Mary describes feeling worse than she did a week ago. However she also feels that there have been additional pressures she has had to face, and before her stroke she would have coped with these without difficulty. She is able to acknowledge this change.

Mary voices another stressful situation she had to deal with since the last session. She explains that she had missed a visit from a carer one evening. She had not heard them at the front door, so they had called her home phone. However due to Mary's state of distress at the high volume of calls from people, she did not want to answer the phone, thinking it would be a friend who wanted to chat. Unfortunately when Mary did not answer the call, the carer followed safety procedures of alerting the next of kin, in this case Mary's daughter. When Mary's daughter arrived, Mary describes feeling very angry and frustrated, which she explains rarely happens to her. She told the carers "*I can't stand it any longer*" and swore, which is something she states she never does. This was clearly a very stressful time for Mary, who is used to living alone and independently.

The therapist uses an open question here, asking Mary "*How did you cope with that*". Mary explains the situation was resolved through her calming down and seeing the funny side of the situation. Mary then said to the carer "*I wasn't swearing at you I was swearing at the whole situation*". She feels that while it has been a frustrating time she also feels she may still need visits from the carers for her protection as she still considers herself potentially vulnerable.

The therapist asks what Mary's goal is. Mary explains that her goal is to manage her life independently. The therapist reflects this back to the patient, then uses the visual rating scale to rate her confidence in achieving this goal. Mary rates herself at a seven. This leads them to discuss what Mary feels needs to happen to achieve her goal. Mary describes needing to feel confident taking her medication, then goes on to describe her successful management of this with the carers present. She describes that her daughter will be visiting over the next week so the carers may not need to visit. The disclosure Mary makes and the engagement with the rating scale led to high scores for patient engagement as shown in Table 5.7.25.

Mary goes on to describe another frustration; her writing. She has continued to write Christmas cards to friends and family. She feels she wants to let people know she has had a stroke, and this is why she cannot write as much. She has found it difficult as she was getting words mixed up, and the process was taking her much longer than usual. The therapist affirms her perseverance with the job. This leads Mary to tell of other supportive comments she has received from friends, complimenting her on how well she looked at the Christmas party she attended last week. Such social events and support from her friends are very important for Mary. Her friend described her as looking "like a film star" which appears to have cheered up Mary and boosted her confidence.

Mary appears to have struggled with her words in this session which she acknowledges, however the therapist provides support of how well she has done. She reinforces the progress Mary has made with her speech since the first session.

The therapist ends the session with a summary of the topics discussed. Summaries have been used earlier in the session, ensuring the therapist has listened to and understood Mary. She is clearly aware of this and tells the therapist "you're very good over this job…you're always reading what I'm thinking". When asked how she feels the session has been, Mary explains that the session gives her a shouting platform where she can complain without offending anyone. The MI session allows Mary to open up and disclose what is on her mind which she perhaps cannot do otherwise. This led towards the high scores for patient and therapist interaction shown in Table 5.7.26.

The therapist's use of summaries throughout the session, as well as the appropriate use of reflections and open questions in this session led to the global MI scores shown in Table

5.7.24. The session ends here. A full breakdown of MI behaviours from this session is shown in Table 5.7.27.

Table 5.7.24: Therapist MI Global Ratings for Session 6 with Mary

Empathy/understanding	6
MI Spirit	6
Acceptance	6
Egalitarianism	6
Genuineness/congruence	6
Warmth	6

MI=Motivational Interviewing

Table 5.7.25: Patient MISC ratings of Session 6

Affect	6
Co-operation	6
Disclosure	7
Engagement	6

Table 5.7.26: MISC Patient and therapist interaction in Session 6

Collaboration	6
Benefit	6

Table 5.7.27: MISC therapist behaviour counts for Session 6

Session 6: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=4	1.3%
Affirmations	N=2	0.5%
Emphasise control	N=1	0.2%
Open questions (including semi-open)	N=8	1.3%
Semi-open questions	N=0	0%
Reflections: Simple	N=7	1.1%
Complex	N=3	0.5%
Reframe	N=1	0.5%
Support	N=5	1.8%

Total	**N = 31**	**7.2%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=0	0%
Direct	N=1	0.1%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N=1**	**0.1%**
Questions Closed	N=23	3.9%
Summaries	N=5	4.9%
Other		83.9%
Overall MI Consistency	97%	

MI=Motivational Interviewing

5.7.11 Session 7

Date of session: 20/12/2013 Session duration: 39 minutes 59 seconds

Summary

This final session begins with Mary describing her daughter's visit as was mentioned in the previous session. Mary's daughter helped her sort household jobs which had previously been causing Mary worry.

Mary explains that while her daughter stayed she did not have the carers visiting. The impact of this is discussed, including Mary's increasing confidence in taking her medication.

Mary's confidence in her recovery is discussed, which has improved since the first sessions. Mary explains her frustrations at taking longer to complete tasks; however we see an adjustment in Mary's views of how she approaches her lifestyle and how she wants to change this. Mary appears determined in her approach to her recovery.

MI content

The session begins with the therapist asking Mary about spending time with her daughters. Mary explains that while her daughter came to visit, they did not go for the meal they had planned because her daughter had been unwell. Instead her daughter was able to help her with household jobs. These addressed some of the causes of stress Mary had mentioned in earlier sessions, such as her back door. Mary seems happy to have these problems resolved.

Mary explains that while her daughter had been staying with her, the carers had not visited. During this time, she was able to manage her medication independently, and then the carers returned once her daughter had left. With the medication prepared in the blister packs she told the carers "*I think I can manage now*". She describes that the clear times to take her medication leaves her now feeling "*I'm able to do my own things*". This is an example of her progress, as this was a frustration for her in the last session, however with the new medication blister packs she feels she has time to do what she wants and is not rushing. She shows she is able to cope and has been able to voice this to the carers, indicating her increasing confidence and ability to manage independently.

The topic of driving is discussed and Mary explains she still feels she will wait a couple of months, and even then feels she would only feel confident in driving familiar routes. She describes not having confidence in her reactions, fearing they are too slow to drive, however she expresses returning to driving is something she hopes to do eventually. The therapist is able to use reflections to feedback Mary's views.

The therapist uses the visual rating scale to ask Mary to rate her confidence in her recovery. She describes Mary's previous scores of 5, which increased to 7. In this session Mary rates herself at 8, indicating she feels she has improved and increased her confidence. She explains that she made a meal from scratch the day before and this increased her confidence. The therapist responds by providing affirmations to reinforce Mary's progress and positive attitude. Mary explains that while she feels she has made progress she wishes she could do things quicker, so she can do more and fit more activity in her day. The importance of this is explored further, and Mary admits that it is not important that she fit more in her day, and instead acknowledges that she needs to do less and slow her lifestyle down "*I suppose it's not all important, I've got to learn to be slower*". Although she feels being mentally slower is difficult, however Mary explains that her goal is not necessarily to return to how she was before the stroke "*I don't know if I will ever be quite as like that I was before*". This indicates Mary's adjustment to her current state, and that she may not return to how she was pre-stroke. She focuses on the positive feedback from her friends at church of her speedy recovery, demonstrating her optimistic attitude to her recovery.

Mary explains she has been asked to return to the church group for a poetry reading. Mary explains that she feels she needs to be patient as she will not return if she feels she cannot speak clearly "*I'm not quite as good as I look*". Mary is aware that others may feel she has recovered due to her good physical recovery; however she feels concerned about looking foolish if she makes a mistake in her poetry reading. This is a goal she continues to work towards.

Mary mentions that she still does not feel confident to do a *'big shop'* alone as she feels concerned she would forget something. Due to her poor memory, she now writes herself notes to take with her. The therapist provides affirmations for her successful use of a coping strategy. Mary explains that while she is frustrated that she is slow in completing tasks, she is "*determined to recover*", further explaining "*if I don't go anywhere I'm not going to recover…I've got to do it and come through*". The therapist reinforces this attitude with affirmations "I can see how determined you are and that shows that your improvements" The therapist uses a summary to reinforce the progress Mary has made since her stroke, as well as her positive attitude to her recovery.

The therapist reflects back on the previous session when Mary was stressed, stating she looks better this week. Mary describes that she felt stressed in the previous session, feeling problems with her house as well as having too many appointments made it difficult for her to cope. She explains that "*it has eased off now*" and states "*I'm getting there*". This implies she is feeling calmer and more in control of her life than the previous week.

The session ends, and the therapist asks how Mary feels the sessions have been overall. Mary feels there were enough session and that each session lasted long enough. She feels "*the encouragement to speak freely even if you're not speaking very well…it's encourage…open up really*". It seems from this statement that Mary has enjoyed being able to talk openly and voice her thoughts and feelings in the sessions without fear of embarrassment or judgement. The session ends here.

With no MI inconsistent statements in this session, the overall MI consistency is 100%. A full breakdown of MI behaviours is shown in Table 5.7.31. In addition, all MISC ratings are scored between five and six, indicating that this has been a successful session.

Table 5.7.28: Therapist MI Global Ratings for Session 7 with Mary

Empathy/understanding	5
MI Spirit	5
Acceptance	5
Egalitarianism	5
Genuineness/congruence	6
Warmth	5

MI=Motivational Interviewing

Table 5.7.29: Patient MISC ratings of Session 7

Affect	5
Co-operation	6
Disclosure	5
Engagement	6

Table 5.7.30: MISC Patient and therapist interaction in Session 7

Collaboration	5
Benefit	5

Table 5.7.31: MISC therapist behaviour counts for Session 7

Session 7: MI Behaviours	Number of occurrences	Percentage of session coverage
MI Consistent behaviours		
Advise with permission	N=1	.04%
Affirmations	N= 8	2.1%
Emphasise control	N=0	0%
Open questions (including semi-open)	N= 4	0.5%
Semi-open questions	N=1	0.1%
Reflections: Simple	N= 8	0.7%
Complex	N= 6	0.7%
Reframe	N= 1	0.2%
Support	N=3	0.8%
Total	**N =32**	**5.2%**
MI Inconsistent behaviours		
Advise without permission	N=0	0%
Confront	N=0	0%
Direct	N=0	0%
Raise concern without permission	N=0	0%
Warn	N=0	0%
Total	**N= 0**	**0%**

Questions Closed	N= 26	3.9%
Summaries	N= 7	5.0%
Other		85.9%
Overall MI Consistency	100%	

MI=Motivational Interviewing

Mary: Cross Session Summary

Mary suffered significant communication difficulties following her stroke; however she suffered no physical disability. In addition, soon after her stroke Mary suffered a virus which made her ill for two weeks. Despite these difficulties, Mary improved over the course of the study, as can be seen from communication scores. Due to her progress and lack of physical disability, Mary was able to return home soon after the stroke and continue with many of the activities she engaged in prior to the stroke.

Although the stroke came as a shock to Mary, she has an accepting attitude to what has happened, and the changes she must make following this. She remains determined to recover throughout her sessions, and is able to identify a number of her personal goals. These include returning to reading poetry and attending church.

By session two Mary has returned home where she discusses her concerns such as independently managing her medication as well as her speaking difficulties. She sets herself a goal to attend the church Christmas party. She acknowledges that while it is difficult for her, she needs to accept her help.

We see Mary explain that she needs to learn to slow down her life and do less. She explains that while she would like to be able to read at church, she realises this may be too much for her at that time. This is an example of Mary's adjustment to her abilities after stroke, showing she can take her own advice, and adjusting to her current state by not taking on too much. She discusses her difficulty with this adjustment when she says,

> *"I don't want to be beaten…but I wouldn't take risks*".

Mary is an independent lady and is often able to identify her own solutions to her difficulties. In addition, Mary has a wider social support circle including her daughters and close friends who have supported Mary. As well as practical support, the support from this social circle to return Mary to her previous activities helped build her confidence which had a positive impact on her mood. This was evident when Mary achieved her goals of attending the church Christmas party, which was a milestone for Mary in her recovery and returning to her usual activities. She saw her peer group and was offered support and encouragement from them, which clearly meant a lot to her. At this point we see Mary describe that she held her head high; suggesting that while she had some concerns of attending, she went and felt unashamed if she was unable to do some things as before the stroke.

The therapist and Mary have established a good rapport in sessions, and Mary feeds back on this. She comments that the therapist has a calm approach, and is able to recall details Mary has previously discussed. Mary comments that these are positive features.

Despite Mary’s communication difficulties she is able to participate successfully in sessions (as shown through MISC ratings), and through session summaries it is clear she has been able to discuss a number of personal issues including her concerns and difficulties. Overall, the MI consistency of sessions appears high (range 88-100%) as is shown in Table 5.7.32. Although session two appears to have a 100% MI consistent approach, this is not obviously related to open questions or use of the visual rating scale. The individual breakdown for this session shown in Table 5.5.11 indicates that for this session, the MI consistent behaviours were delivered in the form of reflections and supportive statements.

The relationship between the use of the visual rating scale and higher MI consistency is unclear, as can be seen in Table 5.7.32. It may be that, due to the improvement in Mary’s ability to verbally express herself throughout the study, Mary became increasingly independent and therefore reduced in her need for visual aids to help her communicate. It is also possible that there were other factors influencing the overall MI consistency of sessions, as well as MISC ratings.

Mary describes that her experience of the sessions has been positive. She states that she enjoyed the chance to voice her thoughts and feelings without causing offence, without feeling judged for her speech difficulties. This may not have been achieved through her friends and family alone, therefore the MI sessions may have provided her with this opportunity.

Table 5.7.32: MI consistency for Mary across sessions

Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & Patient collaboration rating	Overall MI consistency

1	4	6	28	6	6	6	90
2	0	0	6	5	7	5	100
3	0	4	21	6	7	6	100
4	2	1	18	5	7	6	93
5	1	2	20	6	6	5	88
6	1	8	23	6	6	6	97
7	1	4	26	5	6	5	100

Sess.=session number, VRS=Visual rating scale, MI=Motivational Interviewing

5.8 Cross-patient summary

This chapter has described the delivery of and presented results from motivational interviewing sessions with stroke patients with moderate to severe communication difficulties. The three participants in this study consisted of varied demographic factors including sex (male/female), age (44-87), and communication severity after stroke (poor, moderately severe and severe). In response to the variation in communication ability, the therapist adapted both communication and MI delivery differently for each patient. Despite these differences, it is apparent from overall MI consistency scores that MI consistent sessions can be delivered for all patients, including those with severe communication difficulties.

The quality of MI sessions delivered by the therapist also varied across the patients, as can be seen in Table 5.8.1. This includes variation of MI consistency as well as global MISC ratings. This variation may be due to a number of factors. The videos indicate that the therapist was able to use a more MI consistent approach with both Mary and Joyce, and engages in more MI inconsistent behaviours with John. In addition, Table 5.8.1 demonstrates that global MISC ratings of therapist MI spirit, patient engagement, and therapist and patient collaboration were higher for both Joyce and Mary than for John. However while it is apparent that there may be a number of factors which may influence this result, it is not clear which, if any, of these factors is responsible for the session result. These factors will now be discussed in greater detail.

Table 5.8.1: Cross patient comparison of MI session content and MISC ratings

John							
Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & Patient collaboration rating	Overall MI consistency
1	3	8	72	4	5	4	88
2	7	13	59	4	6	5	90
3	14	17	49	6	6	5	95
4	2	5	99	4	6	5	71
5	5	2	131	4	4	3	72
Joyce							
Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & Patient collaboration rating	Overall MI consistency
1	6	12	78	6	6	5	93
2	2	11	36	6	6	5	95
3	1	6	26	6	6	5	96
4	1	3	19	6	6	5	100
5	0	5	28	5	5	5	96
6	2	6	19	5	6	5	94
7	0	4	26	5	6	5	95
8	2	4	18	6	6	6	96
Mary							
Sess.	Use of VRS	Open questions	Closed questions	Therapist MI spirit rating	Patient engagement rating	Therapist & Patient collaboration rating	Overall MI consistency
1	4	6	28	6	6	6	90
2	0	0	6	5	7	5	100
3	0	4	21	6	7	6	100
4	2	1	18	5	7	6	93
5	1	2	20	6	6	5	88
6	1	8	23	6	6	6	97
7	1	4	26	5	6	5	100

Sess.=session number, VRS=Visual rating scale, MI=Motivational Interviewing

Communication

On recruitment to the study, the three participants fitted into the three levels of communication difficulty described in the observational tool used by screening staff, the COAT. These included one participant with severe communication difficulties (John), one participant with moderately severe difficulties (Joyce), and one with moderate difficulties (Mary). However, over the course of the study and involvement with these participants, the communication ability for some participants altered. The FAST scores taken across time for the three patients indicate that communication improves considerably for both Mary and Joyce. While these ladies are left with some difficulties in their speech, there is a great improvement from baseline, especially in expressive communication. However this is not the case for John, who while making a slight improvement in FAST and CAT scores from baseline to three-months post-stroke, largely maintained communication difficulties throughout the study.

In exploring the session videos, it is clear that both Mary and Joyce appear to come to a similar level of communicative ability. They are often able to express their thoughts, both show a good awareness of mistakes they make and will attempt to repair their mistakes. However, John's severe expressive difficulties remained through the course of the MI sessions. Due to this, visual aids were used effectively to allow John to express his thoughts and feelings. When visual aids were not used, John was limited in the information he could communicate. It may be therefore that the level of severity of communication difficulties impacted on MI quality and engagement. For patients with severe communication difficulties, while MI is still possible, this is only when the suitable communication strategies are used to successfully deliver MI.

Other Life Changes

Communication was not the only issue which may have impacted on the patients in MI sessions, therefore the other life changes experienced by the patients must be considered. The three patients experienced differing degrees of life changes following their stroke, and consequently different levels of adjustment associated with such changes. While the three participants all experienced stroke and aphasia, both Joyce and Mary, as mentioned earlier, showed a reasonably speedy recovery in their communication. The negative impact of communication difficulties was therefore decreased for both ladies over the course of the first three months following their stroke, while it remained a challenge for John. In addition, in part due to their low level of physical impairment, both Joyce and Mary were able to return to their homes. This allowed a return to independent living as before the stroke. Conversely, John was unable to return to the home he lived in pre-stroke due to the high level of physical disability the stroke had caused. Previous studies have shown that in the wider population, severe acute life events, often precede the onset of depression (Kendler et al. 1999; Hammen. 2005). This was a large life change for John to adjust to, and this perhaps made sessions with him more challenging for the therapist compared to those of Joyce and Mary.

Patients in the study may have differed in their socio-economic status. Based on their living circumstances, Mary lived in an area of average affluence, and Joyce lived in an area of above average affluence. Both Mary and Joyce owned their own homes. In contrast, John rented shared accommodation, however the area is unknown. While this is not a clear definition of socio-economic status, this circumstance may have impacted on the patient's adjustment and recovery from stroke and consequently mood. Previous studies have indicated that in the wider population, lower socio-economic status is linked to depression (Muscatell et al. 2009; Menec et al. 2010), however this relationship has not been demonstrated in stroke (Chatterjee et al. 2010).

A final difference between the participants is the level of social support received following the stroke. Previous research has found that in stroke survivors, perceived social support to be a major predictor of depressive symptoms, with higher perceived social support acting as a protective factor against depressive symptoms (Lewin et al. 2013). Joyce received support from her husband and family, while Mary received support from her daughters and close friends. John's situation was different again, being separated from his ex-wife, who maintained contact with John and provided some support for him following the stroke, and his four children provided support where possible. However, although all four children were involved in his life and took a role in supporting John, no individual was in a position to take a primary role as a care giver. John therefore experienced a lower level of social support. This may have impacted on his mood or adjustment to life after his stroke. However the same study (Lewin et al. 2013) also found patients having no history of pre-stroke depression to be a strong protective factor of depression, a feature not measured in the current study.

Overall, taking into account these factors, it appears that John experienced the greatest life changes, with the stroke causing impairment to his communication, physical disability preventing his return home, and lack of a primary carer to provide emotional and social support. These factors may have contributed to John's level of mood of ability to adjust to his situation, leading to difficulties experienced by the therapist in MI sessions with John that were not experienced with Joyce and Mary.

Therapist Factors

Identifying therapist factors which may impact on therapeutic sessions is complex, with numerous possible factors involved. Sharing similar characteristics to the patient may improve the therapeutic relationship including age, sex, religion, children, marital status, education, and occupation, with age and religion contributing the most (Horvath and Luborsky 1993).

Due to staffing factors, only one newly trained MI therapist was involved in delivering MI sessions in the trial. This makes attribution of the success or failure in sessions to a particular therapist difficult. With only one therapist, it remains unknown whether a TA without a background in SLT would have been able to deliver sessions with such a high level of MI consistency as was demonstrated in the trial. In addition, the degree of experience of therapists may have influenced the sessions. Therapists with greater experience have been shown to achieve higher therapeutic alliance ratings (Hersoug et al. 2001), while it has been shown that therapists with less experience can go on to form therapeutic bond with patients, however they may be less effective in establishing therapy goals (Mallinckrodt and Nelson 1991). In relation to the current study then, we cannot know whether younger, less experienced MI therapists would have experienced similar difficulties of delivering MI. Alternatively, perhaps the psychology background of the therapists who left the study would have impacted on sessions. These factors cannot be explored in depth in this study; therefore a future trial with a number of MI therapists would be useful in drawing conclusion of positive staff attributes for a therapist in this role.

Finally, another difference across patients and also sessions may have been the confidence of the therapist. It may be that there was a difference in the therapist's confidence in working with a patient such as John who had a number of difficulties. With such a complex case as John's, it may be unsurprising that a newly trained MI therapist experienced difficulties in MI sessions in maintaining MI consistency and establishing a therapeutic relationship. Previous research indicates that patients feel more comfortable with therapists high in confidence (Hersoug et al. 2010), therefore of John joined the study at a later date when the therapist's confidence had grown through increased experience, higher level of MI consistency and MISC scores may have been achieved.

5.9 Strengths and Limitations

There are a number of strengths and weaknesses of this study. A key strength of the study was its focus on carrying out an in depth analysis of MI sessions with patients with communication difficulties, this has allowed exploration of how sessions can be adapted, which has not previously been examined. The analysis was facilitated by the use of video-recorded footage of sessions, allowing analysis to encompass both verbal and non-verbal behaviours. Viewing video footage of sessions allowed all relevant information from sessions to be recorded and taken in to account. In recording a number of patients, a small-scale cross-patient comparison was able to occur, highlighting the similarities and differences of the delivery of MI in sessions.

The study was limited by the low number of participants, reducing the generalizability which can be drawn from the data. While a low number of patients was desired in order to allow an in depth analysis of data, this may have been more informative if for example there had been three patients within each of the three levels of communication impairment groups. Secondly, the study was limited in that there was only one therapist providing all MI sessions. This restricts the ability to explore the impact of therapist difference, such as male/female, educational achievement, level of experience. With only one therapist, limited conclusions can be drawn about the impact of therapist characteristics and training experience on the session outcome.

5.10 Summary

This chapter has presented results from MI sessions held with patients with moderate to severe communication difficulties after stroke. Findings have been presented and discussed in relation to each patient and across all patients. The limitations of the study have been identified and discussed. The next chapter will present the results of interviews held with staff involved in the trial to understand their views on recruitment to the trial, the intervention applied to patients with communication difficulties, and the MI training package they received.

Chapter Six: Implementation of MI in patients with communication difficulties after stroke

6.1 Introduction

The previous chapter presented findings from a feasibility study, delivering MI to patients with communication difficulties after a stroke. Analysis of the data gathered from these sessions focused on the delivery of the MI, exploring adaptations to the delivery of MI with these patients. The analysis identified barriers and facilitators communication and MI fidelity.

This chapter will present the views of staff involved in the MI trial. Interviews were carried out in three sections. Firstly, a secondary analysis of data from the screening log was carried out (Section 6.3.1). This was supported by interviews with staff involved in screening and recruitment of patients. The interviews explored staff views of the screening process (Section 6.3.2). Secondly, Therapy Assistants (TA) trained in MI were interviewed prior to commencing MI sessions (Section 6.4). The interviews explored their concerns before the trial started and their views on the training package. Finally, the TA responsible for delivering MI sessions described in Chapter Five was interviewed on completion of the trial to explore her experience of delivering sessions (Section 6.5). This included her thoughts on barriers and facilitators to sessions, and the skills and training required for future therapists.

In this chapter, the aims of each of the three sections will be identified, with details of the methodology, methods and analysis described. The results from each section will be presented and discussed in relation to previous literature of recruitment of stroke patients, staff confidence in working with patients with communication difficulties, and training needs of staff. Finally, the strengths and limitations of the study and implications for future research will be highlighted and discussed.

6.2 Methodology

There are two approaches to gathering data in research, qualitative or quantitative. Both approaches have developed from different origins and explore a research questions in alternative ways. A quantitative approach stems from a positivist view point, assuming that objectivity is possible, and thus theories and hypotheses can be tested (Creswell. 2003). Using quantitative methodology, a randomised controlled trial (RCT) is considered the gold standard of research, where all bias has been removed where possible (Holloway and Wheeler 2002).

Alternatively, qualitative research assumes individuals experience the world subjectively, and attempt to explore these experiences using interpretive or descriptive approaches (Holloway and Wheeler 2002). Using a qualitative approach, the views and values or both participants and researcher can become part of the research, however the potential limitations of this must be acknowledged (Creswell and Miller 2000).

In some circumstances, mixed methods of research are employed, combining qualitative and quantitative approaches. Using mixed methods may allow research questions to be answered most fully (Burke Johnson and Onwuegbuzie 2004). In combining strategies, researchers should collect various sets of data using different approaches and methods. The resulting combination aims to triangulate approaches so that,

> "*the bias inherent in any particular data source, investigators, and particularly method will be canceled out when used in conjunction with other data sources, investigators, and methods*". (Denzin. 1978), pp.14)

The result is to produce the strongest findings which allow confidence through the comprehensive approach taken.

For the purpose of exploring issues around screening and recruitment of patients, a mixed methods approach was considered the most appropriate. It was felt that a quantitative approach would be utilised to examine quantitative data gathered in the form of the hospital screening log. This would provide objective data, for example around how many patients were screened, or the documented reason for exclusion from the trial. However, to understand the subjective experiences of staff carrying out the screening and recruitment, a qualitative approach was considered most appropriate. This would allow a more comprehensive exploration of the individual experiences, views and interpretations of the staff.

6.2.1 Subjects and sampling

The aim of the study was to explore; (i) issues around screening and recruitment to the feasibility study (ii) staff views of the intervention and training pre-trial and (iii) staff views of the intervention and training post-stroke. Sampling in qualitative research should relate to the people, setting, and finally the topic of interest (King and Horrocks 2010). In order to address the topics of interest, it was essential to involve individuals directly involved in these aspects of the trial. For this reason, purposive sampling was utilised to identify participants.

6.2.2 Data collection

Several methods of data collection can be used to answer a research question in qualitative research. These include observation, one-to-one interviews, or group interviews (focus groups). One-to-one interviews are a way of gathering information around the interviewee's interpretation of meanings (Britten. 1995). Interviews can be in depth, covering perhaps only one or two issues in greater detail; semi-structured, with a loose structure .consisting of open-ended questions; or structured, where questions may be closed (Britten. 1995).

In addition to quantitative data collection, one-to-one semi-structured interviews were chosen to gather data in this section of the study. It was felt that this approach would allow the experiences, views and interpretations of staff to be elicited in a private environment. Participants in a group setting may feel they cannot express their true views in a group setting, perhaps due to fear or embarrassment. In this respect, focus groups may prevent the real thoughts of the staff from being expressed. A further justification of this method was for pragmatic reasons. Staff of interest were often based on the stroke ward working directly with patients. Using one-to-one interviews would allow for interviews to take place at a time and place, in person or over the telephone, which best suited the participants with the least disruption.

Interview schedule

An interview schedule was created to explore issues relevant to the implementation of a new intervention, and issues or concerns which this may evoke. Using an interview schedule ensures the research question is answered, while promoting a natural flow of conversation (Whittaker 2009). The interview questions were developed through a series of reviews with a team of researchers. The team ensured questions were as open and impartial as possible.

All interview schedules began by asking staff about issues prior to the trial beginning. This included asking about their usual staff role, pre-trial training, or their thoughts about the study. The focus then moved to explore issues during the trial, for example, questions around the implementation of the study. Finally, all interviews included a section asking staff to reflect on their experiences. In this section, staff were asked to consider what worked well and what could have been done differently. Interview schedules can be seen in Appendix 13.

6.2.3 Data analysis

All interviews were digitally recorded. Interviews were transcribed verbatim by an independent transcriber working for the university. All transcriptions were then checked for accuracy by the researcher, with names removed to ensure confidentiality. Participants requesting a summary of the interview were asked to inform the researcher if there were any comments they wished to make. Once transcripts had been checked they were then analysed using NVivo 10.

In addition to quantitative data, qualitative data was carried out. Interviews were analysed using thematic analysis. Following familiarisation with the data, this technique allows the researcher to identify key themes which emerge from the data. Using free coding of the data, themes can be modified in light of new data. The numerous codes form the overall themes identified from the data (Howitt and Cramer 2005). This approach allows for adjustments to be made to form the most suitable interpretation of the data. Following initial thematic analysis, the key themes can be mapped onto a framework to aid interpretation of the data as a whole. Mapping the key themes allows the range of themes to be presented, relationships to be acknowledged, and explanations identified (Ritchie and Lewis 2003).

Aims and objectives

6.3.1: Screening log analysis/Screening staff interviews

Aim

- To explore the challenges of recruiting patients with communication difficulties to an MI intervention in an MI feasibility trial.

Objective

- To identify mediating factors influencing recruitment and consent of patients with moderate to severe communication difficulties into the feasibility trial.

Methods

Design

A secondary analysis of screening log data from the feasibility study was carried out. The screening log was recorded for each admitted patients over seven months. This included a monitoring period from admission for four weeks.

Data analysis

Analysis was carried out to consider factors influencing patient inclusion in the trial. Screening log data was analysed using Excel. The data was analysed to explore reasons for exclusion and date of exclusion. Patients’ reasons for exclusion were separated into categories including; non-stroke, declined, too ill, dead, dementia/cognitive difficulties, discharged, awaiting verification of stroke, severe communication, lived out of catchment area, or not documented. The number and percentages of patients falling into each category were calculated.

Results

The trial screening log was recorded over a seven month period (May-December 2013), with 252 consecutively admitted stroke patients screened for eligibility within the trial. Of patients screened, 51 (20%) were non-stroke, 68 (27%) were considered to have normal communication or mild communication problems, and were approached for a separate MI trial, 37 (15%) had cognitive difficulties/dementia and 13 (5%) died. Of the 79 (31%) stroke patients, only 11 (14%) had moderate to severe communication difficulties.

Of the 11 patients with moderate to severe communication difficulties, three (4%) consented to the trial, three (4%) declined, three (4%) were unwell, one (1%) had severe receptive problems, one (1%) improved in communication. A flow-chart of the screening process is shown in Figure 6.1.

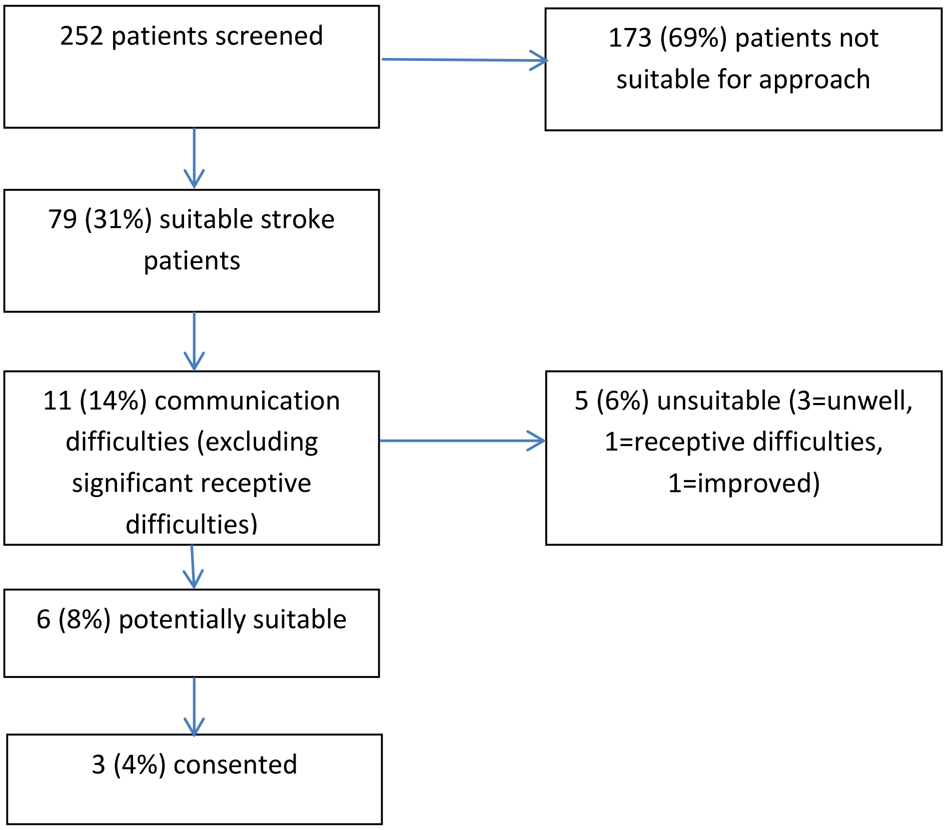


Figure 6.1: Flow chart displaying screening and recruitment to the MI feasibility study

Summary

This section has presented secondary data analysis of the trial screening log. It has been identified that while a large number of patients admitted to the stroke ward and screened, a large amount were non-stroke patients. This immediately reduced the number of patients meeting recruitment criteria. Furthermore, relatively few patients were considered to meet the communication criterion of having moderate to severe communication difficulties whilst meeting other inclusion criteria, such as relatively intact receptive communication.

Almost a third of patients initially meeting the communication criteria were later excluded due to being unwell, with other patients excluded for either decline or improvement of their communication. This perhaps reflects the associated comorbidities patients with moderate to severe communication difficulties experience, in addition to the changes of condition which can occur over a short period of time for some patients.

These results provide the documented reasons influencing patient inclusion to the study, however this cannot be explored further based on the limited information recorded in the screening log. In order to understand comprehensively the factors influencing screening and consenting of patients, interviews with screening staff were carried out. The results of these interviews will be presented in section 6.3.2.

6.3.2: Screening staff interviews

Aim

To explore the challenges of recruiting patients with communication difficulties to an MI intervention in an MI feasibility trial.

Objective

- To identify mediating factors influencing recruitment and consent of patients with moderate to severe communication difficulties into the feasibility trial.

Methods

Design

Semi-structured interviews.

Setting

Setting

Interviews took place at a time and location convenient to the participant. One-to-one interviews took place in a quiet, private room within the hospital. Telephone interviews were conducted in a quiet room.

Subjects and Sampling

One senior and one junior member of staff involved in screening, identifying and consenting patients to the trial were invited to take part in the interviews.

Data analysis

All interviews were digitally audio-recorded. The interview recordings were transcribed verbatim and read through a number of times. The interviews were analysed using content analysis, facilitated with NVivo 10 software. To ensure data credibility, a number of short samples of the transcriptions were coded by another researcher.

On coding of the first interview, codes were grouped into emerging themes, which future codes were then coded against. Interpretation of the data was carried out using the Consolidated Framework for Implementation Research (CFIR) that provides a taxonomy of factors influencing implementation (Damschroder et al. 2009).

The CFIR framework consists of five key domains (intervention characteristics, inner setting, outer setting, characteristics of individuals, and process), with each domain containing sub-constructs. The framework attempts to explain the complex and often interacting factors which may influence implementation. The framework combines key concepts of implementation proposed across a number of previous models of implementation, seeking to integrate and consolidate the varying concepts into one framework. The CFIR was used in the interpretation of interview data to understand factors that influence the implementation of the MI trial, and to provide possible explanation of the research findings.

Data Credibility

A good level of agreement was reached between the author and the other researcher. Any differences in coding were discussed until a consensus was reached.

A summary of the interview was offered to each participant to ensure the data reflected their views and experiences. This allowed the participants to check the accuracy of the data, therefore increasing the validity of the research (Creswell and Miller 2000). All participants felt the summaries accurately reflected their account. The results of these interviews will now be presented.

Results

The screening staff involved included a Stroke Specialist Stroke Nurse (n=1) and a Therapy Assistant (n=1). For the purpose of this discussion they will be referred to as Julie and Claire respectively. Julie was an experienced research nurse who specialised in stroke research. She was trained in gaining consent in vulnerable patients, including those with communication difficulties. Julie had over ten years of nursing experience, with five years of experience as a research nurse. She was involved in identifying, screening and consenting patients to the trial.

Claire was relatively new to her role, having been in post for approximately six-months following graduating one year before. During the course of the trial, Claire transferred jobs to a research post, with screening stroke patients becoming one of her primary duties, taking over some screening duties from Julie. Claire was able to identify and screen patients, but not to consent patients.

Characteristics of the intervention

Trialability

Staff felt they had adequate support. They felt there were supervisors available to contact if required, however they felt that a difficulty of trialling the study on their ward was the lack of a main coordinator. Due to the complex nature of the intervention, Claire explained that if one supervisor for the trial were present the study would have run smoother. She felt this was especially important in the early stages of the trial being set up.

Design quality and packaging

Julie felt the design of the intervention may have negatively impacted on recruitment to the study. She felt the sessions may have appeared to patients to be too intensive or too soon after the stroke when they have many other appointments. Holding sessions so early after stroke may be overwhelming for patients. Patients expressed to Julie that having weekly sessions over a month was too much to commit to. Other patients expressed they would rather rely on family for this emotional support, preferring to speak with a family member than a therapist.

In order to address this difficulty, Julie thought that in future trials, a shorter duration of intervention may be better as patients may find this more manageable. She did recognise that this could make developing a rapport in sessions more difficult. In her view the official process of consenting to participate in a study, as well as the idea of being recorded, may have discouraged people from participating.

Inner setting

Networks and communication

Both Claire and Julie explained that regular and easy communication with supervisors facilitated the running of the study, therefore enabling their roles. This was the case despite MI supervisors being based externally as they used phone calls and emails to maintain close contact.

Leadership engagement

In addition to staff being available, Julie felt that having supervisors who were engaged and positive about the study, and who had a personable approach facilitated her role in the trial.

Available resources

The availability of staff able to consent was discussed by Julie. She felt that time and staff resources were not a difficulty in her role. She felt that because there were other staff also able to consent, there was always someone available to consent patients. She stated that no patients were missed from recruitment due to lack of time or staff availability.

Outer setting

Patient needs and resources

Both screening staff felt the study was valuable. They agreed about the need for patients to discuss their feelings with someone, and that in the wider research context this is an area for further investigation. Claire felt the opportunity to discuss emotional issues was particularly important for patients with communication difficulties.

> *"I think it's important for people with communication difficulties who've had a stroke to be able to sort of in a way talk or express their feelings and emotions 'cos they must be feeling the most frustrated out of everyone else 'cos they can't express how they feel"*.

Characteristics of the individual

Knowledge and beliefs about the intervention

Claire reported that the exclusion of patients with normal communication or mild difficulties was facilitated by the simple nature of the exclusion criteria. However this process became more challenging when focusing on inclusion criteria because often these patients were more severely affected by their stroke, suffering receptive as well as expressive difficulties. This made it increasingly difficult to gage capacity, which she feels may have impacted on recruitment and consenting to the study. She explained,

> *"I think it's difficult because… that stroke population … are very severely affected by their stroke so we want to target communication difficulty patients…but …very soon after they've had their stroke and it's very severe and they will have receptive difficulties as well as expressive so you can't really gage whether they have the capacity at that point"*.

Julie thought patients may have declined participation in the study because the intervention was too early following the stroke, at a time when they were overwhelmed. She believed patients felt overwhelmed by having the stroke, but also due to the demands on their time and energy placed on them by other health care professions. In her opinion, patients thought they would not have the time to commit to sessions held every week for a month. Julie described that some of the elderly patients she spoke to expressed feeling too old to participate, despite being reassured that the study was for patients from all ages. Other patients described they had supportive families and that if they wanted to speak to people they would talk with their family. Despite patients declining to participate, she stated that patients may have wanted to speak with someone about emotional issues because they attempted to discuss concerns with her. She found this disparity confusing.

Self-efficacy

When asked to describe her confidence in her ability to carry out patient screening, Claire described she felt she was ‘average’ and that her confidence had not increased over time. One of her difficulties with screening was the changeable nature of stroke, with even the diagnosis of stroke potentially changing. She found that not being a qualified medical clinician weakened her confidence in her judgement of patients. She felt she had to use her own judgement to assess patients; however she described screening patients with communication difficulties as increasingly difficult compared to those with normal communication. Her lack of training meant she struggled to assess patients with receptive difficulties to gage their level of understanding. If unsure, she would seek support from others qualified in this area, such as the other screening staff or the SLT to gain advice.

Due to having more experience in her role, Julie described that she would usually feel confident in recruiting participants to a trial, however in this trial patients were often negative in their responses, and were not as keen on the study as she had expected. She felt this knocked her confidence.

Other personal attributes

Claire expressed that the personal attributes of screening staff may impact on recruitment. She identified personal attributes she felt were important for an individual in her role. One key attribute she described was for the individual to be tactful. This would be important when first approaching a patient, in order to address the patients with the right attitude. She felt it should be clear to the patient that you are not there to meet your own agenda to get a signature, and should not be overly direct in discussing the trial. The staff should be able to engage the patient in some light chat, perhaps a discussion about why they are in hospital. This would allow staff to use their clinical judgement to decide whether this patient is suitable.

Process

Planning

Claire explained that the screening role for the trial was easy to incorporate in to her job role as she would usually monitor new admissions to the stroke ward on a daily basis. Any new admissions would be entered in the main log book. As part of her role in the trial she would add these to the MI log book. This information would be used to complete MI screening forms.

However she found that often the patients with communication difficulties were more complex to assess due to associated difficulties following stroke. For example, in her experience these patients "*tend to be more unwell*", so identifying suitable patients was more difficult compared to those with normal communication. She described that she would approach these patients differently, for example she may not approach them directly because they may be more unwell for the first few days. Instead, she would follow guidance on the patient's medical notes as to their state of health, such as if it says 'unable to rouse' to guide the point in time when she approached them. She feels that for these patients in particular there must be a process of continually going back to gage whether the patient is able to engage in a minimal amount of conversation to assess their suitability for the study.

Reflecting and Evaluating

Screening paperwork

On discussion of the screening forms, Claire expressed that the forms were at times unable to capture the complexity of the patient condition. This was illustrated when completing the COAT, stating that on occasions she felt patients did not fit into a single box representing one level of communication severity, but were able to meet criteria across multiple boxes. In such cases, she would use her judgement to decide which level the patient best fit. She would not document her decision process or concerns where this occurred.

Claire considered there to be a good level of reliability of patient screening between herself and Julie. She felt the two generally agreed on a patient's suitability, and that this was the case for the wider team who may identify a patient on her behalf. She felt it was easier both to agree on patients to exclude than it was for patients to include. This is understandable given the complexity involved in judging suitability based purely on routine contact with the patient. Claire felt that reliability of assessing patient suitability may have been influenced by the changeable nature of the stroke.

Claire described that the reliability of screening may be impacted by the patient condition. She explained that a patient may appear confused or lacking capacity due to an infection for example. If the condition were to change, the same patient may be considered oriented and therefore suitable for approach within a matter of days. Again, she felt this is due to the more complex nature of this group of patients and their associated health difficulties.

Claire had concerns around using the screening log as a measure of the work involved in screening patients for the trial. She describes that the amount of work required in completing the screening log did not reflect the time and work that was required for the monitoring of each patient over potentially four weeks. She thought it was important to consider the time-consuming process when reviewing this log.

Another challenge in the screening process was that it could be difficult to complete the paperwork. Limited or ambiguous documentation in a patient's medical notes made completing the forms fully and accurately challenging. In particular, documenting whether a patient had suffered previous mental health disorders, or received treatment was difficult to establish. Rather than stating in notes that there was no history of these issues, she would often have to look throughout the notes to find any documentation of the presence of these issues which could be extremely time consuming. If there was no documentation she would report 'not documented'.

Overall, Claire thought the screening process was very time consuming, especially in relation to completing paperwork. She suggested that a future trial could improve this system using a computerised form with pre-defined codes for patient issues, for example of exclusion criteria, to save time completing paper copies of this paperwork.

Approaching patients

Claire described it was challenging to decide when was a good time to approach patients. Due to the severe nature of patient's associated illness following the stroke, it was difficult to tell when it was too early to ethically approach a patient, or when they may need more time to rest. If she was unsure, she would monitor a patient rather than approach them too soon.

Discussion

This section has explored the challenges of recruiting patients with moderate to severe communication difficulties into the feasibility trial. The findings identified mediating factors influencing recruitment and consent of patients. Information from Sections 6.3.1 (trial screening log data) and Section 6.3.2 (screening staff interviews) were considered, with similar information discovered in both sources. Staff interviews allowed additional information allowing elaboration of information presented in the screening log around reasons for patient exclusion to the trial and overall recruitment difficulties. Analysis of staff interviews has highlighted the challenges experienced by staff in identifying, screening and recruiting patients to the feasibility study.

The screening log identified the documented reason for patient exclusion from the trial. It was discovered that despite a large number of patients being admitted to the stroke ward, many were not suitable for the trial for various reasons, including non-stroke diagnosis or not meeting communication criteria, and were thus excluded. In studying the screening log, approximately a fifth of patients had not suffered a stroke, which immediately reduced the number of patients suitable for approach to the study. Of all patients screened, 14% met inclusion criteria including the presence of moderate to severe communication difficulties. This is below the 26% reported in a previous study of prevalence of aphasia after stroke (Pedersen et al. 1995), and therefore below what might have been expected at this early stage post-stroke. In addition, almost half of patients meeting communication criteria were then excluded for health complications or a change in communication impairment. These reasons were mentioned in the staff interviews as an explanation for poor recruitment.

The interviews explored the screening staff experience of the screening and recruitment of patients to the trial. It was identified that both staff strongly supported the purpose of the trial, feeling that psychological interventions are important after stroke, especially for patients who have difficulty expressing themselves. However while they felt the study was worthwhile, they had different opinions regarding the reasons for recruitment difficulties. Julie was surprised to find a number of patients were not interested and who did not wish to consent, despite initiating conversations about their concerns and emotions with her.

Previous research of psychological interventions indicates that early intervention may help prevent depression (Hackett et al. 2008a). However, this research is based on patients with normal communication and therefore may not be applicable to patients with communication difficulties who often have more severe strokes and also have a number of comorbidities. For patients with communication difficulties, it may be more suitable to extent the period to begin a psychological intervention to a later date where needed. This would allow additional time for patients to recover to a suitable level which may aid inclusion in therapies. However, alternatively, it may be that for patients who engage in MI, their motivation to engage in other therapies may be increased, which may in turn quicken their recovery.

It was also suggested that patients may also have been deterred from consenting because sessions were video-recorded, although it was stressed that this was optional. However, often when patients declined to participate; some went on to initiate discussion about their concerns. This suggests patients did wish to discuss their concerns with someone; however they may not have wished to participate in the trial.

The screening log indicates that only a small percentage of patients screened were identified as having severe or moderate communication difficulties, however staff interviews provided information on the contextual difficulties in even recruiting this small number. Claire generally found the role of screening and consenting for the trial easy to incorporate within her daily duties, however she also identified aspects she found challenging, especially if patients were very ill or had receptive communication difficulties. When patients were ill, it was sometimes unclear when it was appropriate and ethical to approach them. Claire considered herself lacking in confidence to gage this, and often relied on medical notes to decide. In patients with receptive difficulties, Claire felt she lacked training to assess whether the patient had understood information and had capacity. In her usual role, Claire was experienced in recruiting patients with normal communication; therefore assessing suitability of such patients is much more straightforward than for those with communication difficulties. While she stated they would seek advice from other members of the team if they felt unsure, this lack of confidence may have impacted on recruitment. In contrast, Julie voiced no concerns in identifying, screening or consenting patients. While this does not mean she had no concerns, her apparent level of confidence may be due to her greater experience and training in this area. Staff confidence may therefore have impacted on study recruitment.

The difficulty of recruiting patients may have been related to stroke severity. Patients in this trial had moderate to severe communication difficulties, and this group of patients often suffer more severe strokes (Kauhanen et al. 1999), and may have more comorbidities, including physical disabilities, cognitive difficulties, or other health conditions. On reviewing the screening log, patients with severe to moderate communication difficulties were often excluded due to illness or receptive communication difficulties. Due to the additional complication rates often experienced by patients with communication difficulties after stroke, a longer recovery or monitoring period may be required before they are suitable to approach for a research trial. A future trial may benefit from a greater monitoring period to allow post-stroke complications to subside.

One limitation of the screening process was the use of the COAT. The COAT is a pragmatic tool devised for this study, based on clinical staff observations in order to minimise patient and staff burden as no communication screen was undertaken as part of usual care. Therefore, in place of creating an additional formal assessment for staff, it was felt appropriate to use an observational tool, based on clinical staff interactions with the patient. However, there are limitations to this form of assessment. When screening patients, Claire felt that the COAT was unable to capture the complexity of the communication of patients. At times patients did not fit strictly in one criteria level of the COAT. Furthermore, the COAT is not a validated tool, and therefore the suitability of the tool remains unknown. In addition, the tool relies on staff judgement of the patient's communication ability. Therefore, it is possible that some patients who may have been suitable for the trial may have been wrongly excluded.

Whilst the COAT had its limitations, the screening staff felt their reliability at identifying patients was good, with both agreeing on which patients were not suitable for the trial. However, they felt they felt it was easier to agree on patients to exclude that it was for patients to include. Reports of agreement in patient screening when using the COAT provides tentative reliability for the tool, although further testing of the tool would be required to show accurate evidence of this. This difference of confidence of identifying unsuitable compared to suitable patients is understandable given the complexity involved in judging suitability based purely on routine contact with the patient. Claire felt that the reliability of assessing patient suitability may have been influenced by the changeable nature of stroke.

Despite both screening staff feeling they agreed on suitable patients, there were members of the wider clinical team who were opposed to some patients being considered (as documented in Appendix 11). Some of the wider stroke team felt that patients with more severe communication difficulties should not be considered for the trial. They felt these patients were unable to understand or engage in conversation, therefore they felt it unethical to involve such patients in an intervention like MI. Staff may hold these views due to lack of confidence in working with patients with communication difficulties, or they may feel protective of patients, however this approach may lead to patients being incorrectly excluded from research, or in a wider context from psychological interventions, which they may have benefitted from.

Finally, both staff identified that the regular and easy communication with trial supervisors facilitated their roles. They felt that supervisors being available, as well as approachable, led to the successful management of the trial. They felt this could be improved in future by having one dedicated trial coordinator. The importance of leadership engagement, or a research 'champion', has been emphasised in implementation research, and is mentioned in the CFIR as a feature which can increase successful implementation of an intervention.

Summary

This section highlights the identification, screening and recruitment process for patients into the study. The data highlights the difficulties experienced in identifying patients suitable for the trial. It has been identified that only a small number of patients admitted to the stroke ward were suitable for inclusion. Due to the high number of non-stroke patients admitted to the stroke ward, a large number of patients were screened but were ineligible. Furthermore, inclusion was limited by existing medical issues occurring alongside communication difficulties. Staff confidence and training may also have impacted on recruitment to the study. Those lacking in confidence in working with vulnerable patients, including patients with severe communication difficulties, may find this role challenging. Facilitating strong and regular communication with trial staff may also allow the screening and recruitment process to run smoother, however a future trial may be improved by allocating a single trial co-ordinator as the main point of contact.

While the study aimed to widen inclusion criteria for patients with communication difficulties accessing psychological intervention, it may be that the co-existing medical issues these patients often experience may make some unsuitable for inclusion. Future studies should consider the impact of existing medical issues or more complex communication problems when attempting to recruit this patient group.

Following the consenting procedure, patients began sessions of MI with newly trained Therapy Assistants. Prior to commencing sessions, in order to explore their views of the trial, staff were interviewed. The results of these interviews are presented in section 6.4

6.4: MI Therapist pre-intervention interviews

Aim

- To explore MI therapists’ views of being involved in the feasibility study providing MI to stroke patients with communication difficulties.

Objectives

To explore therapist views of:

- The perceived barriers and facilitators to providing MI to patients with moderate to severe communication difficulties;
- The skills, training, and supervision required as an MI therapist working with patients with communication difficulties.

Methods

Design

Semi-structured interviews

Setting

Interviews took place at a time and location convenient to the participant. One-to-one interviews took place in a quiet, private room within the hospital. Telephone interviews were conducted in a quiet room.

Subjects and Sampling

Therapy Assistants (n=3) trained in delivering MI took part in interviews. All TAs were newly trained in MI, and had previously delivered MI to stroke patients with normal communication. All were assigned to provide MI to patients with communication difficulties. Interviews were held post-training but pre-recruitment. For the purpose of discussion, each therapist will be provided with a pseudonym.

Daniel (aged 27) had previously completed his undergraduate degree in Psychology and a Masters in Neuropsychology. His TA role was to support Physiotherapy and Occupational Therapists on the stroke ward.

Laura (aged 23) had previously completed her undergraduate degree in Psychology. Her remit was to support Speech and Language and Dietetic teams on the stroke ward.

A final more experienced TA, Jill (aged 44), had previously worked as a Healthcare Assistant in the same hospital. Her role was to support the Speech and Language, as well as Dietetics teams.

Data analysis

All interviews were digitally audio-recorded. The interview recordings were transcribed verbatim and read through a number of times. The interviews were analysed using thematic analysis, facilitated with NVivo 10 software. To ensure data credibility, the transcriptions were coded by another researcher. A good level of agreement was reached between the author and the other researcher. Any differences in coding were discussed until a consensus was reached.

On coding of the first interview, codes were grouped into emerging themes, which future interviews were then coded against. Interpretation of the data was carried out using the

Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009) as described in section 6.3.2.

Data Credibility

Data credibility procedures were carried out as described in section 6.3.2.

Results

Objective One: Explore the perceived barriers and facilitators to providing MI to patients with moderate to severe communication difficulties

Inner Setting

Implementation climate

MI and patient needs

All three therapists expressed that while they were relatively unaware of what MI involved prior to becoming involved in the trial, they were keen to learn more about it. They felt there was a real need for this style of intervention and expressed that they felt MI would meet the psychological support needs of patients.

They expressed that in particular, being able to talk to an individual outside of family members may allow patients to talk more openly about issues they feel might worry their family. Laura felt that engaging the patient in discussions which focus on their progress may leave the patient feeling more positive than if they had not participated. However despite this, both Laura and Jill raised their uncertainty of whether it was having someone to talk to or whether it was the MI content of sessions which was beneficial for patients.

Intervention Characteristics

Adaptability

Adapting MI for patients with communication difficulties

The therapists were able to discuss their concerns of delivering MI with patients with communication difficulties post-stroke. Understandably, the main anxiety of all therapists were potential difficulties in communicating with the patient. This could be separated into four aspects; flow of conversation, building rapport, patient frustrations and possible MI adaptations.

Flow of conversation

Therapists felt concerned that the natural flow of the conversation may be interrupted, or may not be established, if a patient struggles to communicate. Daniel expressed that in comparison to delivering session with patients who have normal communication, sessions may feel more stilted, and the conversation may not have the same easy flow. Both Daniel and Jill raised the concerned that at times they may feel unsure of what to say, or where to take the conversation next, leading to awkward silences.

Building rapport

The therapists were concerned it may not be possible to build the same level of rapport with patients who have communication difficulties compared to those with normal communication. Daniel explained,

> *"By session four you might have a good rapport...you're getting on quite well and conversation flows quite easy. I don't know if that would be as easy with patients with communication difficulties*"

Patient frustration

Daniel was concerned that patients may experience frustration if they are unable to communicate effectively in sessions. He felt apprehensive that in attempting to provide MI and engage the patient in conversation, the patient may become distressed or frustrated at their own inability to either comprehend or express themselves. However, despite voicing concerns around potential difficulties in communication, all therapists were able to suggest how they might adapt their communication in MI sessions for patients who have communication difficulties. These adaptations will now be presented.

Possible MI adaptations

Having voiced their concerns of how a patient's communication difficulties may negatively impact on MI sessions, all therapists were then able to express how they may adapt the delivery of MI to better suit these patients. They felt some alterations were strategies they would use ordinarily when working with such patients, including leaving more time, slowing the pace of conversation, and using various methods of conversation to gain shared understanding. Alterations to MI delivery included providing more reflections and regular summaries. Daniel expressed his thoughts on using increased summaries in the following quote,

> *"it might it probably might help just to just keep a you know keep doing regular summaries about what you've been talking about … just to reiterate you know what you've been talking about and … keep the patient on track"*.

Characteristics of individuals

Knowledge and Beliefs about the Intervention

Self-efficacy

All staff discussed that lack of confidence in their ability as MI therapists was a challenge over the course of the trial. There were several factors which seemed to impact on the therapist level of confidence. All staff discussed the importance of supervisor feedback, continuous training, and practice sessions in building their confidence. These will be discussed in more detail in the discussion of objective 2.

Process

Reflecting and Evaluating

Role cover

Another concern voiced by the therapists was the difficulty they experienced in covering their TA role when they were engaging in their MI therapist role for patients with normal communication. For TAs, providing MI alongside their role was a significant alteration from their usual routine. Both Jill and Laura experienced difficulties organising suitable cover because rather than generic TA roles, the TAs were specialised, for example in physiotherapy, or speech and language. This meant back fill for their role must be of the same specialised area. At times this led to TA work being left incomplete for the therapist on their return to the ward, increasing their workload.

Divided roles

All therapists felt that diving their time across two roles was a challenge. They felt that sometimes they needed to choose which role to perform and leave the other role until a suitable time. They describe that when time was limited, the MI would often suffer because they felt they had to prioritise their TA role. Daniel illustrates this difficulty in the following extract,

> *"It's difficult to say, 'Oh no I can't do that because I've got the motivational interviewing'….In some ways you feel like that should take priority over the motivational interviewing"*

The pressure of limited staffing also increased the stress experienced by therapists. They felt that as TA staff left their post during the early stages of the trial and were not immediately replaced; there was added pressure on the remaining therapists to complete additional work. The staff felt that carrying out dual roles and dividing their time between the two may be difficult to sustain in a future trial.

Regular sessions

All the staff expressed that regular MI session would increase their self-efficacy as MI therapists through regular practice. When delivering MI with patients with normal communication, delays in sessions led to therapists feeling they might forget MI techniques, and lowering confidence in their abilities.

Objective two: Explore the views of training and supervision package, and perceived skills required for MI therapists working with patients with communication difficulties

Characteristics of individuals

Knowledge and Beliefs about the Intervention

Supervisor feedback

The interviews highlighted the importance the therapist placed on supervisor feedback for their own self-efficacy. All three therapists expressed that the supervisors monitoring the content of their sessions, allowed them an opportunity to refine their MI skills. Whether positive or negative, it appears that the feedback of a supervisor was a constructive process for therapists to increase confidence in their ability. This is demonstrated in the following quote from Jill,

> *"I feel like I could do better with a patient, so tell me what am I missing, what have I not done, so that I can put it in the next session"*

Continuous training

Another issue identified from the interviews was the identification of therapist preference for MI training to be continuous which they felt would improve their self-efficacy. When delivering MI sessions with patients with normal communication, they felt a weakness of the process was the delay between allocations of patients. This delay between sessions led to therapists feeling they may forget how to deliver MI, and consequently impacted on their confidence. All staff felt that refreshers of the MI training, and in particular practical advice on implementing MI strategies within a session, would increase their confidence.

Practice sessions

All therapists highlighted that the most useful part of training was practicing the delivery of MI. This was the case whether practice was with each other or with practice patients. This allowed the opportunity to draw on their theoretical knowledge whilst also engaging a patient in conversation. They described the benefit of practicing their skills within a safe environment, where an observing supervisor could step in should they come into difficulty. This environment provided them with a sense of reassurance that they were doing the right thing.

Other personal attributes

Perceived skills/abilities of MI therapist to patients with communication difficulties

Coping with emotional aspect of sessions

The therapists were able to identify a number of skills or abilities they felt a therapist should have to work well with patients with communication difficulties. These included having previous experience of working with stroke patients, and in particular knowledge of NHS stroke wards; and secondly the ability to cope with emotional conversations.

Experience of working with stroke patients

Laura described that initially the thought of dealing with emotional situations was a daunting prospect. All staff demonstrated an awareness of the potential impact a stroke may have on an individual, and the emotional responses this may provoke in an individual. Laura stated she had little previous experience of dealing with this, and therefore felt lacking in confidence in managing the emotional aspect of sessions.

Laura felt that experience of working with stroke patients would be a desirable asset for individuals coming in to this role. She felt this would make working with patients in MI sessions easier, because the therapist would be aware of the issues which may be difficult or upsetting for patients which would help prepare staff for issues which may come up in MI sessions. All staff expressed their awareness that emotional issues were inevitably going to be discussed in sessions therefore a therapist should be able to cope with emotive issues, ensuring they themselves do not become distressed.

Organisation/planning

Laura identified that organisational skills were essential for this role. She felt organisation skills would aid management of dividing time between the two roles. In addition, she considered the preparation of sessions required organisation, for example planning time to review session content and prepare for topics which could be discussed or required follow-up in the next sessions. She expressed that if this could be managed well it would aid self-efficacy.

Inner Setting

Networks and Communications

External supervision

The MI supervision in the study was provided by staff external to the hospital. The therapists felt happy with this situation. Both Daniel and Laura expressed that this system worked positively in allowing them to take ownership of their work, while also feeling supported. They knew they could contact supervisors if needed, allowing any issues to be resolved. Jill also felt the external supervision allowed her a suitable level of support; however, Laura identified one barrier to having external supervision. She felt that a benefit of having an internal supervisor would be that paperwork might be prepared and managed easier.

Process

Reflecting and Evaluating

Dedicated MI therapist

All staff commented that a dedicated MI therapist would be more suitable than carrying out dual roles of TA and MI therapist for a number of reasons. All three described that a full time MI therapist would have increased self-efficacy as they would deliver more sessions, allowing consistent practice of delivering MI. They explained this format would alleviate difficulties experienced around back fill of any TA duties, and would simplify confusion from patients as well as other staff regarding which capacity the individual was working in.

Future training

Laura described that part-time training did not build her confidence to a level she was happy with and felt that a block period of training may have worked more effectively. She expressed that this would have allowed her to keep in mind the MI strategies and the concentrated practice would have improved her self-efficacy. She felt that with part-time training she was more likely to forget things.

MI use outside of trial

Jill recognised that since completing training in MI she had been able to use these strategies when communicating with patients outside of MI sessions. She felt that skills used in MI such as open questions and reflections allow an approach to communication which indicates that staff care about the patient’s thoughts, and indicate to the patient that they have been listened to.

Discussion

The interviews described here aimed to explore the therapists’ perceptions of barriers and facilitators of providing MI to patients with communication difficulties prior to beginning the feasibility study. A second aim of the interviews was to explore therapist views on the training and supervision package, as well as the perceived skills or abilities of therapists working with this group of patients.

One of the main concerns raised by all three therapists prior to the study was communicating with patients. Understandably, the therapists were concerned with potential difficulties in communicating, worried they may not be able to hold a session in the same style they would with patients with normal communication. Concerns with communication also included the difficulty in communicating may cause the patient to become upset or frustrated, and that the sessions may therefore be harmful to the patients. However, all three therapists went on to explain how they would communicate with patients with communication difficulties as part of their usual role. Further, they were able to describe how they may adapt an MI session to accommodate the needs of these patients, describing strategies which could be applied to MI sessions similar to what they would use in their day to day role. These strategies included basic adjustments such as using increased gesture, slowing speech, leaving more time for patient responses, as well as MI adaptations such as using more summaries and reflections.

The concern around communicating with these patients emphasises the need for input from speech and language professionals before therapists work with patients with communication difficulties. This would allow patient specific feedback to be passed on to therapists with suggestions of communication adaptations. Two of the three staff interviewed were specialised within speech and language therapy teams, indicating their higher level of experience and knowledge of issues faced by patients with communication problems, and knowledge of communication strategies. It appears that despite this experience, staff remained low in confidence in how to approach communication with patients in a MI setting. This may be linked with the staff low level of overall self-efficacy in their MI role, which was another concern raised by therapists.

However, while expressing their apprehension of delivering MI with patients with communication difficulties, staff were able to identify a number of strategies to adapt to the patient needs. This result may reflect the disparity between staff skills, and their self-perceived competency with these skills. Therefore, while staff expressed a lack of confidence in their communication ability, they were able to demonstrate a good knowledge and awareness of this skill.

Concerns of self-efficacy were discussed by all three therapists. All voiced concerns about their levels of confidence in their role as MI therapist. This lack of confidence was present despite nine weeks of training, including practice patients, feedback from supervisors, and all therapists meeting competency levels as assessed using the MISC framework. This finding underlines the difficulty of raising staff levels of self-efficacy despite intensive and continuous training and support.

The therapists provided additional explanations of self-efficacy; identifying factors they felt influenced this. They discussed that in relation to the training package, one of the most useful aspects to increasing their self-efficacy included practicing MI skills with each other and with practice patients, before beginning sessions with ‘real’ patients. They felt this allowed them to be observed and feedback provided from a trained MI therapist.

The importance of feedback was of extreme importance to therapists. However, despite receiving feedback from supervisors, therapists continued to describe their low level of confidence. This perhaps again reflects the difficulties in raising staff confidence. This appears to be a separate issue from therapists MI competence, which may remain high alongside low self-efficacy. The importance of feedback has been identified previously (Miller et al. 2004), with feedback and coaching either individually of combined showing improved MI proficiency beyond those who attended a two-day workshop alone.

Feedback from the therapist indicated that they felt that training may be better received if it was carried out initially as a full-time workshop followed by continuous support and top-up training sessions. In previous studies exploring MI training (Miller and Mount 2001), new therapists who attended a training workshop increased self-perceived proficiency although made only modest improvements to MI delivery. This reinforces the distinction between ability to deliver MI against therapist self-perceptions of their ability to deliver MI. The difficulties in forming the most effective training package for MI reflect the complexity of the intervention.

Another factor impacting on self-efficacy was the difficulty of dividing time between TA and MI roles, which they felt left MI skills under-practiced and consequently reducing self-efficacy. The therapists felt that in order to manage this difficulty, it may be beneficial for future trials to recruit a dedicated MI therapist, who can dedicate their full time to delivering MI sessions, leaving them time to review sessions and plan future sessions. They felt that not only would this improve the quality of sessions but also staff self-efficacy.

In a previous MI trial (Watkins et al. 2007), MI therapists were part of the research team and therefore external to the stroke team. This was the first trial of its kind to explore MI in patients following stroke, however staff interviews were not carried out. The strengths and limitations of using external staff as MI therapists for acute stroke patients remain unknown and is an area for future exploration.

All three staff shared the view that regular MI sessions would support self-efficacy. They felt consistent sessions would allow MI to be practiced and confidence built over time. The impact of self-efficacy was further discussed in relation to training and supervision for the trial.

The experience of practicing MI skills was described by the therapists. They discussed their views of the training and supervision package they experienced as part of the trial. All therapists expressed that the most beneficial aspects of training were having time to practice MI skills, and the opportunity for feedback on MI delivery.

Finally, the TAs all identified skills they felt were important for MI therapists. These included previous experience of working with stroke patients was important, the ability to cope with emotional topics was essential, and finally, having organisational skills. Previous research in MI has not highlighted specific skills or qualities for therapists; however the skills and experience identified by the therapists here are less generic qualities, and may be more applicable to therapists working with patients who have experienced stroke.

Summary

This section has highlighted the concerns newly trained MI therapists held prior to providing MI sessions to patients with communication difficulties. The results have allowed identification of the therapists' views of the training and supervision package, and therapist perceptions of important skills for future therapists. The findings provide an evaluation of what worked well within the training and pre-trial process, allowing identification of areas to adapt in future studies. The next section will explore the views of the MI therapist who delivered MI sessions to patients with communication difficulties on completion of the trial.

6.5: Follow-up MI Therapist interview

Aim

- To explore the experience of the therapist delivering MI to patients with moderate to severe communication difficulties

Objectives

To identify the therapist's view of:

- The intervention;
- Facilitators and barriers of providing MI to patients with communication difficulties;
- Issues in training and support of therapists providing MI to patients with communication difficulties.

Methods

Design

Semi-structured interview.

Setting

Setting

The interview took place at a time and location convenient to the participant. A telephone interview was conducted in a quiet room.

Subjects and Sampling

The Therapy Assistants responsible for delivering MI to patients with communication difficulties after stroke was invited for interview.

Data Analysis

All interviews were digitally audio-recorded. The interview recordings were transcribed verbatim and read through a number of times. Data analysis and interpretation was carried out as described in section 6.3.2.

Data Credibility

Data credibility procedures were carried out as described in section 6.3.2.

Results

The Therapy Assistant (n=1), Jill, who was responsible for delivering MI to patients with communication difficulties, was interviewed. Due to staff attrition, she became the sole provider of MI to the study. Jill was therefore interviewed twice; firstly after training but before recruitment (as presented in Section 6.4), and again following the end of the study. The results from the follow-up interview will now be presented, beginning with results of objective 1 (staff views on the intervention) and followed by results of objective 2 (views of the training and support package).

Objective 1: To explore the therapist's beliefs and understanding of the intervention

Intervention characteristics

Adaptability

Adapting MI for patients with communication difficulties

Jill described that delivering MI with patients in the feasibility study was different from those delivered to patients with normal communication. She explained that in a session with a patient with normal communication, additional communication methods would not be required. She felt that for patients with communication difficulties, she was able to adapt the MI and the communication strategies to successfully meet the individual needs of the patients. For example, the first patient, John, suffered the most severe expressive language impairment and required visual aids to point at. These visual materials could be tailored for John. This adaptation was facilitated by the prior relationship the therapist had with the patient in her TA role. With her prior knowledge of John, she was able to create pictures which were relevant to him, or select appropriate pictures from Talking Mats which she felt would be prominent in sessions.

She described that although the two other patients did not suffer the same severity of communication impairment as John, they both suffered communication impairment which negatively impacted on their lives. She felt that for these patients, she was able to focus on helping them identify their own solutions and to provide encouragement. For these moderate rather than severely impaired patients, she was able to do this additionally through her speech and language TA role, outside of MI sessions. She felt she did this by providing communication worksheets and activities which she felt may help them in their rehabilitation goals.

Characteristics of individuals

Knowledge and beliefs about the intervention

Jill demonstrated her support for the intervention, describing how important she felt MI is for patients after stroke. She felt this to be the case for all patients, including those who feel they have coped well or who may only have minor adjustments to make. She explained that even in patients who have been mildly affected by a stroke; there are often concerns around a range of issues which can then be discussed in MI sessions.

In particular she enjoyed delivering MI sessions with patients with severe communication difficulties was because she felt they were more deserving than other patients. She describes enjoying sessions with patients with the most severely impacted communication because she liked what she referred to as “the challenge” these patients posed her.

Process

Reflecting and evaluating

Positive personal experience

Overall, Jill described her experience of the trial as positive. She explained that she personally enjoyed her experience of delivering MI sessions, which she felt helped the patients, as well as continuing her professional development.

Positive patient experience

Jill expanded on her view of the impact she felt sessions had on patients. She expressed that in her opinion the MI trial was beneficial for all three patients involved. She felt this was the case even for the patient with the most severe communication impairment, John. She explained that while he may not have experienced a clear benefit in mood following MI, if he had not engaged in MI sessions, she feels he would have had very limited communication with others, especially in the residential home. Therefore if he had not engaged in the intervention his mood may have declined. She claims this was demonstrated through discussion with John, who expressed that one of his dislikes about being in the residential home was that he felt staff there did not talk to him. Jill felt that people may have been afraid to attempt communication with John in case they struggled, and therefore without participating in the MI sessions John may have experienced greater isolation. She explained,

> *“They’re afraid to try because they don’t know what to do or what to say or things like that so he … would be more isolated”*

However, while Jill describes feeling that John benefitted from the sessions, she explains that he may have been answering strategically while in hospital because he felt this would lead to a quicker discharge. Jill was aware that John might have described that he was coping well in order to leave hospital quicker rather than reflecting how he was feeling.

For the two patients with more moderate communication difficulties, Jill felt they also benefitted from MI sessions. She describes that one difference in these sessions in comparison to those with John was that these patients were able to speak more for themselves, albeit using different methods such as writing; or with support from the therapist, which she considered to be helpful to them.

Jill describes that she knew the sessions had been beneficial to the patients from the feedback she was given. She thought that the patients were grateful for this input and were sad when the sessions finished. This was the case in particular for Mary who had expressed that she enjoyed sessions and was sad when they came to an end. Jill thought that this was especially pertinent because Mary had explained one of her difficulties was having too many appointments which caused her stress, however despite this she enjoyed the MI sessions and wanted them to continue.

Objective 2: The therapist view of facilitators and barriers of providing MI to patients with communication difficulties

Characteristics of individuals

Knowledge and beliefs about the intervention

Therapist impact on sessions

Jill was aware of her potential influence on MI sessions, including her ability to build rapport and her self-confidence.

She explained that her ability to build rapport with a patient was in part due to personality. She thought this was made easier by her prior contact with patients through her TA role. She feels her prior knowledge of the patients provided her with an awareness of the patient history, likes and dislikes, and hobbies. This background knowledge acted as a platform for her to begin the sessions which did not rely on the verbally expression of the patient. Jill considered this knowledge had enhanced her ability to build a strong rapport with the patients within the first sessions.

She also felt her confidence may have influenced sessions. She described that if she appeared more confident in her abilities as a MI therapist, this would reflect positively in sessions, leading to a positive impact on patients who would feel more confident in her abilities. She went on to further discuss the factors which impacted on her self-efficacy, which will be described in the ‘self-efficacy’ section.

When asked to consider her delivery of the sessions, Jill expressed that she would not change anything. She describes that although there may have been variations in her MI ability across sessions, she considers this would be due to how she was feeling on the day. She felt this kind of variability would be experienced in any role.

Self-efficacy

Jill explained that a facilitator of her role was her self-confidence in delivering MI to patients with communication difficulties. She felt that her confidence in communicating was improved through her TA work with speech and language teams. She felt that experience of SLT would be essential for future therapists in her role.

Although Jill claims she was confident in working with the patients from the start of the trial, she felt that this increased over time, especially once she developed a closer relationship with patients. From working with patients in both roles she felt that as she grew more acquainted with patients, she was able to provide increasingly individualised sessions to help the patients and allow them to find solutions independently.

Jill stated that another facilitator of her confidence was having the author present in sessions. For the purpose of the feasibility study, the author was able to set up recording equipment, transfer session files and document sessions. She felt this saved her time and stress, allowing her to focus on the delivery of sessions. She felt this was a good support for her. In addition, at the end of sessions she found it helpful to discuss what had occurred in sessions. This allowed an outside observer to provide her with immediate feedback, which she felt boosted her confidence.

Inner Setting

Available resources

Practical difficulties of providing MI: Space/rooms

On a practical level, one of the challenges Jill found in delivering sessions was finding a suitable space to hold sessions. Ideally Jill felt there should be a quiet, private room, away from the stroke ward where sessions can be held in hospital. She considered this to be a barrier both in hospital as well as in patients' homes. She felt this was an especially important issue when working with stroke patients, who may have difficulty concentrating; therefore a noisy environment may be an unwanted distraction.

Transport

Another barrier to delivering MI sessions was staff access to transport. Although not a difficulty for Jill because she had access to a car, she felt this may be a challenge for staff who are required to visit patients in the community but who do not have their own transport.

Networks and communications

Support from the wider team

Jill described that initially there was little support from the wider team for the MI study, however this changed over time. With greater awareness of the trial from the wider team, she felt there was increasing support. She feels this change in attitude was linked with staffing levels, explaining that due to TA staff leaving post and not being immediately replaced, there was increased demand on her dual workloads. Jill explains that initially, staff were unaware of her difficulties in attempting to see a number of MI patients at once in addition to her TA role.

Process

Planning

Practical difficulties of planning/delivering sessions

One of the difficulties in delivering sessions identified by Jill was the patients' busy schedules. Patients often had a number of planned appointments, including rehabilitation appointments or family visits, which MI sessions had to work around. Jill describes an example of this when John had visits from his family which he prioritised over MI sessions. An increasing difficulty in discovering patients' availability was reliance on the carer for this information. When struggling to contact the patient's carer, sessions may be accidentally double-booked, leading to cancellation. Jill explains that this occurred in a session with John, due to John's lack of a single individual acting as carer, one MI session was cancelled because of clashing times with family visits. John chose to see his family over having an MI session. Patient's limited availability therefore made planning and successful delivery of sessions challenging.

Reflecting and evaluating

Altering MI for future studies: Design

On reflection, Jill thought that patients may benefit from MI not just in the early stages of support, but also at later stages post-stroke, where patients may experience a different set of concerns and difficulties. She explained this belief was based on issues discussed in the MI sessions, as well as her experience of what stroke patients may experience in later stages following a stroke. She explained that at a later point patients may have further adjustments to make, for example when test results come back, or when discovering whether they are able to return to driving. Jill felt that the MI would be useful at this later point in helping patients adjust to life after stroke whilst also providing support.

Session notes

Jill expressed that she may have benefitted from being more organised, writing notes from her sessions which she could reflect on the following session. However she explained she did not like to do use notes because she felt this would indicate to the patient that she was more interested in reading her notes than on giving them her attention.

Increased work alongside MI

Jill explained that in a future study, it would be beneficial to patients if she could increase rehabilitation tasks alongside the MI sessions. In her role, she described that she would have liked to give patients more worksheets to increase the overall input from SLT. She felt if she could increase an individual's motivation to engage in rehabilitation through MI, she could support their progression by providing them with the tools to do so. In providing patients with SLT worksheets and related activities whilst they engage in MI, she may be able to improve a patient's communication. She felt this would benefit patients by reducing the waiting time to receive input from SLT teams. Her point is illustrated in the following quote,

> *"you're applying MI but also … if they're motivated to do it and you've got the work there then it's even better still isn't it they're gonna move on a bit faster instead of having to wait around to be seen"*

Objective 3: Issues in training and support of therapists providing MI to patients with communication difficulties.

Characteristics of the individual

Self-efficacy

Feedback from MI supervisor

As part of the support package following initial training, Jill received on-going support from trial supervisors and MI trainers. Jill found it was helpful to have additional support and feedback from her MI supervisor throughout the trial. The supervisor was able to listen back to voice files from sessions with patients with normal communication as well as sessions with patients with communication difficulties. She felt this feedback gave her added support and confidence, identifying what she was doing well in sessions, as well as how she could improve. This feedback helped build her self-efficacy.

Process

Reflection and evaluating

Most useful training

The most useful part of training for Jill was having the opportunity to practice MI skills. This included rehearsing MI strategies on other staff or with practice patients prior to seeing 'real' patients. She explains that this practical aspect of training was important to build confidence, and that future studies should allow for more of this type of training.

Summary

In summary, this section has captured the views of the feasibility study from the therapist delivering MI to patients with moderate to severe communication difficulties. The therapist, Jill, expressed her perceived barriers and facilitators within the trial, as well as suggestions for future studies.

Jill viewed the trial positively, considering the benefit to her in a professional capacity in developing her skills. This has had a subsequent impact on her clinical role, where she has since been able to use her MI skills with other patients. She also felt the trial was beneficial to patients in a therapeutic sense. Her perception is that all patients were able to benefit from the MI sessions, including the patient with the most severe communication difficulties. She felt that while the benefit to some patients may not be obvious, there was still a benefit. This included if the therapy reduced social isolation which may have occurred if they did not participate in MI. Although this reflects the view of the therapist, reducing social isolation was not the aim of MI, and this may reflect the therapist's limited understanding of the aim of the intervention. Furthermore, the therapist' belief that patients may not have benefitted from the intervention, particularly in the case of John, may have influenced her delivery of sessions. Implementation research has shown that staff sense of powerlessness in continuing to deliver an intervention which they do not perceive a benefit may impact on the quality of care delivered (Laker et al. 2014). In perceiving both Joyce and Mary to have benefitted from the intervention more obviously, the delivery of their sessions may not have been limited in the same way.

Jill identified a number of facilitators and barriers to the intervention. Facilitators focused on the level of therapist support, as well as her skills, experience and the impact these issues had on her confidence.

Jill felt support from the wider team, as well as feedback from supervisors facilitated her role in the study. The concepts of ‘teamness’ as well as feedback on trial goals are both identified within the CFIR as key constructs which influence implementation of a complex intervention. Where a sense of ‘teamness’ or ‘community’ are established, implementation effectiveness may be improved (Edmondson et al. 2001).

Jill felt her skills and experience of working with patients with communication difficulties facilitated her role; providing her with confidence that she was able to demonstrate in the trial. She felt this would not have been the case for a therapist who had no experience of speech and language, or of working closely with such patients. She identified that a future therapist should have a background in speech and language, to provide them with an increased level of confidence in working with this group of patients.

On reflection of her own skills and her delivery of sessions, Jill felt she would not have changed her session delivery. She felt that any variation in sessions may be the inevitable variability individuals experience day to day. However, the therapist here is underestimating the impact she may have on sessions and it appears that Jill has not considered the impact of her use of communication strategies on session variation. She fails to acknowledge the impact she as the therapist may have had on maintaining the MI content and overall spirit of the session through both her verbal and non-verbal communication, including the use of communication aids. This lack of insight emphasises the importance of impressing upon therapists the influence they have on sessions. In particular for this group of patients, were the correct use of communication strategies may alter the outcome of sessions. This could be discussed during training and throughout a trial to ensure therapists remain self-aware. In particular, this finding suggests it is crucial to ensure therapists are aware that they have the ability to drive the method of communication in sessions, which a patient may not feel able to do. Therapists must therefore ensure they are following recommendations of communication strategies as advised by either the patient or SLT team when delivering sessions.

In relation to communicating with patients, Jill felt the adaptations of MI she used in sessions worked successfully. She felt the delivery of MI using various approaches allowed the MI to be delivered in a suitable method for each patient’s needs. She felt this allowed patients to communicate on a level they could engage with. The ability to adapt MI to meet patient needs has not been demonstrated previously in stroke patients. However adaptation of MI delivery has been demonstrated in other clinical groups. In a feasibility study providing MI to patients with learning disabilities to address alcohol consumption (Mendel and Hipkins 2002), the delivery of MI was adapted. Presentation of the session content was altered to include visual aids, including a visual scale allowing patients to weigh up positives and negatives about their problem behaviour. A similar approach was used in this study which was shown to work successfully.

As well as identifying facilitators to the study, Jill identified a number of barriers to the intervention. She felt that from the patient perspective, having a busy schedule in the early stages post-stroke made it challenging to organise time for a MI session in their weekly plans. The busy schedule of patients at this early stage is mainly due to stroke team following recommended guidelines of providing the patient with 45 minutes of therapy per day (RCP National Clinical Guidelines for Stroke, 2012, p.80). With various teams competing for the patient's time, in addition to patients experiencing fatigue or being too poorly to engage in rehabilitation at this early stage, it is understandable that finding time for another form of therapy was difficult.

On a practical level, finding suitable space for a session which allowed a private and quiet setting for the MI session was challenging. This was the case whether sessions were held on the stroke ward or in the patient's home.

The therapist was able to make a number of suggestions for future trials exploring this area. She felt that while MI was valuable to patients early post-stroke, there may be a benefit of widening the criteria of the therapy to be available in the later stages post-stroke. She felt this may address some of the difficulties experienced by patients at this later stage which may not be present in the acute phase. Previous research with stroke patients with normal communication suggests that the most effective intervention period is early post-stroke (Hackett et al. 2008a) and if interventions begin earlier this may reduce later depression.

Finally, Jill made recommendations for future studies, suggesting that rehabilitation teams should have more input during the period patients are engaging in MI. She felt that if the MI sessions were able to increase the motivation and engagement in rehabilitation, it may benefit patients to have more rehabilitation to engage in. She spoke in particular about SLT teams on this topic, suggesting that patients should be given increased worksheets or activities whilst also participating in MI in order to maximise on the patient's motivation to work and make progress. It should be considered however that as mentioned previously, time for patients in this early stage post-stroke is often full of activity due to the competing rehabilitation teams, therefore the reality of providing additional rehabilitation during this stage may be difficult.

6.6 Strengths and Limitations

The results of this chapter have a number of strengths and limitations. Firstly, one strength of the results of this chapter is the ability to understand the views of staff, with the capacity to take in to account the wider context and workplace environment, and the impact these factors may have on staff views. In considering these issues, the complex nature of work based relationships and systems, such as staffing levels or training and support can be examined. In utilising one-to-one interviews, staff may have felt able to openly discuss their individual thoughts and experiences which may not have been possible in a group interview setting. However, this method of data collection may also have been a limitation as described below. Secondly, a strength of the findings presented is their level of validity. Both the author and another research coded the interviews and used the CFIR framework for interpretation of results. Both researchers agreed where codes and individual quotes were placed within the framework. This highlights the validity of the findings in that agreement was mutual and reduces the possibility for the author's personal biases to influence interpretation. Finally, while predictions cannot be made based on these findings, the results provide an understanding of the facilitators and barriers of the research project, which can inform the design of future studies. However, despite these strengths, there are also a number of limitations to these results.

There are a number of possible weaknesses to this study. Firstly, interviews were used partly for pragmatic reasons, in order to minimise the burden on hospital staffing if staff were group interviewed. However this method may have been a limitation. For example, all but one of the staff interviews were carried out by the author. In knowing that the topic of the interview was the author's research project, it must be considered that staff felt unable to voice their true opinion. Further, group interviews may have allowed staff in similar roles to discuss their shared experience (King and Horrocks 2010). Therefore using a different method of data collection may have influenced the findings.

A further weakness is that although the results presented in this chapter reflect the views of staff interviewed from this research project, the findings cannot be generalised to wider contexts, such as other hospitals, or even other staff working on the same stroke ward. The findings may inform future studies but they do not provide definitive information and would require further exploration and validation.

6.7 Chapter Summary

This chapter has presented results from interviews with staff involved in the MI trial, providing an understanding of staff perceptions of identification and screening patients for the trial, concerns of working with patients with communication difficulties pre-trial, and a review of barriers and facilitators and views of training on completion of the trial. The next chapter will discuss the findings of the thesis, summarising previous chapters. The findings will be discussed in relation to previous research evidence. The limitations of the overall thesis will be highlighted, and recommendations for future research made.

Chapter Seven: Discussion

7.1 Introduction

This thesis has reported an exploration of the feasibility of delivering MI to patients with communication difficulties after stroke. The aim of the research was to explore the potential for widening access to motivational interviewing for patients with moderate to severe communication difficulties. This entailed exploring the level of communication ability patients require to participate in MI sessions, how MI can be delivered by ward (non-psychological specialist staff), and any equipment, adaptations, or training which may be needed to successfully deliver MI.

In this chapter, the results of the series of studies will be summarised and discussed in relation to previous research. The wider implications for the findings will be discussed, with recommendations made for future studies. The strengths and limitations of the thesis will be highlighted and finally, the element of originality provided by the thesis will be summarised. The discussion will:

- Examine the existing literature on psychological interventions for patients following stroke
- Appraise the screening tools, comprehensive language assessment tools as well as mood screening tools suitable for use in stroke patients with communication difficulties.
- Examine the minimum level of communication ability required for patients after stroke to participate in MI;
- Describe the adaptations of MI required for patients with communication difficulties;
- Describe how communication ability may impact on MI;
- Identify factors influencing recruitment and consent of patients with moderate to severe communication difficulties;
- Compare staff views of the barriers and facilitators to providing the intervention;
- Describe the skills, training, and supervision required as an MI therapist working with patients with communication difficulties.

The research was prompted by an integrative review of the literature on psychological interventions for patients with communication difficulties after stroke. The review highlighted the importance of psychological interventions in preventing depression after stroke, in particular for patients with communication difficulties. Only a small number of studies evaluating psychological interventions after stroke have been carried out. Often these studies exclude patients with communication difficulties leading to a lack of evidence of effective interventions for these patients. Many of the studies which have included patients with communication difficulties have been methodologically flawed, they have included small samples, so are often underpowered, and participants have not been randomised to the intervention. Those that have often have not included an attention control (AC). This may be because establishing a suitable AC is particularly challenging for complex rehabilitation interventions, such as psychological interventions, where the 'active' component cannot be easily isolated. Without an AC we do not know if the observed changes in mood could be a temporal effect (spontaneous recovery), a placebo effect (attention) or a true therapeutic change attributable to the intervention. As a result several have failed to detect a significant benefit to mood.

One study which did include some patients with mild to moderate communication difficulties demonstrated MI had a beneficial effect in patients' mood early after stroke. A secondary analysis of data from the trial showed that those with communication problems may have benefitted more from the intervention. The analysis identified that no individual component of communication as measured by the FAST was associated with the change in mood. This may suggest that individually, the different aspects of communication do not have a significant impact on mood at three-months. However, whilst the FAST is a commonly used tool in detecting the presence or absence of communication difficulties, perhaps it was not sensitive enough to detect specific aspects of communication ability that may interact with mood for those engaging in MI. This finding emphasised that in a future feasibility trial, an additional comprehensive tool to measure communication was required.

The need to identify a more comprehensive tool led to three of literature reviews. The reviews aimed to identify a suitable aphasia screening tool and comprehensive language assessment. Furthermore, a literature review examining tools to measure mood by patients with aphasia and their carers was also undertaken. The results of the reviews emphasised that many tools validated in stroke patients are then administered to those with communication difficulties, without further validation. So researchers presume that the tools are measuring mood as accurately. While there are tools which have been adapted for and validated in patients with communication difficulties, those which are not should be used with caution, as there is no way of knowing whether findings from these tools can be generalised to this patient group. The reviews aided the selection of suitable tools for use in the feasibility study.

7.2 Compare pre-trial perceived TA staff views of the barriers and facilitators to providing the intervention

Interviews with MI therapists before the trial began explored staff views of their involvement in the intervention, in particular identifying their concerns. In addition, therapists were able to feedback on their experience of the training process, and their perceptions of required skills of future therapists in their role.

Understanding how staff perceive change may be particularly useful, as perceptions can influence the successful outcome of change. If staff have a shared belief in their collective capability to implement a change, then it is more likely to be successful (Weiner et al. 2009; Weiner. 2009). Overall, the therapists were supportive of the study, appreciating the need for psychological support for patients after stroke and for this to be available to patients with communication difficulties.

Despite support for the study, they identified a number of perceived barriers. Many of these concerns focused on potential problems in communicating with the patients. All staff felt certain aspects of sessions could be adapted, and were able to provide suggestions of how they would accommodate such patients, drawing on their usual practice when working with such patients. Staff were also able to draw on their MI training, making suggestions of how MI strategies could be adapted to suit patients with increased communication needs. These included the suggestion of increasing summaries to ensure the patient is following the conversation and remembers the key points discussed.

Several issues were raised including that of staffing. The difficulty of holding dual roles of Therapy Assistants and MI therapists, was shared by all three therapists. Holding a dual role made it difficult to ensure suitable TA cover was in place when the staff were carrying out MI duties. Due to their specialisation within their TA role, therapists could not always replace one another. Therefore TA staff could only be replaced adequately by another TA specialised with the same areas. Limited resources are often identified as a barrier to implementing change. This is a consideration for future studies which would need to examine staff role compatibilities to ensure suitable cover was available.

A second barrier occurring from holding dual roles was in finding a suitable balance of their time between the two. When providing MI sessions to patients with normal communication, they often found it difficult to make time for MI sessions. Due to time limitations, they would feel obliged to prioritise their TA roles and the MI would suffer. Therapists felt that in order to address these difficulties, a future study should consider assigning a full-time MI therapist. They felt this would alleviate difficulties of having to carry out other duties whilst maintaining clear role boundaries for both staff and patients. They also felt that having a full-time MI therapist would increase self-efficacy due to devoting more time to deliver MI sessions therefore practicing MI skills.

Another barrier to holding MI sessions was the difficulty of finding time within the patient's week at this early stage post-stroke. Various rehabilitation teams required time with patients, including physiotherapy, occupational therapy and speech and language teams. In addition, some patients may require visits from carers throughout the day. This difficulty was not anticipated prior to the study. However on completing the study, patients provided feedback stating they preferred twice weekly short sessions of MI, and yet it was at times difficult to arrange a suitable time for MI. In addition, organising MI sessions was especially difficult if patients were unable to plan their time independently and did not have a primary carer to book sessions. This led to complications, for example sessions being unintentionally double-booked with another therapy session, or family visits coinciding with MI, leading to MI sessions being cancelled and rearranged. The difficulty of finding time for MI may highlight the lack of emphasis placed on psychological therapies within stroke rehabilitation services. Ideally, psychological interventions should be considered equal to other rehabilitation services, with equal time allowed for this form of therapy. However, despite RCP guidelines stating this, psychological interventions are known to be inconsistently delivered compared to other rehabilitation therapies.

In summary, the staff identified several barriers to providing the intervention that are possible determinants of successful implementation of change include task knowledge, resource availability, and situational factors (Weiner et al. 2009; Weiner. 2009). Confidence in managing change is expected to by high when organizational members know what to do and how to do it, when they perceive they have the resources they need to implement the change, and when they perceive timing as favourable. Whilst identifying these barriers, they were able to consider possible changes to reduce these barriers. They were also able to see the wider value of the study. As described in the CFIR (Damschroder et al. 2009), the staff support and perceived need of change to bring about the intervention is indicative of successful implementation (Feldstein and Glasgow 2008).

7.3 Describe the skills, training, and supervision required as an MI therapist working with patients with communication difficulties

The interviews also explored therapists' views of the training and supervision package they received, as well as skills or attributes they felt were important for future staff carrying out this role.

The staff identified a number of positive issues from the training and support they received. These included the benefit of practicing MI skills and the importance of supervisor feedback. All staff felt that it was a benefit to be able to practice MI, whether with each other or with practice patients. Following this, receiving timely feedback from supervisors around session delivery was another facilitator to their new role. Both issues were identified as increasing self-efficacy. Staff self-efficacy was considered as crucial to carrying out the role of MI therapist. This supports previous findings of studies exploring the most effective training for MI therapists (Miller et al. 2004), which indicated that coaching and/or individual feedback following initial MI training was able ensure the retention of MI skills leading to maintained MI proficiency.

However, despite a lengthy training process including both theoretical and practical MI training, as well as continued support and supervision, all therapists felt they lacked confidence in their ability. This was the case despite all staff reaching proficient levels of MI in training sessions. As has been previously discussed in Chapter Six, this was despite supervisors assessing practice MI sessions and all therapists reaching threshold proficiency scores using the MISC. This disparity between ability and self-efficacy has been shown in studies evaluating MI training (Miller and Mount 2001; Miller et al. 2004), suggesting that rather than lacking in ability, the lack lies in staff confidence levels and beliefs in their ability. This discrepancy remained throughout the study, suggesting therapists may require substantial experience in the role before self-efficacy matches competency levels.

The therapists identified features which they felt were important for future therapists in this role. These included the ability to cope with the emotional aspects of MI sessions, having prior experience of working with stroke patients, and the ability to plan and organise time and workload. The importance of genuineness was identified as an important factor for delivering sessions, with the recognition that patients would be aware of staff who genuinely were interested and those who were not. The interpersonal skills of MI therapists has previously been shown to be crucial to MI sessions, having a direct impact on patient collaboration in sessions (Moyers, Miller & Hendrickson 2005). The way of being with the patient, or overall MI spirit is emphasised as more important that specific MI skills (Miller and Rollnick 1991). The training period for new therapists may be crucial for ensuring therapists are aware of the importance of MI spirit, and the impact this may have on sessions.

Following initial staff interviews, the feasibility study commenced, providing MI sessions to patients with moderate to severe communication difficulties.

7.4 Examine the minimum level of communication ability required by stroke patients to participate in MI

MI was delivered to three individual patients with varying degrees of severity of communication difficulties. These single patient case studies are a key focus of this thesis. The results suggest that MI can be successfully delivered to patients with communication difficulties (levels 3, 4 and 5 (moderate, moderately severe, and severe communication difficulties) of the COAT).

Even the patient with the most severe communication difficulties was able to successfully participate in MI, with the majority of sessions reaching high MI consistency. Sessions appeared to have a higher MI consistency when the appropriate aids and adaptations for communication difficulties were utilised by the therapist. These included Talking Mats, the visual rating scale, and using multiple methods of expressing a message. When these strategies are not utilised, MI consistency was lower. Aids and adaptations for communication difficulties are especially important for patients with severe communication difficulties. However, as a patient's communication ability improves, the importance of using aids and adaptations for communication difficulties to achieve MI consistency becomes less clear.

However, factors influencing MI consistency and MISC ratings are multi-factorial and communication ability is only one factor. A lack of staff confidence and limited ability to deliver MI may have impacted on MI fidelity in sessions. The patient with the most severe communication difficulties had the lowest MI consistency in sessions, however he was also the first patient recruited to the trial. The patient with the mildest communication impairment in sessions also experienced the most MI consistent sessions, however she was also last to be recruited into the trial. This may have allowed the MI therapist do develop her skills and build her confidence of working with patients with communication difficulties, possibly increasing her MI skills and consequently the MI consistency and global MISC ratings of sessions.

7.5 Describe the adaptation of MI in sessions

A number of adaptations to the delivery of MI were made by the therapist. The adaptations were tailored to meet the needs of the individual patients, and stemmed from the SLT baseline assessment. Following the CAT, the SLT was able to provide a number of communication suggestions to tailor MI therapy to the patient abilities and challenges. These were discussed by the author and MI therapist in order to formulate a concrete translation of the aids and adaptations for communication difficulties into the MI session.

For all patients, basic adaptations included slowing speech, allowing increased time for patient responses, and additional use of gesture and visual aids to reinforce verbal messages. Table 7.1 displays the aids and adaptations for communication difficulties used in sessions.

Table 7.1: Aids and adaptations for communication difficulties utilised in MI sessions

Aids	**Adaptations**
Talking Mats	Slow pace of conversation
Visual rating scale	Allowing additional time for patient response
Pen and paper	Increased use of gesture
Photo book	Increased reflections
	Reflections of NVB
	Increased summaries

NVB=Non-verbal behaviour

The ability to adapt aids and adaptations for communication difficulties to individual patient needs is of great importance. Tailoring aids and adaptations for communication difficulties and adaptations of MI to each patient ensures that patients can engage in the therapy, whilst also finding the delivery of sessions acceptable. The emphasis of adapting strategies to meet patient needs has previously been highlighted in research with patients with communication difficulties (Dalemans et al. 2009). This study used pre-structured diaries to allow patients to document issues arising throughout the time leading up to sessions, the content of which could be discussed in interviews. Diaries contained structured sections relating to key aspects of daily life, including domestic life, and relationships. Patients could document in the diary issues to be discussed, therefore reducing the pressure to verbalise during sessions. This also allowed the patient’s caregiver to have input on the patient’s developments. Furthermore, patients were able to engage using their chosen method of communication; through writing, drawing or stickers; therefore demonstrating the tailoring to patient needs. However, one drawback of this approach is that patients tended to focus on practical developments; whether they had completed a task; and did not focus on emotions attached to their experiences. With respect to an MI session, this may therefore lack the emotional details required for sessions.

Visual aids were utilised for all patients, however they contributed a greater role to the patient with severe difficulties compared to those with moderate difficulties. For example, for the patient with severe difficulties, Talking Mats was crucial for communication. This visual aid allowed various pictures to reinforce verbal information in sessions. The use of the pictures within Talking Mats allowed the discussion of key issues for the patient including emotions, physical issues, hobbies and interests. Talking Mats allowed the patient to respond to questions, express views and overall engage in sessions. In addition, pictures from Talking Mats were supplemented with pictures chosen by the author and MI therapist which were deemed relevant to the patient. An example of this is that when one patient was close to hospital discharge and may wish to discuss this, pictures of various types of living accommodation were sourced. In initial MI sessions, Talking Mats was set up for all patients, however following patient feedback and observation, this strategy was only used where required. The successful use of Talking Mats to both convey and allow response to information, as well as providing several methods of expressing the same information, is consistent with previous research findings. The CALMS study utilised a similar technique to aid delivery of therapy sessions, and it has also been shown to be a successful technique to engage patients in research (Dalemans et al. 2009).

In my study, another aid for communication difficulties was the use of the visual rating scale, which was used by all patients. The scale was initially planned to be used to ask patients the standard MI scaled questions of importance and confidence. Patients would be able to point to the scale from 0-10 to indicate how important a particular goal was and how confident they were at achieving it. While the scale was used in the conventional way for all patients, over the course of the sessions, the use of the scale widened to allow responses to open questions. This appeared particularly effective for the patient with severe communication difficulties who, unlike the patients with moderate difficulties, would not have been able to verbally respond to open questions, not only facilitating communication but also increasing the MI content of sessions. However, whilst the visual rating scale was useful as a communication aid to facilitate the conversation, it should not be used to measure importance and confidence over time in patients following a stroke. Previous research has suggested that stroke patients are unable to reliably use visual rating scales, in particular, patients with visual and cognitive deficits following stroke (Price et al. 1999).

In addition to visual aids, the SLT suggested adaptations to MI. One of these was to use a larger number of reflections in sessions. This strategy was utilised to reinforce points of conversation, whilst allowing the patient the opportunity to correct the therapist if a point had been misunderstood. For patients with a higher level of verbal expression, reflections could be delivered in a standard way; reflecting back what the patient has said. However, due to the expressive difficulties of the patients in this study, this technique was adapted. For all patients, there were occasions where the patient was able to express a point using either incorrect verbalisation, or through visual aids. Based on this interpretation, the therapist would reflect back what she thought the patient had been trying to express. As with a standard reflection, this conveyed the therapist's understanding of the patient, while at times adding emphasis to a patient statement.

For similar reasons, a high number of summaries within sessions were also encouraged. Summaries within MI are important as they communicate interest and understanding, but they also draw attention to important elements of the conversation. They can also be used to prepare the patient to shift attention by the therapist strategically selecting what information should be included and what to minimize or exclude. However, in patients with communication difficulties the use of summaries had the additional benefit of allowing clarification of points made by the patient to ensure the therapist had understood correctly. This is particularly important in patients with limited communication and concentration, as they may not have corrected an earlier reflection, so it allows an additional clarification point. They may also facilitate the focus of a topic by signalling when the discussion of one topic was finishing before moving on to a new one. Where aids and adaptations for communication difficulties had been used successfully, higher MI consistency of sessions was achieved. The increased use of summaries was recommended in a review of adaptations to the delivery of CBT for patients following brain injury (Khan-Bourne, Brown 2003). Despite the adaptations to therapy being in a different patient group, using increased summaries had a similar effect of focusing the conversation.

In order to gauge how successful these adaptations were, patients were asked for feedback about the session, including how the session was delivered. Further alterations were made where needed based on patient feedback. For example, the use of increased summaries was recommended for sessions with Mary. They were encouraged to signal the end of a topic before moving onto the next one, keeping Mary on track with the conversation. As a result, when this technique was used with Mary, she was able to express that she liked the therapist summarising what she had expressed. Mary felt the therapist had been listening to her and had understood her correctly, and commented on the calm pace of conversation this established. Using summaries, the therapist highlighted Mary's key points on an issue, allowing Mary to stay focused before the conversation moved on to another topic. These aids and adaptations for communication difficulties allowed MI strategies to be delivered in a format suitable for patient needs, and consequently high MI consistency could be achieved.

Adapting MI has not previously been explored in people following a stroke. However, there have been studies exploring adaptations of MI for other patient groups. In one pilot study, MI was explored in patients with learning disabilities and alcohol dependency (Mendel and Hipkins 2002). This study found that adapting MI to meet patient cognitive and communication needs was effective. This included a similar adaptation of visual analogue scales. Clients in this study were asked to place stickers along the visual scale to weigh up positive and negative points to alcohol consumption.

However in addition to achieving high MI consistency, for a session to be successful, the therapist must build a strong therapeutic alliance with the patient. A therapeutic alliance can be thought of as the collaboration between patient and therapist, which incorporates an emotional bond between the two, who hold a shared view of therapy goals (Moyers, Miller & Hendrickson 2005; Connors et al. 1997). The principles of MI, such as demonstrating warmth and empathy, are directly related to therapeutic alliance. This can be seen in the MISC manual in the description of therapist MI spirit. Rather than requiring a particular delivery, it is described as rating the therapist on more than "words and techniques" (Miller. 2000, p.3). In order to demonstrate MI spirit, the therapist must show a 'natural' and 'loving' approach, and should be 'attuned' to the patient. Therapeutic alliance can be achieved through various approaches, and is consequently difficult to teach to the same degree as MI skills. Therefore therapists can demonstrate high MI consistency but lack therapeutic alliance.

A lack of therapeutic alliance can be observed in some sessions, which while containing high MI consistency also have low global therapist/client interaction ratings. For example, we see this in session two with John. Overall MI consistency for this session is 90%, therefore reaching MISC expert level. The session has a high portion of MI consistent techniques and a low number of MI inconsistent behaviours. However, the MISC global ratings for this session in places fall below threshold levels (>5). In this session, the therapist MISC rating for MI spirit is 4. The majority of patient scores and collaboration scores fall between 4-5. These scores imply that although delivering a technically successful MI session, the therapist is struggling to establish a therapeutic alliance with the patient. The findings highlight that a successful session requires more than achieving high MI consistency. Again, difficulty in achieving therapeutic alliance may be linked with staff experience, skill and confidence. As the therapist continues in her role with the further two patient set of MI sessions, MISC ratings increase, suggesting she had built a strong therapeutic alliance with these patients. An alternative explanation is that therapeutic alliance may have been influenced by patient communication ability, as it was easier for the therapist to establish a strong therapeutic relationship with both patients who experienced less severe communication difficulties.

For MI sessions to be successful; meaning the therapist is highly MI consistent; the recommended aids and adaptations for communication difficulties identified by the SLT/patient must be followed. However, the strategies suggested by the SLT were often very similar to skills and techniques utilised in MI consistent behaviour, albeit the reasons for employing the techniques may be different.

Overall, it appears that there is a strong similarity between strong MI competence, and the aids and adaptations for communication difficulties recommended by the SLT. Therefore, despite the techniques being employed for different reasons; if a therapist is employing good MI competence, they are likely to be communicating well with the patient. However, good MI competence did not always indicate strong therapeutic alliance. Therapeutic alliance is crucial to achieving high MISC scores. Achieving therapeutic alliance is a complex and multidimensional skill as is the ability to teach and deliver it. It may be linked with staff personality, and confidence, as well as the ability to achieve MI consistency (Boardman et al. 2006), and from this study appears to be linked with patient communication ability.

7.6 Describe how communication ability may impact on MI

Despite suffering severe communication difficulties, patients can participate in MI with therapists achieving a high level of MI consistency. Communication difficulties as such were not a limiting factor of delivering a successful MI session; however, whether the therapist could adapt her delivery of the MI to suit the patient appeared to influence the MI consistency of sessions.

This was most clearly demonstrated with John. Due to his severe communication difficulties, one adaptation to MI delivery was to provide visual and verbal methods of delivering the same information. The success of this technique is demonstrated in session three, which contained the most open questions (n=17) supported by the use of the visual rating scale. This technique led to a high MI consistency of 95%, and most highly rated global MISC ratings for patient and therapist of 6. However, despite the success of this technique, the strategy was not applied consistently across sessions. Without this technique, John was unable to verbally express his thoughts. We therefore see in session four a lower number of open questions (n=5), with an even lower number of instances the therapist uses the visual rating scale (n=2). This perhaps contributed to lower MI consistency (71%) and lower global ratings, with most global ratings being 4-5.Therefore the use of aids and adaptations for the patient's communication difficulties may have led to higher MI consistency and global ratings.

The second patient case study, Joyce, experienced moderately severe communication difficulties when recruited to the study, but improved throughout the study, as was measured through the FAST and CAT. For Joyce, the relationship between the use of the visual rating scale and the levels of MI consistency and global MISC ratings is less clear. Unlike for John, there is no distinct relationship between aids and adaptations for communication difficulties and a successful MI session. This could be due to Joyce's improvement in her expressive communication, thus reducing her reliance upon visual aids. Joyce was able to identify and utilise strategies for herself, such as her use of gesture, or her ability to express her point verbally despite errors. It appears that regardless of the use of the visual aids, or perhaps due to her less severe communication difficulties, MI consistency across Joyce's sessions consistently reached expert level (>90%), with high global MISC patient and therapist ratings to support this.

It may be that for patients with very minimal verbal expression, such as John, there is greater importance on using the recommended aids and adaptations for communication difficulties in sessions. However, for patients with some expressive verbal ability, who despite impairment can express their point, there is less importance for the use of aids and adaptations for communication difficulties to achieve a successful MI session.

The dynamics and complexity of the interactions within the sessions was multi-factorial. Communication was one factor influencing sessions, however another important factor is the patient's life circumstances. Other serious life circumstances may influence the patient's ability or willingness to participate in sessions. Specific issues may include post-stroke level of physical disability, level of social support, financial or housing difficulties, all of which may be barriers to participation in therapy. An example of this occurred in the first case study. John had to adjust to the greatest life changes, including physical disability, change of housing, was unable to return to work and experienced altered social circumstances. He had the least successful sessions in regards to levels of MI consistency and MISC global ratings. The MI consistency of John's sessions ranged from 71% to 95%; therefore while expert levels could be reached, sub-threshold levels were also present. In addition, lower MISC global ratings of therapist, patient and their collaborative effort in sessions can be observed. While the use of suitable communication methods appears to be related to MI consistency and MISC global ratings, these scores may also have been impacted upon by the wider life adjustments John experienced. Conversely, the patients who were able to return to their life circumstances as before the stroke experienced greater MI consistency in sessions, varying from 88% to 100%.

John's difficulty in adjusting to changes in his life circumstances may have prevented his full participation in sessions, or alternatively made it increasingly challenging for the therapist to work with the patient. John was struggling to accept these major changes in his life circumstances, and his main concern was returning home and therefore his focus in sessions. Due to his persistence with this topic, and possibly his severe communication difficulties, the therapist found it difficult to move John on to other subjects. In her struggle, she reverted back to her TA approach; instructing John on what he needed to do. This approach is in contrast to an MI consistent approach and therefore reduced MI consistency and MISC ratings of sessions. The therapist's difficulty in maintaining MI consistency, and being able to alternate from TA to MI therapist, is perhaps indicative of the potential difficulties of using MDT staff in this role. Using an MI approach; with open questions and active listening skills; was sometimes not regularly used in TA roles, as was discussed in the staff interviews. Therefore maintaining MI skills was a challenge.

A further difficulty of using a TA as MI therapist is that these staff are more junior in their role within rehabilitation teams. In this role, staff are provided with instructions on therapy sessions by more senior members of the team. In this respect, TA staff may not have the experience of working more autonomously; therefore managing patients without direct instructions may have been a new and perhaps difficult experience. While this issue was raised by therapy staff in the pre-trial interviews, this was not expressed as a barrier from the therapist who delivered MI sessions in the feasibility study. This difference may be due to her prior working relationship with patients through her TA role.

In order to reduce these difficulties, a stepped-care approach may address some of these issues. Consistent with NICE recommendations (2009), a stepped-care approach to MI may allow an individualised and holistic approach to treating patients. Utilising a stepped-care model would allow patients to receive the most appropriate level of support based on their level of communication ability, or other complex life circumstances. Figure 7.1 indicates an example of how this model may be structured.

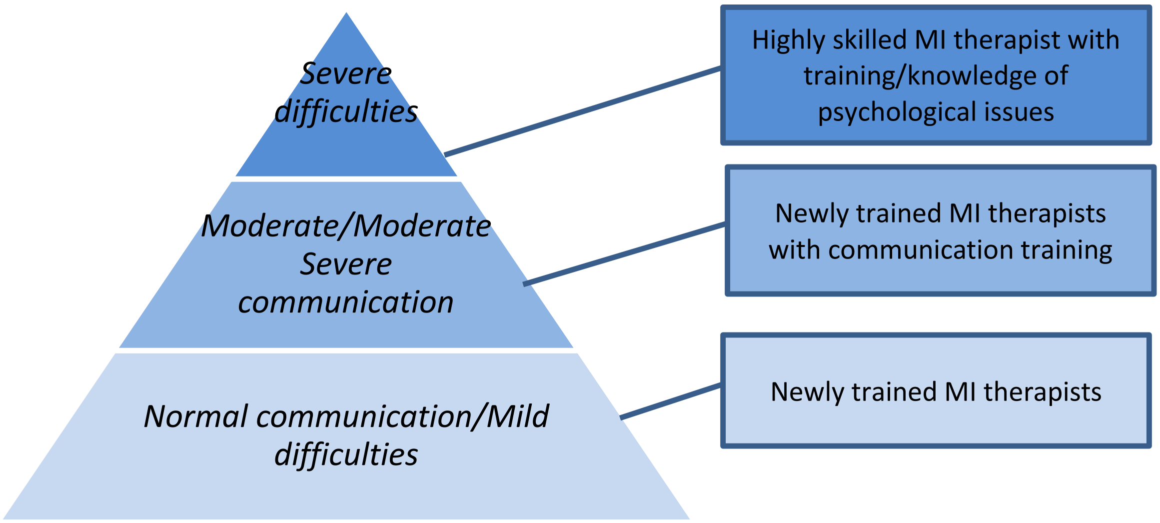


Figure 7.1: A proposed stepped-care model of MI

Using this model, patients with normal communication, or mild communication difficulties and few life changes would receive treatment from a level one therapist, trained in basic communication and MI skills. Whereas those with moderate to severe communication difficulties and more complex needs would require a more highly trained and competent therapist. For example, those with normal communication or mild communication difficulties could be seen by a newly trained therapist, who should be able to manage these more straightforward and manageable cases. Patients such as Joyce and Mary, with mild to moderate communications difficulties could be treated by MI therapists with experience of delivering MI to those with normal communication; however they should also have additional training in communication skills. Those patients with more complex needs and circumstances, such as John, who are at the top of the model, should only be seen by a more experienced MI therapist with advanced communication training.

The three case studies were a key focus of the feasibility study. Other issues explored included difficulties in recruitment. In order to understand the issues, staff were interviewed to explore the challenges of recruiting patients with communication difficulties to the intervention. The interviews identified factors influencing recruitment of patients with communication difficulties to the study. The interviews will be explored in more depth.

7.7 Identify barriers and facilitators to the intervention on completion of the study

In order to establish whether the views expressed by therapists' per-trial remained the same on completion of the trial, therapists were invited for a follow-up interview. However, due to staff attrition, only one therapist carried out MI sessions with patients with communication difficulties and was therefore eligible for a follow-up interview. This interview explored the experience of the Therapy Assistant delivering MI to patients with moderate to severe communication difficulties. This interview aimed to identify the therapist's perceptions of what factors facilitated an effective MI session, barriers and facilitators of delivering sessions, and thoughts on the training, support and skills required for future MI therapists.

The MI therapist felt the intervention was worthwhile, explaining she felt it was important that patients after a stroke have someone outside of their friends and family, someone they feel is impartial, to talk to. The staff belief that the intervention met patient needs, in addition to their perception of the importance of the intervention, may have led to successful implementation. These concepts are described within the CFIR (Damschroder et al. 2009) as mediating factors in implementing an intervention, with both factors aiding the implementation.

Building a rapport with patients was identified as a facilitator to delivering sessions. The therapist felt that her previous contact with patients through her TA role allowed her to build a close rapport with patients quickly, and this was strengthened over time. The initial study protocol planned for numerous therapists to provide MI to patients, who would see patients only as MI therapist and not additionally through their TA role. This was designed to minimise potential contamination effects. However, due to staff attrition, the study procedures were forced to adjust from the original protocol to accommodate these changes. This led to the MI therapist working with all three patients across both TA and MI therapist roles. While Jill identified this as a facilitator, this introduced potential bias into the study.

Confidence and self-efficacy was a perceived facilitator of sessions. The factors contributing to gaining confidence and self-efficacy were having a prior knowledge and experience of SLT, the ability to practice MI skills during the training period, and finally, gaining feedback from supervisors regarding the MI content of observed/recorded sessions. Holding a background in SLT was identified as an important skill for future therapists of this role to hold. This prior experience gave confidence in approach and communicating with patients with communication difficulties. However, a future study would need to address the limitation of having only one therapist who worked within an SLT support role delivering MI sessions. A future study could therefore explore the differences between TAs from a range of specialisms. With input from SLT prior to commencing MI sessions, it may be that therapists who are not specialised with SLT teams are equally able to provide MI to patients with these needs.

The therapist felt that the trial had been positive for her own professional development, but also beneficial for all patients involved, even for the patient with the most severe communication difficulties. She explained that while the MI may not have made a clear benefit, she felt the contact received through MI sessions reduced isolation which may otherwise had a negative impact on the patient. She considered the sessions beneficial for the two patients with moderate difficulties, who had verbally given positive feedback. However, while insightful to understand patient views, the feedback may be limited because this was collected by the therapist or author. Due to this, patients may have felt unable to provide criticisms of the intervention. A future study should consider follow-up measures to collect information on patient views of acceptability of the intervention to allow more objective understanding of patient views.

Despite MI variability across sessions as well as across patients, the therapist did not acknowledge her potential role in accounting for this variability. This perhaps highlights the lack of self-awareness the therapist placed on her role, and may be linked with low confidence. Future studies should ensure the emphasis of the therapists' potential to impact on sessions during training as well as through continuous support throughout a trial. This may ensure therapists can actively maintain appropriate use of aids and adaptations for communication difficulties to maximise the MI content within sessions.

7.8 Identify factors influencing recruitment and consent of patients with moderate to severe communication difficulties into the feasibility trial

In order to explore difficulties in recruitment, the study screening log was examined. This information was supplemented by interviews with staff involved in screening and recruitment.

The screening log data emphasised the small number of patients meeting study criteria. One reason for exclusion of patients was the large number of non-stroke patients being admitted to the acute stroke unit. In addition, many patients had additional complications excluding them from the trial, including sickness, or changes to communication.

Similar findings emerged from staff interviews, where staff were able to identify factors they felt influenced recruitment to the trial. Again, the high number of non-stroke patients being admitted to the stroke ward was highlighted, which they felt negatively impacted on recruitment. This finding is perhaps indicative of the policies around ensuring patients admitted to accident and emergency departments are seen, treated, admitted or discharged within four hours. It may be that hospitals are under pressure to admit patients to the stroke ward, even if is not the most appropriate place to ensure they are not in breach of targets. Furthermore, clinical diagnosis of stroke is complex and recruitment staff may lack the confidence to approach patients without a firm diagnosis. This difficulty is therefore not unique to this trial, with any acute stroke trial facing similar difficulties.

There were fewer patients admitted to the stroke ward meeting the study criteria than anticipated based on previous research (Pedersen et al. 1995). This was due to patients often having co-morbidities and additional complications, including being severely ill in the initial stages post-stroke, or experiencing associated problems such as receptive difficulties or cognitive problems which may impact on capacity. Other patients who initially met inclusion criteria were then excluded due to experiencing rapid changes in their communication ability, either improving or declining in ability. In addition, these complications made the screening process more difficult for the less experienced screening staff, and led to some patients failing to meet inclusion criteria and therefore being excluded from participation. Alternatively, due to the nature of the study, patients with severe communication difficulties were required; therefore one reason for not recruiting these patients may be that screening staff did not have the confidence to approach these patients, and who consequently may have been unnecessarily excluded.

These recruitment difficulties raise two issues. Firstly, there may be fewer patients than initially anticipated who were able to meet the inclusion criteria, specifically those with relatively intact receptive communication. For patients to engage in a talk-based therapy, an adequate level of understanding is essential not only for initially consenting to the study but also for participating in sessions.

Secondly, the level of staff confidence in assessing suitability of patients with communication difficulties may have impacted on recruitment. This issue was raised by both staff, with the less experienced screening staff expressing her concerns of accurately assessing patients with potential receptive difficulties. Despite explaining that she would consult other members of the team for advice when unsure of a patient’s suitability, this member of staff found her lack of experience with patients with communication difficulties reduced her confidence in assessing whether a patient was able to understand and retain information presented. The lack of confidence in carrying out screening may have reduced the staff member’s readiness to carry out the role. In viewing implementation change using Weiner’s theory of organisational readiness to change (Weiner. 2009) as described earlier in section 7.2, a further facet of change readiness is that of task knowledge. The model describes that change efficacy is expected to be high when staff feel know what to do and how to do it. Therefore it may be assumed that in this study, the junior screening staff may not have felt confident in her task knowledge, which may have therefore impacted on her change efficacy and overall readiness for change.

A different but related issue is that of staff concerns of the ethical nature of recruiting patients with communication difficulties. Staff from the wider stroke team felt concerned that patients with severe communication difficulties may become distressed if they participated in the study, and therefore felt it was unethical to approach these patients. This concern was present despite the process of informed consent being carried out, adapted for patients with communication difficulties. Patients were also able to discuss the study details with a member of the research team prior to consenting, a process shown to be most effective in ensuring the understanding of the consent process for research participants (Flory. 2004). These concerns highlight the complex nature of communication difficulties and their assessment, emphasising the need for all staff to be trained in working with this group of patients to ensure proficiency and confidence.

Some patients who declined to participate went on to discuss concerns with the screening staff, suggesting they still wanted to talk to someone. This discrepancy was also present in an early psychological intervention trial. When approaching suitable patients to potentially receive CBT after stroke (Lincoln et al. 1997), a large proportion (n=92/133) of eligible patients declined to participate. In a separate therapy trial, approximately a fifth of patients declined problem-solving therapy (House. 2000).

Staff also identified some patients who were reluctant to consent to the trial as they were overwhelmed by the intensity of rehabilitation after stroke. Patients reported being surprised by the numerous therapies they required following the stroke, and the time required. Patients felt they could not commit to the intensity of sessions on top of routine therapy. This concern is understandable considering the recommended therapy time of forty five minutes of rehabilitation per day for patients following a stroke, as recommended in RCP guidelines (2012, p.80). Although these guidelines are enforced to bring maximum benefit to patient rehabilitation, they also serve to create an intense period of activity for patients, who may also be suffering fatigue following the stroke. It is perhaps reasonable that patients may not wish to commit to further sessions during this early period. In a previous trial delivering a home based intervention (Goldberg et al. 1997), participant attrition was reportedly due to medical deterioration, loss of interest in the study, or difficulty scheduling appointments. These factors indicate some of the difficulties of providing an early intervention to this group of patients. Although reasons for declining participation are not documented in this study, there are a number of reasons which may account for patients' decision, and this is an area which requires further investigation.

As patients could be recruited at any time during the first four weeks of hospital stay, staff reported that monitoring patients over this period was time consuming and problematic due to the associated co-morbidities experienced by patients. Many patients had not recovered enough to meet criteria for the study, therefore were excluded. This situation occurred even for the three patients who consented to the trial, with two of the three experiencing illness in the early stages post-stroke which delayed consenting or commencing of MI sessions. These complications are especially common, especially in patients with communication difficulties (Hilari et al. 2010). However, the design of this study allowed patients to be monitored for a four-week monitoring phase prior to recruitment. Screening staff from the trial felt that this time frame was too early following stroke, suggesting patients were too ill during this stage, or were overwhelmed by the time demands of routine therapy. However, this system was based on a previous MI trial (Watkins et al. 2007) which also used this design. In allowing a four-week monitoring period, patients in the acute stages post-stroke have the opportunity to recover sufficiently, ensuring they are well enough to meet inclusion criteria and participate. It was therefore felt that a four-week follow-up period was appropriate.

Further justification for starting therapy early comes from a review (Hackett et al. 2008a) that indicated psychological interventions are most effective if initiated early post-stroke. However, this evidence is based on patients with normal communication post-stroke; therefore this time period may not be suitable for, or applicable to, patients with communication difficulties. An alternative procedure for future studies may be to extend the time of monitoring in the screening phase beyond four-weeks, allowing patients with difficulties such as reduced levels of consciousness or receptive communication problems to participate in MI if they recovered sufficiently. If a lengthier monitoring phase were introduced, for example of eight-weeks, there may be an increased number of patients who are able to participate and therefore potentially benefit from MI sessions. It is known that patients with aphasia are often excluded from studies or depression interventions, especially those with moderate or severe aphasia (Townend et al. 2007). Researchers should design studies to be as inclusive as possible and reflect the real world clinical situation. Research evidence to support the inclusion of patients with communication difficulties could then lead to future recommendations from the RCP.

A further challenge to screening was that the COAT did not reflect the complexity of the patient's communication ability. At times, patients may have abilities across categories, making it difficult to select one distinct group. However, as with any communication screening tool, the COAT is limited in that it can only provide an assessment of the patient's current ability. This may change significantly over a short period of time, and therefore support for this patient may require adjustment. Communication is not static in nature, and the approach required in using the COAT is one of continuous review and evaluation of patient needs and ability, as would be normal in clinical practice. Should a patient move up or down levels of the COAT, the support in place for MI sessions would therefore require adaptation to suit the patient. As occurred in the feasibility study, if screening staff are unsure of their assessment of a patient using the COAT, the wider MDT team should always be consulted for advice.

The level of staff engagement with the study is another attribute which may have contributed to recruitment levels. While not explicitly voiced by the screening staff, both staff expressed strong support for the nature of the trial. They felt the trial was important for patient care and that the research was necessary. These characteristics are discussed in the CFIR (Damschroder et al. 2009), with increased level of staff enthusiasm for the intervention, and perceived importance for patient care, improving chances of implementation of an intervention. While engaged in the study, screening staff felt that a future trial would benefit from having one individual trial coordinator. This would provide one point of contact for all staff. The current trial had a number of individuals responsible for different aspects of the trial. While communication was regular and clear with these coordinators, it was felt it would be improved with a single person in charge.

Implications for clinical practice

The National Clinical Guidelines for Stroke (RCP, 2004) state that patients should be screened for depression within one month of stroke, and that where possible, psychological support should begin while the patient is still in hospital (DoH, 2007). Ensuring all patients have access to these services is important, regardless of communication difficulties. The findings of this study support the feasibility of providing a talk-based therapy, motivational interviewing, to patients with moderate to severe communication difficulties following stroke.

Government guidelines do not specify the type of psychological interventions which should be provided. There are however recommendations that therapy should be adapted to take in to account patient disability or impairment (NICE, 2009). This study has provided evidence that with aids and adjustments for communication difficulties, MI can be successfully delivered with patients who have even severe communication difficulties. The findings indicate that when aids and adjustments are made to MI sessions, a high MI consistency could be achieved, along with high MISC global ratings.

To provide the most suitable support for patients with communication difficulties after stroke, prior to receiving any intervention patients should be assessed for their level of complexity. A stepped-care model could then be utilised, assessing whether patients have low mood on recruitment, their level of physical disability, level of communicative impairment, and social support available, and the level of support required tailored to the individual. Patients with a lower to moderate level of complexity, suffering moderate communication impairment and few life changes, should receive MI sessions from therapists with extra training in communication skills. However, patients assessed as complex cases, such as that of John, with severe communication impairment and various life changes, should only receive MI sessions delivered by an experienced therapist. Such therapists would have a greater experience of working with individuals with psychological problems and in building a therapeutic relationship with such patients, leading to successful MI sessions. Using this approach would ensure the needs of patients are met, that adequate support is provided to patients, and would allow staff to be allocated to patients based on their skills set and experience. A stepped-care approach would also be consistent with NICE (2009) guidelines for selecting appropriate interventions for depression.

7.9 Strengths and Limitations

This study has several strengths and limitations. Firstly, a strength of this study is that it has provided an in depth analysis of the delivery of MI in patients with communication difficulties after stroke. This study is the first of its kind to do so. This allowed for a comprehensive analysis of the sessions and an evaluation of strategies which can aid sessions, allowing recommendations to be made for future studies. While a number of studies report adaptation to therapy for patients with communication difficulties, few report in great detail what the adaptations entailed. This thesis has provided comprehensive descriptions of aids and adaptations used and the impact these had on sessions. This is a strength of the study in that this may inform future studies, allowing easy replication. Secondly, staff interviews allowed an understanding of the issues influencing implementation of the intervention. This provides a broader context to the study findings, and again allows for recommendations for future studies to be made.

There are a number of limitations to the study. Firstly, this was a feasibility study and therefore the small number of participants reduced the generalizability of results. In addition, all patients were recruited from a single centre NHS hospital within the North West of England. This may also reduce the generalizability of results, and findings must be interpreted with caution due to their lack of applicability to a wider population. Secondly, MI sessions were delivered by only one member of staff. While it was planned to have multiple therapists delivering MI, staff attrition made this impossible. As such, comparisons cannot be drawn across therapists and delivery styles. The MI therapist played a crucial role in sessions, and while the intervention appeared to be adaptable for patients with communication difficulties after stroke, the extent to which the therapist influenced the intervention remains unknown. However, this staffing difficulty is reflective of the current situation of NHS hospitals and the economic pressures faced by many trusts. Staff may leave and if replaced, the recruitment and training process may leave weeks or months before a suitable replacement candidate is in post. Staff attrition in this study may also be symptomatic of the band of staff recruited into Therapy Assistant posts. These posts recruit Band 3 or 4 staff. At this level, staff may seek career progression, and may therefore move post after a relatively short time. This may have contributed to the high staff turnover in the study. Nevertheless, despite the difficulty of staff attrition, this is the first feasibility study of its kind; therefore the information gained from this study remains valuable. Any future study should explore the influence of the MI therapist in the effective delivery of MI sessions.

Concerns for patient welfare from the wider clinical team may have been a limitation to the study, due to the lack of complete data which was gathered for this reason. In addition to the two screening staff, the wider clinical team were often consulted to facilitate the screening and identification process. The recruitment of this group of potentially vulnerable patients raised concerns with some members of the stroke team. A small number of staff expressed concerns in carrying out research with patients with communication difficulties after stroke. Some members of the team felt it was unethical to include patients with communication difficulties in a talk-based therapy which also required completion of the measures used in the trial. They feared that patients may struggle to participate and were concerned this may cause distress to the patient if they were unable to complete a measure or a therapy session. The staff appeared protective over their patients and understandably did not wish to cause unnecessary distress. This view point may highlight the difference in perception of the trial by different members of the stroke team. Staff directly involved in the trial believed the trial was meeting patient needs and was as such worthwhile and were able to facilitate implementation of the trial. Other members of the stroke team felt the study was potentially harmful to patients and were consequently uncomfortable in implementing the intervention. This fits with concepts of ‘patient needs’ presented in the CFIR (Damschroder et al. 2009). The point of the study was emphasised to reassure staff, explaining the importance of ensuring a potentially beneficial therapy is available to as many patients as possible, which this study would help establish. Despite this, some measures were not completed, and others not completed fully for this reason.

7.10 Future recommendations

The current study has shown that with the use of aids and adaptations for communication difficulties, it is feasible to deliver MI to patients with moderate to severe communication difficulties after stroke. However the study used only one therapist to deliver MI sessions. In order to address this weakness, further research should use multiple MI therapists to deliver therapy in order to compare therapist effects. In addition, having a full time MI therapist should also be considered to minimise disruption to staff workload and to increase therapist self-efficacy.

7.11 Element of originality

This thesis has explored the feasibility of widening inclusion criteria for the psychological intervention of MI in patients after stroke. The study demonstrated that with adaptations, MI can be successfully delivered to patients with moderate to severe communication difficulties. The study identified that recruitment of these patients may be limited by the co-morbidities associated with this group of patients. Very few studies of psychological interventions have been carried out in patients after stroke, and even fewer recruit patients with communication difficulties. This study therefore provides original knowledge of the adaptations required to provide successful MI sessions.

The thesis has also identified practical barriers and facilitators to delivering this intervention in the acute phase post-stroke, and has highlighted staffing requirements for future trials.

Finally, the study has provided original knowledge of staff concerns of working with such patients, as well as views of training required to carry out such a role.

Appendix 1: CINAHL Search strategy: Measures of aphasia post-stroke

#	Searches	Results
1	Aphasia exp/ or Aphasia, conduction, or Aphasia, Broca/ or Aphasia, Wernicke	3241
2	Communicative Disorders exp/ or Language Disorders exp/ or Speech Disorders exp	20488
3	Communication Barriers	3235
4	Stroke/ or Stroke patients	33941
5	Cerebrovascular disorders	59562
6	Language tests/ or Questionnaires exp/ or Scales/ or Speech and Language Assessment exp/ or Speech Production Measurement exp	260597
7	Psychometrics/ or Measurement Issues and Assessments exp	142099
8	1 or 2 or 3	23625
9	4 or 5	60415
10	6 or 7	349765
11	8 and 9 and 10	495
12	Limit to ‘all adult’	397

Appendix 2: Communication screening tools (supporting studies)

Aphasia Screening Tool	Study where screen is evaluated	Sample size/Age	Sample	Date of Screen	Optimal Cut-Off	Sensitivity/specificity PPV/NVP Overall efficiency/accuracy	Concurrent Validity (can test discriminate aphasia and non-aphasia compared to gold standard)	Test-Retest Reliability
FAST	(Enderby et al. 1987)	123 normative healthy controls 50 stroke	Stroke n=50 Aphasia n=20	8 days post stroke	(Aged 61) ≤25/30 (Aged 60) < 27/30	Sensitivity Not stated Specificity Not stated PPV= Not stated NPV= Not stated Overall accuracy= Not stated	Correlation coefficient ® between FAST and FCP based on assessment of acute patients (n=14 tested post-stroke 15.2 days (3-33 days post-stroke), r=0.87 <0.001). Tests within 3 days. Chronic patients tested (n=12, age =67.8 mean). Tested 1-3.5 years post-stroke) within 3-7 weeks of each test. (R=0.96, p0.001)	Test-retest reliability – Chronic patients (n=9) tested twice by same observer. Kendall's coefficient of concordance =0.97.
	(Enderby et al 1987)	19 acute stroke	Stroke n=19	7.6 days post stroke (mean)	sop for fast	Not stated		

		patients followed up Age 68.9 mean, 34-89 range Female n=11, male n=8	Aphasia n=					
	(Enderby et al. 1996)	25 stroke patients Age=67mean Male n=13	Stroke 25 Aphasia 25	3-6 weeks post stroke. All assessments taken within one week of each other	Sop for fast	Not stated	Sig correlation between FAST with MTDDA (short) and FCP ($p<0.01$)	Not stated
	(O'Neill et al. 1990)	Community study n=51 (mean age 81.1 years) Stroke study n=82 (mean age 80 years)	Stroke n=82 Aphasia n=	FAST taken at day one and day seven (figures reported here for day 7)	25 or 27 (recommended cut off points)	Sensitivity 100% Specificity 79% PPV=71% NPV=100% Overall accuracy=Not stated	Not stated	Not stated
	(Al-Khawaja et al. 1996)	Total sample n=50 men n=32	Stroke n=42 Aphasia n=45	Not stated. Both tests (FAST and SST) given immediately after one	FAST cut offs: 17 (if age 60 and under) 16 (age 61-70)	Sensitivity 87% Specificity 80% PPV= Not stated	Not stated	Not stated

		Age 53.9 mean (16-73 range)		another. SLT assessment also given.	15 (age 71 and over). SST cut offs: 17 (age 59 and under) 16 (age 60-69) 15 (age 71 and over)	NPV= Not stated Overall accuracy=86%		
SST	(Blake et al. 2002)	112 38-92, (Mean age 70.8, S.D. 12.2 years)	38-92, (Mean age 70.8, S.D. 12.2 years)	Within 4 weeks of admission to hospital	<15/20	Sensitivity 89% Specificity 88% PPV= Not stated NPV= Not stated Overall accuracy=Not stated	Not stated	Not stated.
	(Al-Khawaja et al. 1996)	Total sample n=50 men n=32 Age 53.9 mean (16-73 range)	Stroke n=42 Aphasia n=45	Not stated. Both tests (FAST and SST) given immediately after one another. SLT	SST cut offs: 17 (age 59 and under) 16 (age 60-69) 15 (age 71 and over)	Sensitivity 89% Specificity 100% PPV= Not stated NPV= Not stated Overall accuracy=90%	Not stated	Not stated

				assessment also given.	FAST cut offs: 17 (if age 60 and under) 16 (age 61-70) 15 (age 71 and over).			
UAST	(Thommessen et al. 1999)	37 75.5 years, range 45-96 years	75.5 years, range 45-96 years	3-8 days post stroke	Set score is not required	Sensitivity 75% Specificity 90% PPV=67% NPV=93% Overall accuracy=86%	Coefficient of agreement, weighted kappa, was 0.83. Shows strong agreement between nurse (UAST) and SLT (individual assessment) scoring.	Not stated
ScreeLing	(El Hachioui et al. 2012)	141 acute 66.61 years, S.D. 14.90, range 19-96 years. Chronic patients n=23, age	66.61 years, S.D. 14.90, range 19-96 years	11.66 mean (2.1 SD) days post stroke. Chronic patients mean 46 months post stroke	68/72	Sensitivity 94% Specificity 81% PPV= Not stated NPV= Not stated Overall accuracy 88%	Total ScreeLing score correlated significantly with Token Test (Pearson correlation =0.88).	Chronic group studied (n=23). Mean interval of 10 days. Bland-Altman plots indicate high agreement between the 2 assessments indicating stability over time.

		67.96 (SD=14.76). Healthy controls n=138. Age 55.74 mean (20.83 SD).						
	(Doesborgh et al. 2003)	63 (Male=43, Age=62, s.d. 16)	63 stroke patients	2-11 days post-stroke	65	Sensitivity 86% Specificity 96% PPV=Not stated NPV= Not stated Overall accuracy= Not stated	Not stated	Not stated
MAST	(Nakase-Thompson et al. 2005)	58 Not stated	Not stated	Within 60 days of stroke onset	<88/100	Not stated	Not stated	Not stated
ACE-RL	(Gaber et al. 2011)	59 Mean age 72 (S.D. 11.9 years)	Mean age 72 (S.D. 11.9 years)	From 3-7 days of stroke onset and on admission to the stroke unit	20/26	Sensitivity 90% Specificity 95% PPV=Not stated NPV= Not stated Overall accuracy= Not stated	Not stated	Not stated

LAST	(Flamand-Roze et al. 2011)	54 66.4 years mean, +/-11 (Sensitivity and spec carried out on 102 chronic patients, 50 with aphasia, 52 without aphasia as assessed by BDAE male=55). Mean age 61.6. (were 104 chronic patients to begin but 2 refused BDAE so then only 102)	66.4 years mean, +/-11	Within 24 hours of admission	<15/15	Sensitivity 98% Specificity 100% PPV= Not stated NPV= Not stated Overall accuracy= Not stated	Not stated	Not stated

Appendix 3: Comprehensive language assessment tools (supporting studies)

Tool	Paper administering tool	Tested in those **with** aphasia?	Normative data provided?	Date test given post-stroke	Administered by	Validity	Reliability (Test-retest)
Boston Diagnostic Aphasia Examination (BDAE)	(Crary et al. 1992)	Yes (n=47)	No	Range of 1-80 months	Not stated ('standard administration procedures')	Not stated (Factor analysis in comparison with WAB carried out)	Not stated
	(Larson et al. 2005) (Commands and repetition of phrases subtests were compared to RBANS Language Index)	Not stated (n=86-89)	No	Up to six months	Not stated	Convergent/discriminant validity studied. Found significant positive poor to moderate correlations between subtests of commands (r=0.38) and repetition of phrases (r=0.42) and RBANS Language Index).	Not stated
	(Tucker et al. 2012)	Yes (n=29)	No	Four years (range 0.5-15 years)	SLT	BDAE moderately to highly correlated with the Stroke Impact Scale (Duncan et al. 1999) (SIS) communication scale	Not stated
English Aachen Aphasia Test (EAAT)	(Miller et al. 2000)	Yes n=135	Yes n=93 (3 control groups; n= 24 healthy speakers, n=41 hospitalised non-stroke patients, n=28 neurological illness	Mean of 15.9 months post-stroke	SLT or those given 3 days+ test training	Differential validity (separating those with/without aphasia) Using ALLOC tool, overall agreement rate of 93.9% between EAAT and clinical judgement. Compared to clinical assessment, agreement rate was 79.2% when ratings for	Each subtest scored high reliability (Cronbachs alpha of 0.9 and above for all subtests except comprehension which had scores of 0.7 and 0.8. So each subtest items measuring the same thing. Test-retest reliability not conducted

			patients with no-aphasia)			spontaneous communication were included.	
Comprehensive Aphasia Test (CAT)	(Howard et al. 2010)	Yes n=64	Yes n=27	1 year plus	Not stated	Concurrent validity established between subtests of CAT and Morris Word-Picture Verification tests (0.68, 0.71), with the Nickels Naming Test (0.899, 0.748), and Tests for Reception of Grammar (TROG) (0.0.885).	Not stated. Reported in manual – not freely available.
	(Bruce et al. 2010)	Yes n=56 (a further 57 tested 6 months + stroke onset)	controls n=27	1, 3, 6, 12 months post-stroke onset	Not stated	**Concurrent** validity tested based on chronic stroke patients (n=64, 1 year plus post-stroke). Validated against Morris word-picture verification test, and the Nickels Naming Test. CAT vs Morris spoken word comp correlates at **0.68** (moderate) CAT vs Morris written word comp correlates at **0.71** (moderate) **Predictive** validity Not stated – refers to pages 119-121 of CAT manual)	**Inter-rater reliability** reported for five testers. Found good/excellent reliability with ICC of 0.9 (agreement in 23/26 of elements of the Language Battery). Test-retest reliability was tested for 21 chronic aphasia (22months plus) patients over 10 weeks apart. – doesn't state result as this is in manual
Minnesota Test for the Differential Diagnosis of Aphasia short version (MTDDA)	(Enderby et al. 1996)	Yes n=25	No	3-6 weeks post stroke	SLT	Shortened MTDDA (using first four subscales) has a significant correlation to the FAST (0.91, p=<0.001). Significant correlations also found for each subscale of MTDDA and FAST.	Not stated
Porch Index of Communication Ability (PICA)	(Ross et al. 2003)	Yes n=18	No	6 months plus	Not stated	PICA shown to be able to differentiate those with and without aphasia (based on total score), with only 17% of	High reliability reported in manual – not freely available – Secondarily reported in Salter review

						patients classified as aphasia scoring above the suggested cut-off point (indicating range of scores overlapping between the two groups).	stating reliability coefficient of 0.99 for n=40 'patients', no further information given.
Western Aphasia Battery (WAB)	(Bakheit et al. 2005)	Yes (n=67, male=31)	No	Not stated	SLT administered tests	Not stated	WAB strongly correlated to CETI at high and low scores. Suggests language impairment is linked with functional language as measured using these tools.
Psycholinguistic Assessment of Language Processing in Aphasia (PALPA)	(Kay et al. 1996)	Yes (n=25)	Non-brain damaged adults (n=32) – partners of patient with aphasia	Time post-stroke not limited	Those trained in PALPA administration	Not stated	Not stated Wertz 1996 PLAPA does not demonstrate reliability or validity

Appendix 4: CINAHL Search strategy: Measures of mood post-stroke

#	Searches	Results
1	Aphasia exp/ or Aphasia, Conduction/ or Aphasia, Broca / or Aphasia Wernicke	**3241**
2	Communicative disorders exp/ or Language disorders exp/ or Speech Disorders exp	**20488**
3	Communication barriers	**3235**
4	Stroke/ or Stroke patients	**33941**
5	Cerebrovascular disorders exp	**59562**
6	Depression exp/ or Beck Depression Inventory, Revised edition/ or Hamilton Rating Scale for Depression/ or Self-Rating Depression Scale	**53954**
7	Profile of mood states, revised/ or Affective disorders exp/ or Affective symptoms exp/ or Affect	**77094**
8	Weights and measures exp/ or Outcome assessment	**34722**
9	Patient assessment/ or Community assessment/ or clinical assessment tools exp	**114359**
10	Scales	**86107**
11	1 or 2 or 3	**23625**
12	4 or 5	**60415**
13	6 or 7 or 8 or 9 or 10	**266630**
14	11 and 12 and 13	**312**
15	Limit to ‘all adult’	**202**

Appendix 5: Mood screening tools – Sample characteristics (supporting studies)

Mood Screening Tool	Paper taken from	Used in stroke	Used in PSA	Sample size	Age Mean (S.D., Range)	Date of Screen Post-Stroke
Stroke Aphasia Depression Questionnaire-21 (SADQ)	(Sutcliffe and Lincoln 1998)	Yes N=70	Yes n=17	87	Mean 72.4 years, range 49-94	Mean 18.6 months
Stroke Aphasia Depression Questionnaire (SADQ 10)	(Sutcliffe and Lincoln 1998)	Yes N=17	Yes n=17	17	Not stated	Not stated
	(Sackley et al. 2006)	No	No	N=82 Principal carer of care home residents	Not stated	N/A
Depression Intensity Scale Circles (DISCs)	(Turner-Stokes et al. 2005)	Yes n=76 67%	Assessments only available for n=84, moderate to severe impairment	N=114	Mean 42.8 years (S.D. 14.8)	12 weeks (median)
Yale Single Item	(Watkins et al. 2001)	Yes N=79	Not stated – excluded severe communication difficulties	N= 79 stroke patients	Median 75 years, (range 70-79).	Two week post-stroke
	(Watkins et al. 2007)	Yes N=122	Not stated – excluded severe communication difficulties	N=122 stroke patients (baseline) without severe communication and cognitive difficulties By 3-months n=91	Mean age 74 years (males=65)	Week 2, follow up at 3-month

Signs of Depression Scale (SODS)	(Watkins et al., 2001)	Yes N=137	No	137 stroke patients	74 median age	14 days then 3-months post-stroke
	(Lightbody et al. 2007)	N=71	35 abnormal communication (based on FAST)	N=71	Median age 70 males n=40	
	(Bennett et al. 2006)			100 stroke patients		2-4 weeks post-stroke
	(Hammond et al. 2000)	Cerebrovascular disease n=8	No	96	81 years (mean) men=37	Not stated
	(Hammond et al. 2000)		No	46 (male=40) patients	Median age 78 years Range 67-90	Not stated
VAMS	(Arruda et al. 1996)	Yes N=41	Yes n=22	41 stroke patients (male=21)	22-92 years 12.2 s.d.	0-28 days
	(Bennett et al. 2006)	Yes n=100	No	N=150 (but only 79 completed the HADS so only 79 used for comparisons) Stroke Male=51, Healthy adults male=21	Not stated	2-4 weeks post-stroke

	(Benaim et al. 2010)	Yes N=49	Yes n=23	49 (males=31)	Mean age =64, (range 38-78)	Mean 66 days
VASES	(Vickery. 2006)	Yes N=156	Yes N=76 (30 severe impairment, 46 less severe)	156 stroke patients (70 male)	Mean age 68.5 years, range 18-92 years.	2-84 days post-stroke
	(Bennett et al.2006)	Yes n=79	No	79 stroke patients	Not stated	

Appendix 5 continued: Mood screening tools – Psychometric properties (supporting papers)

Mood Screening Tool	**Paper taken from**	**Optimal cut-off**	**Sensitivity/specificity PPV/NPV**	**Overall Accuracy**	**Reliability (test-retest)**	**Discriminant/concurrent Validity**

Stroke Aphasia Depression Questionnaire-21 (SADQ)	(Sutcliffe and Lincoln 1998)	Not stated	Not stated	Not stated	SADQ on two occasions correlated at (r_s=0.72, P<0.001)	SADQ compared against HAD Depression (r=0.22, p=0.04), with HAD Anxiety (r=0.42, p<0.001) and with WDI (r=0.52, P<0.001).
Stroke Aphasia Depression Questionnaire (SADQ 10)	(Leeds et al. 2004)	14	Compared to the Geriatric Depression Scale (GDS) Sensitivity 70% Specificity 77% PPV Not stated NPV Not stated	Not stated		A weak correlation between the SADQ-10 and GDS-15 (r=.04).
	(Sackley et al. 2006)	14	Compared to HADS Sensitivity 77 Specificity 78 PPV NPV	Not stated	Not stated	Modest correlation with HADS-Depression subscale (r-0.45).
	(Sutcliff and Lincoln 1998)	14	Compared to the Geriatric Depression Scale (GDS) Sensitivity 70% Specificity 77%	Not stated	SADQ10 given on two occasions and correlated at (rs=0.69, P=0.002).	Not stated
Depression Intensity Scale Circles (DISCs)	(Turner-Stokes et al. 2005)	Over or equal to 2	Compared to DSM-IV criteria Sensitivity 60% Specificity 87% PPV 75%	Not stated	Tested again (n=66) 24 hours from original test by same assessor – weighted Cohen's k test showed k=0.84,	Concurrent validity – compared to BDI-II (0.66), NGRS (0.87) and DSM-IV (0.59).

			NPV 77%		excellent agreement (Fleiss, 1981)	
Yale Single Item	(Watkins et al. 2001)	1	Compared to Montgomery Asberg Depression Rating Scale (MADRS) Sensitivity 86% Specificity 78% PPV 82% NPV 82%	Not stated	Not stated	Not stated
	Watkins et al. 2007	1 (response of ‘yes’)	Compared to the MADRS when taken at 2-weeks: Sensitivity 86% Specificity 84% PPV 86% NPV 84% At 3-month: Sensitivity 95% Specificity 89% PPV 93% NPV 92%	Baseline accuracy 85.1% At three-months accuracy 92%	Not stated	Not stated
Signs of Depression Scale (SODS)	(Watkins et al. 2001)	½	Sensitivity 81% Specificity 38%	61%	Not stated	Not stated

			When compared to MADRS			
	(Bennett et al. 2006)	½	Sensitivity 0.86 Sensitivity 0.62 When compared to depression subscale of HADS.			
	(Hammond et al. 2000)	3	Compared against the Geriatric Mental State Schedule gave. Used a cut off of over or=3 Sens 83 Spec 93			Compared to Hamilton Rating Scale using Spearman's Correlation showed coefficient of 0.79. Validation (n=42) study using cut off 3 found Sensitivity 90 Specificity 72
	(Lightbody et al. 2001)	2	Nurse ratings showed Sensitivity 64 Specificity 61 Carer ratings (using cut of 4) showed Sensitivity 90 Specificity 53	Nurse accuracy 62%	Not stated	For patients with communication difficulties, compared diagnosis with SODS to psychiatrist's diagnosis of depression – found cut points to be the same for the group as a whole.
	(Hammond et al. 2000)	3	Sensitivity 90 Specificity 72	Not stated	Not stated	

VAMS	(Arruda et al. 1996)		Not stated		Test-retest reliability against Profile Of Mood States (POMS) over 20 minute period using n=27.	Validated against the Profile of Mood States (POMS)
	(Benaim et al. 2010)	Not stated	Not stated	Not stated	Not stated	Reports sensitivity to change over time measured against psychological assessment, shows VAMS to be sensitive ($r=0.41$, $p<10^{-2}$). Better results came from the Aphasic Depression Rating Scale (ADRS) and Psych assessment.
	(Bennett et al. 2006)	223/224	Against HADS-depression scale Sensitivity 81 Specificity 51	Not stated	Not stated	Healthy older adults VAMS sig correlated with HADS total score (r_s=.30, p=.03), not subscales individually in healthy older adults. Stroke patients VAMS also sig correlated to HADS total (r_s=0.45, p<0.001) VAMS sig correlated with HADS anxiety (p<.01) and depression (p<.01) subscales, as well as total HADS (p<.01).
VASES	(Vickery. 2006)	<32	Not stated	Not stated	Not stated	Not stated Found those with severe language impairment found

						less variation in responses than those with less severe impairment.
	(Bennett et al. 2006)	31/32	Compared to the HADS Sensitivity 81 Specificity 05	Not stated	Not stated	VASES significantly correlated with total HADS (r_s=-.57, p<0.001)

Appendix 6: Development of the communication observational assessment tool (COAT)

Aim

Assessment of suitable patients for potential recruitment in the Motivational Interviewing (MI) trial.

Objectives

To create a tool to observe the communication ability of potential participants. This observation will inform who may be suitable to participate.

A tool was created to enable the observational assessment of patient communication ability by hospital staff. The aim of the tool was to observe the level of communication impairment, and based on this, approach the patient for recruitment in the suitable trial to receive MI. Patients were required to be screened for communication ability in a way that would allow patients with varying levels of communication ability to be separated as shown below in Figure 1.

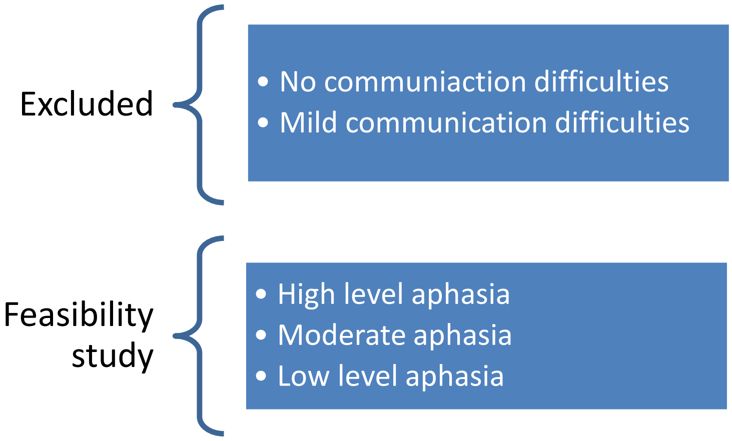


Figure 1. Communication groups required for the MI trial.

Within the study, patients with mild or no difficulties in communication would be excluded from the feasibility trial. Those with difficulties would be potentially recruited to the study. With the aim of informing the inclusion criteria of patients to the MI trial based on their communication ability, a screening tool was required. An observational tool was required that would be non-invasive to the patient , easy and efficient to use for the clinical team, and effective in its ability to judge communication ability based on routine patient observations.

In order to create such a tool, advice was sought from a Speech and Language Therapist (SLT) with experience in the field of stroke, as well as research staff from the field of stroke with a background in nursing. MI therapists also provided feedback to inform the development of the tool.

To gain an insight into the level of communication impairment suffered by patients after stroke, a series of videos from the Connect study were observed. These videos showed patients with post-stroke aphasia engaging in conversation with a conversation partner. The videos show a range of patients with varying levels of communication impairment.

The videos were shown to two MI therapists who were involved in the original MI trial, (Watkins et al., 2007) and have therefore previously held MI sessions with stroke patients. Both therapists were asked to feedback their opinions of how they felt each patient with a particular level of communication impairment may engage in MI, and any difficulties patient or therapist may experience.

Feedback from therapists indicated that they felt patients who were suffering milder impairment, such as those who had difficulty with word finding but who could communicate effectively with the use of a word chart, would manage to engage in MI although may have some difficulty due to their limited expressive communication.

Further videos showed patients with limited but reasonable comprehension, but verbal expression limited to around two words. Both therapists felt these patients would struggle to begin or to maintain a conversation to hold an MI session. Both therapists acknowledged that while the original trial included patients with some communication difficulties, no patients with such a severely limited level of communication were included; therefore any such future inclusion to this trial would be exploratory.

Based on these initial videos, discussions were then held with a SLT and member of the research team from UCLan. Patients would be recruited from the stroke ward at the study hospital, where no formal routine measure of communication is used in screening after stroke, such as the Frenchay Aphasia Screening Test (FAST).

Without performing a formal method of communication assessment, there are few tools available to perform an assessment of communication based on patient observations. While there are observational assessment tools to assess communication, or to assess therapy, using videoed therapy sessions, no such assessment could be used in routine patient interactions. As well as this, no such assessment could be carried out without first gaining patient consent.

In order to reduce the burden on both staff and patients, as well as to reduce ethical concerns, it was felt that no additional tests of communication should be used in the recruitment of patients. As an alternative method of assessment, an observational tool to be used by members of the clinical team was developed. A tool was then created which used verbal descriptions of the clinical features a patient may present with, that may be observed by clinical staff during their routine work with patients.

An initial draft of an observational assessment of communication was devised based on descriptive features of comprehension and expression. The tool was aimed to be used by clinical staff working with patients, who could perform the assessment based on routine observations, with no need for active patient engagement, therefore without a need for patient consent. The initial draft of the tool separated patients into four groups of communication; a higher tier of ability who would excluded; those with mild or no observed communication difficulties. The lower tier of communication ability would be considered for recruitment into the feasibility study, and were separated into three groups; high level aphasia, moderate aphasia and low level aphasia. Again, each of these groupings had a description of features of comprehension and expression which may be evident in patients presenting at such a level. A final group with the most severe observed aphasia was also included in the assessment tool as exclusion criteria. This specified patients with the most severe aphasia which was felt would make it very difficult to obtain informed consent and to participate in MI sessions.

An initial draft of the Communication Observational Assessment Tool (COAT) was then presented to a group of researchers from the Clinical Practice Research Unit based at the University of Central Lancashire. On review of the draft COAT, it was felt that the recruitment criteria was a too conservative, and that those with more severe communication difficulties should be included rather than excluded. In particular, the original exclusion criteria included patients that may be-

- Unable to speak in phrases
- May have severe word finding difficulties
- May have reduced expression due to dysarthria only
- May rely purely on gesture of a communication chart to communicate
- Severely limited comprehension (impairs their capacity to consent)

It was felt on discussion that this group of patients may be the most important group to trial Motivational Interviewing with, as this group of patients is most often excluded from research, and in particular when the research may require a certain level of communication, it may be crucial to understand how patients with this level of impairment engage in a talk-based therapy. With this in mind, the COAT was re-drafted to alter the inclusion/exclusion groups based on expressive communication. Patients to be excluded include two groupings, those with no observable communication difficulties, and those with mild communication difficulties.

As discussed with the research team and SLT, it was felt that as long as patients have comprehension enough to understand the study and to consent, then the expressive ability should be focused on. Therefore, the altered COAT tool separated patients into groups based on expressive communication. The feasibility study inclusion criteria was altered to include more severely impaired patients, including those with ‘poor communication’, ‘moderately severe aphasia’ and ‘severe aphasia’. The exclusion criteria was redefined to exclude only patients with either -

- Severely reduced comprehension leading to patient lacking capacity
- No verbal expression

Using these criterions, even patients with severe expressive difficulty would be suitable for recruitment into the study. This formed the final COAT which was used in the study.

Appendix 7: The final Communication Observational Assessment Tool (COAT)

Communication Observation Checklist (Please Tick One)

WS2	**Please Tick**		**Please Tick**
Level 1: **No Observed Difficulties**		*Level 2:* **Mild Communication Problems** -reduced verbal expression and fluency -speaks in sentences -may have occasional word finding difficulties -able to have a conversation -engages in turn taking	
WS3			
Level 3: **Poor Communication** -may speak in phrases -may be able to use longer sentences -may have occasional word finding difficulties -sound substitution errors may occur		*Level 4:* **Moderately Severe Aphasia** -poor expression using only short phrases or single words	
Level 5: **Severe Aphasia** -unable to speak in phrases -severe word finding difficulties -reduced expression due to dysarthria only -someone who relies purely on gesture or a communication chart to communicate			

Appendix 8: NHS Research Ethics Committee

NHS
Health Research Authority
National Research Ethics Service

HRA NRES Centre - Manchester
Barlow House
3rd Floor
4 Minshull Street
Manchester
M1 3DZ

31 August 2012

Telephone: 0161 625 7818
Facsimile: 0161 625 7299

Dr L Lightbody Senior Lecturer
University of Central Lancashire University of Central Lancashire Clinical Practice
Research Unit School of Health
PR1 2HE

Dear Dr Lightbody

Study title: **Motivational Interviewing after Stroke: A feasibility study**
REC reference: **12/NW/0633**
IRAS reference: **105693**

The Research Ethics Committee reviewed the above application at the meeting held on 24 August 2012. Thank you for attending to discuss the study.

Ethical opinion

The Chair welcomed you and Miss Holland to the REC and thanked you for attending to discuss the study. You agreed to the presence of the observer for the discussion of the application,

The Committee told you this is a very well put together application.

The REC noted that this is a vulnerable group, especially work stream 2, and noted that the usual editing rights on the recording are not in place. The Committee asked whether there is any way around this in case participants subsequently feel they do not wish the tapes to be used after they have recovered. You stated that you can put something in place so that participants can request the withdrawal of the video within 3 months.

The Committee asked how the decision will be made as to which staff will be interviewed and which will be in the focus group. You said that you hope to get a wide range of staff in the stroke pathway to get as many perspectives as possible. Most will be seen in a focus group but it is not always easy to get a meeting at the same time, so if they are key staff who cannot attend a focus group they will be offered an interview and you will feed in things which have come up in the focus groups. It will be a purposive sample.

The Committee asked whether the interventions will take place in work time, and you stated that you are aiming to have the focus groups in work time and the managers are on board with this. However, you are flexible and will check with the staff what is best for them.

The Committee asked for changes to the paperwork as below. The Committee asked whether ACE R is routinely used and you confirmed that it is and this is why you chose it.

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below.

Ethical review of research sites

NHS Sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see “Conditions of the favourable opinion” below).

Non NHS sites

The Committee has not yet been notified of the outcome of any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. I will write to you again as soon as one Research Ethics Committee has notified the outcome of a SSA. In the meantime no study procedures should be initiated at non-NHS sites.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission (“R&D approval”) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation’s role in the study is limited to identifying and referring potential participants to research sites (“participant identification centre”), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host *organisations*

Further conditions specified by the REC:

a. The Committee would like to see the Participant Information Sheet for WS 2 revised to
   i) include the information that if, up to three weeks after taking part, they would like to withdraw the video, they can call the researcher to

      A Research Ethics Committee established by the Health Research Authority do so before the section on disadvantages
   ii) Correct the typo (anonymised) at the bottom of page 2
   iii) Include at the end of the para beginning "After three months" the sentence " If you score over a certain number we will contact your GP and inform him/her"
b. The Committee would like all Patient Information Sheets to be revised to include the details and contact number for PALS, an independent contact, under the complaints procedure
c . The Committee would like to see all Consent Forms revised to include the standard clause "I understand that my medical notes and data from the study may be looked at by regulatory authorities and by individuals from the Trust where it is relevant to my taking part in this study. I give permission for these individuals to have access to this information", simplified for WS3 to " I agree that the information collected about me for the study can be looked at by the people checking that everything has been done properly"
d. The Committee would like to see the follow up invitation on headed paper

It is responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

You must notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Confirmation should also be provided to host organisations together with relevant documentation

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Covering Letter		10 August 2012
GP/Consultant Information Sheets	WS2 V1	24 August 2012
GP/Consultant Information Sheets	WS3	24 August 2012
Investigator CV	Dr Elizabeth Lightbody	24 August 2012
Investigator CV	Kulsum Patel	24 August 2012
Investigator CV	Emma-Joy Holland	24 August 2012
Investigator CV	Dr louise Connell	24 August 2012
Investigator CV	Caroline Watkins	24 August 2012
Other: Communication Observational Checklist	1	24 August 2012
Other: WS2 Patient 3-month letter	1	24 August 2012
Other: Patient Resource Questionnaire	1	24 August 2012
Participant Consent Form: WS1 Staff	1	24 August 2012
Participant Consent Form: WS2 Witness	1	24 August 2012
Participant Consent Form: WS3 Carer	1	24 August 2012
Participant Consent Form: WS3 Patients	1	24 August 2012
Participant Consent Form: WS3 Witness	1	24 August 2012
Participant Consent Form: Patient Consent Form	1	24 August 2012
Participant Information Sheet: WS2 Patients	1	24 August 2012
Participant Information Sheet: WS1 Staff	1	24 August 2012
Participant Information Sheet: WS3 Carer	1	24 August 2012
Participant Information Sheet: WS3 Patients	1	24 August 2012
Protocol	1	24 August 2012
Questionnaire: Addenbrooke's Cognitive Examination		
Questionnaire: Frenchy Aphasia Screening Test		
Questionnaire: Barthel ADL Index		
Questionnaire: WS2 Baseline Patient Questionnaire	1	24 August 2012
Questionnaire: Community SADQ10		
Questionnaire: Signs of Depression Scale	1	24 August 2012
Questionnaire: WS2 patient 3-months Questionnaire	1	24 August 2012
Questionnaire: Patient Resource Questionnaire	1	24 August 2012
REC application	3.4	10 August 2012
Summary/Synopsis	1	24 August 2012

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

Reporting requirements

The attached document “After ethical review – guidance for researchers” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

Notifying substantial
amendments Adding new sites
and investigators
Notification of serious breaches of the
protocol Progress and safety reports
Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

A Research Ethics Committee established by the Health Research Authority

Further information is available at National Research Ethics Service website > After Review

12/NW/0633	**Please quote this number on all correspondence**

With the Committee’s best wishes for the success of this

project Yours sincerely

12/NW/0633	**Please quote this number on all correspondence**

Dr Patricia Wilkinson Chair

Email: carol.ebenezer@northwest.nhs.uk

Enclosures:	*List of names and professions of members who were present at the meeting and those who submitted written comments* *“After ethical review – guidance for researchers”*
Copy to:	*xxxxxxxxxxxx NHS Foundation Trust*

12/NW/0633	**Please quote this number on all correspondence**

Appendix 9: University ethical approval

uclan
University of Central Lancashire

6th November 2012

Liz Lightbody & Emma Holland
School of Health
University of Central Lancashire

Dear Liz & Emma

Re: BuSH Ethics Committee Application
Unique reference Number: BuSH 117

The BuSH ethics committee has granted approval of your proposal application 'Motivational Interviewing for those with Communication Difficulties after Stroke'.

Please note that approval is granted up to the end of project date or for 5 years, whichever is the longer. This is on the assumption that the project does not significantly change in which case, you should check whether further ethical clearance is required.

We shall e-mail you a copy of the end-of-project report form to complete within a month of the anticipated date of project completion you specified on your application form. This should be completed, within 3 months, to complete the ethics governance procedures or, alternatively, an amended end-of-project date forwarded to roffice@uclan.ac.uk together with reason for the extension.

Please also note that it is the responsibility of the applicant to ensure that the ethics committee that has already approved this application is either run under the auspices of the National Research Ethics Service or is a fully constituted ethics committee, including at least one member independent of the organisation or professional group.

Yours sincerely

Denise Forshaw
Chair
BuSH Ethics Committee

Appendix 10: NHS Trust Letter of Access

Xxxx NHS Foundation Trust

Research & Innovation Department Tel: xxxxx

Email: xxxxx@nhs.net 04 June 2014

Emma-Joy Holland

CPRU, Room 417 Brook Building University of Central Lancashire Preston

PR1 2HE

Dear Emma-Joy Holland

Trust address

Letter of Access for Research Study Title: Motivational Interviewing (Ml) Study

We are satisfied that such checks as are necessary have been carried out by your employer and that the research activities you undertake in this NHS organisation are commensurate with the activities you undertake for your employer.

This letter confirms your right of access to conduct research through xxxxxx NHS Foundation Trust for the purpose and on the terms and conditions set out below. This right of access commences on 01 June 2014 and ends on 31 December 2014 (to be renewed annually unless terminated earlier in accordance with the clauses below).

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation . Please note that you cannot start the research until the Principle Investigator for the research project has received a letter has received a letter from us giving permission to conduct the project.

You are considered to be a legal visitor to xxxxx Foundation Trust premises. You are not entitled to any form of payment or access to other benefits provided by this organisation to employees and this letter does not give rise to ant other relationship between you and this NHS organisation , in particular that of an employee.

While undertaking research through xxxxx Foundation Trust you will remain accountable to your employer (University of Central Lancashire)) but you are required to follow the reasonable instructions of your nominated manager (xxxxx) in this organisation or those given on her behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings

Appendix 11: Field notes for working with John

Delay in consenting John

As part of the baseline assessment for John, a number of tests were administered to measure communication (FAST and CAT), mood (DISCs and Yale), functional independence (Barthel) and cognition (ACE-R).

The therapist asked to carry out the baseline approached a number of staff involved in the feasibility study with concerns of working with this patient. She had concerns about the patient's level of understanding and feared he lacked capacity. In addition, she felt it may be unethical to attempt the tests with the patient who she felt would clearly struggle to complete and would most likely achieve a poor score in, which she felt may negatively impact the mood of the patient.

Both the author and study supervisors were able to discuss this issue with the therapist. It was explained that the feasibility study was exploring the broadening of inclusion criteria for stroke patients, therefore it was anticipated that this may involve patients who may struggle to fully complete the measures. It was explained that it would be unethical to attempt inclusion of a patient judged to have capacity despite severe communication difficulties, from various members of the team, including the SLT and the stroke research nurse. It was explained that the study was able to assess the suitability of the tools used. In was also stressed that the baseline assessments are designed to provide a measure of the patient's current ability which could then be used to tailor MI sessions. Therefore, if a patient were to score low in a specific area, this could be used to aid future communication. The option to terminate the testing was also emphasised to the therapist, should she feel the patient was in any way distressed or was expressing their wish to stop at any point.

Once reassured about her concerns, the therapist agreed to carry out the baseline assessments with John. However there are concerns over the validity of this data. Not all data within the tests was completed, with no notes to explain why this was the case. At other points, the tests were partially completed, while others which were fully completed appear unclear whether this was completed by the patient without help from the therapist (in providing the correct responses rather than the practical completion of the forms).

Difficulties in carrying out MI Session 4

Two unsuccessful attempts were made to carry out the fourth session with John.

At this point in time, John had been discharged from hospital, however because of his high level of needs; he was unable to return to his pre-stroke home. Instead, he had been placed in a residential home as a temporary until a more suitable accommodation could be found (residents in this home were considerably older than John).

At the time of the attempted visit (18.10.13), John appeared extremely distressed at his situation, indicating that he did not want to be there. He completed the mid-therapy follow up measures (DISCS, Yale and FAST). In discussion while setting up for the session, John appeared agitated and frustrated. Before recording could begin, John indicated for the picture of home. He took the picture of the residential home and screwed it up, highlighting his frustration and unhappiness in the residential home and his desire to go home.

John had been explained that the session was for him to discuss his feelings and concerns, and that it might help for him to engage in the session to express these views. John however seemed to struggle to understand why we wanted to talk with him.

He indicated that he was feeling very low and bored in the home. When asked if he wanted to carry on the session he said no. We agreed to return the following week to see how he was feeling and whether he wanted to continue or end sessions. On leaving, John's son came, we explained the situation. The son was supportive of the study and encouraged his dad to talk about his situation as he felt this might help, but John still declined so the session visit was ended.

The second attempt at session four (25.10.13) was cancelled due to John being double booked. John remained in the residential home. Two of his children were present at the time of our visit. On discussion of rearranging the MI session, John said he would be happy for us to visit again on another day. His option to decline a session and/or withdraw from the study was reiterated. Another session was arranged for the following week. John found it difficult to choose another day to have the session as this would interrupt his time with physiotherapy or with family visits, neither of which he wanted to miss.

Appendix 12: Field notes for working with Mary

Field notes for Mary

Delay in beginning MI sessions with Mary

Following consent, Mary became ill, preventing MI sessions from beginning. Mary was too ill to begin session for approximately two weeks. Once recovered and while still in hospital, the first MI session was carried out on 19.11.13.

Carer measures of mood

When giving the final measure of her mother's mood, the carer, her daughter explained why she had scored as she had. On giving these scores, she wished to express that considered this increase in depression may be linked with her mother being unwell during this period which had impacted on her mother's mood and social activity. She said she felt her mum's mood was lower and her concentration on tasks and motivation to do her usual activities was lower over the final week leading her to score slightly higher than at other time points.

Appendix 13 – Staff interview schedules

Screening and recruitment interview schedule

Pre trial

- In your role within the trial you have been involved in the screening and recruitment of patients.
- What did you think was the aim of the screening log?
- Do you think people were aware of what the screening log was for?
- Do you think there was shared agreement between different members of staff regarding their roles in the screening and consenting of patients into the study?
- Did you have any reservations or concerns about undertaking screening and consent?
- Do you think everyone involved understood their role and their responsibilities within the trial?

In trial

- Before the trial began, how did you decide who would do what? How did that work in practice? Did it run smoothly?
- How has your role in screening and recruitment fitted in with your existing work?
- What have been the challenges in your role?
  What have been the facilitators?
- How does the process differ between patients with and without communication difficulties? Why do you do it differently?
- How user-friendly do you think the inclusion/exclusion criteria were? How did you find using the checklist?
- Do you think people generally agreed about patient characteristics?
- What do you think about the overall workability and reliability of the screening process?
- In your role, you have said you were involved in approaching patients, making decisions on communication and capacity, using the checklist, and consenting patients. How confident have you felt in carrying out this role? Was this different for patients with and without communication difficulties?
- Has this changed over time?

Reflecting

- Reflecting back on your experience within your role, what do you think worked well? What are the things you would do differently?
- Did you receive any training regarding recruitment and screening of patients? How did you find that? Was it useful? Are there any things you think were not covered?
- If we rolled out this study in future, what would you think are the key areas of training someone coming into this role should complete?
- Is there anything else you would like to add?

Appendix 13 - Staff interview schedules

MI therapists post-training interview

Pre-Trial

The first questions for you are looking at your thoughts and feelings before the MI trial started.

- Before you started working on the MI project, what did you think it was about?
    - What sort of skills and resources did you think you would fall back on/utilise?
- As part of your routine day to day work please describe how you work with patients with communication problems?
    - What sort of things might you do with these patients to encourage communication?
    - How might those strategies work with patients in the MI study?
- Could you summaries your thoughts about the part you played in the trial

Training and Support

The next questions for you are looking at your experiences and feelings about the training and support you've experienced around the MI trial.

- Can you describe the MI training you received?
- What areas of the training did you feel was most useful?
- What part of the training did you feel was least useful?
- Looking back at the training, having now carried out some MI sessions, how could the training be changed to suit you?
- Once you had started the MI, how did you review your progress?
    - Can you outline the support you received from your supervisors?
    - In what way was this support suitable for you?
    - In what way was the support unsuitable for you?
    - How could the support be changes to make it more suitable for you
    - What would be your ideal model of support?
- You had some input from our SLT, could you please describe that input?
- Could you summaries your thoughts about the training we provided to deliver MI to people with communication problems?

In trial

I'd like to ask you some questions about the actual MI sessions

- Can you describe your experience of the MI sessions?
    - How do you feel delivering the sessions?
    - What aspects worked well for you?
    - If you found any part of the delivery difficult, could you describe these?
- In the sessions patients talk about their concerns. Please describe for me if your perception of these concerns has changed from training until now?
- Please tell me how you have managed to carry out your research and therapy assistant roles?
- Could you please describe what you think your colleagues think of you delivering the sessions?

- Could you describe what impact you think the MI sessions had on patients you saw?
  - If there was an impact-what made you notice it?
  - What do you think caused the impact?
- The sessions require a lot of input from you; could you describe any impact the study had on you?
- Have you delivered any MI sessions with patients with communication problems?
  - How did you find those sessions?
  - What did you do to facilitate communication with those patients?
- If you needed to change your MI approach to these patients please describe these changes?
- Please describe your experiences of completing the project paperwork?

Reflection

These final questions are just looking back at the trial overall and your personal thoughts and experiences.

- Now you have delivered MI sessions, how would you change them in a future study?
  - Why do you think this is important?
- What could we do differently in a similar future study to make the delivery of the sessions more effective?
- What would be your recommendations for training and supporting therapists within a future trial like the MI trial?
- Looking back on your experience as a therapist within the MI trial, what do you think the most important skills and knowledge that are required?
- What have you enjoyed the most?
- What have been your main challenges/difficulties?
- What have you learnt?
- Do you use any of the skills outside the MI trial?
- Have you learnt anything about yourself?
- How do you use these skills?

Appendix 13 – Staff interview schedules

End of study MI therapist follow up questions

The first questions I'd like to ask you are around your experience of delivering MI to patients with communication difficulties. I'd like to begin by asking you…

Pre-Trial/Training and Support

What additional support did your receive for working with patients with communication difficulties?

  - Was it useful?
  - Did you feel supported? – (new practice, management, resources, training?)
  - What support would you recommend for a future study?

In trial

- How did you find building a rapport with the patients with communication difficulties?
- You had met and worked with some patients on the ward through your role as TA before beginning MI sessions.
  - What impact do you think this might have had on rapport?
- Did you enjoy working with some patients more than others?
  - Why do you think that was? – communication/MI/both/other?
- You have now completed MI sessions with three patients with moderate to severe communication problems. How confident do you feel delivering MI to patients with communication problems?
  - Did your confidence change over time?
  - *What do you think impacted on your confidence?*
  - *What impact do you think that might have had on sessions?*

- How did you find delivering MI to patients with communication difficulties compared to those with normal communication?
  - (any adjustments made or changes between patients or *over time*, was there a links with MI and patient communication or time?)
- What were the practical issues/difficulties of providing MI?
  - Was there a difference in providing MI sessions on the ward vs at home?
  - What were the practical issues you had to think about in arranging and carrying out sessions? (Consider room availability, suitability of patient home, time constraints (for staff and patients))

Reflecting

- If you could do the MI sessions again, would you do anything differently?
  - In terms of communication or MI?
  - *(would she do anything different with Talking Mats?)*
- Obviously you have been delivering MI to those with communication difficulties. Do you have any training recommendations if we ran a future MI trial?
  - Were there any gaps in the training?
- Have you had any feedback from patients or trainers about the MI sessions?

    - Has this made a difference to your practice?

- Overall, do you think MI in patients with moderate to severe communication difficulties was effective?
    - Has it made an improvement for the patient?
    - How might have other factors influenced the patient outcome?
- Have there been any wider impacts for you in terms of undertaking the MI training and the skills you have developed?
- Have you noticed any changes in the way in which you communicate with patients?
- Do you use any of the skills in your day to day practice?
- Has the project changed your perception of the issues patients face following discharge?

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