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Abstract

Our earlier research demonstrated that participation in four sessions of motivational interviewing (MI) early post-stroke has a positive impact on stroke survivors' mood. However, the theoretical underpinnings of MI in supporting adjustment (rather than its traditional use in supporting behavior change) requires clarification. This article describes a content analysis of MI transcripts for ten participants in our previous study, to identify the focus of discussions (patient 'concerns') and potential effective components of our MI approach. Patients' post-stroke concerns were shown in 16 categories including frustration, family impact and getting well. There was a pattern of change discourse across sessions: 'sustain talk' (reasons for not changing) reduced from session 1 onwards; 'change talk' (intent to change) increased then reduced; and 'change expressed' (changes achieved) increased from session 1-4. MI facilitates healthy adjustment post-stroke in some patients, in turn affecting mood, but clarification of how this effect is achieved requires further exploration.

Keywords

Stroke is the most common cause of complex disability in England, resulting in 300,000 people living with moderate to severe physical and psychological problems (Adamson, Beswick & Ebrahim, 2004; National Audit Office, 2005). Functional problems, such as those resulting from a stroke, impact negatively on a person's quality of life and mental wellbeing (de Ridder, Geenen, Kuijer & van Middendorp, 2008). Conversely, early psychological problems after stroke, including depression (Hackett, Yapa, Parag & Anderson, 2005), and anxiety (Campbell Burton et al., 2013) significantly affect functional recovery (Donnellan, Hickey, Hevey & O'Neill, 2010; Ferro, Caeiro & Santos, 2009).

Depression post-stroke is an independent predictor of poor recovery, including lowered quality of life and more severe disability (Ayerbe, Ayis, Wolfe & Rudd, 2013). This is unsurprising given that recovery, commonly conceptualized as a return to pre-stroke functioning, is a key goal for stroke survivors (Duncan, Min Lai & Keighley, 2000). Approximately 50% of stroke survivors do not recover to the level of their pre-stroke functioning (Hankey, Jamrozik, Broadhurst, Forbes & Anderson, 2002; Sturm et al., 2004), which then necessitates physical and psychological adjustment to their on-going problems (Duncan, 1998; Lawrence et al., 2001).

Early intervention to prevent and treat psychological problems might improve physical recovery and promote mental wellbeing. However, the evidence for the effectiveness of such interventions is equivocal. Antidepressants have a small but significant effect in the treatment of depression post-stroke, but their benefits must be weighed against the increased risk of side effects (Hackett, Anderson, House & Halteh, 2008; Hackett, Anderson & House, 2005; Hackett, Anderson, House & Xia, 2008). Indirect interventions, such as improving social support, have not been demonstrated to be effective (Knapp, Young, House & Forster, 2000; Salter, Foley & Teasell, 2010). However, direct psychological interventions have been shown to be effective in the prevention of depression (Hackett et al., 2008a), but have mostly

proved ineffective in treating established depression (Hackett et al., 2008b) except in some

small scale studies (Mitchell et al., 2009).

Psychological adjustment is a challenge for stroke survivors because of their multiple

post-stroke problems and associated concerns, and the change processes required to adjust.

One model for the change process, from acquired brain injury studies, suggests that

adjustment involves the resolution of social, interpersonal and personal discrepancies

between pre-injury and current self-concepts (Gracey, Evans & Malley, 2009). In cases of

stroke, unresolved conflicts or discrepancies, expressed as concerns, could have a causal or

maintenance role for psychological problems such as anxiety and depression (Mansell, 2005).

Healthy adjustment has been shown to depend on the absence of psychological problems (de

Ridder et al., 2008; Maes, Leventhal & de Ridder, 1996) (see Figure 1).

INSERT FIGURE 1 ABOUT HERE

The European Stroke Organisation recommends that stroke survivors should be

helped to resolve these conflicts and discrepancies by exploring their concerns (Quinn et al.,

2009). Identifying stroke survivors' concerns can inform targeted patient-focused

rehabilitation (Donnellan et al., 2013) which might promote healthy adjustment to life after a

stroke. A patient-focused approach to supporting adjustment has been proposed as a driver of

motivation (Maclean, Pound, Wolfe & Rudd 2000) which has an associated positive impact

on outcome (Maclean & Pound, 2000).

The resolution of conflicts and discrepancies can be likened to the resolution of

ambivalence. This resonates with a key principle of Motivational Interviewing (MI) (Miller

& Rose, 2009). The principles of MI, which was initially developed to promote behavioral

change in addiction, could be adapted to support stroke survivors to adjust to life after stroke

(Arkowitz, Westra, Miller & Rollnick, 2008).

Our previous randomized controlled trial (RCT) of MI with stroke survivors (Watkins et al., 2007; Watkins et al., 2011) resulted in fewer people with depression at three and twelve months post-stroke in the intervention arm, compared with usual care controls. Our approach involved the use of MI principles which guide the therapist to increase the client's awareness of the importance of changing what they make of their situation (adjustment), through sensitively amplifying the discrepancy between a patient's current concerns and their goals or personal values. The approach is intended to reduce ambivalence and strengthen personal motivation for, and commitment to, a specific goal by eliciting and exploring the person's own reason for changing what they make of their situation (adjustment). Confidence to adjust is then reinforced through supporting self-efficacy, enabling the person to develop motivation and readiness to adjust to their current state (Latchford, 2010; Miller & Rollnick, 1991; Miller & Rose, 2009; Moyers, Miller & Hendrickson, 2005).

The principles of MI are reflected in the Motivational Interviewing Treatment Integrity Code (MITI), which is commonly used to estimate MI adherence (Moyers, Martin, Manuel & Miller, 2005). The MITI describes therapist and client categories for coding voice files and transcripts. Therapist codes include MI consistent (MICO) categories: reflections, open questions, affirming, emphasizing control, summarizing, and advising with permission; and MI non-consistent (MINCO) categories: confronting, warning, arguing, negating, and advising without permission. Client or patient categories focus on change discourse, which includes 'sustain talk' (reasons for not addressing problems) and 'change talk' (verbalization of an intention to change or adjust). Increased 'change talk' is a key process goal of traditional MI (Miller & Rose, 2009).

The intervention for the MI trial described above was four sessions of MI, which were recorded and transcribed. In this article, we describe a secondary analysis of a sample of the transcriptions to explore the concerns discussed by stroke survivors during MI sessions, to

track change discourse across sessions, and to determine how this might have contributed to our positive trial result.

Methods

The methods of our MI RCT have been reported previously (Watkins et al., 2007; Watkins et al., 2011). In these publications we described obtaining informed consent and ethical approval as well as how the high quality and fidelity of our MI approach was delivered and evaluated. The trial aimed to test the effectiveness of MI in the prevention or treatment of depression early post-stroke (within six weeks of hospital admission). In brief, 204 patients were randomized early after stroke to receive four MI sessions given by trained MI therapists in addition to usual care, and the remaining 201 patients were randomized to a usual care control. Here we describe how we have subsequently explored the concerns raised by patients in the intervention arm of the trial during their MI sessions, and tracked their use of 'change discourse' through these sessions.

Setting and participants

The previous trial was conducted with patients in a stroke unit in a large UK hospital serving an urban population. Eligible patients admitted to the hospital between July 2002 and January 2005 were invited to participate. Eligibility criteria included: over 18 years of age, living in the catchment area, not receiving other psychological care, and a communication and cognitive ability allowing participation in MI.

The four MI therapists came from nursing and psychology (non-clinical) backgrounds. Their ages ranged from 25 to 55 years and three were women. All received the same training and similar on-going support from a clinical psychologist.

Design

For the secondary analysis we sampled transcripts of the MI sessions from the trial and carried out two content analyses.

Sampling

There were 693 voice files available from the 204 participants in the intervention arm, of which 137 randomly selected voice files had been transcribed for quality, validity and fidelity assessments. Out of these, there were 22 complete patient sets of four transcripts. We identified an initial sample of ten complete patient sets of four transcripts with the maximum diversity of: interviewing therapists, patients' ages (younger than 65 years, or older than 65 years), sex, stroke severity and functional impairment (mild, moderate or severe, assessed by the Barthel Index (Wade & Collin, 1988)) and presence or absence of depression at baseline (assessed using the 28-item General Health Questionnaire, dichotomized into normal (scoring less than 5) or low (scoring 5 or above) mood). The sampling pool was small and there were a number of sampling variables, therefore it was not possible to achieve a fully representative sample. However, the patient transcripts included sessions from all four MI therapists.

Procedure

Two content analyses were conducted on the sets of transcripts. The first analysis examined the focus of discussions which we have termed the 'concerns' that patients discussed; the second analysis looked for instances of change discourse.

The same approach was used in both analyses to assess inter-rater reliability. Two researchers, one of whom was independent of the original MI trial, conducted the coding using Atlas-ti (Atlas_ti GmbH, 2010). The independent researcher coded 100% of the patient's utterances (defined as a complete expressed thought) in the transcript. A second researcher coded a subset of every 10th patient utterance (Carey, Morgan & Oxtoby, 1996; Hruschka et al., 2004). Researchers were blind to each other's coding remit and to the patient and therapist characteristics. The two sets of coded files were merged and the percentage agreement between coders was estimated. Any differences were reviewed and resolved by a consensus panel of two experienced MI therapists and the two coders.

Content analysis: Concerns. We defined a concern for patients as 'an issue or topic a patient discussed that was seen as important to them and included an element of anxiety or worry'. Patient utterances were scrutinized to see if a patient discussed a concern related to their stroke. These could be a direct concern statement, e.g. 'I am concerned about....' or an implied concern, e.g. 'work is on my mind all the time'. Care was taken to ensure that the concerns complied with our definition. The coding process was not restricted to a single utterance because some concerns were expressed over a group of utterances; we termed this an instance of a concern. The instance that described or mentioned the concern was free coded, or allocated a code that represented the concern. These codes could be reused if the same concern was raised again by the patient. We categorized concerns into groups; for example, 'partner angry', 'children upset' and 'spousal disagreement' were all categorized as 'family impact'.

Content analysis: Change discourse. Each patient utterance was scrutinized and coded using the MITI classifications of change discourse, i.e. 'change talk' and 'sustain talk'. However, the coders observed that patients often reported incremental, sequential or individual changes or adjustments that had actually occurred between sessions, not just the potential future changes implied by 'change talk'. It was clear that the two standard MITI change discourse codes did not include this concept and therefore we added an additional discourse code of 'change expressed'. Table 1 describes the three change discourse codes.

INSERT TABLE 1 ABOUT HERE

The content analysis tracked how often change discourse occurred across sessions, as a proxy indicator of MI process and effectiveness. Each instance of the three types of change discourse was counted across all 40 transcripts, then averaged and grouped by session.

Results

Sample

We selected ten patients transcript sets from those available, to provide a wide range of sample characteristic combinations. Of the ten patients in the sample, eight were men, five were older than 65 years, six had mild functional impairment, one had moderate impairment and three had severe impairment. Five patients were depressed at baseline, and all four therapists were represented in the transcript sets.

Concerns

Our modified version of MI focused on helping patients to cognitively adjust to concerns they had experienced since their stroke. Figure 2 indicates the frequency and type of concerns. There were 257 expressions of concerns, with an average of six per session. A median split revealed that 50% of all the concerns raised by patients were in three of the 16 categories: getting well, frustration, and family impact. A further 25% of concerns were contained in another three categories: reason for stroke, not fully back to pre-stroke functioning, and fear of another stroke. Twenty-five per cent of concerns fell into one of the remaining 10 categories.

INSERT FIGURE 2 ABOUT HERE

Inter-rater reliability for concern coding, estimated by percentage agreement, was high using the sub-sample procedure (Hruschka et al., 2004). Allowing for synonyms (e.g. 'transport' for some aspects of 'travel'), initial inter-coder agreement was 88% and an agreement was reached on the remainder by the consensus panel.

Change discourse

There were 446 instances of change discourse across the 40 sessions, approximately 11 instances per session. Figure 3 shows the average frequencies of change discourse per session. The frequency of sustain talk (ambivalence and discrepancy) was low, and steadily reduced with each session, while change talk (intention to change) steadily increased. The

frequency of change expressed (reported changes achieved) increased consistently from session one, and was the most frequent change discourse in the remaining three sessions.

INSERT FIGURE 3 ABOUT HERE

Sustain talk. Sustain talk was at its highest level in session one (see Figure 3). This fell steadily to less than one instance per session by session four, and was the least frequent change discourse overall across the four sessions. Ambivalence and discrepancy could be between the patient and others (including the therapist), or within the patient. In this example the patient describes ambivalence between what he wants and what his family want. He wants to work, but his family say it is stressful and urge retirement. To resolve the resulting discrepancy, the patient diminishes the work stress, and rationalizes the decision by claiming how he benefits from his work:

> He [family member] was very cut up about it [the stroke], he was saying you're working far too hard but then he can't see the enjoyment I get out of it (sustain talk). I don't look at it from a hard angle.

A further example shows ambivalence within the self. The patient feels that by doing things for himself he will feel he is back to normal, but others prevent him from doing things for himself:

> Patient (P): I can't get myself back to normal until I can start doing things for myself and I can't start doing things for myself until people let me.
>
> Therapist (T): Yeah.
>
> P: So it is a bit of vicious circle.
>
> T: Yeah.
>
> P: So I am sort of stuck really.

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Change talk. Change talk is the expression of a desire to change and could be considered a step toward resolving ambivalence and dissonance. Change talk was the most frequent type of change discourse in session one, although these averaged at two instances in this session. The average change talk frequency per session peaked in session three to five instances, and then dropped slightly in session four to four instances (Figure 3). In this example the patient uses a 'need' category of change talk (See Table 1) within the last phrase of the sentence. In addition the therapist builds the patient's self-efficacy by reflecting what was said earlier:

> T: Yeah but that's the change you've made within yourself because you've decided that you're going to take your time over doing things, you're not going to rush yourself.
>
> P: Because I've realized that's the right thing to do and I've got to do it (change talk).

Change expressed. Change expressed was the least frequent type of change discourse in session one with an average of one instance per session, but rose steadily to become the most frequent by session four (average of nine instances per session). In the illustrative example below, the patient had previously stated that he wanted to get back to 100 per cent of his pre-stroke function (change talk), but by session two he has made an adjustment and expresses a change, in that he "would not be too upset if he did not make it." This is a marked alteration in the discourse of this patient in declaring an adjustment to his expectations:

> T: Do you think you'll get back to 100 per cent then [name]?
>
> P: Yeah. I most certainly want to (change talk), so within myself I feel confident enough of getting back to 100 per cent but I wouldn't be too upset if I only got not quite right (change expressed) because I know obviously something's gone wrong, probably might take a lot longer to get back to full fitness (change expressed).

Discussion

Content analysis was used to document and summarize the concerns that stroke survivors expressed. Patients raised an average of 6 concerns per session. A median split indicated that 50% of concerns were in three categories: getting better, frustration, and family impact. The frequencies of these categories might be explained by the timing of the MI sessions, which were commenced early post-stroke, typically within six weeks. At this early stage, stroke survivors focused on getting well and were considering the wider impact of their stroke, with both of these issues feeding into a sense of frustration. This supports the adjustment literature in that the three largest categories represented personal and interpersonal concerns that if unresolved could have led to psychological problems (Gracey et al., 2009; Mansell, 2005).

It is possible that stroke survivors might express different concerns if they had undertaken the MI sessions later in their stroke recovery. However, we did not examine whether concerns changed over the course of the sessions. Concerns might change as adjustments are made, but the number of transcripts we analyzed make it difficult to look for any patterns across sessions. Furthermore, counting the frequency of concerns might not be the most appropriate method because this could be associated with therapist interaction. If a patient raises a concern a therapist will inevitably explore that concern. MI entails the therapist summarizing and reflecting the patient's concerns and the patient responding to this reflection. However, we felt that despite this if a concern was of high importance to a patient, they would be keen to discuss it at length; likewise, discussions would attenuate or cease when a patient did not feel the need to discuss a concern. Nonetheless the frequency counts gave some indication of the importance attached to each concern, which would not be evident if we merely counted discrete concerns.

Eliciting and exploring stroke survivors' concerns is a potentially fruitful area for further investigation in the movement toward patient-focused rather than provider-led

rehabilitation (Donnellan et al., 2013). The study of expressed concerns, first, might contribute to the body of knowledge about the concerns people have at different stages of their recovery; second, might be used to inform patient focused rehabilitation; and third, can be used in the development of interventions to reduce the impact of concerns on the patient and their rehabilitation.

The content analysis of change discourse is a novel approach in the evaluation of MI. In this article, sustain talk decreased over the four sessions, but change talk and change expressed increased. By the final session, change expressed was the major type of change discourse. Session three seemed to be a pivotal session, after which action to change and addressing concerns replaced prevarication and a desire to change or a contemplation of adjustment. We hypothesize that this was because at this time, the patient had started to adjust and come to terms with their condition. Their focus shifted from considering adjustment (change talk) to actual adjustment, which they then reported in the sessions (change expressed). This indicates support for the literature on patient motivation. It would seem that MI, as a patient focused intervention, has driven patient motivation and brought these changes about with a concomitant impact on outcome (Maclean & Pound, 2000; Maclean et al., 2000).

Our work was limited to post hoc analysis of a small sample of transcripts. We did not compare discourse patterns in those who had good outcomes (never depressed/depression resolved) versus those with poor outcomes (developed depression/sustained depression). However, our findings demonstrate a pattern of change discourse which might be what an ideal adjustment pattern for MI should look like. In the MI literature it is proposed that sustain talk should reduce as ambivalence is resolved and change talk begins to increase (Miller & Rose, 2009; Moyers et al., 2005). It also supports our modification of MI and the introduction of the category of 'change expressed', because patients often discussed

adjustment they had already made, rather than the anticipatory 'change talk' contained in the standard MI model. This pattern gives an indication that the stages of adjustment after stroke are similar to those seen in people trying to manage CVD risk factors, substance abuse and stress. This supports the proposition for the efficacy of the technical element of MI in evoking and reinforcing change talk, which in our version is better indicated by change expressed (Miller & Rose, 2009). Across the four sessions there was no pattern of relapse, but this could be related to the small sample size, limited number of sessions, or short time span of the sessions.

The results of our analyses show that MI reduces discrepancy and ambivalence early after stroke. Both of these are seen as necessary for healthy adjustment (de Ridder et al., 2008; Maes et al., 1996). This article has described the issues that concerned patients in terms of ambivalence and discrepancies and tracked how patients' change discourse altered over the sessions. However, it has not explored the mechanism by which MI works in preventing or treating post-stroke depression, which is the premise for an associated article on this topic (Author; submitted for review).

These findings should be interpreted with caution. We only analyzed 10 sets of transcripts (40 transcripts in all) and more would need to be analyzed to reach saturation. Analysis of a greater number of transcripts is also needed to enable robust comparison of sessions between those with low or normal mood at three months post-stroke, and how these relate to outcome. Finally, no adjustment scales were used; estimates of adjustment were inferred but not objectively assessed. We would suggest that future research uses adjustment scales such as the Psychosocial Adjustment to Illness Scale (PIAS) (Derogatis, 1986).

Conclusion

We have demonstrated that MI might help stroke survivors to adjust to, and accommodate, their most pressing concerns. The use of MI can also help patients to develop cognitive

strategies to address new concerns. The process we have outlined needs to be replicated in other studies of psychological therapies to see if meaningful results can be elicited. Despite the limitations of the analyses, our findings contribute to the understanding of the process by which MI facilitates adjustment early in stroke recovery. Further research is underway to explore this adjustment process more fully.

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Table 1. Change Discourse Codes used in the Content Analysis

Change discourse codes	Code definition	Examples
Sustain talk[a]	Change was talked about in the context of why they cannot, or are not willing to, change. This is classical cognitive dissonance; the client knows that they need to make a change to improve health and so forth, but rationalizes an alternative action.	A patient arguing, denying a problem, disagreeing or passively resisting through minimal answers.
Change talk[a]	Used by the patient to describe a potential change or adjustment. Change talk was sub-coded (DARN-C):	
	Desire - patient utterances revealing a desire to change (want, like, wish).	I want; I would like; I wish
	Ability - recognition from the patient that they possess the ability to change	I can; I could
	Reason - the patient presents a reason for why change is important	If I . . . then I
	Need - acknowledgement of the need to change	I need; I have to; I've got to
	Commitment - utterances showing that the decision to change has been made	I will; I'm ready; I'm going to
Change expressed[b]	Used to identify instances when change had taken place.	Changes could be of various types including affective, behavioral, cognitive, physical or social.

[a]Code from Motivational Interviewing Treatment Integrity coder
[b]Code added for this analysis