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Exploring staff perspectives on implementing an intervention package for post-stroke psychological support: a qualitative study

Abstract : *Background:* Psychological problems post-stroke can negatively impact stroke survivors. Although general psychological services exist (e.g. NHS Talking Therapies), access remains limited, particularly for individuals with post-stroke communication and cognitive impairments. Stroke service staff report low confidence in managing psychological distress. This study is the first to explore the barriers and facilitators to implementing a novel intervention package comprising a cross-service care pathway and staff training to enhance post-stroke psychological provision. *Methods:* Staff from stroke and mental health services in four UK regions, recruited through purposive sampling to ensure diversity of services and professional roles, participated in semi-structured interviews or focus groups, guided by the Theoretical Domains Framework (TDF), before and after implementation of the intervention package. Pre-implementation interviews/groups identified anticipated barriers and facilitators to implementation and training needs, informing the development of site-specific intervention packages; post-implementation interviews/groups explored experienced barriers, facilitators and perceptions of the intervention. Interviews underwent thematic analysis using the TDF. *Results:* Fifty-five staff participated pre-implementation and seventeen post-implementation, representing stroke (e.g. nurse, physiotherapist, consultant) and psychology (e.g. counsellor, psychological therapist) roles across acute, rehabilitation, community, and voluntary services. Challenges anticipated pre-implementation included: limited specialist post-stroke psychological support; low staff confidence; and fragmented service pathways. Post-implementation findings indicated increased staff knowledge and confidence, enhanced screening and referral processes, and stronger inter-service collaboration. Implementation success varied across sites (with some sites showing greater ownership and sustainability of the intervention) and across staff roles (with therapy staff more likely than nursing staff to have received training). *Conclusions:* Effective implementation of an intervention package to increase psychological provision post-stroke requires staff engagement at all levels across all services. Staff investment influenced ownership of the intervention package, beliefs about priorities and overall enhancement of service capability.

Keywords: stroke; psychological support; barriers; facilitators; health service delivery; emotional wellbeing; implementation

Citation: Although general psychological services exist, P.P.P.-S.C.N.I.S.S.; there remains a lack of support; which may be compounded by post-stroke communication; This study aimed to explore the barriers, S.S.R.A.O.C.I.M.P.D.; facilitators to implementing an intervention package incorporating a collaborative cross-service care pathway; staff training for increasing post-stroke psychological provision.Methods: Staff from stroke; mental health services in four UK geographical areas; recruited through purposive sampling to ensure a range of services; professional roles; participated in semi-structured interviews or focus groups; et al. **Exploring staff perspectives on implementing an intervention package for post-stroke psychological support: a qualitative study. 2025**, *6*, x. https://doi.org/10.3390/xxxxx

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1. Background

Stroke remains a leading cause of long-term disability worldwide, with approximately 12 million individuals experiencing a first-time stroke each year [1]. Advances in acute care have improved survival rates; however, the long-term consequences of stroke extend beyond physical impairments, with many stroke survivors experiencing psychological difficulties, such as depression, anxiety, anger, adjustment disorder, emotionalism and post-traumatic stress disorder (PTSD) [2-5]. The most common of these, depression, which affects one in three stroke survivors at any one time [6], influences prognosis, and is associated with poorer outcomes including increased hospital stay; disability; social isolation; reduced quality-of-life; higher rates of suicide and mortality; and higher costs [7,8]. Furthermore, depression may affect secondary prevention by negatively impacting upon medication adherence, and uptake of physical activity, leading to cardiovascular-related morbidity and mortality [9,10].

Despite the known impacts, stroke survivors globally report inadequate support with psychological needs. In the UK, stroke survivors report psychological support as the least satisfactory service, and the 65% with emotional problems do not receive the support needed in hospital or the community [11]. This figure is 73% for stroke survivors in Australia [12], and 90% for stroke survivors in the community in Northern Ireland [13]. Post-stroke psychological provision is clearly a challenge in high-income countries, so even more so in low and middle-income countries. For example, service gaps have been indicated in India: in a trial to introduce rehabilitation support post-discharge from hospital through families, stroke co-ordinators were unable to provide rehabilitation input because patients wanted to discuss emotional issues [14]. In a review of studies in African countries, clinical psychology was the least reported rehabilitation service [15]. These service gaps mean that many stroke survivors are left unsupported in the community.

There is also a lack of support for inpatients. Despite being highlighted by government bodies and guidelines as an important issue, and international agreement that multidisciplinary stroke teams should include psychological expertise [16-18], timely, stroke-specialist psychological care is not incorporated in standard stroke care across many European countries [19]. Guidelines in several countries (including USA, Canada) recommend screening for psychological issues [20,21]. Although screening is a necessary first step, stroke care-pathways should also prevent and treat mood disorders. To facilitate implementation, screening and treatment need to be incorporated in a simple and affordable way. In the UK, a matched-care approach for the provision of psychological support has been proposed; outlining support delivered at different levels of intensity or 'steps', beginning on the 'step' most suitable for current needs, and later stepped up or down as appropriate. This approach proposes that patients with less severe difficulties (steps 1 and 2) are treated by non-psychology-specific staff who would need to be appropriately trained and supervised, and patients with most severe difficulties (step 3) be treated by clinical psychologists/neuropsychologists [16]. However, without access to psychologists to supervise non-psychology-specific staff, these staff would struggle to safely and competently implement steps 1 and 2. Furthermore, patients requiring step 3 intervention would not receive it. Despite guidance that clinical psychologists/neuropsychologists are key members of the stroke multi-disciplinary team (MDT) and that psychology provision should be available [16], few stroke services have adequate access. In England, only 6% of stroke units meet the quality standard of 0.2 whole-time-equivalent (WTE) clinical psychologists per 5 beds [16], and only 57% of stroke units have access to clinical psychology

services [22]. Similarly, in Ireland only 6% of stroke patients had access to psychological support during their hospital stay in 2023 [23].

In the UK, NHS Talking Therapies (previously known as Improving Access to Psychological Therapies (IAPT)) services have reduced anxiety and depression in the general population [24]. These services comprise clinical practitioners at varying levels: Psychological Wellbeing Practitioners (PWPs) provide levels 1-2 in NHS Talking Therapies stepped-care model; High Intensity Therapists (HITs), who may be specialised to a specific discipline (e.g. Cognitive Behavioural Therapist, Counsellor), provide levels 2-3; and Clinical Psychologists and Psychiatrists deliver specialist care (level 4). NHS Talking Therapies services have been encouraged to widen access to older adults and those with long-term conditions [25]. NHS Talking Therapies services are effective for older adults, but few areas have implemented services post-stroke. Delivering talk-based therapies to stroke survivors may be perceived as challenging due to the cognitive effects of stroke (e.g. communication difficulties). Conversely, stroke services often focus on physical health, and staff may lack confidence in dealing with psychological distress. Additionally, hospital and community physical and mental health teams are generally not integrated, particularly when the NHS Trust providing stroke support is different to that providing mental health support. This service fragmentation reduces the likelihood of cross-service working and support for stroke-specific or psychology-specific issues.

Training NHS Talking Therapies teams in stroke-specific issues might increase confidence in, and so delivery of, psychological care for stroke survivors at steps 2 and 3 of the matched-care model. Training stroke staff to deliver step 1 psychological support may also increase their confidence to provide psychological support. Additionally, increasing collaborative working between stroke staff, NHS Talking Therapies staff, and specialist voluntary sector services, may improve care. The Accelerating Delivery of Psychological Therapies after Stroke (ADOPTS) study was a feasibility stepped-wedge cluster randomised controlled trial, which aimed to understand the feasibility of developing, implementing and evaluating an intervention package to improve psychological support after stroke [26]. The intervention package aimed to increase collaboration between services, and train staff involved in stroke and psychological care. The ADOPTS study was conducted in four sites; whilst the intervention packages were tailored to each site, they were all intended to incorporate: i) a collaborative psychological care pathway incorporating stroke, mental health and voluntary sector services, based on the matched-care approach; ii) training for staff in stroke and mental health services; iii) a manual of psychological care for stroke services; iv) supervision of staff through collaboration between stroke and mental health services. These four core components of the intervention package were agreed by the research team prior to the study, following discussion with a group of experts in stroke and implementation science.

The intervention package was tailored to each site through collaborative stakeholder meetings involving researchers, clinicians (stroke and NHS Talking Therapies), voluntary sector staff, commissioners, service managers, and stroke patients and carers. There is evidence to suggest that stakeholder input into implementation efforts is associated with more effective outcomes [27,28]; thus, we used a participatory design approach to developing and agreeing each site's intervention package. The current paper aims to add to knowledge about the requirements for effective implementation of a post-stroke psychological support intervention, and reports a qualitative exploration of staff perspectives on the challenges to implementing the intervention package: anticipated challenges (pre-implementation) and the actual challenges (post-implementation).

2.Methods

2.1. Design

Ethics approval granted by the NRES Committee Yorkshire and The Humber-Leeds East in August 2015 (REC reference: 15/YH/0343). This study employed a qualitative

design to enable in-depth exploration of staff perspectives who participated in the ADOPTS study [26] to understand the complexities of implementing the ADOPTS intervention package. Semi-structured interviews or focus groups were conducted at two timepoints: 1) prior to (pre-implementation) and 2) following (post-implementation) implementation of the ADOPTS intervention package.

2.2. Setting

Four sites in England taking part in the ADOPTS study (ISRCTN12868810), each incorporating stroke services (acute, rehabilitation, community), mental health services, and voluntary services. The four sites (A, B, C and D) had differing service configurations and resources, detailed in Table 1. In the locality of each site, there was an NHS Talking Therapies service and a voluntary sector service which was part of a national charity whose work includes psychological support.

Table 1. Service configurations and availability for the four sites.

Site	**A**	**B**	**C**	**D**
Inpatient acute and rehabilitation stroke units	Separate	Combined	Separate	Separate
Early supported discharge (ESD) service	Yes	Yes	Yes	No
Inpatient clinical psychologist (availability and provider)	Ad hoc, community ABI service	Ad hoc, hospital OAS	None	0.2 WTE, acute and rehabilitation
Community clinical psychologist (availability and provider)	Ad hoc, community ABI service	Ad hoc, community ABI service	0.3 WTE, ESD 0.4 WTE, CSRT	0.1 WTE, NRS
NHS Talking Therapies service	Yes	Yes	Yes	Yes
Voluntary sector service (Stroke Association)	Yes	Yes	Yes	Yes

Abbreviations: ABI acquired brain injury; CSRT community stroke rehabilitation team; ESD early supported discharge; NRS neurological rehabilitation service; OAS older adults service; WTE whole time equivalent.

2.3. Participants and sampling

Staff in stroke and mental health services in each of the ADOPTS sites self-identified or nominated colleagues as being interested in participating in interviews, and these were invited to take part in the present qualitative study. Due to the study aim and sample specificity [29], it was felt that sufficient information power would be obtained with a purposive sample of staff roles across services, recruiting at least one member of staff from each service (stroke, mental health, voluntary) and from across the care-pathway (acute, rehabilitation, community). Participants provided written consent to participate, and could take part both pre- and post-implementation.

2.4. Data collection

Staff took part in semi-structured individual interviews in-person or by telephone, or in a focus group in-person, depending on participant preference. The interview schedule was theory-driven and based on an established implementation framework, Theoretical Domains Framework (TDF) [30]. The interview schedule was pilot-tested and due to its length, subsequently, the focus group schedule was limited, due to participants' time constraints, to five domains that were agreed by the study expert panel as the most relevant for issues relating to the implementation of the intervention packages in NHS Talking Therapies services. The interview schedule can be seen in Additional File 1. Pre-implementation interviews and focus groups were conducted by members of the ADOPTS

research team (December 2015 to March 2016). Post-implementation interviews were by an independent researcher (September 2017 and October 2017). All interviews/groups were audio-recorded and transcribed verbatim.

2.5. Data analysis

Thematic analysis was undertaken in NVivo 11 software by three researchers who carried out the interviews and focus groups. A coding framework based on the TDF domains was used to assign initial codes to the data. These codes were then amalgamated into categories and relationships identified between categories. Themes were subsequently derived and agreed. At each stage of analysis, interpretation was validated by two researchers independently coding a third of interviews; any disagreement was discussed until consensus was reached. Pre-implementation interviews were analysed and the results used to inform the development of the intervention package for each site. Post-implementation interviews were analysed to evaluate the implementation of the intervention packages.

3. Results

3.1. Participants

3.1.1. Pre-implementation

Of 65 staff invited, ten individuals either declined due to time constraints or did not respond to the invitation. Fifty-five staff were recruited across the four sites and participated in either an individual interview (n=39) or focus group (n=16).. Participants comprised a range of stroke-specific and psychology-specific roles, from a range of settings, see Table 2.

Table 2: Roles and settings of participants in pre-implementation interviews/groups

Role	Participants (n)	Setting
Nurse	2	Acute
Stroke-Specialist Nurse	2	Acute
Speech and Language Therapist	1	Rehabilitation
Physiotherapist	5	Acute/Rehabilitation
Occupational Therapist	10	Acute/ Rehabilitation/Community
Dietician	1	Rehabilitation
Therapy Assistant	3	Rehabilitation/Community
Healthcare Assistant	2	Acute/Rehabilitation
Ward Manager	5	Acute/Rehabilitation
Junior Doctor	1	Acute
Consultant Physician	3	Acute
Information and Advice Support Co-ordinator	3	Voluntary
Clinical Psychologist	5	Rehabilitation/Community
High Intensity Therapist incorporating:	4	NHS Talking Therapies
Cognitive Behavioural	3	
Therapist Counsellor	1	
Psychological Wellbeing Practitioner	3	NHS Talking Therapies
Mental Health Nurse	1	NHS Talking Therapies

Service Manager	4	Rehabilitation/Community/NHS Talking Therapies

3.2. Post-implementation

Of 20 staff invited, three individuals either declined or did not respond to the invitation. Seventeen staff were recruited across the four sites and participated in individual interviews.. Six of the 17 had previously taken part in a pre-implementation interview. Participants were from a range of roles and services, see Table 3.

Table 3: Roles and settings of participants in post-implementation interviews

Role	**Participants (n)**	**Setting**
Ward Manager	1	Acute
Stroke-Specialist Nurse	2	Acute
Occupational Therapist	4	Rehabilitation
Healthcare Assistant	1	Acute
Therapy Assistant	1	Rehabilitation
High Intensity Therapist	3	NHS Talking Therapies
Psychological Wellbeing Practitioner	3	NHS Talking Therapies
Information Advice and Support Co-ordinator	1	Voluntary

Pre-implementation, most codes related to three of the TDF domains: 'Environmental context and resources', 'Beliefs about capabilities' and 'Knowledge'. The main themes derived from the codes were: the lack of specialist psychological support; stroke and NHS Talking Therapies staff lacking confidence and knowledge to manage stroke survivors' psychological needs; and a disconnect between different services across the stroke care-pathway, in terms of resources and communication. We aimed to address these main themes with the intervention package, and these are discussed in detail below. Pre- and post-implementation barriers and facilitators identified by staff are presented with illustrative quotes for each theme in Tables 2, 3 and 4.

3.3. Lack of specialist psychological support for stroke survivors

Across all stroke-specific services, participants in the pre-implementation interviews felt that specialist clinical psychology support was very limited, particularly for acute and rehabilitation stroke services. In services that did have access to clinical psychology, it was felt that there was not enough availability and patients were often discharged home before the clinical psychologist had the opportunity to see them.

A lack of specialist psychological support was also indicated by NHS Talking Therapies staff who reported that stroke survivors were only occasionally part of their caseload, with some NHS Talking Therapies staff stating they had never worked with stroke survivors. They also reported a general lack of knowledge about stroke, with limited stroke-specialist training.

NHS Talking Therapies staff felt that although they did not often see stroke survivors, their service could adapt to their additional needs, including flexibility with the duration and number of sessions (which are generally standardised in NHS Talking Therapies interventions), and in some instances, with the location of sessions (which are generally held in the community at primary care clinics); however, this flexibility was not available for all NHS Talking Therapies staff.

Stroke staff felt that because of a lack of specialist support, there was a lack of psychological care for stroke survivors. Staff also felt that psychological care was generally limited as physical aspects were prioritised. Staff perceived that they did not have time to provide psychological support, and having a high number of patients meant that the priority lay with getting patients physically well to be discharged.

The training, implemented as part of the intervention package, aimed to highlight the impact of psychological issues on patients and their families, and increase awareness of the importance of psychological support; attempting to redress the balance between physical and psychological care in stroke teams. In the post-implementation interviews, staff felt there was an increased focus on psychological aspects of care and reported that the intervention package had made staff more psychologically aware; improving care.

NHS Talking Therapies staff reported that they felt more comfortable providing psychological support for stroke survivors as their manager had also attended the training, suggesting approval for working with stroke survivors.

Whilst it was beyond the scope of the study to increase specialist psychology support (i.e. a Clinical Psychologist) in stroke teams, the intervention package was designed to address this issue by using existing resources and services. As part of the intervention package, Clinical Psychologists with existing, but limited, allocation to stroke teams were encouraged to support stroke staff to deliver psychological support to patients at steps 1 and 2, leaving the Clinical Psychologist available to directly support patients with more complex needs. This was already the case in one site, and planned within another, as reported in the pre-implementation interviews. Additionally, in one site, there already existed strong links between voluntary stroke services in the community and the local NHS Talking Therapies service, with the two having previously collaborated to offer a wellbeing group for stroke survivors to attend.

This collaboration was aimed to be replicated in the other sites, where there were already good links between stroke teams and voluntary services, and intervention packages were designed to promote improved links with NHS Talking Therapies services to increase the availability of specialist psychology support. Following implementation of the psychological support intervention package, stroke staff reported becoming more aware of additional sources of support in the community (i.e. NHS Talking Therapies and voluntary services) through the intervention package's training, pathway and manual. NHS Talking Therapies staff also reported better links with stroke teams, with each giving mutual support.

Some NHS Talking Therapies staff felt there was not enough time between sessions with clients to make best use of the named contact in stroke teams to seek their advice on working with stroke survivors.

Table 2. Pre- and post-implementation barriers and facilitators and intervention package aspects for theme *Lack of specialist psychological support for stroke survivors.*

Pre-implementation barriers	**Pre-implementation facilitators**
Limited specialist clinical psychology support "From a specialist psychology angle, we've got a very tiny window of one afternoon a week where we've got access to the service… a lot of patients run the risk of being missed." (Ward Manager, site D)	Links between psychology and charity stroke services "The wellbeing group with the Stroke Association was brilliant because we had somebody from the Stroke Association present, and then there was me and my colleague who's

Lack of specialty expertise/knowledge about stroke (NHS Talking Therapies) "In my PWP training, we touched on long-term conditions but it was quite brief and… it wasn't related to stroke specifically." (PWP, site B) Physical recovery prioritised over psychological wellbeing "Because we're very much in a discharge culture unfortunately in the hospital, it's about getting the equipment, the mobility they need, that psychology probably isn't prioritised." (Senior Physiotherapist, site D)	a PWP so it worked really well." (High Intensity Cognitive Behavioural Therapist, site D) Clinical psychologists wanting to support staff to deliver psychological support "I'd like [my role] to look more like work with staff rather than work with patients in [the acute and rehabilitation] setting, I think that's the more effective use of my time there… empowering staff to deal with things when they come up. Because of my time… I can't provide that sort of urgent response service." (Clinical Psychologist, site D)
Intervention package	
Training to increase awareness of importance of psychological support. Clinical psychologists encouraged to support stroke staff to deliver low-level psychological support. Facilitation of collaboration between stroke and NHS Talking Therapies services, providing reciprocal support and supervision.	
Post-implementation barriers	**Post-implementation facilitators**
Limited opportunity (time) to make use of named contacts provided "There wasn't enough time in between sessions to contact [stroke team named contact]." (PWP site B)	Increased focus on psychological care "The training has brought psychological needs to the forefront, so hopefully patients are getting more holistic care." (Senior Occupational Therapist, site D) Support from senior management staff to engage with intervention package "It was good that there were managers [at the training], and knowing that they are on the side of us seeing people who had stroke as well." (PWP, site B) Increased awareness of, and collaboration between, teams and services "I bumped into someone who works in the stroke team who I met on the ADOPTS training and we just agreed to meet up and try to help each other out." (High Intensity Cognitive Behavioural Therapist, site C)

3.4. Staff confidence to provide psychological support post-stroke

In the pre-implementation interviews, when asked whose responsibility it was to provide psychological care, all staff stated it was everyone's responsibility to manage the psychological wellbeing of stroke survivors. However, there were mixed beliefs about staff's ability and confidence to identify and manage post-stroke psychological problems. More experienced stroke-specific staff were generally confident and felt able to identify mood issues and that they would be able to provide low-level psychological support. They were less confident with more moderate-to-severe issues, and felt this was beyond their role. Junior staff were generally confident in identifying low mood, but were less confident about managing such issues and would refer to more senior team members.

Whilst most stroke-specific staff felt they had the skills appropriate for identifying mood problems, they felt that managing issues would require additional training. Junior stroke staff felt that they would benefit from learning more about how to support someone with mood problems and to refer and escalate issues appropriately. Senior stroke staff felt that they would benefit from training in low-level management of mood issues.

In one site's community stroke team, there was a strong history of training for staff in managing psychological issues, driven by the team's Clinical Psychologist. In another site, stroke-specific staff felt that although they had direct links with a neuropsychology service, they were not benefitting in terms of receiving training and increasing skills.

NHS Talking Therapies staff felt able to manage psychological issues, but had limited confidence because they lacked stroke-specialist knowledge. It was suggested that confidence was related to experience and that more experienced staff would be better placed to work with stroke survivors compared to newly qualified PWPs as this was perceived to be more challenging. NHS Talking Therapies staff generally felt they required additional training to increase their knowledge of stroke and to be able to modify their usual therapies to meet stroke-specific needs.

Given the low confidence in providing post-stroke psychological support, and the high appetite for training, the intervention package was designed to include training which would be delivered separately for stroke staff (to increase their knowledge and skills for providing psychological support) and NHS Talking Therapies staff (to increase skills in adapting therapies for stroke). Stroke nursing staff had indicated that it might be difficult to attend training given the demands of the ward and staffing issues. The intervention package aimed to address this by delivering training sessions that were repeated on different days, at different times, and at different locations. Despite this, some staff, particularly nursing ward staff, were unable to attend the training.

Staff who were able to participate in the training aspect of the intervention package found it to be useful. Senior stroke staff reported greater confidence in identifying and managing mood issues. NHS Talking Therapies staff felt more confident working with people with communication difficulties following the training.

Stroke staff also reported feeling more confident about their own limits in managing psychological problems, and their referral options. In one site, the training was continued and delivered as part of in-service training for all therapy staff working with the stroke team.

In another site, the Clinical Psychologist working with the stroke team intended to deliver the training for NHS Talking Therapies staff, but this did not happen within the ADOPTS study period. There were also attempts from the community stroke team in another site to engage the local NHS Talking Therapies service in delivering training to staff in their service during the study period, but time pressures made this difficult, and so the intervention package may not have been fully implemented.

Table 3: Pre- and post-implementation barriers and facilitators and intervention package aspects for theme *Staff confidence to provide psychological support post-stroke* 319 320

Pre-implementation barriers	**Pre-implementation facilitators**
Lack of confidence to manage low mood "Staff can get quite anxious… they can identify issues but the difficulty comes in managing them." (Occupational Therapist, site B) Current training for stroke staff not sustainable "[Neuropsychology team] had been good in terms of helping us with education, but there are issues around contracts and what they currently provide and what we feel they can provide… at the moment they don't have time for it in their contract." (Stroke Consultant Physician, site A) Ward demands and staffing issues may make it difficult for nursing staff to attend training [quote] NHS Talking Therapies staff lacked stroke-specialist knowledge "When you're a newly qualified PWP it's a bit more of a challenge anyway and you're not quite so confident with the basic things, so the added challenge of stroke wouldn't be easy… whereas if you've been doing it for longer then it's easier to deal with the added complexities of stroke." (PWP, site B)	Managing stroke survivors' psychological wellbeing is all staff's responsibility "I think it's everybody's responsibility… including healthcare support workers as well as the trained staff." (Ward Manager, site C) Training would help increase confidence and skills "More training for us as speech therapists, not to be psychologists, but to perhaps know a little bit more about what to do, what way we could go and when." (Speech and Language Therapist, site A) "Not so much formal training in terms of skills work, but more informative with an overview of what kind of impact stroke can have and the different severities within it." (PWP, site A) "There's definitely interest in more training and support to enhance how we adapt therapy." (NHS Talking Therapies Service Manager, site C)
Intervention package	
Training for stroke staff (to increase knowledge and skills for providing psychological support) and NHS Talking Therapies staff (to increase skills in adapting therapies for stroke). Flexibility in delivery days/times/duration.	
Post-implementation barriers	**Post-implementation facilitators**
Nursing staff were unable to attend training "There was the ADOPTS training but… some of the therapy staff went on it but I didn't go on it,	Greater confidence in identifying and managing mood issues

it was too busy on the ward." (Junior Nurse, site C) Intended training was not always delivered, e.g. by clinical psychologist, or NHS Talking Therapies "I asked [NHS Talking Therapies] if they could come and talk about mental health, and obviously stroke-related, and how we could help, but they didn't have time to come physically to provide training… they could only send out information." (Occupational Therapist, site B)	"In the training, thinking about the way we communicate… I found really useful and able to adapt." (PWP, site B) Training was cascaded and incorporated into standard in-service training "I've incorporated it into in-service training for therapy staff, because things around psychological impact weren't really there, and the feedback's been really positive." (Senior Occupational Therapist, site D)

3.5. Reinforcing the stroke care pathway to address disconnect between services

In pre-implementation interviews, stroke staff were generally able to describe the pathways they had in place. In some services, there was a formal pathway, while in others pathways were more informal. In hospital, junior staff often reported any issues regarding mood to the Occupational Therapist in the team. NHS Talking Therapies staff reported that no pathway existed in their service which was stroke-specific. Procedurally, across the four sites, screening for mood problems was often reported as only being carried out once in stroke services. There were a variety of screening tools used across the different services, and no standardised way of communicating mood issues on referral between services. NHS Talking Therapies staff also felt that the measures of mood used in their services were not appropriate post-stroke.

The pathway aspect of the intervention package was designed so that, where possible, there was consistency in the screening tools used to make the scores more meaningful across services. As part of the intervention package, a specific section relating to mood was added to existing referral forms in stroke services to facilitate communication about mood on transition between services e.g. from hospital to community. In post-implementation interviews, some staff, generally more junior staff, reported being unaware of the psychological care-pathway. In one site where the manual and pathway required approval at an executive level, which was not achieved within the study period, there was some uncertainty about how and when to implement the intervention package. Other staff stated they were aware of the care-pathway introduced as part of the intervention packages, and that it was now embedded as part of their practice and found it to be beneficial, both for staff using it, and for stroke survivors. Some staff stated that they were not aware that a manual existed; this was mainly unregistered staff (Healthcare Assistants). However, staff who were aware of the manual were using it and found it particularly useful for determining which screening tools were appropriate to use.

In pre-implementation interviews, both stroke and NHS Talking Therapies staff felt that knowing each other and having named contacts in the different services would promote more collaborative working.

As part of the intervention package, contact details of various services were provided during training and within the manual. Following implementation of the intervention package, some staff were not aware of the contacts in their area. However, other staff

reported that they had used the details of the local stroke or NHS Talking Therapies champions to build links across teams.

Table 4: Pre- and post-implementation barriers and facilitators and intervention package aspects for theme *Reinforcing the stroke psychological care pathway*

Pre-implementation barriers	**Pre-implementation facilitators**
No formal pathway "I think at the moment there is nowhere for us to go for advice… from a psychological perspective we don't have anywhere to go and quite often we do need some guidance, so I think it would be really good if we had specific links identified to us." (Ward manager, site C) No standardisation of screening or referral "We use the circles and the, I think that's a really good one, but the [mental health team] don't use that." (Occupational therapist, site B)	Knowing about other services and being able to discuss cases, with key contacts "Communication between the different teams, like a forum where people can talk about the different services they work in, what they offer, and then you've got contact people that are just a phone call away. I think that would be a massive help." (High Intensity Cognitive Behavioural Therapist, site C)
Intervention package	
Manual to ensure consistency of screening tools and standardise referral forms and options. Key named contacts in each of stroke and NHS Talking Therapies services for mutual support.	
Post-implementation barriers	**Post-implementation facilitators**
Unawareness of psychological care pathway and implementation of manual "We had the manual, but we were sort of… when are we supposed to do it, do we start it?" (Therapy Assistant, site A)	Manual used by range of staff "The manual's really good for teaching our rotational staff, our junior staff, who've never assessed somebody's mood before." (Physiotherapist, site D) Care pathway embedded into service "Staff now know clearly what to do to escalate issues and who to talk to." (Occupational therapist, site B) "We had therapy staff and nurses that did the training. And it really broadened their knowledge. They had no idea what we would look at if a patient had low mood. They wouldn't really know what to do. So again, through the ADOPTS, and because we're following the

	ADOPTS pathway, they're much more tuned in to that side of things." (Occupational therapist, site C) Increased links and collaboration between services "After the training, I got in contact with the stroke ward at the hospital, just to make them aware that we will see people that are struggling because of a stroke, and we can also contact them if we need some extra advice." (PWP, site C)

Some of the barriers identified in pre-implementation interviews were felt to have been addressed through the intervention package. However, there were other barriers that remained even after the intervention package was implemented, e.g. the lack of clinical psychology support, and the need for training, which was due to the accessibility of the training as many staff were unable to attend. The barriers that were felt to have remained were generally those that were beyond the parameters of the study and the intervention package.

4. Discussion

This study was the first to explore staff perceptions of psychological care for stroke survivors, pre- and post-implementation of an intervention package incorporating a collaborative care-pathway, staff training, psychological support manual, and staff supervision. The implementation of a multi-faceted intervention package presents both opportunities and challenges. Barriers identified in pre-implementation interviews included a lack of specialist psychological support, a lack of confidence and skills to manage stroke survivors' psychological needs, and limited collaboration and consistency between different services. The intervention packages implemented in the four sites were designed to address these barriers and befit the needs and resources available in each site. Following implementation of the intervention packages, some barriers were felt to have been addressed and others were not. This is the first study to propose what is required for effective implementation of an intervention package incorporating a collaborative care pathway for enhancing post-stroke psychological support.

Training has often been deemed by staff as a solution to service gaps and for the implementation of a range of healthcare services in various settings globally [31,32]. This study's pre-implementation interviews also identified the need for training, which was a component of the intervention package to facilitate the implementation of a matched-care approach to psychological support. Generally, the training component of the intervention package was felt to have been implemented well, and was reported as beneficial by those able to attend sessions, in particular increasing staff confidence to provide psychological support and ultimately enhance patient care. However, training attendance varied by staff role; therapy staff in stroke teams were more likely to attend training than were nursing staff and junior/unregistered staff. This was attributed to the difficulty in releasing nursing staff for training and was a common theme across sites. All training was delivered in-

person, whereas now training is more likely to be offered online, and could be self-paced which may be more accessible. The study was in a period when the UK's NHS was experiencing a staffing crisis, with 50% staffing overall, so implementation of the training might have been affected. In sites and services where managers were engaged, staff were more likely to attend training and feel more comfortable with supporting stroke survivors psychologically; this was true for both stroke and NHS Talking Therapies services. A culture which includes supportive management is important for implementing the intervention package, as in previous research [33].

In one site, training was cascaded to staff who had been unable to attend, and there seemed to be an increase in skills and knowledge for providing psychological support overall, alongside a shift in care with a greater emphasis on psychological wellbeing. Cascade training may be an effective solution to being unable to attend the main training. However, cascade training may not allow nursing staff to receive training, e.g., in another study, where the unpredictable and persistent demand for nursing care made attendance difficult [34]. In other sites, there was less awareness of the training, pathway and manual, particularly among junior/unregistered staff, suggesting that the intervention package was not being cascaded to all staff. This indicates a challenge in sustaining the intervention package; sustainability of interventions has been a significant challenge in other healthcare settings, e.g. USA mental health care [35]. The intervention package was not well-cascaded despite the belief that psychological care was everyone's role and responsibility. Staffing issues may have contributed to this, and time constraints have previously been a barrier to psychological provision post-stroke [36]; although this suggests the culture of physical needs prioritised over psychological needs even after implementation of the intervention package.

The manual was generally deemed beneficial and was being consistently used as a tool to guide management of psychological issues. However, there were some staff who were unaware of the manual; again, this was more common among junior staff in both stroke and NHS Talking Therapies teams. In one site, the manual was not finalised as it required signing off by an individual at executive level; the processes for introducing anything new in this site was a barrier for implementing this aspect of the intervention package. In this site there was some confusion about what was to be implemented when; the manual was not seen as something that should be in use. This suggests an issue around ownership of the intervention package, despite the involvement of different services in its development. This is similar to other research where senior staff developed intervention ownership but this did not extend across the multidisciplinary stroke team [34]. It may be that having a local champion that could be involved practically in implementing the intervention package would negate the ownership issue. However, facilitation of an intervention by one or two individuals might be insufficient to overcome contextual factors [37] and the context and existing resources determine how the implementation could be facilitated. In studies of co-designed interventions for suicide prevention, clear communication and effective team structures were found to facilitate effective implementation [38]. Although the ADOPTS study used a participatory approach, it tended to be more senior staff who participated in stakeholder meetings to develop intervention packages. Encouraging junior staff to be involved in the development phases and facilitating the implementation of intervention packages may increase their ownership of it. This approach has been used in the USA, where staff from different services and across levels of care have been successfully engaged in implementation efforts through the use of 'innovation tournaments', inviting staff to submit their ideas for implementing evidence-based practices [31]. The involvement of all stakeholders has been deemed important for effective implementation of co-designed interventions for the prevention of suicide [38,39].In a future study, increased ownership of the intervention package might be facilitated through some modification to the staff training, with more content relating to the overall intervention and incorporating the pathway and manual, and through the use of an alternative participatory design ensuring involvement of stakeholders across all roles and disciplines.

There were inter-site differences regarding access to a clinical psychologist, and even among sites with access, there were inter-site differences regarding the nature of their role. In some sites, the clinical psychologist felt their role was to enhance the capacity of the service through educating and mentoring staff with less advanced skills, increasing psychological support at steps 1 and 2. Already having a clinical psychologist well-known to the stroke teams allowed for greater collaboration for training and supervision and the challenge of limited clinical psychology support seemed to be better addressed through increasing education for staff by the clinical psychologist. In other sites the clinical psychologist felt they should be more involved in directly supporting patients and there was less investment in increasing the capacity of stroke staff. Although clinical psychology teams were known to stroke teams, the collaboration between the two could be improved, and following implementation of the intervention package there was still a feeling that specialist input was lacking. Therefore, the perceived nature of staff's roles may play an important part in implementing the intervention package and collaboration between services.

A study limitation is that it was conducted in only four sites; so findings may not generalise to other sites, and future studies could involve more sites, incorporating more service delivery models. However, the four sites differed in their stroke service delivery models, resources available, and existing links with mental health services. The differences between sites might give some indication as to which challenges to implementation of a collaborative-care package might be more important to consider, in which type of site. However, this might only be applicable to UK NHS settings and more information about services and collaborative-care in other settings would be needed to identify potential implementation challenges and how these might be overcome. Despite this, the challenges reported here are similar to challenges reported in other healthcare settings in other countries, particularly around accessing training [31,32].

There were fewer post-implementation interviews conducted than pre-implementation due to study time constraints as the implementation period had to be extended (as reported in the main findings paper [26]), so perspectives about the actual challenges to implementing the intervention packages may not be as comprehensive as the perceived challenges. Furthermore, post-implementation interviews with NHS Talking Therapies staff were only with those staff who had completed the training as part of the intervention package, so there is no real indication about why some NHS Talking Therapies staff did not participate in training and what the actual challenges were for NHS Talking Therapies services in implementing this aspect of the intervention package. Additionally, no post-implementation interview was conducted with a clinical psychologist aligned to a stroke team, so it is not possible to determine how the nature of their role may or may not have changed following implementation of the intervention package. The timing of the post-implementation interviews meant that it was not possible to gauge any sustained impact of the intervention packages, and how this may be related to engagement of staff at all levels. Since this study was conducted, there have been developments in NHS Talking Therapies to offer services in long term conditions, and for staff to make links with physical health services, which was a key element of the ADOPTS intervention package. Future studies should take these developments into consideration in the design and implementation of a collaborative care pathway, and could explore the effectiveness and cost-effectiveness of the intervention package.

5. Conclusion

The current study adds new knowledge to the literature around the barriers and facilitators to implementation of a health intervention within a collaborative care pathway. The implementation of our intervention package to improve post-stroke psychological support through increased staff skills and collaborative working between services relied on the engagement of staff at all levels across all services. The nature of the investment from staff impacted on ownership of the intervention package, beliefs about priorities,

and overall enhancement of service capability. Staff engagement and investment might be increased through modification of service delivery models or use of a champion to facilitate implementation, ultimately enhancing effective implementation of the ADOPTS intervention package and increasing post-stroke psychological support provision. The strategies proposed for effective implementation could also be applied in future studies, and in other settings, of collaboratively developed multi-faceted intervention packages.

List of abbreviations

ABI: Acquired Brain Injury service

ADOPTS: Accelerating Delivery of Psychological Therapies after Stroke

ESD: Early Supported Discharge

HIT: High Intensity Therapist

IAPT: Improving Access to Psychological Therapies

MDT: Multi-disciplinary Team

NHS: National Health Service

PWP: Psychological Wellbeing Practitioner

TDF: Theoretical Domains Framework

WTE: Whole-time-equivalent

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