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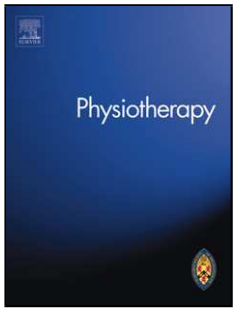

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Understanding the barriers and enablers to implementation of a self-managed exercise intervention: A qualitative study

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Abstract

Background: Despite a proliferation of research evidence, there remains a 'gap' between what this evidence suggests and what happens in clinical practice. One reason why physiotherapists might not implement research evidence is because the findings do not align with their current practice preferences.

Objectives: While conducting a multi-centre RCT we aimed to explore possible implementation barriers and facilitators with regard to the intervention under evaluation; a self-managed loaded exercise programme for rotator cuff tendinopathy.

Design: A qualitative study within the framework of a mixed methods design. Data was collected using individual semi-structured interviews and analysed using the framework method.

Setting: Three NHS physiotherapy departments.

Participants: Thirteen physiotherapists.

Results: Six themes were generated: 1) the physiotherapists preferred therapeutic option; 2} the role of the physiotherapist; 3) attributes of the intervention; 4) attitude to symptom response; 5) response to therapy, and 6) continuing professional development. Differences between the preferred therapeutic approach of the physiotherapists and the self-managed exercise intervention were apparent; particularly in relation to the type and number of exercises, the use of manual therapy and the extent of loading. The physiotherapists recognised their role as knowledge translators but certain attributes of the intervention appeared to serve as both a barrier and facilitator; particularly the simplicity. Opinion regarding the optimal symptom response during exercise prescription also differed.

Conclusion: Some relevant and important physiotherapist related barriers and facilitators concerning implementation of research findings have been identified. The influence of these factors needs to be recognised and considered.

Word count: 3737

Key words: rotator cuff, tendinopathy, qualitative research, self-management, implementation of research

Introduction

Despite a proliferation of research evidence, there remains a 'gap' between what this evidence suggests and what happens in clinical practice. It has been estimated that on average it takes 17 years for research evidence to impact upon clinical practice [1]. Acknowledgement of this has stimulated the development of the discipline known as implementation science with the aim of developing and improving methods of translating research knowledge in to practice [2].

Among many, one reason why physiotherapists might not implement research evidence is because the findings do not align, or may even contradict, their current practice preferences. While conducting a multi-centre randomised controlled trial (RCT) evaluating a self-managed loaded exercise programme versus usual physiotherapy treatment for rotator cuff tendinopathy [3] we were aware of this potential barrier in relation to the self-managed exercise intervention. The single exercise intervention has been described extensively elsewhere [4]; it is an intervention that is frequently painful to perform and requires the patient to take responsibility for their management and hence such exercise prescription does not align with the clinical reasoning processes of many physiotherapists in the UK [5]. Hence, this lack of alignment highlights the potential for problems relating to implementation fidelity during the RCT and also raises potential problems in relation to future implementation of the intervention, if indicated, in to real-world clinical practice.

With this in mind, we conducted a qualitative investigation alongside the RCT with the aim of exploring possible implementation barriers and facilitators with regard to the self-managed loaded exercise programme in the context of the UK NHS from the perspective of the physiotherapists delivering the intervention within the RCT.

Methods

Design

A qualitative study was undertaken within the framework of a mixed methods research design. A constructivist perspective, which aligns with the critical realist perspective adopted for the overarching mixed methods design, was adopted for this qualitative study to facilitate focus on individual practice discourse [6,7].

Setting

Three NHS physiotherapy departments; one in northern England, one in the midlands and one in the south.

Participants

A convenience sample of physiotherapists, who had prescribed the self-managed exercise intervention within the SELF study, was recruited. The physiotherapists were initially briefed about this qualitative study during the regular pre-study training sessions and were subsequently approached via group e-mail inviting them to participate. Interviews were scheduled to coincide with site visits by the chief investigator and mutually convenient appointments were arranged. Participants had the opportunity to review the participant information sheet and to discuss any concerns before the consent form was signed. Participants who were not available at the time of the site visits or had not prescribed the self-managed exercise intervention within the SELF study were excluded.

Data collection

One-to-one interviews were directed by semi-structured topic guides that were developed during the pilot phase of the study [8], recorded using a digital voice recorder and transcribed verbatim. All interviews were conducted by the chief investigator. The participants were aware that the chief investigator was a researcher undertaking the study and also a physiotherapist by background.

Data analysis

The qualitative data were analysed independently by the chief investigator using the framework method of analysis [9]. The framework method has been developed specifically for applied research in which the objectives of the investigation are set *a priori* [10].

Analysis began with data familiarisation with reference to the thematic framework that had been developed during the pilot study, but the framework was further developed iteratively during this study. The framework formed the basis upon which key issues and themes were developed and by which the data were examined. Subsequently the data were indexed according to the framework before a charting process took place; where the data were organised according to the defined thematic framework. Finally the charts were used to define concepts and find associations to provide explanations for the findings [9,10]. Respondent validation was not undertaken. The final themes are depicted in figure 1:

Results

A total of 31 physiotherapists were involved in the SELF study and thirteen across the three centres, who delivered the self-managed exercise intervention, were recruited to this qualitative study according to convenience sampling. Data saturation, where no new relevant data emerged, was achieved. Interviews lasted an average of 12 minutes (range 6 to 19 minutes). Seven of the physiotherapists (54%) were male. The number of years qualified ranged from one to 32 years (mean 9.4 years). Five out of the 13 reported post-graduate qualifications at the level of diploma or beyond (table 1).

Preferred therapeutic option

Initially, the physiotherapists were asked to reflect upon how the self-managed exercise approach differed from their usual or preferred approach for these patients. For all of the physiotherapists, exercise was a central tenet of the treatment they prescribed. However, in contrast to the single

exercise approach of the self-managed intervention, the vast majority of physiotherapists would prescribe a greater number and range of exercises for their patients. Typically this related to a greater number and range of strengthening exercises and/or exercises thought to address scapula dyskinesis in tandem with a less aggressive approach to initial loading:

'I might give them three or four things to do…rather than one isolated thing...' (P10)

'…scapular stability maybe a little bit more rather than just working to a certain exercise without focusing so much…' (P4)

'…maybe less load initially erm. I would maybe have gone in more of a pain free range to start with knowing that I had sort of control of the symptoms.' (P9)

It was apparent that electrotherapy was not a preferred therapeutic option in this context:

'…I generally don't use electrotherapy for anything I feel is rotator cuff related or impingement related.' (P4)

But, manual therapy was a preferred option for some of the physiotherapists. The use of manual therapy was rationalised with reference to dealing with movement restriction at the shoulder, neck or thoracic spine and/ or as a means of improving motor control:

'I typically always have a look at hands-on stuff first erm as well to try and improve the movement.' (P6)

'I'd certainly be altering, trying to do hands-on stuff in terms of the neck or maybe scapular position; trying to recruit more scapular stabilisation muscles, more sort of functional muscle patterning…' (P8)

For some of the physiotherapists, prescription of the self-managed loaded exercise programme was a challenge in terms of what might be regarded as the simplistic and restricted nature of the intervention:

'…if it was self-management I always wanted to do extra things that I could identify there and then and that was quite hard for me to take a step back…' (P8)

The physiotherapist's prior education, experience and beliefs regarding the most appropriate management for rotator cuff tendinopathy shaped their opinion. This reflection offered a basis upon which the physiotherapists considered how their current clinical reasoning processes aligned with that proposed within the self-managed exercise programme. For some of those with less experience, these beliefs were less developed:

'I didn't have as much experience, probably, as other people in the study I wasn't one of these practitioners who had a definitive plan…' (P3)

For others with greater experience it was apparent that their existing belief system served to facilitate for some, but challenge for most, the rationale underpinning the self-managed loaded exercise programme:

' …in terms of the training it was always saying, taught that you don't want to push in to pain…' (P7)

'…to give one exercise…it was more I had a bit of an issue with that more than the patient did to start with.' (P11)

'…you're fearing doing someone damage because it's going against clinical reasoning.' (P12)

Role of the physiotherapist

The physiotherapists recognised their role in terms of helping the patient understand the nature of their disorder and the role of the intervention in assisting them to achieve a positive outcome. They also recognised their role as a means of on-going support. So, the physiotherapists recognised the importance of knowledge translation and the need to 'sell' the self-managed exercise intervention; both of which were underpinned by the need to develop a therapeutic relationship:

'It's that trust thing…if you give it confidently enough they believe you.' (P1)

'With a good explanation I think people seem to fully accept it...' (P4)

'I think I sold it quite well to her…' (P13)

However, as previously identified, the self-managed exercise programme did not align with usual practice for most of the physiotherapists and challenged existing clinical beliefs around what constitutes the most appropriate treatment for rotator cuff tendinopathy. For some of the physiotherapists, although they still recognised the need to 'sell' the intervention, they found it difficult:

'I worried they wouldn't get on board and stuff so I find it very hard to really embrace it.' (P2)

'…initially my concern was selling it…' (P5)

In a self-management paradigm the need for on-going monitoring and support appears to be a key determining factor in attaining a successful outcome for most people. The physiotherapists recognised this, particularly when the patients were faced with limited progress and or apparent worsening status:

'I can definitely remember one guy coming back after the first lot saying he was no better and but I just had to kind of erm, you know, re-iterate to him that I wouldn't expect him to be better at this stage, it normally takes a time period of at least four to six weeks before they even start to be able to see any change in their symptom and it can be longer and the whole period of this is usually 12 week minimum; again can be longer, can be four months.' (P11)

'I always gave the patients a window; I always said if you're struggling just phone up...' (P1)

Attributes of the intervention

The simplicity of the self-managed exercise programme, in terms of a single exercise approach, was reflected in both a positive and negative light. Most of the physiotherapists appreciated the

simplicity, particularly from the perspective of the patient, in terms of improving communication and exercise adherence:

'I think people seemed quite clear, people seemed quite happy that they didn't have to do a great deal.' (P4)

'…it's been a lot simpler treating the self-management group; keeping the exercise regime simpler, the patients have understood it more, erm the conversation between therapist and patient has been clearer' (P11)

'I think, the more simple you keep things for people, the better the response and the easier it is as a clinician and as a patient.' (P13)

But, this simplicity was not appreciated by all and the physiotherapists considered this from their own perspective and that of the patient:

'For my patients, they certainly found it slightly different, especially those that had experienced private physio before, erm they said oh, is that it? They were, well are you not doing anything else? Is it just one exercise? Is that it?' (P8)

Additionally, where the physiotherapists identified factors that they felt relevant to the presenting condition but did not feel that it would necessarily be addressed by the single self-managed exercise programme, they expressed disquiet:

'I had a feeling one of them was a lady who I needed to do serratus stuff and scapular control with and so rather than just flogging the pushing into the tendon loading side...' (P2)

Other aspects of the intervention, for example infrequent follow-up, goal setting using the patient specific functional scale and monitoring of exercise adherence using the exercise diary were only sparingly mentioned. As highlighted here, the main focus of the narratives related to the single exercise approach and its simplicity.

Attitude to symptom response

One guiding principle of the self-managed exercise programme was that exercise should be prescribed that produced pain. It is feasible that if the physiotherapists had doubt about the value of prescribing painful exercise then the likelihood of them facilitating behaviour change towards undertaking a regular programme were likely to be compromised. Discussion around this factor generated a broad range of responses from those who were very comfortable with the notion, those who were very uncomfortable and those who might be regarded as taking more of a middle ground:

'I kinda got to the stage where I was getting people to do exercises through pain anyway.' (P1)

'It was only a concern for me if she was going away and it was making her pain worse later in that evening or later that day. If it was painful at the time and it stopped I wasn't concerned at all.' (P13)

'…for me I'm so used to doing the type of exercise I do in the sense of not pushing through pain…' (P2)

'I wouldn't avoid pain previously, I would avoid certain levels of pain but I wouldn't avoid working into it particularly providing it would stop after exercise.' (P4)

'Those who are above and beyond the moderate pain I would probably choose a different exercise to load them with.' (P11)

For some, discussion around this generated reflection:

'…in terms of the training it was always saying, taught that you don't want to push in to pain that you don't, you might get associated inhibition and sort of, of the muscles alongside it so, so different from that point of view. But then, like you said, if you have a look at it from the eccentric loading perspective then we do ask people to, to go in to pain when they're exercising so erm I could see how it might fit…' (P7)

Response to therapy

The physiotherapists were asked to consider how the patients had responded to therapy and whether they had encountered any problems during the follow-up period. For reasons relating to the narrative above, there appeared to be a general pre-trial sense that the physiotherapists doubted the potential value of the self-managed loaded exercise programme. The doubt seemed to originate in relation to the self-managed nature of the intervention and the painful loading aspect using just one exercise. However, it seems that these prior beliefs were challenged through exposure and experience:

'I was pleasantly surprised that actually I've had a few patients who did really and actually some of the older patients did very well very quickly, potentially those who don't normally load their tendons much at all.' (P11)

'I was just surprised actually how effective it's been…' (P3)

'I don't think they reported any problems.' (P2)

The only concern that was consistently expressed with reference to response to therapy was time. The physiotherapists felt that most of the patients took longer to achieve a worthwhile clinical outcome than might be expected using other means of treatment:

'The only slight barrier was more of the slightly slow progress' (P13)

However, this was a concern that the physiotherapists appeared to deal with effectively as described above in relation to the role of the physiotherapist.

Professional development

Many of the physiotherapists reflected upon their involvement in the SELF study from the perspective of professional development. Although this was not specifically questioned during the interviews it is something that the physiotherapists offered when they were invited to make any

further comments. It was apparent that reflection had taken place in terms of challenging their current practice and the reasons underpinning their current approaches but also, for some, practice had changed during the course of the trial.

'One patient, when I initially started on self-managed exercise, I did feel that perhaps if I'd assessed them not for that I would have done some cervical mobilisations because they were stiff in rotation. Err, but actually through the course of the treatment, the shoulder improved and the patient was very pleased with the outcome at the end. So, in some respects that challenges what I think about how I should treat patients.' (P5)

'We do the same thing with eccentric loading for the Achilles and for the patellar tendon so why not for the shoulder?' (P11)

'I didn't realise I guess how much manual therapy I did, I think it's probably made me a bit more aware of that…' (P7)

'…in fact I've started to trial it in some of my other patients that I'm seeing; just trying to push them a little bit harder with their exercises…' (P7)

Rather than been seen as a threat, this reflection and challenge was reflected upon positively:

'…it's probably challenged my way of thinking which has been nice.' (P12)

Discussion

This qualitative study has identified some of the physiotherapist related barriers and enablers concerning implementation of the self-managed exercise intervention in the SELF study. For most of the physiotherapists there were clear differences between their preferred therapeutic approach and the self-managed exercise intervention. This mainly related to the type and number of exercises, the use of manual therapy and the amount of loading introduced through exercises. The physiotherapists recognised their role as one of knowledge translator in relation to understanding

the nature of the disorder and 'sales person' in relation to persuading the patient about the potential value of the intervention. The simplistic nature of the single-exercise intervention was viewed in both a positive and a negative light; positive in terms of communication of what is required and exercise adherence but negative in terms of restricting the physiotherapists in relation to the range of interventions that they prefer to offer in this context. The importance of on-going monitoring and the physiotherapist as a source of self-management support were recognised. Attitudes towards pain provocation during exercise varied within the sample but it was apparent that where the physiotherapists felt that pain provocation was not the most effective management strategy this contributed to implementation difficulties. There appeared to be an underlying uncertainty regarding the potential value of the self-managed exercise programme prior to commencement of the trial; a view-point that, for most, was challenged while the study was on-going and the physiotherapists experienced the intervention and response to the therapy. However, in relation to the response to therapy, there was a feeling from many of the physiotherapists that response time was slower for the patients undertaking the self-managed exercise intervention in comparison to what might be expected with other approaches to treatment. Finally, the physiotherapists reflected upon their experience in the trial in a mostly positive way in terms of how involvement had challenged their current thinking and in some instances stimulated a change in practice.

From an implementation science perspective these findings highlight an interesting point for discussion and further consideration. There is emerging evidence to support the value of loaded exercise for rotator cuff tendinopathy although there is much uncertainty around the prescription parameters [4,11]. This uncertainty is present across the spectrum of interventions currently offered for rotator cuff tendinopathy, but the clinical effectiveness of manual therapy, in this context, has been challenged [10], based upon systematic review evidence with questions raised about the value of specific exercise to address scapula dyskinesia. Hence uncertainty is a key summary descriptor in relation to the effectiveness of interventions for rotator cuff tendinopathy. Despite this, the absence

of manual therapy and scapula stabilisation exercise from the self-managed exercise intervention appeared to be a challenge for many of the physiotherapists who perceived their omission as a weakness of the intervention. Among other things, this might suggest that research evidence is not a central or strong driver of physiotherapy practice in this context. Instead other factors, for example beliefs influenced by prior teaching and experience, as reflected in the narratives, are more dominant [12]. This has been reflected in other areas where early training, experience and interactions with colleagues and opinion leaders informed practice rather than appraised research evidence [13].

It has been estimated that on average it takes 17 years for research evidence to impact upon clinical practice [1]. Although this figure might initially seem excessive, its validity can be appreciated when it is realised that appraised research evidence is not the prime driver of change in clinical practice. Although the currently available data does not provide a strong argument for all physiotherapists to change their current practice in relation to rotator cuff tendinopathy, these qualitative narratives do raise an important point, also recognised in other areas, in relation to the challenges of implementing future research evidence. Namely that, irrespective of the research findings, it was apparent that for some physiotherapists the intervention differed sufficiently from their preferred approach to the point where implementation in to clinical practice would be challenging.

Further to this, what is apparent from this study is that physiotherapists do seem to engage more with research if they are directly involved with it. Many of the physiotherapists involved in this study did reflect and question their current practice and some even began implementing change aligned with the philosophy of the self-managed exercise programme while participating in the study. Interestingly though, this implementation took place prior to knowledge of the final results which in many ways compounds the idea that clinical practice is largely driven by beliefs based upon experience and interaction with colleagues and opinion leaders; in this situation the research team might be viewed as the opinion leader(s).

There are also further considerations with regard to implementation and evaluation of effectiveness that these qualitative findings raise in relation to the SELF study. Implementation fidelity refers to whether an intervention was delivered as intended [14]. Measurement of implementation fidelity essentially amounts to the measurement of how far those responsible for delivering the intervention actually adhered to the intervention as described [14]. But, it has been suggested that the beliefs of healthcare professionals influence the advice they offer to patients which might in turn influence the beliefs of their patients [12,15]. Where beliefs about what constitute an effective intervention differ from the actual intervention offered, this might negatively influence the delivery of the self-managed exercise intervention; such a narrative has previously been reported from the patient perspective where initial disquiet about the intervention was expressed [8]. In turn it is feasible that this might influence adherence, engagement and/or clinical outcome. The potential influence of these therapist effects has been previously recognised [16] and these qualitative narratives from the physiotherapists affirm their relevance in clinical trials of this nature.

Limitations

This study was conducted with thirteen participants recruited via their involvement in a RCT and the data were collected and analysed by one researcher. In this context the potential for investigator bias should be recognised, although this is countered through the use of a transparent method of data analysis. Furthermore, due to the numbers of participants involved, it should be recognised that the views presented might not be representative of all physiotherapists in the RCT.

Conclusion

This qualitative study has identified some of the physiotherapist related barriers and facilitators concerning implementation of the self-managed exercise intervention in the SELF study. For most of the physiotherapists there were clear differences between their preferred therapeutic approach and the self-managed exercise intervention particularly in relation to the type and number of exercises, the use of manual therapy and the extent of loading introduced through exercises. From an

implementation perspective in relation to clinical practice and future research, these findings should be regarded as relevant and important because, irrespective of the research findings, it was apparent that for some physiotherapists the intervention differed sufficiently from their preferred approach to the point where implementation in to clinical practice would be challenging.

Ethical Approval

The protocol was approved by the National Research Ethics Service (NRES) Committee Yorkshire & the Humber – Leeds West on the 6th January 2012 (Ref 11/YH/0443) and the research was conducted according to the Declaration of Helsinki.

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Conflict of Interest Statement

The authors report no conflicts of interest.

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The funding body have played no role in the design, writing of the manuscript or decision to submit for publication.

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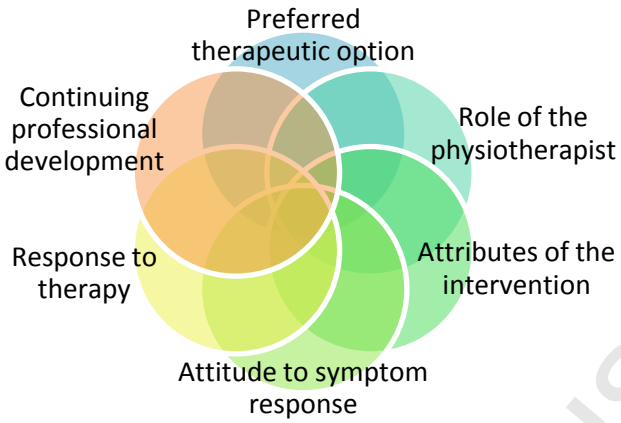

371
372 Figure 1 Inter-linking qualitative themes for physiotherapists delivering the self-managed
373 exercise programme

374

ID	Gender	Years qualified	Post-graduate qualifications
P1	Male	5	No
P2	Female	15	No
P3	Male	4	No
P4	Male	4	No
P5	Female	32	No
P6	Female	1	No
P7	Female	13	MSc
P8	Male	6	No
P9	Male	8	MSc
P10	Female	9	MSc
P11	Female	10	MSc
P12	Male	9	PG Diploma
P13	Male	6	No

375 Table1 Demographic data for the physiotherapists included in the study

376

Appendix 1

Physiotherapist Topic Guide

Thank you for agreeing to take part in this study and thank you for agreeing to discuss your experience.

Will you begin by briefly describing your background and experience in relation to shoulder disorders?

As part of the study, you were asked to deliver treatment as usual and treatment according to the research protocol. Did you find that the 2 approaches were significantly different from one another?

Did you encounter any problems delivering the loaded exercise intervention? For example, any concerns about prescribing exercises that were uncomfortable or any concerns about relying on the patient to self-manage their condition?

Did the patients report any concerns to you?

Is there anything further you would like to mention or discuss?

Thank you for taking the time to discuss your experience.