

Physiotherapist-delivered Stress Inoculation Training for acute whiplash-associated disorders

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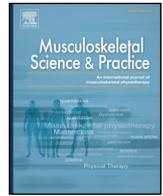
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Original article

Physiotherapist-delivered Stress Inoculation Training for acute whiplash-associated disorders: A qualitative study of perceptions and experiences

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ABSTRACT

Background: Formally trained and accredited physiotherapists delivered Stress Inoculation Training (SIT) integrated with guideline-based physiotherapy management to individuals with acute whiplash associated disorders (WAD) as part of a randomised controlled trial. The delivery of SIT by physiotherapists is new.

Objectives: To investigate physiotherapists' perspectives on delivering SIT as part of the trial and in routine practice.

Design: Qualitative descriptive.

Method: Physiotherapists (n = 11) participated in semi-structured interviews. Interviews were audio-recorded, transcribed verbatim, and analysed thematically. Findings were triangulated against an audit of physiotherapists' adherence to the SIT protocol.

Results: Three themes were identified: perceived value; capacity to deliver; and adaptation and implementation. Physiotherapists' saw value in SIT in that they perceived the program to have improved patient outcomes, enhanced their therapeutic alliance, and provided new skills to manage psychological contributors to WAD. Physiotherapists' capacity to deliver the program was facilitated through the development of confidence in their ability to deliver sessions, viewing SIT as falling within their current professional identity, and having confidence in their ability to manage mismatches in patients' expectations of care. All physiotherapists reported having used SIT to some extent in routine practice, by selectively delivering sessions and/or integrating the content with other management. Physiotherapists were able to deliver SIT as was intended (94.6% adherence).

Conclusions: Physiotherapists' supported adding SIT to usual management of individuals with acute WAD. Education on SIT principles is recommended during pre-professional training to facilitate future implementation.

1. Introduction

Improving recovery rates following whiplash injury remains difficult. Despite comprehensive investigations into possible management strategies (Lamb et al., 2013; Jull et al., 2013), approximately 50% of injured individuals continue to experience persistent pain and disability (Carroll et al., 2009). One reason for this lack of effectiveness may be that treatments have followed traditional orthopaedic approaches, such as manual therapy and exercise, which do not address psychological distress. Acute symptoms of post-traumatic stress predict poor recovery

at long term follow-up following whiplash injury (Sterling et al., 2005, 2006; Ritchie et al., 2015a) and these symptoms may be causal in the development and/or maintenance of pain (Jenewein et al., 2009). These findings raise the question of whether modulation of early stress symptoms can prevent the progression to chronicity.

A recent randomised controlled trial (StressModEx ACTRN12614001036606) investigated the effectiveness of physiotherapist-led Stress Inoculation Training (SIT) integrated with physiotherapy exercise (Motor Accidents Authority, 2014) compared to physiotherapy exercise alone for people with acute (< 4 weeks)

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Table 1
Description of the Stress Inoculation Training intervention.

Objective(s)	SIT session	Content description
A. Identify and understand stress by identifying specific stressors and how these impact on pain, behaviour, emotions, physical performance and thoughts B. Develop skills for managing stress through relaxation, problem solving and helpful coping self-statements B. Develop skills for managing stress through relaxation, problem solving and helpful coping self-statements	1. Program overview, theories of stress and pain, abdominal breathing exercises	Rationale for SIT, introduction to gate control theory, abdominal breathing explanation, demonstration and practise including facilitation of home practise.
	2. Muscle relaxation training	Review abdominal breathing exercise experience. Rationale, strategy and practise of body scan including cues to initiate and facilitation of home practise.
	3. Problem solving for stressful situations	Review body scan experience. Rationale, strategy and practise of problem solving. Generation of a plan for implementation specific to patient's situation and strategies for evaluation.
	4. Use of positive coping statements	Review problem solving experience. Rationale and identification of helpful and unhelpful self-talk and coping statements. Guided exercise in relation to specific stressful situation.
C. Apply skills in various stressful situations to develop tolerance and confidence	5. Applying SIT to the real world	Review coping statements experience. Review SIT steps from sessions 1 to 4 and provide context for use. Develop plan for managing patient-identified stressor.
	6. Coping skills maintenance	Review SIT plan experience. Introduction to relapse prevention including early warning signs and developing a coping plan. Encourage ongoing development and practise of strategies.

SIT = Stress Inoculation Training.

whiplash associated disorders (WAD) (Ritchie et al., 2015b). Included participants were identified at risk of poor recovery based on a validated screening tool comprising items of disability, age and stress symptoms (Ritchie et al., 2015a). Participants with a mental health diagnosis, for example, severe depression were excluded. Further details of the interventions are provided elsewhere (Ritchie et al., 2015b), but briefly both interventions comprised 10 sessions over 6 weeks. The integrated SIT and exercise intervention delivered clinically relevant benefits over exercise alone on the primary outcome of pain related disability (Sterling et al., 2018).

SIT is a cognitive behavioural approach that involves facilitation of problem solving and coping strategies to manage stress-related anxiety (Foa et al., 1999). Table 1 provides a content summary of SIT sessions delivered in the RCT. When delivered by psychologists, the program has shown to decrease pain and anxiety in athletes undergoing orthopaedic surgery (Ross and Berger, 1996), and reduce the severity of post-traumatic stress symptoms, anxiety and depression in female assault victims (Foa et al., 1999). Physiotherapists are well placed to deliver SIT for patients with acute WAD, given they routinely treat this population, and have demonstrated capacity to deliver psychological interventions in chronic non-traumatic conditions such as low back pain and osteoarthritis (Main and George, 2011; Main et al., 2012; Bryant et al., 2014).

The physiotherapists participating in the RCT completed a two-day training workshop conducted by a clinical psychologist, rehabilitation physician and musculoskeletal physiotherapist. The workshop comprised skills-based training, monitoring and mentoring to develop competency in delivering SIT in combination with exercise. The psychologist and rehabilitation physician accredited the physiotherapists by assessing two audio-recordings of each individual's performance in practise sessions against standardised criteria (Appendix A). While meeting these standards is promising in that it suggests capability in delivery, this may be insufficient in actuating future use of SIT. Physiotherapists may avoid addressing psychosocial contributors to musculoskeletal pain where they feel they lack sufficient confidence or skill (Sanders et al., 2013; Alexanders et al., 2015; Foster and Delitto, 2011). The aim of this study was to investigate physiotherapists' experiences of delivering SIT in conjunction with exercise to individuals with acute WAD as part of the RCT, and their perceptions of using this approach in routine practice.

2. Methods

2.1. Design

A qualitative descriptive design was used (Sandelowski, 2000), involving semi-structured interviews with physiotherapists who delivered SIT in the RCT. This approach was selected to enable the collection of rich information about individuals' views and experiences (Noaks and Wincup, 2004). Semi-structured interviews allow participants to set the agenda and follow their own sense of what is salient (Arksey and Knight, 2012).

2.2. Participants

Critical case purposive sampling was conducted to gain maximal insight into the experiences of a specific group (physiotherapists who had delivered SIT), rather than generalising findings to a larger population (Miles and Huberman, 1994). Physiotherapists residing in Queensland, Australia who had been accredited to perform SIT and had implemented the program with at least one patient as part of the StressModEx pilot or RCT were eligible for inclusion and invited to participate via email. Ethics approval for the study was granted by The University of Queensland Human Research Ethics Committee, and participants provided informed consent prior to inclusion. Physiotherapists received a fee for service for treatments delivered as part of the RCT, but were not compensated for participating in an interview.

2.3. Procedures

Interviews were conducted with each participant between November 2016 and March 2017. Where possible, interviews were undertaken face-to-face at each physiotherapist's clinical practice. Telephone interviews were offered to participants who resided in distant geographical regions. One investigator (JMK) conducted the interviews using a standardised guide to facilitate dependable information collection (Appendix B) (Guba and Lincoln, 1989). The guide was informed by past literature (Nielsen et al., 2014), and revised by the research team to ensure questions were neutral and sensitive to the study aims (Gill et al., 2008). Participant characteristics were recorded on commencement of the interview. Subsequently, open-ended questions explored physiotherapists' reasons for participating in the RCT, experiences of SIT delivery, and thoughts on using SIT in routine

Table 2
Participant characteristics.

Gender	Age (yr)	Highest physical therapy qualification	Clinical experience (yr)	Practice setting(s)	Prior PIP training (Yes/No)	Past experience in other WAD RCT (Yes/No)	SIT programs delivered in RCT (n)
Female	43	Bachelor with honours	20	Private	No	No	1
Male	29	Pre-professional masters	2	Private	No	No	15
Male	46	Clinical specialisation masters	25	Private	Yes ^a	Yes	22
Female	33	Clinical specialisation masters	10	Private, university	No	No	3
Male	42	Clinical specialisation masters	21	Private	No	Yes	1
Female	47	Clinical specialisation masters	25	Private	No	Yes	3
Female	51	Doctor of philosophy	30	Private, university	No	Yes	1
Male	52	FACP	31	Private	No	Yes	10
Male	54	FACP	30	Private, public	Yes ^a	Yes	11
Male	46	FACP	24	Private, public, university	No	Yes	1
Male	45	FACP	23	Private	No	Yes	1

yr = years, PIP = psychologically informed practice, WAD = whiplash associated disorders, RCT = randomised controlled trial, SIT = Stress Inoculation Training, n = number, FACP = fellow of the Australian College of Physiotherapists.

^a Acceptance commitment therapy and cognitive behavioural therapy.

practice. JMK made contextual field notes during the interviews and recorded impressions of salient discussion points immediately upon completion. Interviews were audio-recorded, transcribed verbatim, de-identified, and independently reviewed for accuracy prior to analysis. JMK is a physiotherapist and researcher with experience collecting qualitative data. She is interested in psychological interventions, and hence may be considered an ‘insider-researcher’ in this study. This prior understanding of the research context was disclosed to participants before the interview, and was beneficial in enhancing alertness to significant themes (Noaks and Wincup, 2004; Arksey and Knight, 2012). JMK had no involvement in the RCT meaning that she could be positioned as a neutral observer of their experiences.

A post-intervention audit of physiotherapists' adherence to the SIT protocol was conducted to triangulate the interview findings by investigating whether physiotherapists were able to deliver SIT as was intended. A psychologist appraised a randomly selected 10% sample of audio-recorded RCT treatment sessions of every physiotherapist against credentialing criteria (Appendix A). Criteria were marked as met (score = 1), partially met (score = 0.5), or unmet (score = 0), with a percentage correct score calculated for the complete sample (mean (n physiotherapist correct/total physiotherapist n x 100)) and each SIT session (SIT session X correct score/total available score x 100).

2.4. Data analysis

Interview transcripts were uploaded to NVivo (QSR International, Australia), and analysed thematically using a within- and across-case

Table 3
Physiotherapist adherence to the SIT treatment protocol.

	Mean adherence % (SD)
Total physiotherapist sample	94.6 (10.6)
By SIT session	
Session 1 - Program overview, abdominal breathing exercises	94.0 (14.0)
Session 2 - Muscle relaxation training	93.8 (12.4)
Session 3 - Problem solving for stressful situations	94.0 (8.94)
Session 4 - Use of positive coping statements	93.8 (15.3)
Session 5 - Applying SIT to the real world	92.5 (11.2)
Session 6 - Coping skills maintenance	100 (0)

SIT = Stress Inoculation Training, SD = standard deviation.

strategy (Braun and Clarke, 2006; Ayres et al., 2003). This analysis was optimal in exploring physiotherapists' experiences, practices, and the factors that underpin their behaviours at an individual level, while enabling comparison of findings across participants (Braun and Clarke, 2006; Ayres et al., 2003). A multi-staged inductive approach was used (Thomas, 2006). Two investigators (JMK and SB) initially familiarised themselves with the transcripts, and recorded preliminary patterns and salient issues. These observations formed a framework for category development, which commenced via independent coding of segmented text by both authors. Progressive coding of basic themes with commonality were arranged into organising themes to create a set of descriptive categories that best reflected the content of the data in light of the research aims. Findings were regularly scrutinised by the broader team to challenge emerging interpretations and ensure robust analyses (Guba and Lincoln, 1989). The authenticity of results was further enhanced through member checking by the participating physiotherapists prior to finalising the analyses (Lincoln and Guba, 1985).

3. Results

3.1. Participants

All eligible physiotherapists (n = 11/11) participated in an interview. Interviews were conducted face-to-face (n = 8) and via telephone (n = 3), for mean duration 33 min (range 22–45 min). Participant characteristics are provided in Table 2.

3.2. Adherence to intervention protocol

Total physiotherapist adherence to the SIT treatment protocol was excellent (mean 94.6 ± 10.6%), and was similar across all SIT sessions (Table 3).

3.3. Key themes

Three main themes were identified from the data reduction process (Table 4): perceived value; capacity to deliver; and adaptation and implementation. Saturation of themes was reached upon analysis of the eighth transcript. The member check essentially confirmed the interpretation, and hence did not lead to substantial alteration of the results. Appendix C provides additional participant quotes in support of the themes.

Table 4
Identification of themes and subthemes from inductive coding.

Theme	Subtheme	Salient codes
Perceived value	Favourable outcomes	Beliefs about consequences Therapeutic alliance Physiotherapist emotions
	Another tool in the tool box	Discontent with status quo Search for additional management strategies New knowledge and/or skill SIT for other pain conditions
Capacity to deliver	Beliefs about capabilities	Role of experience Ease of abdominal breathing and body scans Difficulties with problem solving and coping statements Structured framework for delivery
	Professional role	Recognition of role in managing WAD-related stress Rationalising SIT to self Fit with usual management and clinical reasoning strategies Mind-body link reasoning
	Shaping patient expectations	Social influence - patient and society expectations Rationalising SIT to patients Patient engagement
Adaptation and implementation	Adaptation	Entire SIT program versus components Adapting SIT to different patients Adapting SIT to accommodate system constraints
	Future training	Post experience reinforcement Peer support, mentorship, modelling Global considerations for future training

WAD = whiplash associated disorders, SIT = Stress Inoculation Training.

3.3.1. Theme 1: Perceived value

Physiotherapists' saw value in SIT where they perceived delivery had resulted in improved patient outcomes, enhanced therapeutic alliance, and/or the acquisition of new skills that could be used to manage psychological contributors to WAD and other pain conditions. As such, SIT's perceived value was informed by two subthemes: '*favourable outcomes*' and '*another tool in the tool box*'.

3.3.1.1. Favourable outcomes. Most physiotherapists felt that delivering SIT had helped to facilitate patient recovery beyond what was anticipated.

"The person I saw responded very, very well ... I mean magnificently well compared to what I thought ... because of her pain presentation ... her work and being bullied at work ... I was thinking, 'This is going to be a nightmare!'" PT11

Additionally, numerous instances were reported where skills learnt in SIT had enabled patients to gain rapid control over their pain and/or life stressors.

"[They] realise, 'Wow. When I'm stressed, my tension goes up, [my] pain goes up', and some people, even with just breathing could actually bring it down" PT2

This experience of positive treatment effect was seen as powerful in engaging patients in treatment. The majority of physiotherapists noted that delivering SIT had resulted in an enhanced therapeutic alliance, which was viewed as being beneficial to patient care. However, one physiotherapist reported being uncertain about the impact of this changed relationship, and another felt that the additional information shared had put them in a somewhat uncomfortable position.

"[SIT] opened a doorway to discussing many more emotional factors that I felt inept in managing ... We were talking about statements [and some] were really negative ... It seemed more than saying, 'Okay just bring it back [to breathing]'. I thought she was telling me that there was an expectation that she needed support and I didn't have that capacity" PT4

3.3.1.2. Another tool in the toolbox. Several physiotherapists identified

that learning to deliver SIT had provided them with an opportunity to fill gaps that existed in their past management of WAD.

"There is a subgroup of people who I haven't really known what to do with ... highly anxious people who have a lot of muscle guarding and their emotions are really having an effect on how they're presenting ... so I've been brushing over that ... missing this big element which the SIT program provides" PT4

While some physiotherapists indicated that SIT had equipped them with a new set of management strategies, many framed their experience with the program as having augmented prior skills, such as facilitating abdominal breathing or body scans. These physiotherapists described having an enhanced understanding of the purpose and/or application of these types of interventions.

"If I [saw] their scalenes popping out when they breathe I'd say, 'Look you need to abdominal breathe. You need to turn those off'. So I looked at it more [from a] musculoskeletal point of view, but definitely now I just look at people, and I'll tell them, 'You're stressed'" PT2

Further, several physiotherapists suggested that SIT had provided an additional avenue for presenting psychological management strategies to a diverse range of patients, which could aid in the provision of more effective education on pain management principles.

"You've got to deliver stuff in different ways. We've all had chronic pain patients who we've tried to get through to ... [who] have just repelled from you ... It's just given me another tool I think and that's useful" PT9

3.3.2. Theme 2: Capacity to deliver

Using SIT was facilitated when physiotherapists' possessed high self-efficacy in delivering sessions, viewed the program as within their scope of practice, and had confidence in the ability to manage patients' expectations of care. Hence, physiotherapists' capacity to deliver SIT was informed by the subthemes '*beliefs about capabilities*', '*professional role*', and '*shaping patient expectations*'.

3.3.2.1. Beliefs about capabilities. Physiotherapists' confidence in

delivering the SIT components varied. Physiotherapists most frequently expressed confidence in delivering sessions where they or their patient had prior clinical or personal experience with the included concepts.

“With the breathing stuff, like I've had experience with meditation in the past. I felt quite comfortable with that” PT5

Many physiotherapists indicated that the abdominal breathing and body scanning components of SIT came most naturally to them and expressed high self-efficacy delivering these sessions.

“I found the breathing and the body scans easier than some of the more [psychological] stuff like positive coping statements” PT7

Some physiotherapists reported being unfamiliar with facilitating problem solving and positive coping statements, and were initially less confident in their abilities to use these strategies. A couple of physiotherapists also suggested that facilitating problem solving was more complex to learn as it required dynamic responses to the problems provided by individual patients.

“You have to change tact depending on what they've told you so you're constantly in your head going, ‘Okay, what are they saying? Okay, what should I say back?’ ... I think that's why that's harder” PT8

The structured framework provided by the RCT protocol appeared to facilitate building confidence in delivering these skills. Additionally, repeated practise of the more difficult components with subsequent patients was described as promoting mastery. For example, one physiotherapist who had delivered SIT to 15 patients commented:

“Definitely now I feel confident in delivering it all. At first I was just like, ‘Oh man, how am I going to do this?’ I pretty much just read it through and just hoped that they got what I told them” PT2

Physiotherapists who only provided SIT once within the RCT remained hopeful that more time to practise would enable them to build confidence in delivering these sessions.

“I reckon you'd get pretty good after five to 10 [patients] ... I always feel cumbersome the first three or four people I treat in a research project ... then suddenly it just becomes easy” PT11

3.3.2.2. Professional role. All physiotherapists thought that their profession should play a substantial role in the early identification and, where appropriate, management of psychological risk factors associated with poor recovery from acute WAD.

“It might allow [us] to prevent the need, or decrease that progression into chronicity, [that may then] lead to depression and anxiety, bigger conditions. Whereas if we can catch it early ... that just makes total sense” PT1

Using SIT to manage these factors appeared to fit well within the scope of how physiotherapists' viewed their usual role.

“I mean ever since I've been a [physiotherapist] the psychological stuff has always been big” PT11

While all physiotherapists described SIT as having suitably expanded their practice, the importance of maintaining focus on managing a patient's physical condition was emphasised.

“Coming up with multiple ways that they can then deal with the stress to reduce that physical expression of the stress. Because it comes back to me trying to deal with their musculoskeletal problem” PT9

3.3.2.3. Shaping patient expectations. Some (n = 3) physiotherapists suspected that a portion of the population would associate

physiotherapy with a more “hands-on” approach, and thought SIT might not align with patients' expectations of care. However, it was suggested that integrating SIT with usual physiotherapy management, as was done in the RCT, might minimise this mismatch. Further, no physiotherapists framed a lack of fit with patient expectations as a barrier to using SIT. While one physiotherapist thought it may take longer to engage patients in SIT, it was widely believed that engagement was possible.

“I have a guy right now that's like, ‘Oh right, yep, abdominal breathe’. I'm like, ‘Mate, just practise it. Do it a few times ... I'm not saying it's going to change right now, but let's see how you go’. I think you've just got to build it, just session by session, build the rapport, build their confidence in you” PT2

Many physiotherapists felt that SIT's acceptability could be enhanced by providing individualised explanations of the program's purpose that included examples from other relatable contexts.

“If you deliver it well and say, ‘Well, we're going to teach you this, because relaxation, breathing will help with this, which will help with pain’, and you give examples of how other people in life will use it, athletes for instance, they take it on board as part of [physiotherapy] quite well” PT6

Several physiotherapists also saw value in having multiple different sources promote SIT, believing that repetition of a similar message could be powerful in shifting community expectations.

“They can have [SIT information] in print. They can have a website that they can go to ... The more often the patient sees [and] hears the correct and similar message the more often they're likely to believe that that might be a realistic thing” PT10

3.3.3. Theme 3: Adaptation and implementation

Physiotherapists reflected on their efforts to integrate SIT into usual practice (outside of the RCT), as well as providing recommendations on how future physiotherapists might become skilled in delivering SIT. Hence, use of SIT beyond the RCT was informed by two subthemes: ‘adaptation’ and ‘future training’.

3.3.3.1. Adaptation. Although two physiotherapists perceived potential merit in following the complete SIT protocol as was required in the RCT, the majority reported using components of SIT selectively in their routine practice.

“If you said to me, ‘You've got to apply this as a complete program to any patient you think has stress involved in their [presentation]’, I'd be like, ‘Nah I don't’. I'd apply what I thought was relevant” PT11

Primarily, the timing and selection of sessions was undertaken to meet the individual needs of specific patients.

“[If they're] holding tension, then I probably would go through more of the relaxation side of things. But then if they're saying they're not coping at work because their boss has loaded them up ... add the problem solving and the positive coping statements” PT7

A few instances occurred where physiotherapists indicated that they'd chosen to apply SIT components based on what they felt best aligned with their own skills set, or through reflection on past experience of treatment success.

“I'm using [abdominal breathing] almost routinely ... Almost every program that you'll ever look at in terms of pain reduction, lifestyle improvement ... will have a component of breathing control ... I find it's one of the most powerful mechanisms” PT3

Finally, physiotherapists described integrating components of SIT with their usual treatment so that it could be accommodated within a

standard consult.

“Intersperse it for sure. As you're addressing something you'd go, 'Well this is the time I can teach them about this or show them this' ... weave it in” PT6

3.3.3.2. Future training. Most physiotherapists expressed being satisfied with the training that they had received and that this was sufficient for them to deliver SIT within the RCT. When asked their opinion about how future physiotherapists might be trained, several physiotherapists identified that combining training with experience and additional opportunities to debrief or trouble-shoot with experienced peers might be useful.

“Trialling it and then having the chance to talk with a psychologist about those experiences, what could you have done in that situation that was better” PT8

Further, having SIT modelled to trainees was thought to be a potentially helpful strategy.

“Watching better people at it ... even if it was just via video, watching some people at work, to see how they [manage] tricky patients” PT6

Most physiotherapists recommended that education about SIT be initiated early in a professional's career. Physiotherapists appeared confident that pre-professional students could accommodate this learning, and frequently expressed the belief that novice physiotherapists may be better placed than those with more experience to incorporate SIT into routine practice.

“They should probably learn this stuff right from the scratch ... The problem solving is the hardest and that's probably for all the old people who have been doing it the other way. You could probably change the new [graduates] before you could change the old people” PT8

Some physiotherapists believed that training delivered in a progressive manner would be optimal, with SIT principles introduced early followed by specific skills training at various career stages.

“The whole concept needs to be introduced very early in a career of anybody to understand that there's a process out there ... It needs to go from the beginning but with significant influence when people are starting to specialise” PT9

4. Discussion

The findings of this study indicate that physiotherapists delivered SIT within the RCT as was intended, had developed confidence in delivering the SIT components, and supported using at least components of the program in routine practice.

The results from this study can be compared with other investigations of physiotherapist-led psychological interventions for chronic pain conditions (Nielsen et al., 2014; Synnott et al., 2016; Richmond et al., 2017). Evidence suggests that some physiotherapists limit their role in managing psychosocial dimensions of pain (Sanders et al., 2013), describe psychological interventions as beyond their scope of practice (Nielsen et al., 2014; Richmond et al., 2017), and are sceptical about the effectiveness of approaches that omit biomedical assessment or management (Richmond et al., 2017). Historically, the physiotherapy profession has conformed to a biomedical view, where the ‘physical body’ was central to therapy (Nicholls and Gibson, 2010). Although the use of a broader, biopsychosocial approach is now advocated (Weiner, 2008; Waddell, 2006), physiotherapists have raised concerns about their ability to integrate psychological and social factors into patient management (Synnott et al., 2015). The StressModEx RCT integrated SIT with more traditional exercise approaches, which may have helped

physiotherapists to perceive SIT as within their professional role, and indicates a promising shift in attitudes towards using a biopsychosocial approach. However, physiotherapists in this study were experienced clinicians (mean 22 practice years), and many had partaken in previous WAD RCTs (n = 8/11). It is therefore likely that these physiotherapists could accommodate new management strategies more easily than novice clinicians.

Other psychological interventions performed by physiotherapists in clinical trials have been adopted, at least to some extent, in routine practice (Nielsen et al., 2014; Synnott et al., 2016). Similar to the results of this study, physiotherapists involved in delivering pain-coping skills training to individuals with knee osteoarthritis indicated a preference for ‘mixing and matching’ components of the intervention to meet the needs of individual patients, rather than delivering the program as a whole (Nielsen et al., 2014). This is a concern, as delivering only part of the intervention may negate any clinical effects demonstrated by clinical trials and it has not been demonstrated that physiotherapists can discern which components are appropriate for inclusion or exclusion for individual patients. Physiotherapists have also demonstrated difficulty in identifying psychological factors in people with musculoskeletal pain (Beales et al., 2016; Brunner et al., 2018), indicating that their ability to appropriately match SIT components to the needs of patients may be poor.

Many physiotherapists in this study recommended that the general principles that underlie SIT be integrated into pre-professional education. Education provided early in training may be pertinent given evidence suggests that current post-graduate training in psychosocial management strategies is not sufficient to enable physiotherapists to incorporate these strategies into practice (Synnott et al., 2015). While education provided at the outset could result in greater uptake of a biopsychosocial approach (Turner and Whitfield, 1999; Jevon and Johnston, 2003), the feasibility of including additional psychological content in current university curricula is unclear. There is a paucity of studies from the Australian context, however findings from the UK have indicated that undergraduate training programs continue to lack sufficient depth of psychosocial training (Foster and Delitto, 2011; Heaney et al., 2012), despite calls for the inclusion of greater content (Main et al., 2012; Foster and Delitto, 2011; Gordon et al., 1998; Hemmings and Povey, 2002). Research into potential facilitators and barriers to curriculum change would be useful in informing strategies that promote future inclusion of enhanced psychological content.

Physiotherapists are ideally placed to deliver early psychological interventions to injured people as they are the health care provider most commonly involved in the management of acute WAD.

The findings of this study should be generalised with caution. Although saturation of themes was reached and all eligible physiotherapists participated in the study, the sample size was small (n = 11). Further, the sample comprised predominantly experienced physiotherapists who were agreeable to delivering SIT in an RCT. It is plausible that participating physiotherapists had a greater interest in psychological interventions compared to non-participants and may have viewed the program more favourably. The findings may not be applicable to physiotherapists with less experience in the delivery of trial interventions. Further to this, it is possible that identified themes may be different if less experienced physiotherapists had been used in the trial.

5. Conclusion

The results of this study indicate that physiotherapists' involved in the StressModEx RCT support the addition of SIT to usual guideline-based physiotherapy management of individuals with acute WAD. The use of SIT in clinical practice is likely to be facilitated by confidence in the ability to deliver SIT and viewing SIT as falling within current scope of practice.

Conflicts of interest

None declared.

Ethical approval

Ethics approval for the study was granted by The University of Queensland Human Research Ethics Committee (2011000206).

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.msksp.2018.09.005>.

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