Disruptive Impacts of Living With Chronic Low Back Pain and Experience of Psychologically Informed Physical Therapy – A Qualitative Process Evaluation of a Randomised Control Trial

Marco John Petrozzi (✉ mpet9893@uni.sydney.edu.au)

University of Sydney, Australia <https://orcid.org/0000-0001-7118-0270>

Grace Spencer

Anglia Ruskin University

Martin G Mackey

University of Sydney, Australia

Research

Keywords: chronic non-specific LBP, psychologically informed physical therapy, qualitative process evaluation, disruption

Posted Date: March 1st, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-251125/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at Chiropractic & Manual Therapies on August 17th, 2021. See the published version at <https://doi.org/10.1186/s12998-021-00389-y>.

Abstract

Background: Chronic low back pain (LBP) is a significant and complex health condition affecting one in ten people worldwide. Research has shown that LBP can negatively impact the physical, psychological and social aspects of people's lives. Clinical practice guidelines recommend a combined physical and psychological management approach (psychologically informed physical therapy) for chronic LBP. A recent multi-site randomised controlled trial (Mind Your Back) aimed to investigate whether combining multimodal physical treatments with an internet-delivered psychosocial intervention (MoodGYM) was more effective for improving disability and self-efficacy in people with chronic LBP, compared to standard treatment. The aim of this study was to conduct a process evaluation to explore the participants' experiences of living with chronic LBP and their response to interventions provided in the Mind Your Back Trial.

Methods: Twenty-five participants volunteered to take part in a semi-structured telephone interview about their experiences of taking part in the Mind Your Back trial and to understand their perspectives of living with chronic back pain. Interviews were transcribed verbatim and data analysed thematically.

Results: Three main themes were identified: (1) Ongoing back pain disrupts all aspects of life, (2) Personalised support and therapeutic alliance are important, and (3) MoodGYM lacked relevant, personalised and tailored support.

Conclusion: Living with chronic LBP has significant disruptive impacts on everyday life. It is crucial to deliver tailored support and management strategies that are grounded in the everyday lived experiences of people with chronic LBP.

Introduction

One in ten people worldwide are affected by chronic low back pain (LBP), which is rated highest on the Global Burden of Disease for years lived with a disability [1]. Approximately 90% of chronic LBP is diagnosed as non-specific, with undetermined pathoanatomical cause [2-5]. Chronic non-specific LBP is a complex condition characterised by recurrent periods of low to high pain intensity and related disability lasting three months or more [6-11]. Chronic LBP affects physical, psychological and social aspects of people's lives [12-17]. For example, chronic LBP has been associated with reduced physical work capacity, poor mental health (e.g., depression, anxiety and psychological distress), low self-efficacy, and restriction in social participation [14-19]. Clinical practice guidelines endorse a variety of conservative treatments for supporting people with chronic LBP [20-22]. In primary musculoskeletal healthcare settings (e.g., general practitioner (GP), chiropractic and physiotherapy clinics) a multimodal approach is recommended. This includes: (1) advice to remain active and reassurance that progression of the condition is unlikely; (2) general exercise or specific physical conditioning; (3) spinal manipulation; (4) psychological support, such as cognitive behavioural therapies; and (5) referral for multidisciplinary rehabilitation in secondary or tertiary settings as clinically indicated [20-22].

In line with these guidelines, a recent randomised control trial (RCT) called 'Mind Your Back' was conducted by the authors which evaluated the effectiveness of a combined physical and psychological model of care (psychologically informed physical therapy) for people with chronic non-specific LBP [23, 24]. Specifically, the Mind Your Back trial evaluated whether an internet-delivered psychological intervention (MoodGYM) improved disability and self-efficacy in study participants also receiving multimodal physical treatments, compared to multimodal physical treatments alone. Unexpectedly, the study found no statistically significant differences in primary outcomes between the two intervention groups. Furthermore, research has highlighted how living with a chronic health condition detrimentally impacts the ability to perform daily activities, occupational obligations, personal relationships and quality of life [25-30]. Evidence suggests there is a disconnect between treatment interventions and the lived experience of people with chronic LBP [31-39]. In order to meet the needs of patient expectations and to optimise treatment outcomes a shared narrative between patients and practitioners about the management of their chronic LBP is necessary. Exploring the lived experience of chronic LBP in trial participants may facilitate this narrative. Therefore, the aim of this study was to conduct a process evaluation to explore the participants' experiences of living with chronic LBP and their response to interventions provided in the Mind Your Back Trial.

Lived experience of chronic LBP

Living with chronic LBP has been described as a potentially disruptive experience that affects how people self-manage their condition [40-43]. Seminal work by Bury (1982) asserts that chronic health conditions have the potential to be disruptive to people's everyday lives and their biographies [44]. An individual's biography is a sense of self-identification that is encapsulated by physical, social and psychological states of being in everyday life [45]. Readjusting one's life to cope with a chronic health condition forces adaptations to occupations, relationships and lifestyle, a process described by Charmaz as "struggling with rather than against illness" [25, 46]. The idea that chronic LBP reflects a disruption to people's lives has been investigated and shows that patients perceive that life has been merely temporarily disrupted due to a momentary health crisis [42, 43].

However, some research on LBP extends the concept of disruption and instead views suspension, forced on people by their condition, as a temporary state of health crisis with a view that normal life will soon resume. It is suggested by sociological researchers [42, 43] that the term 'biographical suspension' is a more useful concept for understanding the lived experience of chronic LBP because it describes a state of biographical disruption to daily life that is more temporary in nature. Bunzli et al. used the term 'suspension' to suggest that the biographies and daily lives of people with chronic LBP are merely 'put on hold' as they await a return to 'normal' pre-illness life status [42]. Similarly, in a study of chronic sciatica, participants considered their condition as being a temporary acute 'injury' rather than a chronic condition [28]. Therefore, patients sought ways of discovering the cause and curative treatments for their condition by consulting health professionals and avoid certain aggravating physical triggers (e.g., physical activity). Saunders et al. used the term 'liminality' [32] to describe this state of suspended biography, neither seeing oneself as ill nor their healthy normal self, as a "temporary state of flux" in which the

individual cycles between their usual stable state of chronic LBP and acute exacerbations of the condition [43].

These participants engaged with management strategies, such as avoiding activities perceived to aggravate pain, such as manual lifting; seeking treatment from healthcare practitioners; and requests for enhanced diagnostic imaging to establish a pathological cause for their pain [42, 43]. Feeling unable to self-manage and viewing back pain as a temporary and fixable 'injury' meant that participants in this study looked to health professionals and clinical interventions to help them alleviate their pain [43].

Patients consult health professionals for treatments, advice and information that can help them better self-manage their condition. A recent systematic review by Lim et al examining the health information needs of participants seeking care for chronic LBP which highlighted the desire for clear and personalised information regarding the appropriate management of their condition [35]. Participants preferred a health professional that listened and understood their personal experience and offers personalised and tailored strategies that facilitated better self-management [35]. However, some participants of the systematic review reported a sense of frustration in clinical encounters, as they felt misunderstood or 'unheard' by their health practitioner, which compounded their inability to properly self-manage [35]. These insights are important for healthcare professionals as they can lead to improvements in the communication of information and advice delivered to patients during a health consultation. Health professionals can personalise and tailor the information delivered to patients for self-management advice by taking into account the patients personal experiences of living with and managing chronic LBP. Delivering personalised and tailored advice with communication that is grounded in the patients lived experience, has the potential to lessen the frustrations experienced by some patients and can lead to improved outcomes. Perhaps by understanding and communicating with a patient through the lens of their lived experience, health professionals may be able to help their patients to adapt to, and accept that they may continue to live with ongoing LBP despite treatment efforts. Therefore, through a qualitative process evaluation methodology, the aim of this study was to explore the participants' experiences of living with chronic LBP and their response to interventions provided in the Mind Your Back Trial.

Methods

Study design

A qualitative process evaluation [47-49] was conducted with a group of participants (n=32) from the Mind Your Back trial. The full clinical trial protocol and outcomes have been reported elsewhere [23, 24].

Participants

A convenience sampling strategy was used to recruit trial participants for this study from the cohort of chronic LBP participants from the trial. Sixty-one participants were invited, by email, to take part in this qualitative study. The invited participants had no prior established relationship with the researcher conducting the interviews. Thirty-two participants volunteered for the interview and were each assigned a

pseudonym for anonymity and reporting purposes. Interviewees were contacted sequentially from the volunteer's list and were recruited based on their availability and consent to participate in the interview. The interview process was discontinued based on the principles of data saturation [50-55]. Data saturation was reached at 25 interviews (n=11 combined MoodGYM and physical treatments group; n=14 manual therapy only group) as respondents were consistently repeating similar views, statements, phrases and no new ideas were shared by the interviewees.

Interviews

Semi-structured telephone interviews were conducted. Telephone interviews were deemed most feasible and convenient because participants were located in both NSW and Victoria.

A flexible interview guide (Table 1) was designed to capture participants' perspectives on the intervention and experiences of chronic LBP and centred on the following discussion areas:

- Experiences of living with chronic LBP, impacts on life and management strategies
- Experiences of participating in the trial and perceptions of the benefits and difficulties of interventions

The discussion guide was piloted with a small group of participants who were not involved in the interviews. Minor adjustments were then made to enhance clarity and fluency. Interviews lasted between 20 and 45 minutes and were digitally recorded and transcribed verbatim by a professional transcription service. Brief summary notes were made after each interview in relation to the broad discussion points and any extraneous factors relating to interviewer/interview rapport and reactivity. The latter were reflected upon during analysis and considered in the final discussion.

Data analysis

An inductive thematic analysis was conducted [56, 57] using a multi-stage process. First, transcripts were read and re-read. Text that conveyed useful information was highlighted and annotated with a descriptive code. Second, descriptive codes were grouped according to similar ideas which helped to identify emergent categories. Third, categories were grouped according to similar topics that formed possible themes. Fourth, the research team discussed and debated the possible themes and offered alternate perspectives on meanings arising from the data. Finally, the team reached agreement by comprehensively and rigorously discussing the findings and themes, allowing for different interpretations of the data that best strengthened the analysis, and decided on the final themes. This process was undertaken iteratively. The reporting of the data collected follows the Consolidated Criteria for Reporting Qualitative research (COREQ) for reliable reporting and reproducibility of findings [58] (Additional file 1).

Ethics

Ethics approval was obtained from the University of Sydney Human Research Ethics Committee (2014/997). Participants were provided with a Participant Information Sheet that outlined the aims and

personal considerations of taking part in the qualitative study. All participants provided signed consent prior to taking part in the study. At the start of each interview, participants were reminded that they were not obliged to answer the questions asked and that withdrawal from the interview was possible at any time without giving reason. Furthermore, participants were made aware that the information provided would be securely stored on the University of Sydney Research Data Store servers for 15 years after the completion of the main study.

Results

Participants

Participant descriptive characteristics are outlined in Table 2.

Ongoing back pain disrupts all aspects of life

During interviews, participants were asked to describe their experiences of living with chronic back pain. Common responses reflected the severe, ongoing nature of pain, which was often described as both agonising and emotionally overwhelming.

I was in terrible agony. I [...] couldn't even sit down for five minutes without being very uncomfortable. I'd be in tears with the agony. (Helen, age: 65)

You get sick of the pain, and you get sick of the problem, in general. It just starts to grind you down. (Carly, age: 49)

Other participants highlighted the unpredictable and often fluctuating nature of their pain.

Some days it's really bad and other days it's not so bad [...] and then, all of a sudden, it'll be gone, but there's always a twinge there, there's always some pain.

(Karen, age: 66)

Others described the effects of physical and behavioural triggers, including the detrimental effects of daily activities.

I (try to) control my pain. (But) yesterday, I wore bad shoes, and today I've got a really bad back. (Helen, age: 65)

If I do too much of rock and roll dancing or exercise, I can find the next day my back is screaming. (Helen, age: 65)

Bending over tends to be [...] an issue. If I slouch or bend forward it tends to aggravate. (Barry, age: 54)

Almost all participants reported that back pain imposed physical limitations on their daily activities, including interacting with family, friends and work colleagues. For example, Henry stated that he could no

longer play with his kids because of pain, while Greg reported that pain impacted on his ability to undertake physical work, such as climbing ladders and lifting heavy objects, which made him feel dependent on other people. Everyday activities were affected during an acute back pain flare-up, including being able to stand upright, walk and go to the toilet.

I find it almost impossible to stand straight or walk purposefully when back pain flares-up. (Fred, age: 68)

[When] my pain level increases, [...] my activity level just reduces terribly. (Carly, age: 49)

I couldn't kick a ball or throw a ball. I couldn't play with my kids[...] I didn't feel like I could sit at the table. (Henry, age: 48)

Other participants described how back pain affected their social activities, such as spending time at the park with friends or attending social gatherings, as they were unable to sit comfortably or drive to social events.

Sometimes socially, because if I was sitting on the ground, I couldn't sit on the ground properly (because of pain). (Betty, age: 51)

[I] can't drive because of pain, so I can't go anywhere. I can't drive. (Carly, age: 49)

Some participants described not wanting to talk about their back pain with friends and family. Participants seemed to be particularly concerned about a perceived negative reaction from others if they appeared to be in pain and so described 'putting on a brave face' to look 'happy'. Many participants reported that a lack of understanding from family and friends contributed to their feeling of a perceived lack of support. Many felt that having a long-term back pain problem, compared to a short-term injury, made it hard for their family, friends and work colleagues to understand their experiences.

For me, it's just really depressing. I just pretend to be happy, and be nice to people, which I am, but it's all just pretending, because I have to. It's nobody else's fault. I can't take it out on other people, because of the way I'm feeling, so it's all just putting on a brave face, really. (Ivy, age: 55)

You're supposed to tell your family and friends, how you're going, but a chronic problem is something that people don't want to know about, anymore. Acute (pain) is much easier. People feel more sympathy, and empathy for you, but when it's chronic, it's like, "Oh my God, you still got that problem." That's how I've experienced it, anyway. (Carly, age: 49)

In contrast, some participants reported the benefits of having 'positive' people in their lives and actively sought ways to enhance social engagements with people who they felt listened to them.

Being surrounded by people who positively reinforce positive behaviours. That's important. (Henry, age: 48)

Yet for others, the social impact of chronic pain had negative effects on their emotional wellbeing. Many participants described feeling down, worried and stressed, which was often linked to concerns about their futures.

The pain probably more depressed me, and it affects you generally because you feel that "I can't do this" or "I can't do that". (Helen, age: 65)

I definitely have had times when it's been bad enough where I've felt pretty down and worried about, you know, dealing with pain for all this time and what that will mean in the future. (Anna, age:36)

Uncertainty about their future pain exacerbated feelings of stress and worry, as participants reported feeling vulnerable, hopeless and lacking control of their condition. Uncertainty about the cause and prognosis of their back pain exacerbated feelings of stress. Jenny reported being constantly preoccupied about her back pain, and Helen described not being able to do all the things she wanted to do. Others, such as Alex and Barry, reported that they felt that their pain would 'never end' and were unable to see an alternative, pain-free future.

You get more stressed about it, because you don't know what's causing it, and it just seems to make you feel a lot more vulnerable, thinking, "Well, what is causing this pain?" And you start to worry, and the worry doesn't help, that makes the pain worse I think. And can make you feel more depressed. (Jenny, age: 48)

What's this going to be like in another five, ten years? How much worse is it going to be? (Barry, age: 54)

In contrast, some participants reported a sense of acceptance of their long-lasting back pain. Karen's description of 'learning to live' with the back pain may suggest a coping or adjustment mechanism.

I'm in pain a lot, I'm not depressed about the pain or anything like that. It's just something that I've learnt to live with. I think, sometimes it gets you down because you think, "Oh I wish it would just go away." But, because I've had it for a very long time, I just kind of battle through with it. (Karen, age: 66)

Personalised support and therapeutic alliance are important

Participants recounted different strategies they used to help manage their pain including informal strategies and those led by health professionals. Professional-led strategies included seeking advice and treatment from a GP, chiropractor or physiotherapist. Other informal strategies included discussions with family and friends, as well as self-medicating with non-prescribed analgesia.

Support from GPs included prescriptions for strong analgesia and /or referral to other health professionals such as a physiotherapist. Using prescribed medication such as opioid-based analgesia was reported positively to offer some relief from pain and allowed patients to regain some level of 'normality' through being able to participate in activities such as walking or getting to sleep at night.

After the seven years of having the constant pain, I went to my doctor and he said, "I want to try you on Tramadol," and I was a bit nervous about it at first, but it seems to be the only thing that really did kick in

eventually and help. (Jenny, age: 48)

I have to take painkillers before I go (for a walk) and painkillers again when I get back. It's the only thing that seems to really help me. (Ivy, age: 55)

Despite the positive short-term effects of analgesia, others indicated a preference to seek 'hands-on' treatment from a physiotherapist or chiropractor, which included massage, spinal manipulation, stretches and exercises.

After checking on my response to the exercise I was then given a very specifically focused massage with some gentle manipulation type movements. (Mike, age: 76)

I'm not into medication. That's just a band aid for me, so I'd rather avoid it. I'd rather go to the chiropractor or physio or something like that. (Carly, age: 49)

Feedback from some participants suggested that chiropractic treatment and physiotherapy offered longer-term benefits than medication and that adhering to regular or 'maintenance' exercises helped to improve their pain.

I go [to the chiropractor] for maintenance because my flexibility and my ability to keep moving improved with treatment. (Greg, age: 65)

Positive engagement in clinical encounters by participants appeared to be closely tied to the perceived qualities of the practitioner. Such qualities included being perceived to be trustworthy, personable, friendly, positive, a good listener, approachable, caring and helpful. Participants valued practitioners who showed a genuine interest in their condition and demonstrated understanding of their personal circumstances and difficulties.

(The) practitioner ... understands my situation, my individual situation, and (was) motivated to help me through that. It's very good having a trust relationship with your practitioner. Pretty important that I get treatment that's specifically for me, his manual therapy was targeted. The treatment and the whole interaction was very specific for my problem and personalised, to me as a person. (Diana, age: 43)

I just found that he understood what I was going through as well. If you feel that someone can listen to you, and they feel that they can help you, then it's nice to know that there's someone there that you can turn to if you're in that pain, and you feel that someone is actually listening to you and understanding it. (Jenny, age: 48)

The first thing about the practitioner was the relational ability. It's like he did this wonderful connection with me as a person. And then stayed relational all the way through. (Mike, age: 76)

Personalised tailored advice and education about various exercises provided by the practitioner was also viewed positively. Significantly, conversations with an encouraging practitioner helped individuals to better 'come to terms' with, adjust to and accept their pain and uncertain future.

Yeah, definitely, he encouraged me to stay active even if it was feeling painful, but just not to push it too far, but still do things. [...] Yeah, definitely, his encouragement helped me a lot. (Jerry, age: 53)

Well the treatment did help me, also his advice was really good. You know the guy that I saw finally pushed me to get a standing desk rather than sitting down at work all day. (Henry, age: 48)

The guy treating me talked about this too, which helped me come to terms with it. I've got more acceptance to it, and I've got used to it. (Helen, age: 65)

Despite these positive reports, some participants expressed a dissatisfaction with treatment and talked about the unhelpfulness of both the therapist and the therapies used. However, during these discussions, participants also echoed the importance of being understood and taken seriously by health professionals.

Oh, I suppose there would have been about eight or ten clients in his big treatment room, and he was just going from one to the other, and you didn't have the same one on one interaction, and so it didn't have the same encouragement, and, from where I was at the time, I just felt I was one of the numbers. (Kevin, age: 70)

(I'd) often visit the GP, they get so sick of you. (Carly, age: 49)

Other participants who maintained a more positive outlook about their pain expressed the idea that managing their pain was within their personal control. As a result, rather than seeking professional help, many described their pain management as being their own responsibility.

Long term, well, it's really me taking responsibility for myself, not relying on other people to fix me [... I] just try to remind myself of what I need to do such as the pacing, and looking after myself, from a nutrition point of view, being mindful, and trying to be positive. (Carly, age: 49)

[The next time I'm in pain] in the future, I would try and self-manage first. (Betty, age: 51)

MoodGYM lacked relevant, personalised and tailored support

Participants expressed mixed views about the effectiveness and relevance of the digital health MoodGYM program (Table 3 describes the MoodGYM program modules). Positive experiences highlighted by several participants included that the program content provided the emotional support they were seeking, as well as provided access to information and reassurances about their emotions and (low) mood. Yet many others expressed negative experiences of MoodGYM, questioning its relevance to their LBP experience. Specifically, that the program content failed to address their specific physical needs (i.e., advice for managing the symptoms of back pain) and psychological needs (i.e., support for the emotional and social consequences of ongoing back pain), and the delivery method was reported as being impersonal (i.e., no human interaction).

Positively, the program seemed to help some participants with the idea that feeling emotionally down was a normal reaction to chronic pain. The resulting reassurance enabled some to recognise their feelings of depression.

It made me realise that it is quite normal to feel certain emotions when you're not feeling 100%. Yeah, so it was good. It just reassured me that I wasn't losing my mind, basically. (Jenny, age: 48)

I think [MoodGYM] was good to get your head around how you feel. I never took any notice of [my emotions]. I probably was depressed, and I didn't realise it. (Helen, age: 65)

The resulting awareness and reassurance about how they felt enabled some participants to take positive steps towards adjusting their daily activities. For example, Emma seemed surprised by the support and advice that she received from MoodGYM, which helped her better understand her thoughts and emotions. This ultimately enabled her to better navigate her day-to-day life and feel in control of her mental health.

It was, actually, really brilliant [...] there was some seriously great takeaways [...], like, what you think about is what you feel, is probably the biggest one. [...] I think probably the fact that, how little I knew about how to control my mental health. It's quite a revelation, learning that stuff, and then applying it in my day-to-day life. (Emma, age: 35)

Similarly, Helen's account reinforced the idea that participants could be in control of their thoughts and moods, even in the context of ongoing pain. Managing moods and being positive appeared to have important implications for their social relationships.

It just brought it to the light to me, I have control on my thoughts and moods, even if the pain was there. (Helen, age: 65)

I think it's made me more positive. Easy to get on with a bit more. People around me don't have to cope with my moods. I think it has done a lot of good for me. (Helen, age: 65)

Despite some positive accounts, most participants reported negative experiences with MoodGYM – often citing the program's lack of personalised (back pain) treatment and support. During these discussions, participants described the lack of back-pain-specific content, which made it difficult for participants to relate to the presented case material. Of importance was the idea that MoodGYM did not seem to address their primary concern, namely managing back pain.

Maybe they could be specific about someone who is actually going through [back] pain... being very specific about it. (Jenny, age: 48)

In terms of the relationship [of MoodGYM contents] to the back pain, it wasn't clear. (Betty, age: 51)

Participants described difficulty relating to the apparent (dominant) focus on depression and without addressing the experience of living with chronic back pain. Karen, for example, described herself as not

being depressed about her back pain and thus did not 'fit' into the program's categories – a feeling echoed by other participants:

I found it [MoodGYM] okay, except that I didn't feel that I fitted into a lot of the categories, because even though I'm in pain a lot, I'm not depressed about the pain. (Karen, age: 66)

It probably didn't add any value because I wasn't feeling too depressed about the pain when I did Moodgym. (Barry, age: 51)

Lack of personalised (back pain) treatment and the focus on depression led many participants to suggest that they would not recommend MoodGYM to others with chronic back pain. When asked about the sorts of things they would like to see in an internet-delivered back pain program, some, like Fred, expected the program to give him a visual representation of the causes of their pain. Betty and Alex wanted a description explaining the connection and impacts on mental health from chronic back pain.

A computer program, it would have to be quite graphic. It would have to explain the causes of the pain. And almost educate me... the way pain manifests itself. What it does to the brain. What it does to the chemical composition in your body. All that sort of stuff. (Fred, age: 68)

I guess linking pain to mood. Like, the impact pain has on you, how that changes so you can recognise yourself [in the program], why a change in mood. Maybe how to manage it, if it hits. You know, different strategies to be tried [when experiencing episodes of back pain]. (Betty, age: 51)

Maybe the program, if they would have been a bit more direct about that link [between back pain and low mood], it might have helped a bit quicker. (Alex, age: 29)

MoodGYM lacked personal human connection and interactivity due to its computer delivered format. The importance of having personal human interactions with health professionals came through strongly, as participants cited the importance of building a relationship with practitioners when discussing their experiences of MoodGYM. The impersonal aspects of MoodGYM were further compounded by the reported technical difficulties of internet-delivered programs.

In terms of, I guess an online sort of thing, I guess personally, a personal interaction is probably more influential for myself than say going online and looking at a computer... because, you can't really ask it questions and clarification, if you know what I mean. Whereas if I'm talking to a chiro or a physio I can say, look, okay, am I doing this right. (Barry, age: 51)

I'm not that tech savvy. I don't even know when I started, I think I did it twice, and then I don't even know whether I saved it, or what I did, and ... Yeah. Being older generation, I didn't grow up with all this technology. I'm not interested in anything on a computer. I believe in face to face. Well, I like face to face stuff. I don't like, sort of, self-directed learning, or guidance from a computer screen. (Carly, age: 49)

The need for relevant support, that reflects the physical, emotional and social experiences of people with ongoing back pain, was not met by MoodGYM. The expectation and preference for a human interaction with an understanding and personable support mechanism, that provided tailored advice and treatment, was not provided by MoodGYM.

Discussion

The aim of this study was to explore the participants' experiences of living with chronic LBP and their response to interventions provided in the Mind Your Back Trial. Supporting previous research, findings from our study highlight that chronic LBP can have significant impacts on individuals' everyday lives (e.g., through disruptions to physical activity, social relationships, work commitments and psychological wellbeing) [5, 32, 34, 36, 37, 42, 43]. Understanding the disruptive impacts of chronic LBP is thus crucial for the effective design and delivery of treatment and support mechanisms for people living with LBP. By understanding, modifying and tailoring support mechanisms, delivered by health professionals and digital health technologies, patients will receive information and interventions that are relevant and tailored to their life circumstances. Of particular importance is the need to develop therapeutic alliances between patients and treatment providers and underpinned by understanding, trust, approachability and relational connection (i.e., personalised and tailored communication). Furthermore, this study demonstrates the importance of tailoring advice and interventions (e.g., face-to-face and internet-delivered) to the lived experiences of patients with chronic LBP. Thus, tailoring communication, advice and treatment that is congruent to the patients experience of a disrupted physical, emotional and social life.

Findings from this study suggest that participants experienced ongoing disruptions to their everyday lives, and in many ways reflect aspects of Bury's seminal notion of biographical disruption [44]. For example, participants described how everyday physical tasks, such as getting out of bed and putting on shoes, as well as work and social relationships, were affected by their chronic LBP. The consequences, of not acknowledging and tailoring interventions to these everyday disruptions, are that the support offered (human or digital) is perceived as irrelevant, impersonal and un-tailored. Tailoring intervention that match the patient's stage of life, and adjustment to living with the disruption of ongoing pain, can lead to the delivery of more effective interventions with improved outcomes that are targeted to the individual's needs.

Charmaz's [40, 46] notion of adjustment was highlighted by some participants that seemed to accept back pain as part of their lives by 'battling through back pain' to complete their tasks on a daily basis. In contrast, some participants seemed to find it difficult to adjust and cope because of psychological distress, such as feeling worried, vulnerable and hopeless about their future because of ongoing back pain. For some, the feelings of worry seemed to exacerbate their condition, perhaps creating a despondency about their ability to live with LBP. Offering patients interventions (face-to-face and digital) that involve intent listening and personable interaction, can offer patients an avenue that helps them to

cope with, adjust to, and accept that back pain may continue to feature throughout their lives. This may lead to improved intervention effects and patient outcomes.

Acceptance of living with a chronic health condition has been described by Vowles et al. as a key factor contributing to coping and positive behaviour change in chronic LBP [59]. Consistent with the work of Bunzli et al. [42] and Saunders [43], some participants could not accept their limitations and appeared highly aware of painful and threatening movements. Thus temporarily suspended or avoided certain physical tasks and sought strategies that would help to overcome these limitations. To cope with ongoing back pain, some participants sought treatment from a health professional, while others opted for informal strategies, such as self-medication and discussions with family and friends about suggested ways of reducing back pain. Therefore, offering patients therapeutic opportunities that improve the level of acceptance of ongoing back pain are important. Delivering interventions that help patients accept ongoing back pain can improve the ways they live and potentially affect the behaviours of seeking care for their condition. Interventions that focus on improving a person's tolerance for the physical, emotion and social impacts of ongoing back pain, can result in improved self-reliance and improved outcomes.

Findings from this study also suggest individual participants varied in their preference for the setting and interventions to manage their condition. For example, some participants preferred face-to-face encounters with a health professional as it provided a therapeutic forum to discuss their personal experience and expectations, and receive tailored treatment, advice and encouragement that facilitated an adjustment to living with chronic LBP. Encouragement and advice communicated in a relational manner allowed participants to feel understood and more willing to accept that back pain was part of their life. Important aspects of this face-to-face therapeutic alliance include the affective bond and agreement of patient tasks and treatment goals between a patient and their practitioner [60]. Some participants preferred treatments that offered immediate and targeted pain relief, such as prescribed pain medication and referral for enhanced diagnostic and specialist care, suggesting that pain and disability severity were motivating factors for seeking medical care [61]. Still others sought 'hands-on' care from chiropractors or physiotherapists that focused on providing personalised and tailored pain relief, management and prevention strategies through the use of physical treatments and exercise [62]. In contrast, other participants preferred self-help strategies such as self-medication with over-the-counter analgesia, performing home-based exercise and stretching, modifying their physical activity and avoiding triggers for their LBP. Therefore, offering patients a supportive therapeutic alliance that encourages interaction in a safe and non-judgemental manner has the potential to help enhance the therapeutic alliance.

These different strategies may require different treatment approaches and related interventions. This study found that some participants were more satisfied with the personal interactions they had with their treating health professional than with interactions with the impersonal MoodGYM internet program. While MoodGYM is primarily a psychological tool to address emotional concerns, participants' accounts suggest they expected the program to provide additional advice to manage the physical aspects of back pain. These insights are important to both the design and delivery of face-to-face as well as internet-delivered support mechanisms as they are key to patients perceived relevancy for the intervention. An

ability to relate and connect with important others (e.g., health providers, peers, family) has been identified as an important factor that leads to enhanced health outcomes [63-65]. Treatment of chronic LBP is complex as it needs to match the desires and requirements of patients need to relate to and connect with others, and take into account the lived experiences of individuals, and ultimately facilitate self-management.

Some participants' preference for interaction with a healthcare professional seemed to impact their perspectives on the intervention throughout the trial. For example, their responses seem to indicate that MoodGYM was less preferred than the face-to-face consultations with health practitioners which provided a supportive environment that allowed them to share their experiences of living with LBP, communicate their needs for pain relief support and receive tailored advice and personalised management strategies. The importance of feeling listened, without negative judgement, was important as it provided a supportive forum for discussing their specific needs and expectations from seeking care. These findings support ideas presented in a recent systematic review by Lim et.al [35] that demonstrates the importance of developing a strong therapeutic alliance with patients. This alliance is one that nurtures a sense of personable and trustworthy collaboration between the therapist and client, built primarily on warm and supportive communication [39, 66]. This therapeutic collaboration appears to be unique to human interactions, but is one that needs further research for digital health technologies. These important relational aspect of collaboration for managing LBP did not feature in the MoodGYM program and may be an important reason why the clinical trial found no additional improvement in the pain and disability for those participants. Indeed, some participants described a need to discuss their personal circumstances while using MoodGYM; however, this was not possible due to the non-interactive nature of the online intervention. Some participants were critical of the content of the program; they perceived it was not well tailored to their lived experiences and did not reflect the physical and psychosocial disruption and complex adjustment they felt in living with chronic LBP. These findings also reflect the views of Multiple Sclerosis patients who took part in a trial using MoodGYM [67] and highlighted that digital health interventions need to provide a personalised and relational experience, that develops a therapeutic alliance, grounded in the real-world experiences of people with a chronic health condition [68]. The importance of therapeutic alliance to digital health technologies has been revealed by this study, and future studies need to focus how to best integrate ways of enhancing the patients need for being listened to, understood and offered tailored interventions that can help them to accept and adjust to life with ongoing back pain.

Digital health technologies for low back pain should offer tailored advice and personal support that facilitates management of this chronic condition, while capitalising on the convenience of an online environment. Recent studies for insomnia have trialed the use of avatars, in place of health professionals, in a fully-automated self-help program driven by an algorithm that provided tailored feedback and advice for insomnia [69]. Participants established a relatively high affective bond and alliance with the avatar that was sustained over time compared to the health professional encounters as measured by the Working Alliance Inventory-Short Revised [70, 71]. The design of an internet-delivered program for chronic LBP could be augmented by featuring avatars and characters that reflect the real-world physical and

psychological disruptions experienced by people with chronic low back pain and that account for various stages of their adjustment. The participant could select avatars that best reflect similarities to their present circumstances and be guided in treatment and support by an avatar driven by an automated algorithm reflecting best-practice clinical guidelines. These guidelines could be delivered by a fully automated avatar or text and pre-recorded video advice and information that includes self-care advice for the management of chronic LBP. Furthermore, the internet-delivered program could enhance a sense of personal connection for users by providing a communication forum (e.g. chat rooms and videos) with other users living with chronic LBP, and health professionals for advice and support. Aspects of this type of blended care, through brief telephone support with a health professional while completing an online intervention, have been used with success by internet-delivered CBT programs for depression. It was found that users were motivated by the intermittent human contact to persist with the online intervention as they experienced a sense of belonging, relatedness and connectedness with the internet-delivered intervention [72]. Designed in this way, a digital technology for people with chronic LBP can provide personalised best-practice management within a convenient digital environment and through supporting connections with others

Despite these insights, there are some limitations to the study and its findings. Participants were drawn from a relatively small sample of participants (n=25) from the Mind Your Back trial (n=108). Participants of the trial were at medium-risk of ongoing disability and findings may not be relevant for those with low or high risk of ongoing disability. The interview potentially may have represented a medical encounter [73] and may have elicited a partial account of participants' experiences as it may have affected their willingness to express their full views. However, low participant reactivity was noted throughout the interviews which was supported by a flexible interview guide with open-ended questions and good rapport with the interviewer. Through the use of a reflexive journal, capturing the interviewer's reactivity [74], it was noted that there was little influence on the participants ability to express their views in an uninhibited and natural manner. While participants' accounts provided contrasting perspectives, consistency of responses across interviews was evident and suggested common experiences and challenges were faced by participants. Indeed, data drawn from interviews suggests that participants felt comfortable and willing to share their experiences. A further limitation of this study was that only one data coder was used to analyse interview transcripts. It has previously been stated that different conclusions can be derived from the same information depending on the personal characteristics of the researcher [75]. However, although one coder was used, greater rigour to the coding and interpretation was provided through in-depth discussion by the research team to identify the core themes from the interviews and different interpretations of the data to identify core ideas.

Findings from this process evaluation of the Mind Your Back trial highlight the crucial importance of developing tailored personalised support and relevant management strategies that are grounded in the lived experiences of people with chronic LBP. Facilitating a strong therapeutic alliance between patient and internet-delivered interventions is a challenge for digital health interventions due to the relatively impersonal and non-relational nature of digital interactions. However, by integrating opportunities for consultations with a health professional (e.g., face-to-face, video or chat) along with a highly relevant

back-pain-specific internet-delivered program that develops a therapeutic alliance may help to enhance the delivery and relevancy of online interventions. Such a novel approach has the potential to support patients' adjustment to living with chronic LBP and aid their positive self-management of chronic LBP with tailored support from a practitioner.

Conclusion

Living with chronic LBP has significant disruptive impacts on everyday life. It is crucial to deliver tailored support and management strategies (e.g., face-to-face and/or internet-delivered) that are grounded in the everyday lived experiences of people with chronic LBP. This study highlights the importance of developing a supportive and effective therapeutic alliance of psychologically informed physical therapy. With the growing availability of digital health interventions for musculoskeletal conditions and the continuing high global prevalence and burden of chronic LBP, further research into the design, content and delivery of psychologically informed treatment is needed to optimise its acceptance by, and relevance for, individuals at medium risk of ongoing disability. The findings presented in this study, therefore, have important implications for clinical practice and future research in the management of chronic LBP.

Declarations

Ethics approval and consent to participate: Ethics approval was obtained prospectively from the University of Sydney Human Research Ethics Committee (2014/997). Participants for the interview were each assigned a non-identifiable pseudonym for anonymity and reporting purposes.

Consent for publication: Each academic provided written consent to participate in this research and contributed as an author on this paper.

Availability of data and materials: anonymised interviews available on reasonable request

Competing interests: The authors declare that they have no competing interests.

Funding: No funding was received for this study

Authors' contributions: All authors contributed to the design of the study. MJP prepared the dataset. MJP conducted the interviews and thematic analysis. MJP, GS and MGM scrutinised the themes and analysis methodology. MJP wrote the first draft of the manuscript. All authors contributed to interpreting the findings, reviewed and edited the manuscript and approved the final version of the manuscript.

Acknowledgements: nil

Corresponding author: Correspondence to M. John Petrozzi

References

1. Hoy, D., et al., *The global burden of low back pain: estimates from the Global Burden of Disease 2010 study*. Ann Rheum Dis, 2014. **73**(6): p. 968-74.
2. Hoy, D., et al., *A systematic review of the global prevalence of low back pain*. Arthritis Rheum, 2012. **64**(6): p. 2028-37.
3. Axén, I., et al., *Clustering patients on the basis of their individual course of low back pain over a six month period*. BMC musculoskeletal disorders, 2011. **12**(1): p. 99.
4. Henschke, N., et al., *Prevalence of and screening for serious spinal pathology in patients presenting to primary care settings with acute low back pain*. Arthritis & Rheumatism, 2009. **60**(10): p. 3072-3080.
5. Maher, C., M. Underwood, and R. Buchbinder, *Non-specific low back pain*. Lancet, 2017. **389**(10070): p. 736-747.
6. van Tulder, M., B. Koes, and C. Bombardier, *Low back pain*. Best Pract Res Clin Rheumatol, 2002. **16**(5): p. 761-75.
7. Kongsted, A., et al., *Patients with low back pain had distinct clinical course patterns that were typically neither complete recovery nor constant pain. A latent class analysis of longitudinal data*. The spine journal, 2015. **15**(5): p. 885-894.
8. Henschke, N., et al., *Prognosis in patients with recent onset low back pain in Australian primary care: inception cohort study*. Bmj, 2008. **337**: p. a171.
9. Kongsted, A., et al., *What have we learned from ten years of trajectory research in low back pain?* BMC musculoskeletal disorders, 2016. **17**(1): p. 220.
10. Kamper, S.J., C.G. Maher, and R. Buchbinder, *Nonspecific low back pain: manage initially with reassurance, activity and analgesia*. Medicine Today, 2012. **13**(11): p. 18-28.
11. Rolland, J.S., *Chronic illness and the life cycle: A conceptual framework*. Family process, 1987. **26**(2): p. 203-221.
12. Kamper, S.J., et al., *Multidisciplinary biopsychosocial rehabilitation for chronic low back pain: Cochrane systematic review and meta-analysis*. BMJ, 2015. **350**: p. h444.
13. Costa, L.d.C.M., et al., *Prognosis for patients with chronic low back pain: inception cohort study*. Bmj, 2009. **339**: p. b3829.
14. AIHW, *Impacts of chronic back problems*, in *Bulletin 137. Cat. no. AUS 204*. 2016: Canberra.
15. Bener, A., et al., *Psychological factors: anxiety, depression, and somatization symptoms in low back pain patients*. Journal of pain research, 2013. **6**: p. 95.
16. Hayden, J., et al., *Systematic reviews of low back pain prognosis had variable methods and results—guidance for future prognosis reviews*. Journal of clinical epidemiology, 2009. **62**(8): p. 781-796. e1.
17. Lee, H., et al., *How does pain lead to disability? A systematic review and meta-analysis of mediation studies in people with back and neck pain*. Pain, 2015. **156**(6): p. 988-997.
18. Costal, L.d.C.M., et al., *Self-efficacy is more important than fear of movement in mediating the relationship between pain and disability in chronic low back pain*. European Journal of Pain, 2011.

- 15(2): p. 213-219.
19. Buruck, G., et al., *Psychosocial areas of worklife and chronic low back pain: a systematic review and meta-analysis*. BMC Musculoskeletal Disorders, 2019. **20**(1): p. 480.
 20. Qaseem, A., et al., *Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians*. Ann Intern Med, 2017. **166**(7): p. 514-530.
 21. Airaksinen, O., et al., *Chapter 4. European guidelines for the management of chronic nonspecific low back pain*. Eur Spine J, 2006. **15 Suppl 2**: p. S192-300.
 22. NSW-Agency-For-Clinical-Innovation, *Management of people with acute low back pain: model of care: model of care*, in *Chatswood NSW Health*. 2016. 39 p.
 23. Petrozzi, M.J., et al., *Addition of MoodGYM to physical treatments for chronic low back pain: A randomized controlled trial*. Chiropractic & Manual Therapies, 2019. **27**(1): p. 54.
 24. Petrozzi, M.J., et al., *Does an online psychological intervention improve self-efficacy and disability in people also receiving Multimodal Manual Therapy for chronic low back pain compared to Multimodal Manual Therapy alone? Design of a randomized controlled trial*. Chiropractic & manual therapies, 2015. **23**(1): p. 1.
 25. Charmaz, K., *Stories of suffering: Subjective tales and research narratives*. Qualitative health research, 1999. **9**(3): p. 362-382.
 26. Clancy, K., C. Hallet, and A. Caress, *The meaning of living with chronic obstructive pulmonary disease*. Journal of Nursing and Healthcare of Chronic Illness, 2009. **1**(1): p. 78-86.
 27. Kurpas, D., et al., *Quality of life and acceptance of illness among patients with chronic respiratory diseases*. Respir Physiol Neurobiol, 2013. **187**(1): p. 114-7.
 28. Moussavi, S., et al., *Depression, chronic diseases, and decrements in health: results from the World Health Surveys*. Lancet, 2007. **370**(9590): p. 851-8.
 29. Price, B., *Illness careers: the chronic illness experience*. J Adv Nurs, 1996. **24**(2): p. 275-9.
 30. Kingsley, G., I.C. Scott, and D.L. Scott, *Quality of life and the outcome of established rheumatoid arthritis*. Best Pract Res Clin Rheumatol, 2011. **25**(4): p. 585-606.
 31. Gross, D.P., et al., *A population-based survey of back pain beliefs in Canada*. Spine, 2006. **31**(18): p. 2142-2145.
 32. Corbett, M., N.E. Foster, and B.N. Ong, *Living with low back pain—Stories of hope and despair*. Social science & medicine, 2007. **65**(8): p. 1584-1594.
 33. Ellis, J., et al., *Conceptualisation of the 'good'self-manager: A qualitative investigation of stakeholder views on the self-management of long-term health conditions*. Social Science & Medicine, 2017. **176**: p. 25-33.
 34. Froud, R., et al., *A systematic review and meta-synthesis of the impact of low back pain on people's lives*. BMC musculoskeletal disorders, 2014. **15**(1): p. 50.

35. Lim, Y.Z., et al., *People with low back pain want clear, consistent and personalised information on prognosis, treatment options and self-management strategies: a systematic review*. J Physiother, 2019. **65**(3): p. 124-135.
36. MacNeela, P., et al., *Experiences of chronic low back pain: a meta-ethnography of qualitative research*. Health Psychology Review, 2015. **9**(1): p. 63-82.
37. Snelgrove, S. and C. Liossi, *Living with chronic low back pain: a metasynthesis of qualitative research*. Chronic illness, 2013. **9**(4): p. 283-301.
38. Sokunbi, O., et al., *Experiences of individuals with chronic low back pain during and after their participation in a spinal stabilisation exercise programme–A pilot qualitative study*. Manual therapy, 2010. **15**(2): p. 179-184.
39. Walker, J., B. Sofaer, and I. Holloway, *The experience of chronic back pain: accounts of loss in those seeking help from pain clinics*. European Journal of Pain, 2006. **10**(3): p. 199-199.
40. Charmaz, K., *Stories and silences: Disclosures and self in chronic illness*. Qualitative inquiry, 2002. **8**(3): p. 302-328.
41. Vroman, K., R. Warner, and K. Chamberlain, *Now let me tell you in my own words: narratives of acute and chronic low back pain*. Disability and rehabilitation, 2009. **31**(12): p. 976-987.
42. Bunzli, S., et al., *Lives on hold: a qualitative synthesis exploring the experience of chronic low-back pain*. The Clinical journal of pain, 2013. **29**(10): p. 907-916.
43. Saunders, B., et al., *Biographical suspension and liminality of Self in accounts of severe sciatica*. Social Science & Medicine, 2018. **218**: p. 28-36.
44. Bury, M., *Chronic illness as biographical disruption*. Sociology of health & illness, 1982. **4**(2): p. 167-182.
45. *Open education sociology dictionary*, in *American Psychological Association (6th ed.)*, K.E. Bell, Editor. 2013.
46. Charmaz, K., *THE BODY, IDENTITY, AND SELF*. The Sociological Quarterly, 1995. **36**(4): p. 657-680.
47. Oakley, A., et al., *Process evaluation in randomised controlled trials of complex interventions*. BMJ, 2006. **332**(7538): p. 413-6.
48. Harachi, T.W., et al., *Opening the black box: using process evaluation measures to assess implementation and theory building*. American Journal of Community Psychology, 1999. **27**(5): p. 711-31.
49. Moore, G.F., et al., *Process evaluation of complex interventions: Medical Research Council guidance*. BMJ : British Medical Journal, 2015. **350**: p. h1258.
50. Morse, J.M., *The significance of saturation*. 1995, Sage Publications Sage CA: Thousand Oaks, CA.
51. Morse, J.M., *"Cherry picking": writing from thin data*. 2010.
52. Sandelowski, M., *Sample size in qualitative research*. Research in nursing & health, 1995. **18**(2): p. 179-183.

53. Fugard, A.J.B. and H.W.W. Potts, *Supporting thinking on sample sizes for thematic analyses: a quantitative tool*. International Journal of Social Research Methodology, 2015. **18**(6): p. 669-684.
54. Holloway, I. and K. Galvin, *Qualitative research in nursing and healthcare*. 2016: John Wiley & Sons.
55. Denzin, N.K., *The research act: A theoretical introduction to sociological methods*. 2017: Routledge.
56. Braun V, C.V., *Using thematic analysis in psychology*. Qual Res Psychol., 2006. **3**(2):77-101.
57. Green J, T.N., *Qualitative methods for health research*. 2013: Sage.
58. Tong, A., P. Sainsbury, and J. Craig, *Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups*. International Journal for Quality in Health Care, 2007. **19**(6): p. 349-57.
59. Vowles, K.E., et al., *Effects of Pain Acceptance and Pain Control Strategies on Physical Impairment in Individuals With Chronic Low Back Pain*. Behavior Therapy, 2007. **38**(4): p. 412-425.
60. Bordin, E.S., *The generalizability of the psychoanalytic concept of the working alliance*. Psychotherapy: Theory, research & practice, 1979. **16**(3): p. 252.
61. Walker, B.F., R. Muller, and W.D. Grant, *Low back pain in Australian adults. health provider utilization and care seeking*. Journal of Manipulative & Physiological Therapeutics, 2004. **27**(5): p. 327-35.
62. Walker, B.F., R. Muller, and W.D. Grant, *Low back pain in Australian adults. health provider utilization and care seeking*. J Manipulative Physiol Ther, 2004. **27**(5): p. 327-35.
63. Ryan, R.M. and E.L. Deci, *Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being*. American psychologist, 2000. **55**(1): p. 68.
64. Deci, E.L. and R.M. Ryan, *The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior*. Psychological inquiry, 2000. **11**(4): p. 227-268.
65. Prochaska, J.O. and J.C. Norcross, *Stages of change*. Psychotherapy: theory, research, practice, training, 2001. **38**(4): p. 443.
66. Ferreira, P.H., et al., *The Therapeutic Alliance Between Clinicians and Patients Predicts Outcome in Chronic Low Back Pain*. Physical Therapy, 2013. **93**(4): p. 470-478.
67. Hind, D., et al., *The acceptability of computerised cognitive behavioural therapy for the treatment of depression in people with chronic physical disease: A qualitative study of people with multiple sclerosis*. Psychology & Health, 2010. **25**(6): p. 699-712.
68. O'Connor, S., et al., *Understanding factors affecting patient and public engagement and recruitment to digital health interventions: a systematic review of qualitative studies*. BMC Medical Informatics and Decision Making, 2016. **16**(1): p. 120.
69. Heim, E., et al., *Working alliance with an avatar: How far can we go with internet interventions?* Internet Interventions, 2018. **11**: p. 41-46.
70. Horvath, A.O. and B.D. Symonds, *Relation between working alliance and outcome in psychotherapy: A meta-analysis*. Journal of counseling psychology, 1991. **38**(2): p. 139.
71. Munder, T., et al., *Working Alliance Inventory-Short Revised (WAI-SR): psychometric properties in outpatients and inpatients*. Clinical Psychology & Psychotherapy: An International Journal of Theory

- & Practice, 2010. **17**(3): p. 231-239.
72. Wilhelmsen, M., et al., *Motivation to persist with internet-based cognitive behavioural treatment using blended care: a qualitative study*. BMC psychiatry, 2013. **13**(1): p. 296.
73. Kim, M.S., et al., *A test of a cultural model of patients' motivation for verbal communication in patient-doctor interactions*. Communication Monographs, 2000. **67**(3): p. 262-283.
74. Alsaawi, A., *A critical review of qualitative interviews*. European Journal of Business and Social Sciences, 2014. **3**(4).
75. Maxwell, J.A., *Qualitative research design: An interactive approach*. Vol. 41. 2012: Sage publications.
76. Braun V, C.V., *Successful qualitative research: A practical guide for beginners*. 2013: Sage.

Tables

Table 1: Interview guide questions

Pre-trial expectations:

- o Can you tell me a few reasons why you chose to take part in the trial?
- o How did you expect that the internet-delivered mood program would help you?
- o Did you think that a computer program could help you manage your mood better?

Usual care experience:

- o Can you tell me what you thought of the chiropractic/ physiotherapy you received?
- o Was the treatment enough on its own to manage your pain? Or was something missing?
- o What else would you like to have received from your practitioner?

Intervention experience:

- o If you were in the MoodGYM group: How did you feel when you first heard that you would be using MoodGYM in addition to chiro/physio in the trial?
- o After you started using MoodGYM each week, how did you feel about it?
- o Can you tell me about how you managed to get through the modules?
- o As you went through each module, what emotions and thoughts came up for you?
- o What did you think about the modules presented in MoodGYM?
- o What benefits did you experience from using MoodGYM?

Intervention relevance:

- o What relevance did MoodGYM provide for you?
- o Would you recommend MoodGYM to someone dealing with emotional distress like anxiety or depression as a result of chronic back pain?

Intervention improvements:

- o What would you have changed about the MoodGYM to make it more relevant to your situation?
- o What would make your experience in the trial better?

Overall perceived effects:

- o How did your life change as a result of participating in the trial?
- o Is there anything else you would like to tell me about your involvement in the trial before we wrap things up?

Table 2: Participant descriptive characteristics (*N* = 25)

<i>Gender</i>	Women (n=12)	48%
	Men (n=13)	52%
<i>Age</i>		
Range (yrs)	29 to 76	
Mean age (yrs)	mean 53 (SD 13)	

NB: Participants had been living with their LBP for an average duration of 4.3 years prior to commencing the Mind Your Back trial.

Table 3: Description of the interventions used in the trial

Intervention	Description
MoodGYM	<p>Setting: Participants completed the MoodGYM program individually on their own personal computer at home.</p> <p>Purpose: To provide psychological support via an internet-delivered cognitive behavioural approach.</p> <p>Materials: Participants were directed to the MoodGYM website www.moodgym.com.au and asked to complete the five weekly modules. The modules explored thoughts, feelings, stressors and relationships that may contribute to psychosocial distress.</p> <p>Module 1 Feelings: Why you feel the way you do.</p> <p>Module 2 Thoughts: Changing the way we think.</p> <p>Module 3 Unwarping: Changing warped thoughts.</p> <p>Module 4 De-stressing: Knowing what makes you upset.</p> <p>Module 5 Relationships: Relationships and how they work out.</p> <p>Procedures: One MoodGYM module was completed weekly. Fidelity was checked with a weekly telephone call by a research assistant. In circumstances that a participant reported not having completed a weekly MoodGYM module, a further phone call was made a few days later to ensure the module was completed. No additional counselling or psychological treatment advice was provided with these reminder telephone calls. The program was a self-led digital health technology with no contact with a health practitioner.</p>
Multimodal physical treatments	<p>Setting: Participants attended a private chiropractic or physiotherapy clinic. Physical treatments were provided by a registered chiropractor or physiotherapist with over 5 years of clinical experience. These practitioners were screened and inducted into the trial several months before the trial commenced.</p> <p>Purpose: To provide practitioner-led multimodal physical treatments focused on reducing back pain and help participants to better self-manage their condition.</p> <p>Materials: All participants received a pragmatic course of multimodal physical treatments, e.g., manual therapy (spinal manipulation or mobilisation and/or soft tissue massage) combined with reassurance, advice, education and general exercises. Reassurance that back pain would not worsen. Advice about symptom management and encouragement to remain active and avoid bed-rest. Education on activity pacing, lifting advice, computer ergonomic use and general injury prevention principles. Supportive exercises included general physical conditioning or home-based stretching</p>

and strengthening exercises relevant to the patient's level of impairment and function. Treatment modalities that are not endorsed by clinical practice guidelines for the treatment of non-specific LBP were not offered to participants (e.g., therapeutic ultrasound, transcutaneous electrical nerve stimulation, heat therapy, etc). The selection of physical treatments was determined by the practitioner according to the presenting needs of the participant and according to clinical judgment.

Procedures: Participants received up to 12 treatments over a period of 8 weeks. The practitioner may have elected to use fewer treatments in cases where significant improvement was observed or if adverse events that warranted stopping care were experienced. Fidelity and treatment adherence were recorded by the treating practitioner at each visit.

NB: Intervention description follows the TIDieR (Template for Intervention Description and Replication) Checklist

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Additionalfile1.docx](#)