





'You're the best liar in the world': a grounded theory study of rowing athletes' experience of low back pain

Fiona Wilson ,¹ Leo Ng,² Kieran O'Sullivan ,^{3,4} J P Caneiro,² Peter PB O'Sullivan ,² Alex Horgan,¹ Jane S Thornton ,^{5,6} Kellie Wilkie,⁷ Virpi Timonen⁸

¹Discipline of Physiotherapy, School of Medicine, Trinity College, Dublin, Ireland

²School of Physiotherapy and Exercise Science, Faculty of Health Science, Curtin University, Perth, Western Australia, Australia

³School of Allied Health, University of Limerick, Limerick, Ireland

⁴Health Research Institute, University of Limerick, Limerick, Ireland

⁵Fowler Kennedy Sport Medicine Clinic, Western University, London, Ontario, Canada

⁶Western Centre for Public Health and Family Medicine, Schulich School of Medicine & Dentistry, Western University, London, Ontario, Canada

⁷Bodysystem Physio, Hobart, Tasmania, Australia

⁸School of Social Work and Social Policy, Trinity College Dublin, Dublin, Ireland

Correspondence to

Dr Fiona Wilson, School Of Physiotherapy, Trinity College Dublin, Dublin, Ireland; wilsonf@tcd.ie

Accepted 12 September 2020
Published Online First
9 October 2020

ABSTRACT

Objectives Low back pain (LBP) is common in rowers and leads to considerable disability and even retirement. The athlete voice can help clinicians to better understand sport-related pain disorders. We aimed to capture the lived experience of LBP in rowers.

Methods Cross-sectional qualitative study using a grounded theory approach. Adult competitive rowers with a rowing-related LBP history were recruited in Australia and Ireland. Data were collected through interviews that explored: context around the time of onset of their LBP and their subsequent journey, experiences of management/treatment, perspectives around present beliefs, fears, barriers and expectations for the future.

Results The 25 rowers (12 women/13 men) who participated were aged 18–50 years; they had a mean 12.1 years of rowing experience. They discussed a culture of concealment of pain from coaches and teammates, and fear of being judged as 'weak' because of the limitations caused by LBP. They reported fear and isolation as a result of their pain. They felt that the culture within rowing supported this. They reported inconsistent messages regarding management from medical staff. Some rowers reported being in a system where openness was encouraged—they regarded this a leading to better outcomes and influencing their LBP experience.

Conclusions Rowers' lived experience of LBP was influenced by a pervasive culture of secrecy around symptoms. Rowers and support staff should be educated regarding the benefits of early disclosure and rowers should be supported to do so without judgement.

BACKGROUND

Low back pain (LBP) is the most common musculoskeletal disorder, which can result in lifelong disability for some. The mean point prevalence globally in adults is around 12%,¹ and in athletes it ranges from 18% to 65% (highest prevalence in rowing).² LBP can have a significant negative impact on a person's life and for some can result in persistent pain and an inability to work and enjoy social engagement. LBP is common in sport and for some athletes can result in considerable time loss from training and competition and even be career ending.

Rowing is associated with high volumes of training, associated with repeated flexion loading of the lower back. The most frequently reported site of pain as a result of rowing is the lower back.

The 12-month prevalence of LBP in rowing ranges from 32% to 51% in senior competitive rowers.³ A previous history of LBP and increased volume of ergometer training are known risk factors for LBP in rowers. Research to date has not addressed the athlete's pain experience.

The patient narrative is an important part of evidence based medicine.⁴ Exploration of the lived experience of LBP in the general population has demonstrated that participants report a 'changing sense of self' to self-identification of someone who is controlled by their pain. They also report a fear of social judgement and stigmatisation associated with LBP which can lead to social isolation and a culture of secrecy.^{5,6}

Does this apply in rowers? The athlete response to pain and injury is complex. Athletes' experience can be influenced by culture within the sport, their own sense of athletic identity and processes of institutional rationalisation and athletic socialisation that convey the message to accept risks, pain and injuries.^{7–9} These concepts have not been studied in the context of LBP in rowing. Engagement with patients is important to create management programmes that are user friendly, person centred and reflect the patients' own goals, expectations and experience. This is likely to vary between user groups; senior competitive rowers are exposed to exercise and performance demands which are not experienced in the general population. LBP is a complex condition with biopsychosocial factors that are unique to an individual.¹⁰

We aimed to explore the lived experience of senior competitive rowers reporting an episode of rowing-related LBP. The specific areas explored included: context around the time of onset of LBP; the journey subsequent to the onset of LBP; experiences of management/treatment; perspectives around present condition including beliefs, fears and barriers as well as perspectives and expectations for the future.

For the purposes of this study and to fulfil participants' inclusion criteria, we defined LBP as 'a pain, ache or discomfort in the low back with or without referral to the buttocks or legs that has been or was present for more than 1 week and/ or interrupted at least one training session'.¹ We used a previous broad definition and added a temporal component or loss of training to adapt to the sport of rowing.

METHODS

This study is reported according to Consolidated Criteria for Reporting Qualitative Research



© Author(s) (or their employer(s)) 2021. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Wilson F, Ng L, O'Sullivan K, et al. *Br J Sports Med* 2021;**55**:327–335.

(COREQ) guidelines¹¹ (Appendix 1 online supplement). Three researchers conducted interviews; two in Australia (men) LN and JPC, and one in Ireland (woman) FW. The three researchers are experienced in conducting patient interviews and are Physiotherapists with a PhD in LBP, with two specifically relating to LBP in rowers. Participants did not have a prior relationship with the interviewers. All interviewers had been active in disseminating research regarding LBP in rowing and it is possible that those who participated were aware of this and were motivated to take part to gain a greater understanding of their LBP and to contribute to growing knowledge in this area.

We used the grounded theory (GT) method which focuses on generating theory from data.^{12–13} We focused on identifying psychosocial processes in relation to LBP. We chose this approach to explain at a substantive level how rowers experience an episode of LBP and what are their experiences of managing it. Gaining insight into these processes is useful for various professionals who work with rowers, and specifically those working with LBP. Our analytical approach was primarily inductive, that is, sought to generate concepts and categories from the data. We selected the GT method for a number of reasons. There is a very limited body of existing research that relates directly to our study question and the GT method is ideally suited to study of poorly-understood issues. This study is related to social processes and the GT method excels at interrogating social processes. The research aspired to generate a conceptual framework, not just descriptive themes, and the GT method was considered more appropriate than thematic analysis as our research sought to generate links between concepts.

The GT method excels in addressing research questions relating to social processes and human interactions, and approaches scientific enquiry with openness to new findings, insights and theory. We position this research in the critical realist 'school' of GT.¹⁴ Critical realism¹⁵ attests to a 'reality that is open, fluid and shaped by how people interpret (construct meaning) in it'.¹⁵ Critical realist GT is ideally suited to capturing and explaining context-related social processes as it focuses on the structures and relations that shape events and outcomes.¹⁶ It recognises the importance and explanatory relevance of social structures and the meanings that people attach to their lives and behaviours; it acknowledges that our understanding of these meanings is essentially interpretive but the structures that shape those meanings are real.¹⁷ Social constructs have observable and measurable influence. For instance, while power (in this case, in the sports context) is a social construct (ie, dependent on how people understand it), we argue that power relations between sports team members are real, and manifest themselves in outcomes that are consequential, independently of the interpretations of such relations. Thus, team members' interpretations of power relations might not be identical but this does not mean that power is not exerted or has no consequences. The study team are not only academics/researchers but are also practising healthcare professionals who provide management for athletes with LBP. This puts us in a particularly strong position to understand the contexts in which the rowers operate. This fits with the critical realist approach and the need to develop management guidelines which relates to the drive to impact on the reality of the participating rowers.

Sampling and recruitment

Sampling was initially through convenience by participant self-selection. A letter of invitation to participate in the study and an information leaflet was sent to an administrator at the national rowing

Box 1 Interview questions (* denotes questions added to explore categories further following initial analysis)

Interview questions

1. Tell me about your back pain/injury (probing- track from your first episode and history of any following episodes)?
2. Tell me about the treatment you have had?
3. What is wrong with your back (probing- in your words and in what you have been told)?
4. Why do you think rowers get back pain?
5. How do you think rowers can prevent back pain?
6. *Do you think your relationship with your coach influenced your experience of back pain?
7. *Do you think your position in the team influenced your experience of back pain (probing- if you were selected or pending selection or a 'valuable' member due to performance history)?
8. *Did/do you feel comfortable disclosing the details of your back pain to teammates, coaches and selectors?
9. Is there anything else you feel you want to add?

*Denotes questions added to explore categories further following initial analysis.

governing body of Ireland and Western Australia with a request to distribute to their lists (captains of rowing clubs throughout each region). The letter and information leaflet provided information on the study and contact details for the lead investigator at each site. We also posted information on social media (Facebook and Twitter), inviting participation. Participants were eligible for inclusion if they had a history of LBP as a result of rowing (see definition above); were ≥ 18 years old; rowing for at least 1 year at a senior level and able to understand English. The sampling proceeded from convenience to theoretical¹² on the basis of the emergent finding that some rowers actively concealed their LBP. That is, did not disclose that they were in pain to those around them including peers, coaches and sometimes medical teams. From this insight we went on to recruit diverse participants who were in a position to give us a comprehensive understanding of who conceals their back pain, why rowers conceal their back pain, how rowers conceal their back pain and does such behaviour vary according to status or competitive level. We continued recruitment until saturation of the core categories of openness and concealment (see below) was reached.

There were a total of 25 participants in the study; $n=12$ in Australia and $n=13$ in Ireland. Initial sampling recruited $n=9$ in Australia and $n=9$ in Ireland. Following initial data analysis, more interviews were conducted to explore categories further (denoted by * box 1). Participants were recruited between May 2016 and May 2017 in Australia and April 2016 and February 2017 in Ireland. Thirteen participants were men and 12 were women aged 18–50 years. Participants' rowing experience varied from club to international level with a mean 12.1 years of experience (table 1).

Data collection

Qualitative interviews were conducted face to face and were audio recorded. The questions asked are presented in box 1. Interviews were conducted in a place of convenience for each participant by FW (Ireland) and LN and JPC (Australia). Only the researcher(s) who conducted the interviews and the participant were present at each interview. One pilot interview was conducted in each country to explore the suitability of questions. Interviews were semistructured and designed to create discussion around topics relevant to the study but with flexibility to

Table 1 Participant characteristics

Participant code (P)	Age range (years)	Years rowing	Highest competition level
P1	46–50	30	International
P2	21–25	9	International
P3	18–20	2	Club
P4	21–25	7	International
P5	31–35	20	International
P6	18–20	1	Club
P7	26–30	10	International
P8	46–50	37	International
P9	21–25	4	Club
P10	21–25	12	International
P11	31–35	20	International
P12	56–50	3	Club
P13	18–20	7	Club
P14	21–25	Unknown	Club
P15	18–20	5	Club
P16	26–30	21	Club
P17	26–30	7	Club
P18	26–30	10	International
P19	21–25	7	International
P20	26–30	16	International
P21	21–25	11	International
P22	21–25	11	Club
P23	21–25	4	Club
P24	41–45	25	State
P25	18–20	7	State

allow further exploration of topics. Interviews lasted on average 35 min. Field notes were made following each interview. After each interview, the interviewer wrote a case-based memo reflecting on what was learnt from the interview.

As per GT method, we collected and analysed data in tandem and emerging findings guided our sampling and questions that were asked. Hence, while the above interview guide was generally followed, the interviewers also prompted and probed in the direction of the emergent concepts, in line with theoretical sampling.¹² An iterative process allowed initial interviews to be completed and analysed before further ones were performed. Sampling ceased when the core categories of concealment and openness had been described and dimensionalised that is, saturation was achieved.

Data analysis

Data were transcribed verbatim and participants were provided with a transcribed copy of their interview for comment and/or correction (member checking). No participant wished to alter the content after interview. We did not return to participants to verify emerging theory. FW and AH analysed the data using initial, focused and theoretical coding procedures and VT interrogated analysis at all stages of data collection and analysis. FW and AH independently coded all transcripts to provide an index of codes. Data analysis began with multiple readings of the transcripts then line-by-line (initial) coding. AH then created diagrams (diagramming), conceptual memos and summary tables. Data were broken down into discrete meaning (concepts) and expanded to form categories (larger concepts) by coding for similarities and differences in the data.

In our outline of the findings below, we convey how the analysis is grounded in the data. We do this by outlining the experiences of the participants and elaborating the concepts that capture these experiences. The core categories of openness and concealment, grounded in the data, capture the central processes at work when rowers seek to come to terms with LBP. For coding, we used the terminology of Charmaz,¹⁸ with progression from initial (open line), to focused, and finally to theoretical coding. This ensured that the core process of the data analysis followed a process where it moved from codes (description) to concepts, aided by memos.¹⁹ Table 2 illustrates this process, taking examples from two interviews (participants 8 and 10). Initial coding is very closely based on the words of the individual participant, then at the focused coding stage the conceptual formulation draws on data from multiple participants' accounts, as the coding builds on constant comparison of data with data. At the final, theoretical coding stage, the central processes in the data cohere into a core category, in this case culture of concealment vs openness of LBP in rowing.

To enhance trustworthiness, a number of methods were employed. These included 'member checking' which allowed participants to review and comment on their interview transcript. Writing field notes (memos) created an audit trail which allowed us to record developing data patterns and identify gaps. Peer debriefing with other clinicians working with rowers was used to explore biases and assumptions of the researchers with the findings. The findings were also discussed with the research team throughout the research process. Table 3 (online supplemental material) summarises all key steps taken in the research process.

Table 2 Examples of the coding process

Coding process			
Raw data	Initial coding	Focused coding	Theoretical coding
Q: Tell me about your back pain/injury (probing-track from your first episode and history of any following episodes)?	Deciding to conceal pain from management	Concealing injuries as something detrimental to success	Culture of concealment
<i>Concealment</i>	Classifying pain as weakness	Being acutely aware of position in team	Culture of openness
A: '...an injury is deemed to be a weakness. So if you say anything about an injury you're in danger of losing your position. I certainly wouldn't mention it to management' (P8)	Worrying about losing position	Dependence on coaches	
<i>Openness</i>	Coach had previous experience influencing his behaviour	Proactive culture results in better outcomes	
A: '... he was extremely supportive the whole way through... he tried to do as much as he could to help me with it... (coach) has had back issues while he was rowing... he was very aware of back issues and always looking for new ways to try and help it out and it was never a case 'oh your back's injured come back to me when it's ok' (P10)	Recognising supportive structure	Feeling secure to disclose without repercussions	
	Trusting coach	Coach helping athletes to a better experience	

Table 3 Components of the study reflecting the grounded theory method

Component	Description
Iterative process	The study was designed to reflect the current level of understanding of research relating to athlete LBP. The researchers' clinical experience and gaps in knowledge helped design questions. Data analysis was conducted in tandem with the interview process and concepts were refined throughout the ongoing process.
Theoretical sampling	Sampling was guided by issues that arose from the iterative analysis. Data are analysed as it was collected and was continued in parallel with data collection. Following initial analysis, the interview questions were expanded and modified to explore the concepts of concealment and openness and participants were sought to build emerging theory. This was informed by coding, comparison and memo-writing as interviews were conducted and analysed.
Theoretical sensitivity	All researchers had published widely in relevant areas prior to this study and were able to build on this body of prior knowledge to interpret the emerging data to build concepts from the findings of this study.
Codes, memos and concepts	The process that was used was that outlined by Charmaz whereby raw data undergoes initial coding followed by focused coding and then theoretical coding. Ideas were generated from early data for initial coding to allow for development of focused coding. Theoretical coding allowed refinement of the final categories of openness and concealment and the relationships between them. Throughout the study, case-based memos and conceptual memos were written. We also drew diagrams to explore relationships between concepts.
Constant comparison	As the study developed, comparison between data, codes and concepts was ongoing. Coding and concepts in later iterations were compared with those in earlier iterations to ensure that concepts remained relevant and aligned. This was an ongoing process throughout the study.
Theoretical saturation	This was reached when all concepts in the developing theoretical framework were well understood and supported by the analysed data.
Fit, work, relevance and modifiability	The concepts of openness and concealment of rowing LBP fit closely with what rowers were reporting to be their experiences within the sport and the theory works as it explains the behaviours of the rowers in the culture they found themselves in. This theory is relevant as it fits with the progression of modern sport to present day where success is valued more than enjoyment in many settings. Rowers who reported a culture of openness also reported more positive experiences, and we have suggested that by fostering this culture, the negative experience can be modified.
Production of a substantive theory	We have produced a clear substantive theory that the lived experience of LBP in rowers is influenced by a culture of openness or concealment.

LBP, low back pain.

FINDINGS

Rowers view their sport as being mentally and physically demanding. They describe a culture of hardiness in which athletes demand everybody around them including themselves to be 'bulletproof' (P1) and 'at the top of their game at all times' (P8). Anything that prevents them from performing at the highest level such as pain and/or an injury is viewed as a 'weakness' and a weakness in the sport of rowing is 'just not allowed' (P1). Most of the participants acknowledged that LBP is prevalent in rowing, however, because of the culture of hardiness, rowers conceal their pain. Several participants reported that they concealed LBP from their teammates, coaches and medical staff in the hope that if they 'shut up and didn't talk about it they could pretend it's not there' (P2) and their LBP would not be taken into account. One participant described rowers dealing with LBP as 'you're the best liar in the world' (P1). For many participants, there was an inevitability about the risk of LBP in the sport of rowing with some reporting recurrent episodes throughout their career:

I've pretty much been having back pain since I started rowing (P6)

The impact of LBP went beyond sport for a number of participants, having significant influence on their daily lives. One participant discussed how the severity of her LBP influenced her during her college exams:

...it's ridiculous how much it [LBP] influences everything you do. I was in an exam during that period when I couldn't really walk...I had to take pain killers to go in (to the exam)...I was in so much pain that I thought 'I'm going to pass out during this exam'... (P9)

Another athlete reported how pain affected his ability to do his job (involving driving) and how he was afraid to tell his employers:

you were in the car...(*for work)...and I was in agony but couldn't say anything....it was pain...all pain (P8)

While LBP had significant negative impact on rowers' lives, the approaches that rowers adopt in dealing with LBP differ and can be divided into two major categories: concealment and openness. We will first outline the findings pertaining to concealment, as this was the predominant experience shared by the rowers. Note that we do not divide the sample into those rowers who concealed their LBP and those who were open about it, because some had experience of both concealment and openness, and those who had experience of concealment in many cases offered thoughtful reflections on how a more open culture could work.

Concealment

Role of the coach

Many participants spoke about the impact coaches had on their (the athletes) experience of LBP. In general, participants were more likely to conceal their LBP from coaches than their peers and medical staff, especially if they did not have a trusting relationship with the coach. One participant seemed very clear about his decision not to disclose his LBP stating that he would lose his position in the team if he disclosed:

...an injury is deemed to be a weakness. So if you say anything about an injury you're in danger of losing your position. I certainly wouldn't mention it to management (P8)

The 'concealing' participants appeared to have an image of coaches as individuals who expect perfection and have little tolerance for 'weakness' such as LBP. Many participants seemed to think that coaches were the source of the culture of resilience and thus concealment. One participant described his coach as a 'hard nut' (P1). Participants were more likely to conceal their LBP if they were trying to 'make a good impression' (P5) or prove themselves to a new coach. They were also less likely to disclose their LBP to coaches if selection was at stake because of the danger of losing their position:

You don't want to seem weak...you don't want to give them a reason not to put you in the boat...You don't want to be seen as if there's anything that can go wrong with you when racing (P13)

One rower discussed how the mentality of the coach and his opinion of LBP as weakness ultimately meant he retired from top competition because of his LBP. This participant recalled his coach as regarding an athlete as a commodity that are worthless if 'broken':

...it kind of ended my (*international) career because the coach was looking and he is the kind of guy that doesn't believe in injuries.... The mentality of [coach] was that picking a crew is like having a box of eggs. You throw the box of eggs at the wall and you use the non-cracked ones.... if you're trying to prove yourself to a new coach....there is no weakness... it's just not allowed (P1).

Another rower described how his coach 'didn't believe that I was actually injured... I think he thought I was a bit over-sensitive.' He expressed anger in retrospect that he should have been able to be open and disclose his LBP without fear:

I should have been able to say ...this is a problem, and there should have been a system in place where they'd say 'right you can't train now. We're going to fix this properly'. Rather than me having to go, if I say this, they're going to kick me off the team and I'll never get back on. So...I didn't say anything but I'm angry now because of the damage it's done. I didn't, and the opportunities that I lost (P8)

A number of participants described how a history of disclosing LBP led to them being labelled as a liability and less likely to be selected in favour of an athlete with no LBP history. This fed a culture of non-disclosure. One participant described how she had to justify that she could be 'trusted' according to her current performance and not categorised as a risk:

I'd sit down with the coach and say... the injury hasn't affected me in so long so why does this guy deserve a seat more than me (P13)

Another participant described how the coach had labelled her now as unreliable because of her LBP history despite the fact that she was training fully.

He has basically said to me this year that you're not really reliable enough to be put into a senior boat (P2)

Role of teammates

The participants also spoke about concealing their LBP from teammates because they felt their peers would think that they were 'whingeing' and thinking 'oh will she ever shut up about the stupid back' (P2). Participants implied that they didn't want their teammates to have an image of them as someone who is always complaining:

...there's a chance, and a realistic chance that you'll come in and start complaining ...and people will have an image of you rightly or wrongly...of one of those people who complains...I know plenty of athletes who there's always something wrong with them (P5)

Participant 11 said that he didn't disclose his LBP to teammates because he saw himself as a 'leader character' and wanted to set an example to the younger team members:

I didn't want to show any sign of weakness.... to worry the younger lads (P11)

Participants felt like they were letting their team-mates down when they were not partaking in full training:

... you do feel like you're cheating (P4)

Role of sporting hierarchy

Some participants discussed the fact that they were more likely to disclose LBP once they had achieved seniority and success. It was implied that longevity in the sport made rowers more secure in their position and therefore more likely to speak openly about their LBP. Participant 5 said that he would be more likely to disclose his LBP if his 'stocks were high':

But the way I think about it.... It depends on how high your stocks are at the time, right. So, you don't want to.... show up first day and you're complaining... It might be as genuine as a guy who has rowed for three years at a high level and he says he's injured.... people will believe him... (P5)

One participant illustrated how his own senior status and international rowing success made disclosure, openness and proactive management of LBP possible:

I felt more comfortable because like even previous years if I was on the boat but I might have been on the outside looking in. And I had a back injury you know when you're fighting for like it's much harder whereas I kind of maybe I felt that I had a little bit more leeway in that I was kind of the oldest guy on the team now and had the most experience. (P10)

Participants also implied that the extent to which they would disclose their LBP was dependent on the level at which they were training and competing:

I'm sure at the state level or national level, um, it's a bit more intimidating cause you don't wanna lose your spot in the team, but people... know that it's important to... be open with your coach because it may... the coach can also help you and also check out your technique if you need to change something rapid.... There is a difference between club and state. It's a matter of being comfortable. (P25)

Role of culture within the system

Some participants felt that they were in a system that did not value them as an individual but rather as a commodity that could be replaced. They attributed the secrecy around LBP as a necessity as they were valued only on their ability to perform :

As a rower, you're a commodity, you never really trust the system. (P1)

When the same athlete was asked if the culture could become different to facilitate disclosure of pain and injuries, there was a hesitance and they suggested that this may be unlikely because of the non-democratic nature of sport:

you're talking about a democracy that's not really prevalent in sport (P1)

Participants viewed themselves as 'lazy', 'oversensitive' and 'weak' if they took time off for LBP, thus by implication only valuing themselves when they were able to train fully and compete. They felt that the system did not care and was prepared to let them put themselves at risk:

I'm the only person who takes time off for injuries and it makes you feel like you're just lazy... As long as the athlete isn't talking about their injury we'll just ignore it and let them get on with it to the point of putting themselves at risk (P2)

Participants implied that rowing within a system is their identity and a way of life and spoke about feeling isolated when injured:

... when you get injured it's just a nightmare...because you're doing the training, but you're swimming... or bike... and everyone else is on the water... having fun together ...so you'd be away from them

so it's like a nightmare cause all you want to do is to ...sit in a boat and go hard (P13)

Self-efficacy seemed to be a protective mechanism for some rowers which was tied up with concealment. Recognising that the system viewed them as a commodity but maintaining a sense of self-ownership through concealment of LBP allowed them to influence outcomes in terms of stability in selection. Some rowers highlighted the presence of mixed messages within the medical team as disempowering and influencing non-disclosure:

They always give you different opinions...and there is always a kind of tension between physios... and they are always giving you bits of different exercises. And that's one of the problems with physio ... the diagnosis and approach to treatment can vary widely (P1)

There was also a mistrust of the medical team that they did not have the competence to understand LBP:

I've come to the conclusion that the physios and also doctors, everyone's guessing (P21)

It became clear that the culture of concealment was driven by fear in the rowers. Fear of not being believed, fear of losing, fear of being dropped, fear of being seen as weak, lazy, over sensitive, complaining:

Breaking down is seen as a weakness...As an elite athlete... you're the best liar in the world. You're full of fear. You're full of adrenaline. You're terrified. You're scared. You're elated. But at the levels normal people don't. But....with your colleagues and coaches it's poker face (P1)

Fear of being replaced while 'injured' in the crew featured strongly across participants who reported that this led to isolation and anxiety that their place in the team was under threat:

...it's torture seeing the lads going on training and the boats are going well and you're thinking 'oh god the boat's going well with this guy in it. Is he now going to get in instead of me'...I want them to win (a race) but I don't want them to win by as much as when they had me (P13)

Openness

In contrast to concealment, openness was the approach outlined by a minority of rowers in our sample. Some rowers believed that a culture of openness around LBP would positively impact their experience of LBP:

... recognizing an injury as it appears and having strength of mind to say 'I need to stop for a minute' (P9)

Participants were more likely to disclose their LBP if they had a good relationship with their coach or if their coach respected them.

My coach is... quite a mild mannered character so... he'd approach those things with a degree of sensibility. So he'd kind of feel, if you're talented or if you're comfortable, he'll give you your time. (P7)

Participant 10 described his coach as being supportive and felt that the coach's own experience of LBP reflected the way he supported him which ultimately created a better experience:

... he was extremely supportive the whole way through... he tried to do as much as he could to help me with it... [coach] has had back issues while he was rowing... he was very aware of back issues and always looking for new ways to try and help it out and it was never a case 'oh your back's injured come back to me when it's ok' ...I was able to kind of stay as part of the group and then find a balance where I could still go rowing maybe on the river and then just do

my land work on the Watt Bike. So he was very accommodating and kind of progressive in that sense (P10)

Participant 2 recalled an open proactive culture around injuries which facilitated a more positive experience of LBP during her earlier rowing career. She felt that it was a 'good culture' where she felt safe to report her LBP without fear of repercussions:

At school it was a very good culture of, if you're injured say you're injured. Get it sorted out. Or try and sort it out and then come back and, you know, continue on (P2)

Participant 13 illustrated the belief that ultimately openness pays off for the team as a whole by improving chance of a good performance:

Definitely openness is what's going to get the boat going faster... You wouldn't want to find out 750m into a race that this guy's injury has been at him for the past two weeks... and had he told you... we might have known someone who could help it (P13)

Role of culture within the system

A culture that invites disclosure of pain and injuries and that manages them adequately was seen as conducive to better sporting success by Participant 8:

I should have been able to say I have this, this is a problem here, and there should have been a system in place where they'd say, 'right you can't train now. We're going to get this fixed properly.' Rather than me having to go, If I say this, they're going to kick me off the team and I'll never get back on. (P8)

Participant 19 suggested that peer support was crucial to a positive experience:

The team environment was pretty good. They're just like, 'All right we trust that you're not being soft and just going in. Like, we trust your back's sore.' Um, and then like we, we created like a little um, stretching group in the morning. (P19)

Rowers spoke of the need for a system where a culture of openness leads to a rapid referral system to the medical team and more streamlined recovery:

The coach will step in and go, 'Okay, I spoke to [NAME]. This is what we're going to do. I'm going to put this sessions in and then I'll send it to your physio and to your doctor and then they'll look and say yes or no, if that's okay.' Um, so it's just so clear and simple.... And he says, 'Okay if we can't do this week, then we'll just go back. You know, if you can't get through the load this week, we'll just take one thing out and we'll take a step back and then we'll go again.' And it's... I just feel like there's a real clarity around it when... (P18)

They stressed that monitoring of athletes should recognise that athletes may be afraid of disclosure:

...(athletes) should be able to be open with the medical staff... and should be monitored because athletes don't tell the truth because they are paranoid...because you can't give anything away...can't show weakness...athletes are inclined not to let on if something is wrong... and its important they are not only listened to but that they are monitored properly... to learn to listen to their body... if there is a twinge... not to go through the pain barrier... and to get it sorted before it becomes a major problem (P8)

Rowers stressed the importance of having a good relationship with their physiotherapist as being a key to them being honest and open:

You get to really know them and you can become close. You tend to be able to let go a little bit. You tend to be able to be honest. (P1)

But they also stressed the need to trust the opinion of their clinician who they worried could ‘play up’ the risk of continuing to train:

I felt that they were playing it up slightly.... From a clinician point of view you have to err on the side of caution because its your reputation... which is totally fair... If I did make it worse they would be able to say ‘well we advised you not to’... I knew I should be taking their advice but I wanted to race (P4).

Rowers also spoke about the importance of understanding their LBP as key to openness. Therefore it is important that medical professionals working with rowers practice behaviours that promote therapeutic and clinical alliance. Such as adopting a person-centred approach, using communication style that is clear and collaborative and facilitates disclosure. However, many athletes spoke about receiving different advice and conflicting opinions from clinicians which made it difficult to trust the system.

Role of teammates

Athletes indicated that teammates should be encouraged to support the athlete with pain or injury stating that experienced athletes should lead by example and provide some sort of support network with younger athletes. Through the rehabilitation period the athlete should remain included in as many team training sessions as possible so that they feel included and confident in themselves. This system should promote early return to full training and competition and improve performance, creating a community:

so everyone sort of knows each other and everyone knows when someone’s injured. And so it’s quite open and you’ll chat about things. (P17)

Some participants suggested that more established athletes could create a culture of openness by leading by example with their trust of the people in responsibility:

It’s absolutely crucial that the young guy sees the likes of [physiotherapist] is treating the old guy. An the old guy is listening. And that you have this open culture where people are trusting of the people in responsibility. That’s...key and it can only be led by the senior athletes. The senior athletes...create the rhythm. The coach doesn’t create the rhythm (P1)

Participant 10 indicated that being honest with teammates was important as it was likely they would trust and value this:

... if you’re not honest about stuff and I think that there’d be no benefits to not telling your team how you’re feeling... like any time I wasn’t training with them in the boat or on a rowing machine I was usually on a Watt bike so they’d see I was still training anyway so there was no honesty issues there you know. (P10)

DISCUSSION

The aim of this study was to explore the experience of adult rowers who experienced LBP. The rowers in this study reported a sense of fear and isolation in their experience of LBP and felt that LBP was viewed as ‘weakness’ by coaches. They commonly reported that they were labelled as a liability because of their LBP history and many reported a lack of empathy from teammates who appeared to be complicit in a culture of secrecy. They frequently felt commodified as part of a system that only valued them based on their ability to perform and that they would be replaced in the team by another athlete who was less ‘weak’. For this reason, they frequently did not disclose their LBP to their coaches and peers. This, and group exclusion when they

did report LBP, led to social isolation. Fear of being judged and excluded meant that they did not report their LBP or seek treatment early. Many were given contradictory opinions regarding medical management which made them mistrust clinicians on occasion. Although rowers are more likely to speak with medical teams about their LBP, many of them had lost faith in clinicians because there was a lack of consistency in diagnosis and advice. Rowers felt that they needed to prove themselves in terms of performance and years of experience (thus earning peer and coach respect) before they felt comfortable about disclosure of LBP. They felt that reporting LBP not only had an immediate effect of risk of exclusion from the team, but could have long-term selection consequences. Their self worth then becomes tied up in their ability to row without pain.

Social isolation

All of these factors lead to a culture of concealment which is very likely to contribute to poor outcomes, isolation and negatively influence an athlete’s mental health and LBP experience. Such behaviour has been recognised in other sports and has been identified as a culture which is being increasingly recognised, partly because of the commercialisation of sport which has possibly led to athlete exploitation.^{20 21} In this study, rowers felt the need to conceal their LBP from their coaches and teammates; disclosure risked judgement, ostracisation and being defined as weak. This highlighted the vulnerability of athletes in that they are in a dependent relationship with their coach (who selects them) and to an extent their peers. This behaviour has been recognised as leading to deliberate withholding of information.²¹ The participants’ behaviour contributed to delay in seeking care which is likely to have influenced the outcome of their LBP and may have resulted in greater disability and absence from the sport. Evidence has shown that timing of the first healthcare consultation and access to a management programme is a significant predictor of trajectory and outcome of an LBP episode.^{22 23} Thus rowers need to be encouraged to report their LBP early to increase their likelihood of a better outcome.

Athlete safeguarding

There has been a consistent effort in recent years to introduce better welfare for athletes. These findings should be considered in the frame of safeguarding. The international rowing governing body, Fédération Internationale des Sociétés d’Aviron (FISA) has a safeguarding policy (www.worldrowing.com/fisa/about-fisa/safeguarding) which defines a component of abuse as physical abuse, characterised partly by ‘forced or inappropriate physical activity...when injured or in pain’. Rowers in this study felt compromised by their LBP and in many cases felt that the prevailing culture and environment did not allow them to be open and honest about their LBP for fear of exclusion. Many felt that they had to continue competing and training when in pain. This may have increased risk of a poor outcome from their LBP as well as the poor negative emotional/mental experience that they encountered. For this reason, these results should be taken very seriously with a focus on education about the importance of providing a ‘safe’ culture for reporting and timely management of LBP. This will help protect athletes from emotional and physical harm.

Cultural influence on LBP experience

A culture of openness was recognised as being an influence on a better LBP experience. Rowers felt that the freedom to report LBP and not risk deselection or judgement was optimal. They felt

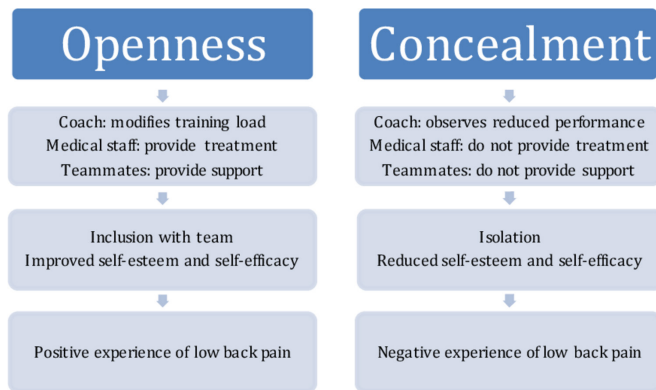


Figure 1 Presents a schematic representation of the study findings and recommendations.

they were more likely to report and seek management earlier in the presence of openness regarding LBP. Understanding why they had LBP was one of the keys to openness, part of which came from trusting medical teams. They felt that it was important that rowers may worry about disclosure and that better medical monitoring may flag it earlier, facilitating better response. Openness among peers (teammates) was regarded as helpful, with a number suggesting that the older/more established rowers should take a leadership role and mentor newer athletes in the importance of best LBP management pathways/options. Witnessing a trusting relationship between the clinician and well-established athletes was important for the development of an open and supportive culture. They also felt that rowers can be complicit in creating a culture where openness is not encouraged when there is competition within the team. Coaches leadership styles have been recognised as influencing culture and injury burden in football^{24 25} and although this has not been explored in rowing, our findings indicate that this is likely to have a similar influence and should be explored further in this sport. The concept of ‘risk transfer’ needs to be considered when proposing ways of creating a better culture of openness.²¹ This recognises that it is not just athletes who are constrained by the need to perform in sport, but also that coaches, managers and medical staff are under pressure to produce winning athletes and may then view transferring risk to the athlete as acceptable, which then creates a culture where pressure to perform with pain is present. Thus, strategies to improve the athlete experience of LBP must educate all stakeholders; athletes, coaches, managers and other support staff including clinicians.

LBP has been recognised as being a complex condition with multiple contributors to the pain and disability, including psychological and social factors.²⁶ Our findings show that the athletes’ response to LBP was indeed complex, with many reporting isolation and fear as well as a sense of feeling judged because of their LBP. Social interactions play an important part in pain perception and there is evidence that the impact of pain is reduced in individuals who perceive a greater sense of inclusion from, and engagement with others.²⁷ Furthermore, factors such as fear, anxiety and lack of confidence in performing well are known to contribute to negative outcomes of injury and pain disorders in athletes.²⁸ This suggests that LBP in rowers should be considered in the context of how psychosocial factors, such as fear and stress, influence early management and outcome of the condition. There is a lack of research in rowing but studies in other sports suggest that negative affect can predict injury onset²⁹; the rowers in this study discussed fear of LBP, sometimes as a reflection of a teammate’s experience. This suggests that future research should focus on the influence of

psychosocial factors on LBP onset. Management of rowing LBP should ensure that the athlete remains engaged with teammates as much as possible to reduce social isolation.

Recommendations for a positive experience of LBP

It has previously been recognised that athletes are a population group with unique vulnerabilities who are at high risk for distress due to pressure to perform, avoid showing pain and hide physical injuries.³⁰ Our findings support this observation in our population. While it may not be possible to avoid LBP in rowing, we conclude from this research that there are a number of recommendations that should be followed for a positive experience of LBP which, we hypothesise, will influence outcomes (see figure 1 for a schematic representation of findings and recommendations). We recommend a system should be adopted which encourages openness among athletes and support teams, which recognises that secrecy is currently pervasive. Based on our study, this system needs to be underpinned by education in the first instance. For this system to work, athletes, coaches and medical staff need to be educated on:

- ▶ Understanding the nature of LBP and the importance of early disclosure by rowers.
- ▶ The importance of having a system in place where openness is supported by coaches and athletes.
- ▶ The negative impact of concealing LBP.
- ▶ How rowers can best support a teammate with LBP to avoid social isolation during the rehabilitation process.
- ▶ How experienced rowers can lead by example.
- ▶ Encouragement of rapid response to LBP with evidence based referral pathways.
- ▶ The importance of a clinical alliance between the medical staff and shared decision making with rowers and coaches. Discouragement of rowers to ‘shop around’ for treatment and alternative diagnoses.
- ▶ The importance of communication between the rower, coach and medical staff to enable a uniform narrative that delivers clear and consistent messages.

LIMITATIONS

It is possible that those who volunteered for the study had an experience of LBP which was at either end of the spectrum of LBP presentation and may not represent the average experience of some of the population. They volunteered because they had a ‘strong story’ to report. So findings may not be generalised to all rowers. Only adult rowers were included; it is known that the prevalence of LBP in junior rowers is an issue so we recommend that this is explored further. It is likely that those rowers who experienced LBP that led to retirement may not have been captured unless they are still connected with rowing related social media. Thus the spectrum of severity of experience may not have been captured fully. While cultures were explored across two continents, findings were similar although it is not clear if our findings apply across all settings.

CONCLUSION

Rowers’ lived experience of LBP is influenced by a culture of secrecy where they are reluctant to disclose their pain because of fear of being viewed as ‘weak’ by team-mates and coaches. They also fear that disclosure will influence their chance of team selection. Their experience can lead to isolation and their LBP can have a profound effect on their life beyond sport. Clinicians managing rowers with LBP can give mixed messages and contradicting management strategies which can influence their outcome. Rowers and support teams should be educated on the multifactorial nature of LBP to

encourage a culture of openness, support and early management of rowing related LBP to improve the lived experience.

What are the findings?

- ▶ Rowers' lived experience of LBP is influenced by a culture of secrecy where they are reluctant to disclose their pain because of fear of being viewed as 'weak' by team-mates and coaches.
- ▶ Rowers fear disclosing their LBP will negatively influence team selection.
- ▶ Rowers experience of LBP can lead to isolation and can have a profound effect on their life beyond sport.
- ▶ Clinicians managing rowers with LBP can give mixed messages and contradicting management strategies which can influence their outcome.
- ▶ Rowers and support teams should be educated on the multifactorial nature of LBP to encourage a culture of openness, support and early management of rowing related LBP to improve the lived experience.

How might it impact on clinical practice in the future?

- ▶ Encouragement of rapid response to LBP with evidence-based referral pathways.
- ▶ The importance of a clinical alliance between the medical staff and shared decision making with rowers and coaches. Discouragement of rowers to 'shop around' for treatment and alternative diagnoses.
- ▶ The importance of communication between the rower, coach and medical staff to enable a uniform narrative that delivers clear and consistent messages.

Twitter Fiona Wilson @fionawilsonf, Kieran O'Sullivan @kieranosull and Jane S Thornton @janesthornton

Acknowledgements Thank you to Tom O'Dwyer for assistance with transcription.

Contributors Study concept, design and management: FW, JPC, PPBO, KO and VT. Data Collection: LN, JPC and FW. Data analysis: FW, AH and VT. Data review and interpretation: all authors. Manuscript writing: all authors

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval Ethical approvals were granted by the Faculty of Health Sciences Research Ethics Committee (Trinity College Dublin) and the Human Research Ethics Committee (Curtin University approval RDHS-59–16).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Data are available, stored as encrypted audio files with FW and LN. Transcripts are stored on an encrypted database with FW. Pseudonymised data are available on reasonable request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

ORCID iDs

Fiona Wilson <http://orcid.org/0000-0002-0292-1087>

Kieran O'Sullivan <http://orcid.org/0000-0002-7137-3125>
Peter PB O'Sullivan <http://orcid.org/0000-0002-3982-4088>
Jane S Thornton <http://orcid.org/0000-0002-3519-7101>

REFERENCES

- 1 Hoy D, Bain C, Williams G, *et al.* A systematic review of the global prevalence of low back pain. *Arthritis Rheum* 2012;64:2028–37.
- 2 Trompeter K, Fett D, Platen P. Prevalence of back pain in sports: a systematic review of the literature. *Sports Med* 2017;47:1183–207.
- 3 Wilson F, Gissane C, McGregor A. Ergometer training volume and previous injury predict back pain in rowing; strategies for injury prevention and rehabilitation. *Br J Sports Med* 2014;48:1534–7.
- 4 Sackett DL, Haynes RB. The architecture of diagnostic research. *BMJ* 2002;324:539–41.
- 5 Bunzli S, Watkins R, Smith A, *et al.* Lives on hold: a qualitative synthesis exploring the experience of chronic low-back pain. *Clin J Pain* 2013;29:907–16.
- 6 Smith JA, Osborn M. Pain as an assault on the self: an interpretative phenomenological analysis of the psychological impact of chronic benign low back pain. *Psychol Health* 2007;22:517–34.
- 7 Curry TJ. A little pain never hurt anyone: athletic career socialization and the normalization of sports injury. *Symb Interact* 1993;16:273–90.
- 8 Nixon HL. Accepting the risks of pain and injury in sport: mediated cultural influences on playing hurt. *Social Sport J* 1993;10:183–96.
- 9 Weinberg R, Vernau D, Horn T. Playing through pain and injury: psychosocial considerations. *J Clin Sport Psychol* 2013;7:41–59.
- 10 Rabey M, Smith A, Kent P, *et al.* Chronic low back pain is highly individualised: patterns of classification across three unidimensional subgrouping analyses. *Scand J Pain* 2019;19:743–53.
- 11 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–57.
- 12 Conlon C, Timonen V, Elliott-O'Dare C, *et al.* Confused about theoretical sampling? engaging theoretical sampling in diverse Grounded theory studies. *Qual Health Res* 2020;30:947–59.
- 13 Timonen V, Foley G, Conlon C. Challenges when using grounded theory: a pragmatic introduction to doing GT research. *International Journal of Qualitative Methods* 2018;17:1609406918758086.
- 14 Lee FS. *Critical realism, method of grounded theory, and theory construction*. Handbook of research methods and applications in heterodox economics: Edward Elgar Publishing, 2016.
- 15 Bhaskar R. *Reclaiming reality: a critical introduction to contemporary philosophy*. Taylor & Francis, 2010.
- 16 Oliver C. Critical realist grounded theory: a new approach for social work research. *Br J Soc Work* 2012;42:371–87.
- 17 Kempster S. *Critical realism and grounded theory*, 2015.
- 18 Charmaz K. *Constructing grounded theory*. Sage, 2014.
- 19 Weed M. Capturing the essence of grounded theory: the importance of understanding commonalities and variants. *Qualitative Research in Sport, Exercise and Health* 2017;9:149–56.
- 20 Connor J. The athlete as widget: how exploitation explains elite sport. *Sport in Society* 2009;12:1369–77.
- 21 Murphy P, Waddington I. Are elite athletes exploited? *Sport Soc* 2007;10:239–55.
- 22 Arnold E, La Barrie J, DaSilva L, *et al.* The effect of timing of physical therapy for acute low back pain on health services utilization: a systematic review. *Arch Phys Med Rehabil* 2019;100:1324–38.
- 23 Blanchette M-A, Rivard M, Dionne CE, *et al.* Which characteristics are associated with the timing of the first healthcare consultation, and does the time to care influence the duration of compensation for occupational back pain? *J Occup Rehabil* 2017;27:359–68.
- 24 Ekstrand J, Lundqvist D, Davison M, *et al.* Communication quality between the medical team and the head coach/manager is associated with injury burden and player availability in elite football clubs. *Br J Sports Med* 2019;53:304–8.
- 25 Ekstrand J, Lundqvist D, Lagerbäck L, *et al.* Is there a correlation between coaches' leadership styles and injuries in elite football teams? A study of 36 elite teams in 17 countries. *Br J Sports Med* 2018;52:527–31.
- 26 Hartvigsen J, Hancock MJ, Kongsted A, *et al.* What low back pain is and why we need to pay attention. *Lancet* 2018;391:2356–67.
- 27 Karayannis NV, Baumann I, Sturgeon JA, *et al.* The impact of social isolation on pain interference: a longitudinal study. *Ann Behav Med* 2019;53:65–74.
- 28 Forsdyke D, Smith A, Jones M, *et al.* Psychosocial factors associated with outcomes of sports injury rehabilitation in competitive athletes: a mixed studies systematic review. *Br J Sports Med* 2016;50:537–44.
- 29 Ivarsson A, Johnson U, Andersen MB, *et al.* Psychosocial factors and sport injuries: meta-analyses for prediction and prevention. *Sports Med* 2017;47:353–65.
- 30 Dean C, Rowan D. The social worker's role in serving vulnerable athletes. *Journal of Social Work Practice* 2014;28:219–27.