‘OUR TRAINING LEFT US UNPREPARED’ – TWO PHYSIOTHERAPISTS’ REFLECTIONS AFTER WORKING WITH WOMEN WITH LOW BACK PAIN IN A RURAL ZULU COMMUNITY IN SOUTH AFRICA.

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Abstract

Low back pain (LBP) is a major health disorder that has been researched thoroughly in the western world context, but poorly in the context of the developing world. Back pain beliefs, assessment and management strategies developed for the western world may have limited relevance for the developing world. This paper reflects on the experiences of two recent physiotherapy graduates working in a rural Zulu community in South Africa. It highlights the socioeconomic, lifestyle and cultural influences on women who presented with LBP. The authors discuss the challenges they faced in adjusting from a largely western biomedical understanding of LBP to the rural Zulu context. The authors propose the need for a greater biopsychosocial understanding of LBP from within a cultural socio-economic context. Enhanced clinical skills are required to adapt across cultural beliefs, language and lifestyle contexts for better management of LBP.

Key words: Low back pain, rural health, physical therapy specialty, pain, culture

Introduction

Low-back pain (LBP) is the second greatest non-psychological cause of disability in the USA (Bagnall, 2010). Studies investigating the impact of LBP in the Australian population (Walker, Muller, & Grant, 2004) and in Saskatchewan, Canada (Cassidy, Carroll, & Cote, 1998), estimated that 10.5% and 10.7% of adults had been severely disabled by LBP in the preceding 6 months, with women experiencing high-disability back pain at twice the rate of men (Cassidy et al., 1998).

Data from the developing world are more limited and contradictory. Volinn (1997) compared the prevalence of LBP between countries grouped by gross national product and found it was 2-4 times greater in high-income countries than in low-income countries. In contrast, Louw et al (2007) studied ten African countries and found a LBP point prevalence of 32% (range 10%-59%), implying that LBP could be more prevalent in Africa than in the developed world where point prevalence estimates vary from 4% to 33%(Cassidy et al., 1998; Krismer, 2007; Loney, 1999; Walker et al., 2004; Woolf & Pfleger, 2003). These discrepancies may be due to differing methodologies and questionnaire validity in different language groups(Lin et al., 2012). Three of the seven studies analysed by Louw et al indicated that female gender was the only significant risk factor for LBP. No assessment of LBP-associated disability rates was made, precluding meaningful comparison with data from the developed world.

It is generally accepted that no anatomical or pathological cause can be found in most LBP cases (Deyo & Weinstein, 2001), so the mechanisms are largely unknown (Waddell, 2004). Despite the lack of a theoretical rationale, the use of spinal imaging, injections, surgical fusions and opioids for back pain has increased in developed countries (Deyo, 2009). Expenditure on LBP in the United States rose by 65% in real terms from 1997 to 2005, with no decline in the accompanying disability (Frank, 1996; Frank et al., 1998; Martin et al., 2008; Williams, 1998). In contrast, data about management of LBP and associated costs are largely unavailable for the developing world.

Biopsychosocial view of LBP

As the costs escalate and growing evidence reveals the biomedical understanding of LBP is inadequate, calls have been made for a biopsychosocial perspective to be adopted (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). Within this construct, physical, lifestyle, cultural (including pain beliefs), neurophysiological, psychosocial and behavioural factors associated with the disorder are considered (Gatchel et al., 2007; O'Sullivan, 2011; Waddell, 2004).

Stress, distress and anxiety are associated with an increased prevalence of LBP (Burton, Tillotson, Main, & Hollis, 1995; Croft et al., 1995; Dionne et al., 1997) and predict work loss and future pain-related disability (Boersma & Linton, 2005). Psychosocial factors including passive coping, catastrophising, fear-avoidance beliefs, depression and self-perceived poor health have also been positively associated with pain and disability (Linton, 2000). These are considered to influence both neurophysiological aspects of pain processing as well as pain coping and behaviours (Gatchel et al., 2007).

Physical factors reported to increase risk for LBP include repeated bending and twisting, bodily vibration, obesity and poor conditioning (Andersson, 1999). However, physical risk factors hold a low predictive value for the onset of back pain (Adams, Mannion, & Dolan, 1999) and are poorly associated with pathoanatomical findings (Battie et al., 2009). In developing countries, preventative ergonomic strategies include avoiding heavy carrying or loading, or twisting whilst lifting. People are taught to lift with power from the lower body, keeping any load close to the body's centre (Hartvigsen, Lauritzen, Lings, & Lauritzen, 2005; Waddell, 2004). This biomechanical approach has led to a "no-lift" policy for hospital staff in an attempt to reduce LBP risk (Yassi et al., 2001) and minimal or modified weight-lifting policies in other manual work industries (Vieira, 2006), despite findings that ergonomic interventions do not consistently prevent LBP (Burton et al., 2006). Ironically, many physical risk factors for LBP reported in the Western literature are everyday demands for people in developing countries and cannot feasibly be avoided.

Despite the evidence that pain has psychosocial dimensions, education of primary health practitioners about LBP diagnosis and management remains largely biomedically focussed (O'Sullivan, 2011), reflecting a persisting belief that LBP is primarily a pathoanatomical disorder (Kent, Keating, & Taylor, 2009). These beliefs direct both management (Abenhaim et al., 2000; Boersma & Linton, 2005; Vingard et al., 2002) and educational approaches for health-care practitioners (O'Sullivan, 2011). Most research into LBP has been conducted in the developed world, yet education regarding LBP assessment and management within developing countries has largely adopted the developed world's biomedical perspective (Futter, 2003).

The following account reflects the observations of the authors, VM and JT, as physiotherapy graduates from South Africa, working with women presenting with LBP in Umkhanyakude, a rural Zulu setting. South African (SA) health-science graduates must serve within the state health-care system for at least one year to register as practitioners. The authors also performed loosely structured interviews with three local health workers. These interviews explored relevant themes including traditional Zulu beliefs and lifestyles, the roles of and stressors for Zulu women, common local understandings of pain and health, traditional healing approaches and the local health-care systems. As part of their clinical roles, VM and JT also interviewed and examined approximately 300 Zulu women with back pain. Their observations and interpretations were verified and supported by BM, a Zulu nurse who has worked in a rural Zulu community for 33 years, as well as a Zulu physiotherapy assistant with over 20 years' local experience. PO assisted in the writing and preparation of the manuscript.

The authors' experiences shed light on the social and cultural context of this community and the adaptations the Zulu people have made in relation to their rural lifestyles and survival as subsistence farmers. The common pain presentations, beliefs and health practices within a rural SA community are described, and the barriers to access health care are outlined. These observations are considered within the context of the contemporary biopsychosocial perspective of LBP. The paper focuses on women, rather than men, because most of the patients presenting for physiotherapy were women.

The rural Zulu context

South Africa holds both westernised and developing-world cultures. Most physiotherapy undergraduate training occurs in an urban context, despite the fact that 42.5% of the South African population is rural.

In the Umkhanyakude district, where the authors worked (figure 1), 98% of residents are rural, 80% lack electricity and 76% lack piped water (Stats SA Library Cataloguing-in-Publication (CIP) Data, 2003). Residents spend a mean time of seven years being educated. Sixty-six percent of the population aged 15-65 has no income (Statistics South Africa, 2007). People frequently travel by foot due to lack of transport. Zulu is the home language of 97% of the district's population (Statistics South Africa), and few adults can understand or speak English. Rural Zulu homesteads comprise clusters of grass-roofed huts with walls of cement, mud or home-made bricks. Floors may be sand or cement and most people sleep on the floor on reed mats. Pillows and chairs are rare: people sit on the ground.

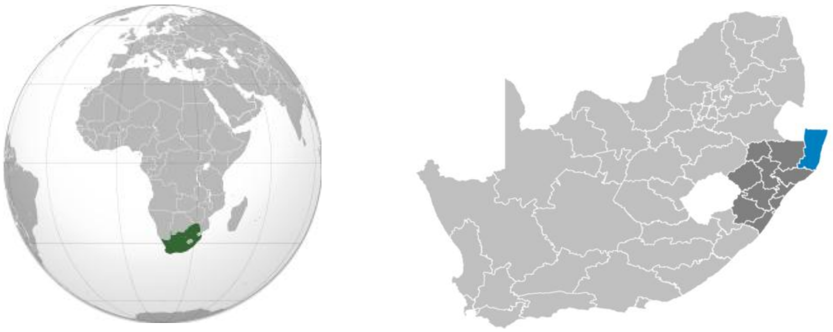

Figure 1: Location of Umkhanyakude district: (a)South Africa (green); (b) Kwazulu-Natal (dark grey) and Umkhanyakude (blue). Images from www.wikipedia.org [30 May 2012]

Most health-related research in Umkhanyakude has focused on HIV/AIDS (prevalence 20-30%) (Fredlund, 2011) and Tuberculosis. In this district, annual health-care expenditure per capita is R166 (US$24) (Health Systems Trust, 2005; Umkhanyakude Municipality IDP, 2005). This context is very different to the relatively well-resourced urbanised setting in which the authors were trained as physiotherapists.

Social context for women

In Umkhanyakude, traditional Zulu culture determines a woman's family and work concerns. The bride-price (*lobola*) system renders a married woman subservient to husband and in-laws, and the duty of the *makhoti* (daughter-in-law) to serve her in-laws is widely recognised as onerous. In traditional Zulu culture it is acceptable for a man to have sexual relations with women other than his wife, as well as to take more than one wife (Rumsey, 2012). The woman is usually the provider and caregiver for the household – an average of 5 people (Statistics South Africa, 2007). She must also submit to any demands her in-laws make of her. Few women may choose what work they do. A woman's work is subsistence farming, so her family's survival and health depend on her work.

Social support

With formal employment being rare, social welfare grants are pivotal to many family units. A single state-funded old-age pension, a severely disabled child's "care dependency" grant, or a "disability grant" often supplements the family's income.

These social welfare-funded 'disability grants' total R800/month (US$116) and are given to people who are considered functionally impaired and ineligible for work. They are given on a doctor's recommendation, frequently on a physiotherapist's or occupational therapist's advice. Occasionally, a patient will be given a temporary grant to fund their transport to the clinics or to provide rest from physical labour. Because of this, for many patients with pain, there appeared to be secondary gain to remaining "sick".

Zulu lifestyle and demands on spinal loading

Most rural Zulu families survive on their subsistence gardens where the vast majority of the work is done by the women. Lifestyle is dictated by the need for food and water, household chores and raising children. Because running water is rare, women fetch water from community wells by foot which may be up to 5km away from their homes, commonly along sand roads or bush paths. Most Zulu women will *thwala* – carry the water on the head – in 25-litre plastic tanks (figure 2), and may do three trips to and from the pump in a day, in order to collect enough water for the family to drink and wash, and to water the garden crop. Larger containers are transported using a wheelbarrow, or a drum rolled along the ground. Girls begin to *thwala* from about the age of 5 years, starting with 5 litres. The younger boys may help at first, holding the containers to their chests or rolling them along the ground, but as they grow up they help with wood-collecting or herding responsibilities. In very traditional families, boys will not be involved in any domestic activities.

Figure 2: Thwala *- to carry on the head*

Transferring the water container from the ground onto the head involves great skill. Characteristically, a woman will lift the container in stages, keeping it close to her body. She will balance it sequentially on her knee, hip and then shoulder to give her muscles momentary rest, and use her legs to provide momentum for each next stage of lifting (figure 3). We observed high levels of skill: little spinal movement occurs during such heavy lifting as most of the movement comes from the legs and arms.

Figure 3: Demonstration of lifting and lowering a 25 litre water container

Zulu women farm by hand. Farming tasks involve hoeing the ground, planting, watering, weeding and maintaining the gardens, and harvesting. For soil-based tasks, they bend at the hips to bring the hands to ground level and the head in line with the knees, keeping the knees and back straight (figure 4).

Figure 4: Woman positioned in hip flexion to plant a seedling

Their long hamstrings minimise the need for spinal flexion during forward bending and allow for a relatively gravity-unloaded spinal posture. This contrasts with the spinal compression from the *thwala* loading. A woman may spend a full hour bent over in this manner, just shuffling her feet over as she works, and occasionally resting on one leg. Women use long, heavy wooden hoes to break up the ground before planting, swinging the hoe forwards and up into the air and pulling it down into the ground. Women cook for their families over a fire, usually using a heavy cast-iron pot which weighs between 3kg and 10kg. They move the pot to and from the fire using the same bending strategy as for farming work. Some will long-sit at the fireside with legs straight out and together in front of them (figure 5). Clothes are washed with a bucket of water and in the same flexed posture. Those who live far from the water source will carry clothing to the pump or river and do the washing there, leaning down to reach the bucket on the ground. When pregnant, a Zulu woman must continue with her usual manual work until her labour begins. Post-natally, she returns to manual work as soon as a week after delivery. She typically uses a cloth to tie her baby on her back wherever she goes, performing all her manual tasks with the added load of the child. The Zulu women seem to adapt to their work and home environment in a way that appears to minimise lumbar flexion and asymmetrical loading strain on their spines.

LBP in rural South Africa

There are no published comparisons between pain reports amongst rural and urban South Africans. Naidoo et al (2009) studied small-scale cotton farmers in rural SA, finding that approximately 64% of workers reported experiencing LBP within a 12-month period. LBP disability levels have not been reported to date. A study of people attending primary health-care clinics in SA's Eastern Cape province found that respondents in rural communities reported multiple pain sites more often than their urban counterparts, with a median site number of 3 (inter-quartile range 2-3) in the rural clinic versus 1 (inter-quartile range 1-2) in the urban clinic (Igumbor, 2011).

Pain beliefs

In the Zulu language, a pain complaint is usually expressed with the statement *ngiyagula*: "I am sick" rather than "I have pain". The word for pain is rarely used because pain is interpreted as "not feeling well" and understood primarily as a whole-person illness rather than as a sign of isolated injury. The belief that pain indicates illness may be an additional cause of anxiety to a patient.

In traditional Zulu culture, any painful episode may be considered a consequence of bewitching. Common motivations for bewitching are jealousy and anger. Bewitching *muti* (medicine) is bought from a traditional healer and poured along a path used by the target person. The belief is that when that person steps over the *muti* they will be bewitched and will suffer accordingly. A disorder of painful or swollen joints exists as a distinct entity in traditional Zulu medicine, commonly described as pain that starts in the feet and moves up into the back and involves joint pain. It is called *umeqo* in Zulu and is attributed to a particular bewitchment (Washington, 2010). Another common understanding is that pain in the chest could be caused by a person's having eaten a bewitched food that was given deliberately to cause suffering (Malambule, 2010).

Traditional healing approaches for pain

In Zulu traditional medicine, any problem brought on by a curse can be lifted by visiting a traditional healer. A traditional healer may use divination to determine the sacrifice necessary to break the curse and will often prescribe additional medicinal treatments, ranging from herbal *muti* to modern solutions like battery acid. The traditional medicines are frequently laxative in effect. Treatment may also involve using a razor blade to make superficial cuts in the area of pain (*gcaba* marks) and rubbing cow dung, ash or *muti* into these wounds to extract the illness. Hot compresses (*thoba*) and porcupine needle-pricks are other common remedies (Gumede, 2009; Gumede, 2009; Malambule, 2009; Washington, 2010).

The traditional healer is usually the first choice for many Zulu people with pain, probably reflecting the patient's cultural pain beliefs. The LBP sufferer, in this situation, is a passive recipient of care and acquires no strategies to manage her own situation. However, many rural Zulu people believe strongly in the efficacy of such treatments.

Traditional healers live amongst the people and are geographically accessible. However, the cost of consulting a traditional healer can be prohibitive: a traditional healer may demand a cow or anything between R100 and R2000 (US$14.50-290) for a consultation.

State health care

Access to health care

Access to government-provided health care is difficult for most people in Umkhanyakude. The district spreads over 13,651 km^2 and has five hospitals and 52 clinics, serving a population of 600,838 people (Vaughan Williams, 2010). A nurse in this area will see an average of 33 patients each day (Health Systems Trust, 2005; Umkhanyakude Municipality IDP, 2005). A woman seeking medical help for pain is screened by a nurse at the local clinic and may be referred to a doctor or physiotherapist who visits every one to four weeks. Official data are unavailable for the patient load of physiotherapists, but the authors found that each physiotherapist would see about 15 patients during a 6-hour session at the busier clinics.

The journey to the clinic may be up to 8km in a sand track and is made on foot. Non-ambulant people must hire a car for between R60 and R350 (US$9-51). A trip to the clinic involves a day away from the garden, and women who care for dependent family members must find someone else to substitute for them at home. Patients referred to a hospital for x-rays are given free transport from the clinic to the hospital but must pay for their return home: approximately R20 (US$3) for a taxi ride if they are ambulant; if not, they need hired transport. For a family without income this is often prohibitive.

Clinical expertise of health care professionals

In general, the physiotherapists working in this context are recent graduates with little clinical experience (especially in the rural setting), working as part of the "national community service" programme. They are often supervised by non-physiotherapist health professionals because experienced physiotherapists are uncommon.

Logistical barriers

Clinic visits usually consume an entire day: patients may spend hours queuing. Because of the high ratio of patients to health-care professionals, consultation times are limited – some to 10 or 15 minutes per patient. Privacy is not consistently available: some clinics have curtains between consultation cubicles, but in others, two or three patients may be seen simultaneously by different health care professionals in the same open room, limiting personal discussions and bodily exposure for examination.

Language barriers

Most of the doctors and physiotherapists working in Umkhanyakude are not local, and few speak fluent Zulu. Translators are few and poorly trained. This greatly hinders communication, limiting understanding of the patient's concern, rapport and accurate assessment. As a result, diagnostic accuracy and the potential of successful treatment are compromised.

State-provided health care for LBP disorders

Mostly, women were referred to physiotherapy for LBP by a rural nurse. Some had been receiving analgesia (most commonly, Ibuprofen) for years and the nurse wanted them to trial physiotherapy treatment before she would renew the drug prescription. Physiotherapy patients in Umkhanyakude appeared to be divided into those who were seeking an improvement in symptoms and those who were seeking a "disability grant" to support the family.

Observations of women with LBP presenting for physiotherapy

Most women presenting to the clinic reported longstanding pain. Some were seeking help because of a pain exacerbation, but few could identify a cause of their pain experience. Others declined to say why they had decided to seek help. Most patients usually did not know what physiotherapy was or why they had been sent: they were just following the nurse's instructions.

Although the majority of patients had been sent for physiotherapy for "back pain", when asked, many complained of pain at multiple sites. These patterns were commonly non-anatomical and nondermatomal in nature. For example, when asked about her back pain, a patient might say it began in her right thumb two years ago, moved to her right foot and then spread to include her back and whole right side. This may reflect either the common Zulu belief that pain is a whole-person illness rather than a sign of isolated injury to a single structure (Gumede, 2009; Malambule, 2009), or widespread sensitisation of the nervous system (Blumenstiel, 2011).

Many patients could not associate their pain with specific daily activities or movements and often appeared surprised by the question. Those who could named an aggravating movement, most commonly identifying rolling over at nighttime, rising to erect from sustained bending positions (such as those used for gardening), or carrying water on the head for long distances. Many patients reported difficulty completing a long day's work because of their pain. Although few women reported any easing factors, some reported that *thoba* (a kind of hot compress) or medication provided relief.

Inquiry regarding the behaviour and intensity of patients' pain was very limited, due to language problems. Patients tended to use non-specific sounds and gestures to describe the nature of their pains. A term like "qaqamba" (which may be equivalent to the English "throbbing") might be matched with a gesture involving the hands placed around a leg and moved forcefully away from and towards the leg by one woman, while another woman would make a pincer grip with her fingers and make stabbing-type motions towards a part of the body or down a whole limb, using the same sound. This made it difficult to reach a clear diagnostic hypothesis.

Psychosocial stressors

Investigation of specific psychosocial factors was also limited by language issues and the lack of privacy in the clinics. When a translator or Zulu-speaking colleague was available, questioning regarding these issues often revealed substantial stressors around family roles, physical disability, difficulties with providing for their families, struggles with poverty and hope for social grants. Patients reported concern regarding their ability to perform their daily tasks, and those that rested from such tasks reported feeling guilty because such rest threatened the family's survival.

A physiotherapist working in a translator-equipped hospital in the same district identified a loss of control in the family context as a common precursor to patients' presentation for physiotherapy (Bezuidenhout, 2011), highlighting the role that social stressors may play in these women presenting with pain disorders.

Physical examination

Most patients displayed pain communicative behaviours such as groaning and grimacing (Martel, Thibault, & Sullivan, 2010) throughout the formal physical examination which complicated identification of clear aggravating movements. However, in contrast, most patients were easily able to demonstrate daily activities (such as lifting and carrying water containers on the head, ploughing actions, seed-sowing postures) in the clinical setting. Patients rarely localised the pain to a particular area during these movements or distinguished a specific movement as more unpleasant than others. However, functional assessments used loads far less than patients would encounter during their real daily activities. On gentle palpation of the spine, patients commonly showed strong pain communicative behaviours suggesting tissue hyperalgesia or allodynia that may reflect central sensitisation (Woolf, 2011).

Challenges for us as physiotherapists

The physiotherapy approach in which we were trained was developed in the Western world and relied heavily on a thorough subjective assessment which proved limited in this context – partly due to language barriers, and our inability to interpret the women's reports of pain from our biomedical context. This left us with little capacity to influence their pain-related beliefs or tailor management strategies in accordance with these beliefs.

Making a clinical diagnosis in the manner of our biomedical training was problematic, as pain was often widespread and did not fit the clear clinical patterns that we had been taught. We were also unprepared for the difficult task of deciding which women should be granted disability benefits.

In this context, the role of manual therapy for LBP treatment was limited for numerous reasons: a structural diagnosis was difficult to achieve; pain was rarely localised to a specific structure; tissue hyperalgesia limited its application, and providing short-term pain relief had limited relevance in a setting where fortnightly or monthly treatment is the norm. Similarly, exercise therapy was difficult to implement due to cultural barriers and lifestyle constraints. Common ergonomic advice regarding bending and lifting was unrealistic and insensitive for the daily lives of the women.

We found that patients rarely adopted the suggested treatment strategies we provided, possibly due to issues of health literacy or cultural appropriateness and because the treatment methods in which we had been trained did not fit with their understanding of or beliefs about their problems. This corresponds with findings that a patient's beliefs about treatment efficacy and a patient's compliance with self-management advice are closely related, and pivotal to treatment success (Briggs, 2010; Horne, 2004; Ross, 2004; Williams, 1989). In this situation, our insight into these beliefs and our ability to acknowledge and influence them were severely restricted, and so it was not surprising that few patients adopted active self-management strategies.

Implications for the provision of effective physiotherapy for LBP in a rural Zulu setting

This account highlights some of the substantial barriers we faced in providing adequate health care for LBP disorders in a rural Zulu female population in SA. Geo-political barriers include: lack of financial health care resources, accessibility problems, inadequate health-care facilities, lack of health-care literacy, subsistence living, language difficulties and limited access to trained interpreters, extreme lifestyle demands and social stressors.

To combat these barriers, greater resources are required to ensure both health care access and appropriate treatment venues that are designed to allow privacy in consultations. Access to well-trained interpreters would enhance diagnostic accuracy and health literacy. Screening for complex and disabling cases would allow for targeting of resources. There is also an enormous need for research into understanding the impact of pain disorders and their underlying mechanisms in rural groups in SA, to ensure that health care is directed in an effective manner.

As recently graduated physiotherapists we found that our biomedical understanding of LBP diagnosis and management that had underpinned much of our physiotherapy education also became a barrier. The presentation of LBP in this rural Zulu area challenged these traditional LBP beliefs. Our undergraduate training programme had lacked sufficient emphasis on understanding the cultural and biopsychosocial perspectives of pain.

We believe that equipping physiotherapists for cross-cultural work could be enhanced by:

1. greater emphasis on cultural frameworks for understanding and addressing health care concerns;
2. more focus on the biopsychosocial nature of LBP disorders;
3. a better understanding of neurophysiological and cognitive mechanisms of pain and the assessment skills to identify them;
4. development of a broader diagnostic, management and treatment framework for dealing with complex pain disorders within a rural context;
6. training in counselling skills to address emotional aspects of pain and maladaptive pain beliefs and behaviours;
7. teaching of strategies to improve health literacy in the context of suboptimal verbal communication options;
6. the provision of adequate supervision and support for young graduates working in rural communities with poor access to interpreter services.

Finally, we believe that many of the issues highlighted in this account are not isolated to rural SA: similar calls have been made in other cultural settings (Foster, 2011; Lin et al., 2012; O'Sullivan, 2011). With increasing globalisation, population mobility and immigration trends, physiotherapy education must consider the cultural and biopsychosocial aspects of pain. As health care resources diminish, is it necessary to prioritise and adapt our management practices for disabling pain disorders towards developing effective, contextualised strategies for long-term management of these conditions (Foster, 2011; O'Sullivan, 2011).

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