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Research

Physiotherapists' beliefs and attitudes influence clinical practice in chronic low back pain: a systematic review of quantitative and qualitative studies

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KEY WORDS

Beliefs and attitudes
Physical therapy
Low back pain
Clinical practice
Patient-centred care



ABSTRACT

Question: What influence do physiotherapists' beliefs and attitudes about chronic low back pain have on their clinical management of people with chronic low back pain? **Design:** Systematic review with data from quantitative and qualitative studies. Quantitative and qualitative studies were included if they investigated an association between physiotherapists' attitudes and beliefs about chronic low back pain and their clinical management of people with chronic low back pain. **Results:** Five quantitative and five qualitative studies were included. Quantitative studies used measures of treatment orientation and fear avoidance to indicate physiotherapists' beliefs and attitudes about chronic low back pain. Quantitative studies showed that a higher biomedical orientation score (indicating a belief that pain and disability result from a specific structural impairment, and treatment is selected to address that impairment) was associated with: advice to delay return to work, advice to delay return to activity, and a belief that return to work or activity is a threat to the patient. Physiotherapists' fear avoidance scores were positively correlated with: increased certification of sick leave, advice to avoid return to work, and advice to avoid return to normal activity. Qualitative studies revealed two main themes attributed to beliefs and attitudes of physiotherapists who have a relationship to their management of chronic low back pain: treatment orientation and patient factors. **Conclusion:** Both quantitative and qualitative studies showed a relationship between treatment orientation and clinical practice. The inclusion of qualitative studies captured the influence of patient factors in clinical practice in chronic low back pain. There is a need to recognise that both beliefs and attitudes regarding treatment orientation of physiotherapists, and therapist-patient factors need to be considered when introducing new clinical practice models, so that the adoption of new clinical practice is maximised. [Gardner T, Refshauge K, Smith L, McAuley J, Hübscher M, Goodall S (2017) Physiotherapists' beliefs and attitudes influence clinical practice in chronic low back pain: a systematic review of quantitative and qualitative studies. *Journal of Physiotherapy* 63: 132–143]

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Introduction

Chronic low back pain is a complex disorder, with multiple physical, psychological and social factors contributing to poorer recovery and prolonged disability.^{1–3} Clinical practice guidelines recommend evaluation of biopsychosocial factors when deciding on a patient's management^{1–3} because they are important determinants of outcome^{2,4,5} and because a biopsychosocial approach is superior to a biomedically focused approach in chronic low back pain.⁶ Despite this endorsement by guidelines,^{1–3} physiotherapists tend to adhere poorly to this guidance.^{7–10}

Physiotherapists have traditionally been at the forefront of the management of chronic low back pain. Training physiotherapists in the management of chronic low back pain focuses on a biomedical

approach, where pain is attributed to a structural or biomechanical deficit and treatment aims to address these factors. However, training physiotherapists in a biopsychosocial approach to chronic low back pain remains limited.^{11,12} Physiotherapists, for the most part, tend to approach the management of chronic low back pain on the premise of a biomedical model of disease, with treatment focus on a physical pathology and on addressing the symptoms and physical impairments.^{11,12}

The attitudes and beliefs about health and illness held by healthcare professionals are likely to play a key role in the approach they take in treating their patients. According to the theory of planned behaviour, behaviour is determined by the attitudes and beliefs that a person has about the likely consequences of the behaviour.¹³ Beliefs have been described as

'a cognitive process resulting in a concrete cognition of how we think things are'.¹⁴ Attitudes are 'a more complex cognitive state involving beliefs and feelings as well as values and predispositions to act in a certain way'.¹⁴ Defining attitudes and beliefs is difficult, due to the complexity and fluidity of the cognitive processes that underpin them and the influence of environmental and social interaction. This is relevant in chronic low back pain where the individual presentation of a patient and clinical setting can influence the personal attitudes and beliefs of the healthcare professional.^{15–17} The patient's expectations, perceived passivity of the patient, and a desire to maintain a therapeutic relationship have been shown to be factors in the choice of practice.¹⁵ Clinical practice is also influenced by the perceived lack of time a clinician has to fully explore the complexities of chronic low back pain.¹⁵ Clinical practice in chronic low back pain is influenced by the patient's pain perception, the patient's psychosocial status, and the degree of consistency between objective measures and behaviour of the patient.¹⁶

The uncertainty of a definition of attitudes and beliefs is reflected in the difficulty of their measurement. In research, measures of treatment orientation, fear avoidance, and intolerance of uncertainty are utilised to indirectly imply the attitudes and beliefs of healthcare professionals. The most commonly used measure of attitudes and beliefs in physiotherapy research is the Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT).¹⁸ The PABS-PT is a validated measure that provides a score of treatment orientation of the healthcare professional.¹⁹ Treatment orientation has been shown to have high correlation with clinical practice, but it is important to ask whether it truly captures the complexity of attitudes and beliefs regarding chronic low back pain.

Healthcare professionals' attitudes and beliefs have been shown to influence adherence to guidelines for low back pain, such that a healthcare professional with a biomedical treatment orientation and high fear avoidance beliefs is more likely to show poor adherence.²⁰ Other factors associated with poor adherence to chronic low back pain guidelines include: lack of knowledge; lack of concordance between the biomedical approach and guidelines; and a belief of the healthcare professional that they are poorly trained and under-prepared to adopt a biopsychosocial approach.^{8,21} The attitudes and beliefs of a healthcare professional affect patients' attitudes and beliefs, and health outcomes.²⁰

Existing studies have largely focused on the attitudes and beliefs of general practitioners or a combination of healthcare professionals.^{20,22} There is less clarity about the influence of physiotherapists' attitudes and beliefs regarding chronic low back pain on their approaches to treatment of chronic low back pain. Considering that each profession has differing training, practice and treatment goals, it is difficult to assume that general results can be applied to all groups.

Physiotherapists remain at the forefront of chronic low back pain treatment and so it is imperative to have a clear understanding of their attitudes and beliefs. An understanding of these attitudes and beliefs, and possible barriers, will enable more effective implementation of existing guidelines and new treatment models, as well as effective education of physiotherapists about chronic low back pain.⁸

This systematic review aimed to synthesise the existing literature to determine the effect of physiotherapists' beliefs and attitudes about chronic low back pain on clinical practice decisions in the management of people with chronic low back pain. A synthesis of both quantitative and qualitative studies was chosen to provide both a measure of association and a richer understanding of the association with the inclusion of qualitative studies.

Therefore, the research question for this systematic review was:

What influence do physiotherapists' beliefs and attitudes about chronic low back pain have on their clinical management of people with chronic low back pain?

Box 1. Inclusion criteria.

Design

- Cross-sectional studies
- Qualitative studies

Participants

- Physiotherapists with experience in treating people with chronic low back pain

Outcome measures

- Attitudes and beliefs about chronic low back pain
- Clinical management of chronic low back pain

Method

Identification and selection of trials

Data sources and search strategy

This systematic review was conducted and reported in accordance with the PRISMA statement.²³ Electronic searches of Medline, EMBASE, CINAHL, PsychINFO, PubMed and Cochrane Library were conducted from January 1995 to February 2016. Hand searches for relevant articles were also conducted on bibliographies of identified articles and systematic reviews. The search strategy was developed in consultation with a medical librarian, and used a combination of keywords and MeSH terms (detailed search strategies are presented in Appendix 1 on the eAddenda). The search strategies had three main components: terms for *attitudes and/or beliefs*; terms for *healthcare professional, physical therapist and/or physiotherapist*; and terms for *chronic low back pain*.

Study selection and eligibility criteria

Quantitative and qualitative studies were included if they investigated an association between physiotherapists' attitudes/beliefs about chronic low back pain and their clinical management of people with chronic low back pain. The inclusion criteria are presented in Box 1. No limit was placed on the measurements used for physiotherapists' attitudes and beliefs or clinical practice. Studies were excluded if: they were published in a non-English language; they were published before January 1995, in order to capture the timeframe in which current clinical practice guidelines were developed; the study primarily focused on acute or subacute low back pain; or they primarily investigated the association between physiotherapists' attitudes and beliefs and patients' attitudes and beliefs, outcome expectations, patient satisfaction and treatment outcomes.

Two reviewers independently reviewed the titles and abstracts of the studies retrieved by the search against the eligibility criteria. Full papers were retrieved for evaluation if the paper fulfilled the inclusion criteria, if eligibility was unclear based on the abstract content, or if no abstract was available.

Data extraction and analysis

Quality

Studies meeting the eligibility criteria were assessed for methodological quality. The quality of the quantitative studies was assessed using a checklist compiled from quality scores for observational studies.²⁴ The individual criteria that comprised the checklist are presented in Table 1. The quality of qualitative studies were assessed using the Critical Appraisal Skills Programme checklist, as used in a systematic review by Fullen et al²⁵ and is recommended by the Cochrane Collaboration qualitative methods group.²⁶ The individual criteria that comprise this checklist are presented in Table 2. No formal system for interpreting either checklist was available; therefore, for the purpose of this review, a rating system was devised based on one previously used in another review.²⁵ If > 60% of the criteria on the checklist were met, the

Table 1
Methodological quality for quantitative studies (n=5) using criteria developed from Sanderson et al⁵³ and STROBE guidelines.⁵⁴

Study	Representative sample	Defined sample	Blinded assessors		Follow-up >85%	Method of assessment	Outcome data reported	Statistical adjustment	Rating
			Attitudes and beliefs	Clinical practice					
Derghazarian ¹⁰	Y	Y	Y	N	N	Y	Y	Y	strong
Houben ²⁹	Y ^a	N	Y	Y	N/R	Y	Y	Y	strong
Linton ²⁸	N	Y	Y	Y	N	Y	Y	N	moderate
Pincus ³⁰	Y	N	Y	Y	N	Y	Y	Y	strong
Simmonds ³¹	Y	Y	Y	Y	N	Y	Y	Y	strong

N=no, N/R=not reported, Y=yes.

Representative sample: participants selected as consecutive or random cases.

Defined sample: description of participant source and inclusion and exclusion criteria.

Blinded: unaware of prognostic factors at time of outcome assessment.

Follow-up >85%: outcome data being available for >85% of participants at one follow-up point.

Method of assessment: appropriate outcome measures were used.

Outcome data reported: reporting of data at follow-up.

Statistical adjustment: multivariate analysis conducted with adjustment for potentially confounding factors.

^a One random sample and several samples of convenience.

Table 2
Methodological quality for qualitative studies (n=5) using Criteria Appraisal Skills Programme (CASP) criteria.

Study	Clear statement of aim	Qualitative methodology appropriate	Appropriate research design	Sampling	Data collection	Researcher reflexivity	Ethical consideration	Appropriate data analysis	Clear statement of findings	Research value	Score
Daykin ¹¹	Y	N	Y	N	N	Y	Y	Y	Y	Y	7
Jeffrey ¹⁴	Y	N	Y	N	N	N	Y	N	Y	Y	5
Josephson ³²	Y	N	Y	N	N	Y	Y	N	Y	Y	6
Josephson ³³	Y	N	Y	N	N	Y	Y	Y	Y	Y	7
Poitras ⁸	Y	Y	Y	N	N	Y	Y	Y	Y	Y	8

N=no, Y=yes.

study was rated as 'strong' quality; if 40 to 60% were met, it was rated as 'moderate' quality; and if < 40% were met, it was scored as 'poor' quality. For each included study, two authors (TG, LS) independently carried out assessment of methodological quality. Disagreements were resolved by discussion or resolved by a third author.

Study characteristics

The characteristics extracted from the quantitative studies were: study design, study population, sample size, study aim, whether the sample was random, survey response rate, the measures used for attitudes and beliefs (eg, PABS-PT, Attitudes to Back Pain Scale for musculoskeletal practitioners (ABS-mp)), and the measures used for clinical practice (eg, patient vignettes, questionnaire). The characteristics extracted from the qualitative studies were: method of data collection, method of data analysis, study population, sample size and study aim.

Outcome data

Data were extracted from the published reports. Where studies reported data for a mixed group of healthcare professionals, attempts were made to obtain data specific to physiotherapy participants, with requests made to the original authors.

For the quantitative studies, the outcome data extracted were correlation and/or regression coefficients for association between attitudes/beliefs of physiotherapists and clinical practice measures.

For the qualitative studies, the first author (TG) conducted the data synthesis, as described by Sandelowski and Barroso.²⁷ The analytic process initially consisted of extraction of findings relating to belief and attitudes of physiotherapists, and effect on clinical practice and coding of findings for each article. The second stage was grouping of findings according to their topical similarity (eg, therapist factors, patient factors). The third stage was abstraction of findings – analysing the grouped findings to form a set of concise themes that captured the content of all findings. Frequency of statements regarding identification and support of a subtheme within each article was also extracted.

Results

Flow of studies through the review

Following the search and screening, 262 articles were retrieved in full text; from these, five quantitative^{10,28,29,30,31} and five qualitative papers^{8,11,14,32,33} were included for analysis. Further details of the search, screening and exclusions are presented in Figure 1.

Characteristics of included studies

Quality

Four out of the five quantitative studies were rated as high quality; one²⁸ was rated as moderate. Details of which criteria were met by which studies are presented in Table 1. All five of the qualitative studies were rated as high quality. Details of which criteria were met by which studies are presented in Table 2.

Quantitative studies

Table 3 summarises the descriptive characteristics of the included quantitative studies and the associations between attitudes and beliefs and clinical practice.

Measures of beliefs and attitudes

There was no consistent method of measuring beliefs and attitudes across the five quantitative studies; all studies used a different combination of measures. Four of the five quantitative studies^{10,29,30,31} used measures of treatment orientation to indicate beliefs and attitudes of physiotherapists. To measure treatment orientation, three studies^{10,29,31} included the PABS-PT¹⁸ and two^{10,30} included the ABS-mp.³⁴ One study²⁸ used a measure of fear avoidance to infer beliefs and attitudes of physiotherapists. This study²⁸ derived a fear avoidance questionnaire from several existing and validated questionnaires: the Tampa Scale for Kinesiophobia, the Fear Avoidance Behaviour Questionnaire, and the Pain and Impairment Relationship Scale. One study³¹ used

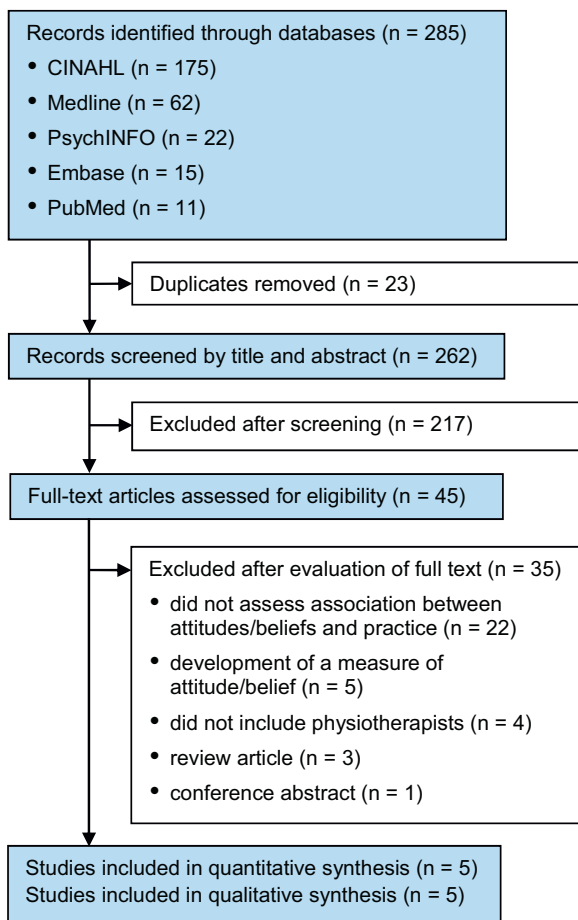


Figure 1. Flow of studies through the review.

several measures to measure beliefs and attitudes, including fear avoidance, treatment orientation and intolerance of uncertainty.

Measures of clinical practice

Clinical practice was measured using patient vignettes in three of the five^{10,29,31} included quantitative studies. All three of these studies used vignettes presenting a moderate-risk and low-risk case for the physiotherapist to assess and indicate level of spinal pathology, risk of developing low back pain disability, return to work advice and return to activity advice. One study²⁸ developed a clinical practice questionnaire to indicate three items regarding: sick leave, advice regarding return to activity and confidence in predicting long-term disability. Another study³⁰ developed a work behaviour questionnaire that asked about workplace visits, support of sick leave, recommendations of short breaks, and prescription of exercise suitable in the workplace.

Association between attitudes and belief measures and clinical practice

Correlation coefficients for association between attitudes and beliefs of physiotherapists and clinical practice measures were extracted from all five quantitative studies (Table 4). Meta-analysis was not conducted due to the heterogeneity of measures used in the studies.

Treatment orientation: A higher biomedical orientation score was associated with advice to delay return to work (correlation coefficients ranging from $r = 0.19$ to 0.24 for low-risk patient vignettes, and $r = 0.08$ to 0.27 for moderate-risk vignettes) and advice to delay return to activity (correlation coefficients ranging from $r = 0.00$ to 0.25 for low-risk vignettes, and $r = 0.21$ to 0.28 for moderate-risk vignettes). One study³⁰ reported that a biomedical orientation was associated with a tendency to not limit number of treatment sessions ($r_s = 0.23$).

Fear avoidance: Physiotherapists' fear avoidance scores were examined in one study²⁸ and were positively correlated with increased certification of sick leave (RR 2.0, 95% CI 0.74 to 4.19) and advice to avoid return to work and return to normal activity (RR 1.71, 95% CI 0.07 to 2.57). Physiotherapists with a higher fear avoidance score also had less confidence in determining the long-term disability due to low back pain (RR 1.5, 95% CI 0.84 to 2.35).

Three of the five quantitative studies conducted regression analyses to further determine whether treatment orientation predicted clinical practice. Figure 2 summarises the relationships found between treatment orientation and return to activity advice.

Derghazian et al¹⁰ performed a stepwise linear regression to determine whether the PABS-PT was predictive of recommendation of activity. The PABS-PT-Behavioural score accounted for 12% of the variance ($R^2 = 0.12$, 95% CI 0.06 to 0.18). The ABS-mp Biomedical and ABS-mp Confidence and Concern subscores explained a further 6% variance for the moderate-risk patient. The ABS-mp Biomedical score accounted for 12% variance for the low-risk patient.

Houben et al²⁹ performed regression analyses to determine if the PABS-PT scores were predictive of recommendation for work and activity. This analysis showed that both treatment orientation factors of the PABS-PT score were significant predictors of work (PABS-PT-Biomedical $R^2 = 0.28$, 95% CI 0.11 to 0.44 and PABS-PT-Behavioural $R^2 = 0.23$, 95% CI 0.09 to 0.36) and activity recommendations (PABS-PT-Biomedical $R^2 = 0.27$, 95% CI 0.11 to 0.42 and PABS-PT-Behavioural $R^2 = 0.26$, 95% CI 0.11 to 0.40).

Simmonds et al³¹ performed stepwise linear regression analyses to determine if PABS-PT scores were predictive of treatment and activity recommendations. They found PABS-PT-Behavioural scores to be a significant predictor of treatment ($R^2 = 0.158$, 95% CI 0.06 to 0.25) and activity recommendation ($R^2 = 0.117$, 95% CI 0.05 to 0.18) for moderate-risk patient vignettes. In addition, PABS-PT-Behavioural score together with postgraduate training in chronic pain was a significant predictor of treatment ($R^2 = 0.108$, 95% CI 0.03 to 0.18) and activity recommendation ($R^2 = 0.109$, 95% CI 0.04 to 0.18) for low-risk patient vignettes.

Qualitative studies

Table 5 summarises the descriptive characteristics of included qualitative studies and the main findings from each study.

Qualitative studies ($n = 5$) revealed two main themes attributed to beliefs and attitudes of physiotherapists that have a relationship to the clinical practice of physiotherapists in chronic low back pain: treatment orientation and patient factors.

Table 6 presents the two main themes and their subthemes, with examples of supporting statements, the number of times each subtheme was identified by a study, and the total number of times it was supported by a statement in any of the included studies. Table 6 demonstrates that when discussing chronic low back pain, physiotherapists have a consistent bias towards a biomedical approach, which is contrasted by the preoccupation of the 'passive' patient.

Theme 1: Treatment orientation

Five subthemes were derived relating to the theme of treatment orientation. Chronic low back pain was approached with a strong biomedical model, and clinical practice was aimed at addressing biomedical factors. Physiotherapists classified patients according to a biomedical approach, and clinical practice decisions were made according to the classification. Therapists expressed a lack of confidence in their ability to follow and implement a biopsychosocial model in clinical practice. Therapists disliked treating difficult patients and had poor self-efficacy and outcome expectancies regarding their treatment of these patients. Therapists thought that assessment of psychosocial factors was not their role.

Table 3
Study characteristics of included quantitative studies (n=5).

Study Country Population ^a	Design Sample size	Aim	Random sample	Response rate	Measures of attitudes and beliefs	Measures of clinical practice	Results	
							Measure of attitudes/beliefs	Association with practice
Derghazarian ¹⁰ Canada Public and private PTs	Survey ^b n = 108	Examine relationships between PTs' attitudes/beliefs about LBP and judgments and treatment recommendations via two patient vignettes	yes	74%	<ul style="list-style-type: none"> • PABS-PT • ABS-mp 	<ul style="list-style-type: none"> • Moderate-risk and low-risk vignettes • Questions about level of spinal pathology, risk of developing low back pain disability, and advice to return to work and activity 	Biomedical orientation versus biopsychosocial orientation	<p>Level of spinal pathology: higher biomedical score more likely to rate for spinal pathology</p> <p>Risk of developing low back pain: low correlation with treatment orientation and rate of disability</p> <p>Return to work advice: higher biomedical score more likely to recommend a delay in return to work</p> <p>Return to activity advice: higher biomedical score more likely to recommend a delay to normal activity</p>
Houben ²⁹ Netherlands PTs	Survey ^b n = 295	Examine PABS-PT prediction of judgments of the harmfulness of daily activities depicted in photographs and recommendations for physical activity for three patient vignettes	yes ^c	N/R	<ul style="list-style-type: none"> • PABS-PT • HC-PAIRS^d • BBQ-HC^d • TSK-HC^d 	<ul style="list-style-type: none"> • Vignette • PHODA – rate of harmfulness of activity 	Biomedical orientation versus biopsychosocial orientation	<p>Recommendations of return to work and activity: higher biomedical score more likely to recommend limits on work and activity</p> <p>Harmfulness of activity: higher biomedical score more likely to view activities of daily living as harmful</p>
Linton ²⁸ Sweden PTs	Survey ^b n = 71	Compare physicians' and PTs' beliefs, and assess views on recommending sick certificates and providing advice about activities and pain management	no	68% ^a	<ul style="list-style-type: none"> • Ten questions addressing fear avoidance beliefs^e 	<ul style="list-style-type: none"> • Clinical practice questionnaire (3 items) 	Fear avoidance beliefs	<p>Sick leave: higher levels of fear avoidance more likely to support sick leave certification^f</p> <p>Advice to return to activity: higher levels of fear avoidance more likely to recommend limits on work and activity^f</p> <p>Confidence in predicting long-term disability: higher levels of fear avoidance less confident in predicting long-term disability^f</p>
Pincus ³⁰ UK Private PTs	Survey ^b n = 113	Examine the beliefs and reported clinical behaviours of chiropractors, osteopaths and PTs regarding patients' work.	no	32%	<ul style="list-style-type: none"> • ABS-mp, personal interaction, treatment orientation • Work-related beliefs questionnaire 	<ul style="list-style-type: none"> • Work-related behaviour questionnaire 	Personal interaction Treatment orientation	<p>Visit workplace: those who visit workplace more likely to limit sessions^g</p> <p>Support sick leave: higher biomedical score, higher belief that work is a threat, higher belief that work is not beneficial, did not limit sessions and felt disconnected from healthcare network more likely to certify sick leave^g</p> <p>Recommend short break: Nil significant correlations^g</p> <p>Prescribe exercise suitable in workplace: low belief that work is a threat and work not beneficial, did limit sessions, did not feel disconnected from healthcare network and believed goal was to reactivate patient more likely to prescribe exercise suitable for the workplace^g</p>

Table 4
Key correlational findings for quantitative studies (n=5).

Study analysed	Measure of beliefs and attitudes	Correlation with return to work advice	Correlation with return to activity advice
Derghazarian ¹⁰ n = 108	Low-risk vignette: PABS-PT-BM	$r = 0.24^a$	$r = 0.25^a$
	Low-risk vignette: PABS-PT-BH	$r = 0.26^b$	$r = 0.26^a$
	Low-risk vignette: ABS-mp	$r = 0.29^b$	$r = 0.36^b$
	Moderate-risk vignette: PABS-PT-BM	$r = 0.27^b$	$r = 0.28^b$
	Moderate-risk vignette: PABS-PT-BH	$r = 0.40^b$	$r = 0.33^b$
	Moderate-risk vignette: ABS-mp	$r = 0.16$	$r = 0.35^b$
Houben ²⁹ n = 273	PABS-BM	$r = 0.32^b$	$r = 0.30^b$
	PABS-BH	$r = -0.27^b$	$r = -0.37^b$
Linton ²⁸ n = 71	Fear avoidance beliefs ^c	Relative risk quotient = 2.00 (95% CI 0.74 to 4.19)	Relative risk quotient = 1.71 (95% CI 1.07 to 2.57)
Pincus ³⁰ n = 113	Work-related beliefs: work is not beneficial or work is a threat	Increase sick leave: $r_s = 0.19^b$	
	Work-related beliefs: work is beneficial	Limit sessions of treatment: $r_s = 0.23^b$	Prescribe exercise: $r_s = 0.23^b$
Simmonds ^{31,d} n = 102	Low-risk vignette: PABS-PT-BM	$r = 0.19$	$r = 0.00$
	Low-risk vignette: PABS-PT-BH	$r = 0.14$	$r = -0.02$
	Low-risk vignette: IUS	$r = -0.09$	$r = 0.08$
	Low-risk vignette: FPQ	$r = -0.06$	$r = 0.00$
	Moderate-risk vignette: PABS-PT-BM	$r = 0.08$	$r = 0.21^a$
	Moderate-risk vignette: PABS-PT-BH	$r = 0.14$	$r = 0.24^a$
	Moderate-risk vignette: IUS	$r = -0.12$	$r = -0.14$
	Moderate-risk vignette: FPQ	$r = 0.01$	$r = -0.14$

ABS-mp = Attitudes to Back Pain Scale for musculoskeletal practitioners, FPQ = Fear of Pain Questionnaire, IUS = Intolerance of Uncertainty Scale, PABS-PT-BH = Pain Attitudes and Beliefs Scale for Physiotherapists-Behavioural orientation, PABS-PT-BM = Pain Attitudes and Beliefs Scale for Physiotherapists-Biomedical orientation, r = Pearson's correlation, r_s = Spearman's correlation.

^a $p < 0.05$.

^b $p < 0.01$.

^c Based on 10 questions derived from items on the Tampa Scale for Kinesiophobia, Fear Avoidance Behaviour Questionnaire, and Pain and Impairment Relationship Scale.

^d Subsequent report of additional data collected in the Derghazarian¹⁰ study.

Theme 2: Patient factors

Three subthemes were derived relating to the theme of patient factors. Intervention that was provided was influenced by patient beliefs and treatment expectations. Patient characteristics and consideration of the therapist-patient relationship influenced the therapist's choice of intervention. Physiotherapists often chose interventions that facilitated a relationship with and satisfied the patient. Clinical decisions were based on the classification of the patient according to the perceived 'passivity of patient'. The degree to which a therapist thought a patient would engage in treatment and/or self-management influenced the treatment provided and led to an individual approach for each patient.

Discussion

This systematic review synthesised, for the first time, both quantitative and qualitative studies investigating the influence of beliefs and attitudes on clinical practice by physiotherapists in chronic low back pain. High-quality quantitative and qualitative studies are considered to contribute equally to evidence.³⁵ Qualitative studies can provide a validation of quantitative

measures and give an extra dimension of understanding of complex conditions and interventions.³⁶ Understanding why an intervention failed is just as important as understanding why it was a success, and qualitative investigation into such complex and layered factors such as beliefs, attitudes and behaviour change is important.^{36,37} A degree of concordance was shown between qualitative and quantitative studies, both revealing that treatment orientation was associated with clinical practice in chronic low back pain. This finding is consistent with a previous review that investigated the association of attitudes and beliefs of various other healthcare professional groups with clinical management of chronic low back pain in a range of settings.²⁰ The inclusion of qualitative studies further revealed patient-related factors that influence physiotherapists' beliefs and attitudes, and subsequent clinical practice in chronic low back pain. These factors included patients' beliefs and treatment expectations, the patient-therapist relationship and the perceived 'passivity' of the patient.

The strength of this review was that both quantitative and qualitative studies were included. This approach provides a much richer perspective, and has previously been used in similar systematic reviews.^{20,26} The present review included three

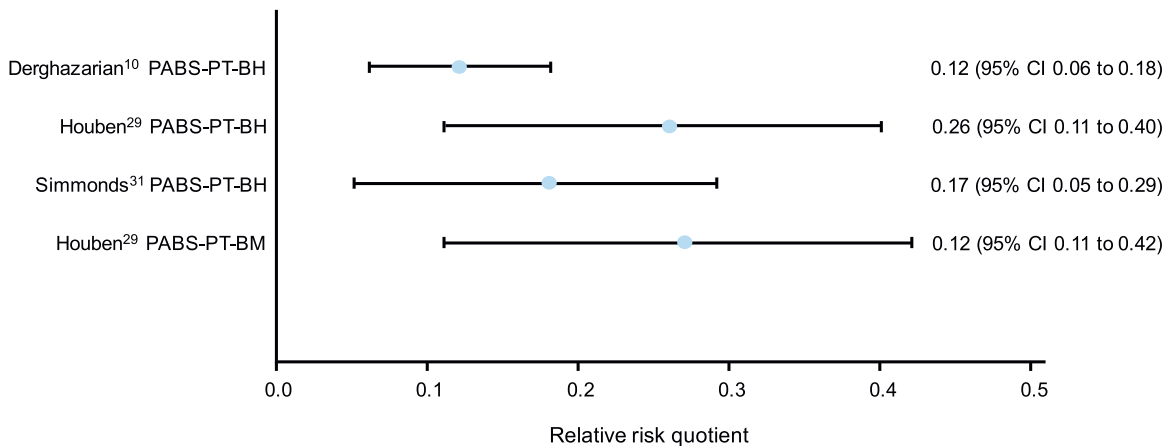


Figure 2. Regression quotients for the association between treatment orientation and advice to return to activity.

Table 5
Study characteristics of included qualitative studies (n=5).

Study	Qualitative methods		Participants Sample size Country	Aim	Main findings
	Data collection	Data analysis			
Daykin ¹¹	Semi-structured interviews	Grounded theory	PT n=6 UK	To examine PTs' pain beliefs their role within the management of patients with cLBP	<ul style="list-style-type: none"> • Experience and development of work craft skills was important in the treatment of cLBP and PTs sort biomedically focused knowledge and skills to enhance their own treatment repertoire • Patients are classified into 'good' and 'bad' patients, with poor outcome often attributed to the passive nature of the patient; a belief that 'bad' patients will have a poor outcome often leads to clinical practice and communication being modified • PTs had biomedical view and this informed clinical practice reasoning and explanations given to the patient as well as attributions regarding the patient
Jeffrey ¹⁴	Semi-structured interviews	Hermeneutic circle	PT n=11 UK	To understand how the personal experiences and feelings of PTs might influence their decision making when treating patients with cLBP	<ul style="list-style-type: none"> • PT believe cLBP has an underlying mechanical and recurring nature • PTs attitude toward managing cLBP is to empower patients to exercise and self-manage their pain and functional problems • PT experience feelings of tension between the advice and treatment they feel is best for the patient and the patient's own beliefs and attitudes
Josephson ³²	Focus group	Content analysis	PT n=21 Sweden	To explore and describe what PTs need to know about patients with cLBP to be able to make decisions about intervention	<ul style="list-style-type: none"> • PT clinical practice was determined by the complexity of the patient. Several factors (pain history, body structure, body function, activity, participation, mental function, health-related behaviour, workplace environment, personal factors) interplayed to determine the complexity of the patients and subsequent intervention. • <i>Easy case</i>: clinical practice decisions based on structure, pain location and joint/muscle function • <i>Complex case</i>: decisions on clinical practice mainly based on combinations of aspects related to movement and mental function • <i>Very complex case</i>: described as having a high degree of psychosocial problems and troublesome life situations and required several intervention components, therefore collaboration with other professionals
Josephson ³³	Focus group	Discourse analysis	PT n=21 Sweden	To investigate how PTs talk about choice of intervention for patients with cLBP, particularly regarding how professionals manage clinical encounters that may be experienced as challenging	<p>PTs talk about choices of intervention as a problem solving process, including questions on four main themes:</p> <ul style="list-style-type: none"> • <i>health responsibility</i>: patients responsibility and their ability for own health and PT role in patient's health • <i>normalization</i>: back pain as an ordinary medical condition and normal feature of ordinary life, normal for patient to want a 'quick fix • <i>change process</i>: need for patient to change their whole life or routine • <i>individualisation</i>: PT adapt intervention to specific patient preferences and one's own professional skills <p>The process has implications on the intervention the individual patient will be offered and has consequences on outcome.</p>
Poitras ⁸	Semi-structured interviews	Content analysis	PT n=16 GP n=8 OT n=8 Canada	To evaluate barriers to the use of practice recommendations, aimed at preventing low back pain disability, with GPs, Ots and PTs and identify areas of convergence and divergence between health professions	<ul style="list-style-type: none"> • PTs' biomedical approach to LBP limits the uptake of guidelines • PTs thought they were not adequately trained to manage psychosocial factors • PTs felt guidelines would have limited impact on their clinical practice because of the lack of intervention at the biomedical/pathophysiological aspect of LBP • Divergence amongst PTs on how the guidelines would have impact on early referral for yellow flags and return to activity • PT belief that most patients expected to be managed using a biomedical and not a biopsychosocial approach • PTs believed guidelines less appropriate for patients financing treatment privately

cLBP=chronic low back pain, GP=general practitioner, OT=occupational therapist, PT=physiotherapist, UK=United Kingdom.

Table 6

Themes, subthemes and number of contributing statements and studies with examples of supporting statements from qualitative studies.

Theme	Subtheme	Statements (n)	Studies (n)	Examples of supporting statements with citation number of contributing study
Treatment orientation	clBP was approached with a strong biomedical model and clinical practice was aimed at addressing biomedical factors	23	5	<i>The x-ray identifies L3-4 as being visibly osteo-arthritic, I feel that he does have some degenerative change within his back . . . indication would be to treat, to try and resolve the particular problems that present at the moment, which are the stiffness that I felt below the active level, that's painful, and then by loosening that up, hopefully reduce the discomfort at the over active level- the 3-4 level, and then get him on a home program to maintain flexibility of the lower lumbar vertebrae¹¹</i>
	PTs classify patients according to a biomedical approach and treat accordingly	6	3	<i>I would probably explain to her that it was most likely postural strain . . . There could be an underlying facet joint degenerative problem evident. I would then go on to explaining how her work or habits, hobbies and posture may be exacerbating the problem.¹⁴</i> <i>Josephson et al³² describe three levels of complexity that merged in their analysis: easy case, complex case and very complex case, with each level influencing the decision about intervention.</i> <i>Easy case: An uncomplicated back that feels well and allows someone to lead a rewarding life while still experiencing back pain is easy to treat.³²</i> <i>Complex case: They have so much pain that they lie in bed and say 'I can't get out of bed'; they are just lying in bed and are very scared of every little move they have to make and then I think it's something that has to be.³²</i> <i>Very complex case: When it's time for pain rehabilitation its very complex; then it is not only the back pain anymore, it's very much influenced by long service leaves with everything that means to their self esteem, when they get there its very complex.³²</i>
	PTs lacked confidence in treating with a biopsychosocial model in clinical practice	9	3	<i>Asking physiotherapists whether they felt equipped to help patients with associated psychological factors . . . the responses varied from 'it depends on the patients' to 'a professional should deal with those issues'.¹¹</i>
	PTs disliked treating difficult patients and had poor self-efficacy and outcome expectancies regarding their treatment of these patients	18	2	<i>Difficult patients contributed to 'bad days' at work . . . you . . . switch off a little bit . . . I think you become less sympathetic . . . write them off quickly.¹¹</i> <i>You can treat until you're blue in the face, but you'll take two steps forwards and the patient will go away, do whatever they want to and take two steps back . . . and this is when you get frustrating, unresolved cases.¹¹</i> <i>I don't know how successful I'm going to be . . . I might not get that far with her.¹¹</i> <i>A professional should deal with those issues.¹¹</i>
	PTs thought assessment of psychosocial factors was not their role	6	2	<i>Difficult patients presented with unrealistic expectations, you can't get across to them that you haven't got a magic wand.¹¹</i> <i>Whether they're motivated to actually do something for themselves or they just want you to . . . sort of . . . click your fingers; wave your magic wand, and the pain'll be gone.¹⁴</i>
Patient factors	Treatment choice was influenced by patient beliefs and treatment expectations	17	4	<i>Whether they're motivated to actually do something for themselves or they just want you to . . . sort of . . . click your fingers; wave your magic wand, and the pain'll be gone.¹⁴</i>
	Patient characteristics and consideration of the therapist-patient relationship influenced the therapist's choice of intervention	10	4	<i>If it's someone I feel I don't have good contact with, I feel that the things I do, the things I say, just bounce back; then I complete the intervention fairly fast, while I can go considerably further with someone I have the kind of collaboration with.³²</i>
	PTs were likely to make clinical decisions based on their classification of the patient according to the perceived 'passivity of patient'.	25	4	<i>I struggle with people who . . . I've explained to them several times what's wrong with them, what they need to do about it, and they're still not 'buying into it'.¹⁴</i> <i>You can't do it for them, and they're the ones who you really struggled with, and you had to really explain to them that if they didn't start taking . . . the responsibility for themselves, then there was little you could do, really.¹⁴</i> <i>You choose an intervention based on patients ability and experiences.³²</i>

clBP = chronic low back pain, GP = general practitioner, OT = occupational therapist, PT = physiotherapist.

quantitative studies^{10,30,31} and four qualitative studies^{8,14,32,33} that have not previously been included in a combined systematic review design such as this one. Chronic low back pain is a complex presentation and it is well known that the interaction of the therapist and patient will have an influence on the outcome.³⁸ If only quantitative measures were used, this dimension of patient factors and patient-therapist interaction would be missed.

The current review found that treatment orientation and fear avoidance beliefs of the physiotherapist had an influence on clinical practice and advice given to patients. A therapist with higher biomedical orientation and fear avoidance beliefs towards chronic low back pain was associated with advice to restrict return to work duties and restrict return to activity, a higher perception of risk associated with work or activity, and increased certification of sick leave. Healthcare professionals' beliefs about chronic low back pain have been shown to have an influence on patient beliefs.^{11,39,40} High levels of fear avoidance beliefs in healthcare professionals have been shown to be associated with high levels of fear avoidance beliefs in their patients.^{41,42} Reinforcement of a cautionary and passive approach from treating physiotherapists may lead to long-term passivity, unhelpful beliefs about activity, and disengagement from a patient-focused self-management approach. The qualitative studies included in this review also showed the strong biomedical bias of physiotherapists in chronic low back pain. These studies suggested that physiotherapists have a strong focus on a biomedical approach to chronic low back pain, placing importance on the severity of tissue damage, classifying patients accordingly and choosing intervention aligned with the biomedical model rather than embracing the model that pain and function loss may be influenced by psychological and social factors in addition to biomechanical factors.

The findings of the qualitative studies provided an extra dimension to what influences clinical practice, by exploring the factors associated with the patient. Patients with low back pain expect a clear diagnosis, pain relief and manual therapy as part of their care, which may reflect the patient's biomedical beliefs regarding their back pain.⁴³ It has also been shown that a good therapist-patient relationship has a positive effect on patients' outcomes.³⁸ Guidelines in line with a biopsychosocial approach recommend that physiotherapists need to consider the patient and their expectations in order to facilitate a good therapist-patient relationship. This may leave the physiotherapist in conflict between what clinical guidelines recommend and what the patient wants. To reduce the tension between the two approaches, therapists may choose to give advice and treatment more closely aligned to the patient's biomedical understanding and expectation, in order to avoid conflict and facilitate a more helpful therapist-patient relationship.

An important step in improving skills and confidence in addressing the complexity of chronic low back pain is training physiotherapists in the identification and management strategies of psychosocial issues. The current review revealed a preference for physiotherapists to treat biomechanical issues, a perception that they lacked skills to address psychosocial issues, and a tendency to stigmatise those behaviours that may suggest a psychological or social aspect to low back pain. Treatment only addressing

structural or biomechanical factors often does not show good effect, and the therapist is then left with judging the patient as difficult or passive. Therapists' poor misinterpretation of patient behaviour may reflect a lack of awareness that these behaviours may be indicative of underlying cognitive, psychological and social factors, and may contribute to these aspects not being addressed. Furthermore, the perception of stigmatisation of persons experiencing chronic back pain may hinder the patient-therapist relationship, which further compromises a positive effect of the intervention.²¹ Our findings correlate well with a recent review investigating physiotherapists' perceptions about identifying and managing the cognitive, psychological and social factors in chronic low back pain, which reported a lack of confidence in physiotherapist skills in identifying and addressing psychosocial aspects of chronic low back pain.²¹ Physiotherapists should consider whether some characteristics, such as poor motivation, or dependence on passive therapies, may indicate the presence of other factors such as depression, anxiety or poor self-efficacy, which require greater consideration.²¹

It is important to identify that the patient's role is integral to clinical care, and this review was able to capture this influence. To date, investigations into attitudes and beliefs in chronic low back pain have for the most part given attention to the patient or clinician in isolation from each other. A patient-centred approach, where the patient and therapist work collaboratively, and beliefs and attitudes of both are addressed, may be more effective for facilitating self-management, patient satisfaction and improve outcomes.^{25,44,45}

Studies of chronic low back pain guideline implementation have shown low or modest effects at changing clinical practice.^{46,47,48,49} The majority of these interventions focus on therapist knowledge and skills in isolation from the patient. Clinical practice is affected by therapist attitudes and beliefs, which are influenced by patient factors such as patient expectations, belief systems and the therapeutic relationship developed in a clinical interaction. When considering the design of interventions to improve guideline adherence, a better approach may be addressing both the therapist's and patient's contribution to the clinical intervention (Box 2). The clinical intervention should be considered as a dynamic relationship, where both therapist and patient are involved in an interchange, rather than two separate silos in isolation from one another, and perhaps training in chronic low back pain intervention needs to reflect this.

There were some limitations in regard to the studies included in this review. Direct measurement of clinical behaviour is difficult. Clinical practice measures were limited to advice on work, exercise and exercise prescription in the workplace. It is questionable whether the measures used in the included studies captured all that is practised in the clinical setting.⁹ Measurement of clinical behaviour was collected by self-report questionnaires or patient vignettes. Responses provided on a questionnaire may reflect a therapist's knowledge of guidelines rather than their actual behaviour. This tendency towards desirable answers is a well-known bias in self-report measurement.³¹ Patient vignettes are easy to manipulate, and there is a reduced impact of social desirability and observer bias; however, they may elicit attitudes

Box 2. Factors influencing clinical practice and suggested strategies to improve clinical guideline adherence.

Therapist factors

- Biomedical versus biopsychosocial approach
- Lack of confidence in addressing biopsychosocial aspects

Patient factors

- Patient expectations and beliefs
- Patient-therapist relationship
- Patient 'passivity'

Suggested interventions to improve clinical guideline adherence

- Training in biopsychosocial approach and management skills of psychosocial factors for chronic pain in undergraduate and postgraduate levels
- Patient education of chronic pain model and evidence-based practice strategies
- Patient-led intervention

and opinions rather than actual behaviour in real situations.^{50,51} It has also been demonstrated that physiotherapy management of back pain can be composed of numerous interventions, which vary during the episode of care,⁵² a dynamic which is difficult to capture with case scenarios. Measurement of clinical behaviour would be best attained by direct observation and audit of clinical behaviour with blinded participants.

The beliefs and attitudes of physiotherapists as well as therapist-patient factors have an influence on clinical practice in chronic low back pain. This may impact the uptake of current clinical guidelines and new treatment models of care. Future research is needed to investigate the most effective approach when developing training and implementation tools for clinical guidelines that considers both the therapist and patient factors as mutual influences on clinical practice.

What is already known on this topic: Clinical practice guidelines recommend evaluation of biopsychosocial factors in people with chronic low back pain, but many physiotherapists do not assess and treat these factors.

What this study adds: Quantitative and qualitative studies confirm a relationship between treatment orientation and clinical practice. Both beliefs and attitudes regarding treatment orientation of physiotherapists as well as therapist-patient factors need to be considered when introducing new clinical practice models so that the adoption of new clinical practice is maximised.

eAddenda: Appendix 1 can be found online at: <http://dx.doi.org/10.1016/j.jphys.2017.05.017>

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