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ORIGINAL RESEARCH ARTICLE

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Factors contributing to non-compliance with active physiotherapy guidelines among chronic low back pain patients in India

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ABSTRACT

Introduction: Physiotherapists exhibit different degrees of adherence to clinical guidelines for low back pain (LBP). The preferences and expectations of their patients significantly influence physiotherapists' adherence to these guidelines. Therefore, it is crucial to have a comprehensive analysis of the patients' perspectives, which can identify the factors that prevent the implementation of an active approach.

Methods: We conducted semi-structured interviews with patients suffering from non-specific chronic LBP (CLBP). We transcribed the semi-structured interviews verbatim and conducted an inductive thematic analysis to uncover themes related to the participants' expectations and experiences of consultations with physiotherapists for CLBP.

Results: In total, we interviewed thirty-three individuals, with 14 women and 19 men (mean age 53 + 12 years). Our thematic analysis discovered six overarching themes that are relevant to patients' expectations and experiences. We identified several sub-themes under the "physiotherapist-related factors" and "patient-related factors" themes. Additional themes recognized were guideline-related factors**,** institution-related factors**,** healthcare-related factors, and health information. A significant number of participants expressed dissatisfaction with the short timeframe allocated by the physiotherapist.

Conclusions: Multiple participants expressed dissatisfaction with their experience, particularly about the quality of explanations and the nature of the exercises provided. This emphasizes the importance of patient education, and physiotherapists should consider suggesting active interventions that the family, society, and culture can more easily accept. Accordingly, the formulation of future guidelines for nations like India should take into account these patient expectations and perspectives.

Keywords: Exercise, Implementation science, Low back pain, Motivation, Patients, Qualitative research

What's already known about this topic?

- *Clinical practice guidelines (CPGs) inform healthcare providers to follow pre-set recommendations to guide health intervention decisions.*
- *The low adoption of LBP guidelines in physiotherapy is well known.*
- *Patient preferences and expectations can impact healthcare providers' CPG adherence.*

What does the study add?

- *Multiple elements, both internal (non-consideration of local conditions and target audience, resource constraints) and external to the domain of CPGs, such as societal (perception of physical activity within the community), familial (gender roles, family expectations), and cultural influences (preference for traditional exercises and outdoor exercise limitations for women), contribute to patients' acceptance of CPG recommendations.*
- *Therefore, it is essential for physiotherapists to prescribe culturally relevant interventions while improving communication to assist patients in achieving their functional goals.*

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Introduction

Low back pain (LBP) is the most common musculoskeletal disorder globally, and the financial burdens associated with its treatment and impact on society are substantial. LBP is a prominent contributor to disability in low- and middle-income countries (LMICs) (1). The prevalence of disability

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caused by LBP has increased by over 50% in these regions since 1990 (2). For individuals with chronic diseases, effective management of their disorders is essential to mitigate their effects, enhance health outcomes, avert additional disability, and decrease healthcare expenses (3). A recent study examining the main characteristics of LBP treatment in LMICs found that the care provided did not consistently adhere to the most up-to-date and reliable evidence (4). This presents a significant challenge for contemporary healthcare systems, necessitating the provision of more effective care.

Clinical practice guidelines (CPGs) have been published to assist healthcare professionals in adopting the pre-established recommendations designed to influence decisions on health interventions. Physical treatments for chronic LBP (CLBP) include graded activity or exercise programs that specifically target function gains (5). The majority of the CPGs recommend exercise therapy as the initial therapeutic option for regular use (6-7). When compared to no treatment, usual care, or placebo, exercise therapy is linked to significant improvements in functional outcomes (7). Improved adherence to guidelines is projected to enhance treatment outcomes and result in cost savings (8). Nevertheless, the anticipated enhancements in patient outcomes and a decrease in healthcare-associated expenses have not materialized (9). The existing understanding regarding the suitability of guideline recommendations, mostly originating from high-income nations, for LMICs remains uncertain (5).

Adherence to therapy, defined as the degree to which patients comply with the prescribed advice from their healthcare provider, is a crucial element of ongoing health management (10). DiMatteo observed that 24.8% of the patients had a typical prevalence of not following healthcare recommendations (11). Due to the prevalent issue of non-adherence, a significant portion of patients fail to achieve the full potential benefits of therapy, leading to unfavorable health outcomes, diminished quality of life, and heightened healthcare expenses (12). Several factors have been proposed as the causes for inadequate compliance with treatment suggestions. These factors encompass the patient's socioeconomic position, lack of agreement between providers and patients, misconceptions regarding the role of interventions, reduced motivation due to a perceived lack of treatment success, limited understanding of health information, resistance to the health belief paradigm, and social stigma (13-14).

Research conducted in several countries has shown that physiotherapists have varying levels of adherence to clinical guidelines for LBP (15-17). In our prior research, we observed that Indian physiotherapists generally adhered to CPGs while treating patients with LBP. Further, the use of certain procedures, such as the use of electrical modalities and ordering X-rays for patients, was not supported by current evidence (18). One of the components that greatly affects healthcare professionals' adherence to CPGs is the preferences and expectations of their patients (19). Expectations can be defined as the prevailing notion that a clinical outcome will materialize (20). Our previous study focused on investigating the patient's expectations and factors that impact adherence to physiotherapists' treatment recommendations for CLBP (21). The findings indicated that in the Indian context, patients' expectations regarding diagnosis, inclination towards passive therapies and medical care, and their behavior in seeking information are reliable indicators. One significant drawback of the aforementioned research was its quantitative approach, which made it challenging to ascertain the underlying reasons or motivations behind participants' responses. The process of developing recommendations for treatment should involve both the patient and the physiotherapist in a collaborative manner (22). Hence, the patients' abilities, experiences, anticipations, and inclinations hold significant significance in the process of treatment decision-making, alongside the clinical competence of physiotherapists.

The mechanisms by which physiotherapy interventions modify musculoskeletal pain are likely highly intricate and contingent upon various aspects associated with the physiotherapist, the patient, and the environment (23). Given that efficacy trials often overlook the aspects that influence patients' underlying beliefs and expectations (24), it is crucial to comprehend the factors that contribute to patients' adherence to physiotherapy treatment recommendations. Factors pertaining to patient expectations are correlated with clinical results, treatment satisfaction, and behavioral influence (25). Gaining a comprehensive understanding of patient expectations for the management of LBP through physiotherapy in India is crucial for devising tactics that present the most significant obstacles to the adoption of CPGs. Given the variability of patient preferences and expectations towards treatment across different cultures, our objective was to examine the expectations of Indian patients regarding physiotherapy recommendations for CLBP.

Methods

Study design and setting

This study employed a qualitative approach to elucidate the underlying meanings of quantitative data from earlier research (21). This study was conducted in the Uttar Pradesh state of India from January 2023 to December 2023. Medical practitioners are the primary initial contact clinicians, and physiotherapists do not typically operate as first-contact practitioners independently. Patients with LBP have the option to consult a physiotherapist with or without a referral from a medical practitioner. The choice of treatment center is dependent on the patient's financial situation. Individuals from lower and middle socioeconomic strata prefer free health services provided in government settings, whereas those from the upper-middle and upper classes prefer private hospitals and clinics. Physiotherapy services are currently not covered by any insurance plan, and the majority of patients personally bear the cost of these services. Insurance payment may be provided to patients who receive therapy when they are admitted as inpatients, depending on the healthcare policy. Currently, there are no existing nationwide guidelines for physiotherapy for LBP. For CLBP, non-steroidal anti-inflammatory medications, electrophysiological modalities, and exercise are the most often reported interventions (4). Occasionally, physicians admit patients experiencing more intense pain and radicular pain as inpatients; these individuals may undergo multimodal treatment, benefit from enhanced

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medical supervision, and receive treatment more frequently. The treatment period for CLBP varies based on the intervention approach, often lasting approximately 12 weeks.

The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was utilized to facilitate the design and reporting of the qualitative research (26). Ethics approval for this study was obtained from the Integral University Ethics Committee (IIAHSR/DO/PT/2022/23). The survey's reference was established by using the guidelines for the treatment recommendations of CLBP (27) and the findings of the Ganesh et al. (21) study.

Participants

The authors employed a purposive sample technique (28) to select participants who were actively seeking care for CLBP. The participants were recruited from the authors' professional networks, as well as from their workplaces, neighboring hospitals, and physiotherapy clinics. Participants were deemed eligible if they were at least 18 years old and had experienced non-specific LBP (with no clear etiology) for a minimum of 12 weeks. In order to encompass all demographic categories, such as sex (male/female), nature of work (employed/non-employed), residence (rural/urban), socioeconomic status (upper middle/lower class), education (formal/informal), marital status (single/married), and age, consecutive registrations were included until a satisfactory number of participants in each parameter category were reached. Subsequently, the remaining categories were filled by registrations that followed one after another. This approach was employed to guarantee a sample of patients that accurately represents the population. Every participant was provided with information regarding the objective and methodologies of the study. Participants who agreed to take part in the study were required to provide both verbal and written consensus for the interview, recording, and release of anonymized data.

Interviews

The interviews were conducted from March 2023 to December 2023. In order for the participants to be able to freely express their expectations, the interviews were conducted by experienced interviewers belonging to other disciplines such as community medicine and public health. Three interviewers conducted all the interviews. While one of the interviewers conducted the interviews, the other two experts observed and supervised the process to maintain uniformity in the interview procedure by overseeing the active interviewer's approach. There was no prior relationship among the interviewers and participants.

The semi-structured interviews were conducted using a predetermined list of open-ended questions, which can be located in Table 1. This approach was chosen for its capacity to enable participants to articulate their viewpoints and expand on their personal narratives in a systematic and complete manner while still maintaining the interview's emphasis on the intended course of action (29). Furthermore, additional questions arose during the interviewers' and respondents' conversations. The interviewers queried the participants about their perspectives on the CPG's recommendations for patients with CLBP, their expectations, and the factors influencing their adherence or non-adherence to the guideline.

The interview guide and protocol subsequently underwent a pilot testing phase, with two test interviews conducted before the actual interviews. Following the initial two rounds, the interviewers exchanged input with one another in order to improve the interviewing procedure's efficiency. The presentation of the questions during one of the interviews was conversational rather than in a systematic order, which led to the exclusion of the responses from the final analysis to prevent potential bias in the results. We determined the number of interviews based on the point of saturation, a stage where we could no longer discern any new information from the interviews (30). We conducted the interviews in person, with an average duration of 1 hour. We created field notes alongside the interviews. We recorded the interviews in audio format and subsequently transcribed them verbatim. We provided the participants with the transcripts of the interviews to rectify errors and provide further remarks (31).

TABLE 1 - Interview Questions

Interview Questions	Sub-questions
What is your opinion on the use of imaging techniques, such as X-rays, CT, MRI, etc., in the evaluation and treatment of chronic low back pain (CLBP)?	• Do you think that spending money on imaging can enhance your recovery? • What are your anticipated outcomes from investigations? • Do you think the results of the investigation have influenced the outcomes of your management?
Has your healthcare provider introduced you to the CPG guidelines for LBP?	• What interventions have been recommended or administered previously and currently? • By whom were those recommendations made? • Which of these choices is most suitable for you? • Where did you provide an explanation for why one should adhere to these recommendations? • Have you been assigned exercises as part of the recommendations? • Have you been invited to actively participate in the care of your lower back pain? • Will you follow these recommendations? If not, what are the reasons for not adhering to it?

(*Continued*)

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TABLE 1 - (*Continued*)

Interview Questions	Sub-questions
What is your opinion on incorporating exercises into your treatment recommendations?	• What is your opinion on incorporating exercises into your treatment recommendations? • What information have you received on the inclusion of exercises in your rehabilitation? • Which specific exercises have been recommended to you? • Are you willing to go along with these recommendations? • What factors do you believe determine the appropriateness or inappropriateness of these recommendations for you?
What is your opinion on incorporating physiotherapy into your treatment plan in accordance with guideline recommendations?	• What are your thoughts on receiving physiotherapy to treat your pain? • What are your expectations about the physiotherapy recommendations? • What makes your therapy expectations ideal for you? • What is your rationale for believing that certain recommendations you receive are inappropriate for you? • What additional elements do you believe influence your decision about accepting or not accepting therapeutic recommendations?

Data Analysis

The study utilized a four-step grounded theory approach to analyze the free-text responses (verbatims) with the recorded interviews as the unit of analysis (32). Initially, two analysts (SG and ARK, along with the interview moderator) manually and independently carried out the inductive coding process on the free-text answers provided by five randomly selected participants to establish a coding framework. The code framework underwent further refinement. Following that, the two analysts examined five random transcripts and improved the framework through further discussions. The analysts then used a combination of inductive and deductive methodologies to examine the remaining transcripts.

Next, two analysts (SG and ARK) used axial coding to generate a comprehensive list of codes (or sub-themes) by engaging in iterative discussions and reviewing the free-text responses. Furthermore, the process of selective coding was employed to establish themes by categorizing sub-themes that shared similarities (32). The analysts then systematically arranged the themes according to the study's objective. If quotes regarding diagnosis and management contradicted the guidelines, the researchers deemed them to be non-adherent to the implementation of an active approach. The researchers deemed the inclusion of additional content in the guideline suggestions compliant. This study identifies and discusses the factors that contribute to non-adherence. Table 2 displays the characteristics of the participants, and Table 3 provides a depiction of the coding tree. The initial step involved reading the transcripts and identifying phrases, sentences, or paragraphs that were pertinent to adherence to the guidelines. These identified sections were then tagged and categorized. The interview transcripts were coded using the qualitative data analysis software program Atlas.ti, version 8.4.20. Moreover, the analysts consolidated codes related to the same type of consideration into a separate category. We carefully examined the categories to identify recurring trends and establish comprehensive themes (33). SG and ARK engaged in a thorough discussion, carefully considering each step, until they reached a mutual agreement. The final coding framework was subsequently deliberated with an additional author (AK) and two outside experts possessing specialized knowledge in the content area. Finally, the analysts carried out a member validation process, where all participants reviewed and confirmed the accuracy of the identified themes, codes, code descriptions, and quotations. The authors gave each participant the opportunity to review, provide input, and provide their approval for the final draft of the findings.

Results

Study population

Fifty-five patients diagnosed with CLBP expressed their willingness to participate in this study, and a total of 37 interviews were done. Four interviewees were unable to complete their interviews, primarily due to issues with interview scheduling and other unforeseen circumstances that prevented them from fully participating. Thus, we conducted a total of 33 semi-structured individual interviews. Based on interviews 29–33, researchers determined that saturation had been achieved as only one more theme emerged.

Table 2 - Sociodemographic and clinical characteristics of participants (n = 33)

	n (%)
Age (years)*	53 (24-59)
Sex	14 women, 19 men
Years of CLBP (years)*	7.8 (1-17)
Employment	(employed-16, non-employed-6, house wife11)
Education	(college and above-14; High school and below-19)
Marital Status	(married-26; single-7)
Residence	(rural- 15; urban-18)
Household	(joint family-9; nuclear family-24)
Socio-economic status	(upper-9, middle-18, lower-6)
Nature of physiotherapy care provider	(private-12, public- 21)

*mean (range)

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The qualitative analysis identified a total of six themes from the participant's perspective in identifying the factors that prevent the implementation of an active approach for LBP. The themes "physiotherapist-related factors" and "patient-related factors" revealed the highest numbers of sub-themes. Additional themes identified were guideline-related factors, institution-related factors, healthcare-related factors, and health information.

Factors influencing non-adherence

Overall, the participants interviewed expressed that their preferences, beliefs, and expectations do not align with the treatment recommendations offered by the physiotherapists. The participants discussed various factors that led to their non-adherence to the physiotherapy recommendations as outlined in the CPGs. Nevertheless, while comparing their concerns with the recommendations outlined in the guidelines, it becomes apparent that elements outside the realm of CPGs and societal/familial/cultural influence play a role in influencing their acceptability.

The six main themes from the analysis of free-text responses related to the study objective are displayed in Table 3 and explored in detail below:

1. *Guideline-related factors*

a. Culturally inappropriate recommendations

The majority of participants cited the CPG recommendation, including its development process, as one of the reasons they did not support the presented advice (table 3). A significant number of participants, particularly females from rural origins, expressed concerns about the widespread endorsement of exercises that may not align with their cultural norms, including their dressing attributes and the acceptance of these exercises within their community.

"These exercises prescribed are not for me, who drapes a saree" (traditional attire).- (R5, 56F, school educated, housewife, rural location)

b. Onus is on the care seeker

Another significant issue expressed regarding the guideline recommendations is that the responsibility for recovery has been entirely placed on the patients rather than the healthcare practitioners.

"The entire recommendation is made up to give healthcare providers as many reasons as possible to point us" (R8, 45M, college educated, employed, urban location)

c. Focus on biopsychosocial perspective

The guidelines propose the 'biopsychosocial approach' as a possible framework, but a minority of participants reject it. The concept has been deeply ingrained that any pathology results in pain and impairment, and extrinsic factors connected to social or geographical environments do not have a role to play.

"The doctors shift their inability to find a reason and identify a cure to reasons that are hypothetical" (R12, 29M, college educated, employed, urban location)

d. Involvement of patients with back pain in guidelines development?

Although participants do not doubt the advice of their healthcare professionals, they do not accept the notion that these recommendations are being made by professionals outside their home country without consulting or involving either the clinicians or patients from their place of residence.

"It's hard to accept that someone else has chosen what kind of care I should get." (R10, 25M, PhD student, urban location)

2. *Institution related factors*

a. Focus on modern equipment purchase and development of physical infrastructure

Participants attribute their non-acceptance of the recommendations provided by the CPGs to several variables associated with institutions. The main argument given is the institutional preference for investing in equipment and physical infrastructure rather than human resources.

"There is so much investment in new machines and equipment rather than the care that is provided to us" (R6, 39M, college educated, employed, urban location)

b. Focus on electrotherapy and an overcrowded department that lacks privacy

Another element of importance is the physiotherapy department's preference for administering electrotherapy versus exercise therapy prescriptions in patients. The majority of participants expressed that government facilities that are overcrowded and lack privacy are not suitable for exercise.

"Billing for exercises is cheaper compared to electrotherapy. If exercise is effective, shouldn't it cost more?" *(R3, 31F, college educated, job seeker, rural location)*

3. *Patient-related factors*

a. Insufficient patient engagement in goal setting and disregard for patient expectations

One of the primary issues is the failure to involve patients in setting priorities and not appealing to their treatment expectations. The participants indicated a reduced level of engagement with the physiotherapist, and they perceived themselves as passive recipients of therapy.

"Inside the department, I feel like a circus animal, and my only task is to listen to my ringmaster (physiotherapist)." (R6, 39M, College educated, employed, urban location)

b. No variability in treatment despite shifts in symptoms and disregard for lived experience

Another element is the patients' observation of the physiotherapist's reluctance to modify recommendations for treatment despite complaints of fluctuating symptoms.

"There is hardly any variation in the exercise provided, regardless of whether bending forward or backward is painful." (R20, 42F, college educated, housewife, rural location)

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Table 3 - Themes and sub-themes mapped to study objective

Themes	Sub-themes	Description of link: How does the theme contribute to non-adherence to guideline recommendations?	Exemplar quotes
Guideline Related Factors	Culturally inappropriate recommendations.	Participants believe that a significant number of the recommendations should be culturally appropriate for Indian society and accepted by the community in which they live in order to be accepted.	"These exercises prescribed are not for me, who drapes a saree" (traditional attire). (R1, 55F, no formal education, housewife, rural location) "I am the head of my family and need to show a strong character. Performing recommended exercises, such as the Superman and Fire Hydrant exercises, reduces my value." (R28,58M, school education, self-employment, rural location) "The recommended exercises should be appropriate for the community in which I live. I accept walking; I reject anything else." (R2,52M, college education, employed, rural location) "At their best, these exercises are acceptable inside a hospital or department, not in the community." (R21, 47M, school educated, unskilled labor, rural location) "I've seen patients with other illnesses perform walking as an exercise. I am okay with it; I will not perform other strange exercises." (R23, 57F, no formal education, housewife, rural location)
	Onus is on the care seeker	Participants perceive that exercise and self-management have shifted the entire burden of recovery onto them, while the physiotherapist assumes a mentoring role. According to participants, this does not align with the typical duties of a healthcare professional.	"I went to seek a cure. The physiotherapist laid all responsibilities on me for recovery from lifestyle changes to self-exercise." (R8, 45M, employed, college educated, urban location) "It's easy for the healthcare provider. If I recover, his recommendations win, and if I don't, I haven't adhered to them." (R12, 29M, Employed, college-educated, urban location)
	Focus on biopsychosocial perspective	Participants question the appropriateness of treatment recommendations aimed at psychological and social factors for addressing physical pain.	"I have endured pain for many years and know from my experience that my work aggravates pain. Assigning psychological variables or changes to the brain for this behavior questions my mental strength" (R24,44M, college educated, employed, urban location)
	Involvement of patients with back pain in guidelines development?	Participants assert that a representative from one of their members should be involved in the guideline formulation process to ensure their expectations are considered, hence facilitating the appropriateness and acceptance of the recommendations.	"If at all there is a patient representative during this recommendation development process, I am confident that they must be someone who represents the privileged class rather than someone from the middle class, such as us." (R14, 44F, college educated, housewife, urban location)
Institution related factor	Focus on modern equipment purchase and development of physical infrastructure	Participants believe that acquiring the most advanced equipment improves any department's infrastructure. Clinics bill patients based on the number of electrotherapy devices they prescribe but charge less for exercise sessions. Consequently, participants consider electrotherapy to be a more appropriate recommendation than exercises.	"If exercise is all-powerful, why are there advanced machines and expensive electrotherapy sessions?' (R18, 54M, college educated, self-employment, urban location) "I see physiotherapists giving different people the same exercises to do. I see that more effort is being put into improving equipment and facilities than into giving people more advanced training. Because of this, I think that electrical therapies are better than exercises." (R11, 56M, Employed, college-educated, urban location)

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Themes	Sub-themes	Description of link: How does the theme contribute to non-adherence to guideline recommendations?	Exemplar quotes
	Overcrowded department that lacks privacy	Participants perceive that numerous physiotherapy departments, particularly those at government facilities, are overcrowded and lack sufficient privacy. The participants believe such locations are unsuitable for exercising, so they avoid the recommendations.	“The government-run physiotherapy centers are too overcrowded. It is very difficult to perform exercises when someone watches you.” (R13, 54F, school-educated, housewife, rural location) “There will be 3-5 people in the same room where one is receiving therapy. It’s sometimes embarrassing to receive physiotherapy services.” (R20, 42F, college educated, housewife, rural location)
Patient-related factors	Disregard for patient expectations	Participants felt that most clinics do not provide enough information about their diagnosis or assessment results, nor do they engage in discussions about their treatment expectations and course of care. Consequently, they tend not to accept imposed recommendations that do not align with their expectations.	“After listening to my complaint, the physiotherapist does some tests on me, the results of which are not explained.” (R6, 39M, College educated, employed, urban location) “The physiotherapist dictates my plan of care with junior staff. I hardly get time to discuss my progress or problems with the senior staff. My treating physio says that the senior physio is told every day about my progress” (R4, 31M, college educated, employed, urban location) “They (physiotherapists) say exercises are most important, but there has been no review of my exercise schedule since the first day.’ (R22,53F, college educated, employed, urban location)
	Insufficient patient engagement in goal-setting		“The physiotherapist says that self-management is the best way to go. After that, he provides a treatment plan. If sticking to it is what makes it work, should I not participate in the care planning process?”- (R2,52M, college education, employed, rural location).
	Financial factors	The participants suspect that healthcare organizations may raise the costs associated with LBP treatment under the guise of a bundled package, as specified in the recommendations. Consequently, the participants desire the advice to align with their preferences and expectations rather than favoring a multidisciplinary approach to care.	“I am confident that this presents an opportunity to increase the already high costs of physiotherapy” (R6, 39M, college educated, self-employment, urban location) “Why does my physiotherapist charge so much when he insists on self-management?” (R9,46M, no formal education, self-employment, urban location)
	No variability in treatment despite shifts in symptoms and disregard for lived experience	Despite differing complaints and symptoms, participants believe the suggested exercises are uniform and do not cater to individual needs. Consequently, they deem exercises irrelevant to their needs.	“Both me and my friend were prescribed walking as a home exercise despite having different complaints.” (R24,44M, college educated, employed, urban location) “I have been continuing the same set of exercises for 8 weeks now, irrespective of my improvement or deterioration of symptoms.” (R4, 31M, college educated, employed, urban location)
Physiotherapist related factors	Divergence in treatment recommendations among settings and physiotherapists	Participants think that there are significant differences in LBP treatment recommendations between healthcare settings and physiotherapists, raising the possibility that these recommendations are invalid and, therefore, unacceptable.	“If recommendations are universal, why is there so much variability in treatment prescriptions across different set-ups and among physiotherapists working in the same unit?” (R24,44M, college educated, employed, urban location)
	Absence of close supervision	Participants contend that physiotherapists have diminished their ‘hands-on’ care for patients under the pretext of self-management. The participants desire a human element in the treatment and dispute the self-management approach.	“The physiotherapist says I am in charge of my back and instructs me to self-exercise, which is not to my liking..... Where is the human touch in terms of treatment?” (R23, 57F, no formal education, housewife, rural location)

(*Continued*)

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TABLE 3 - (*Continued*)

Themes	Sub-themes	Description of link: How does the theme contribute to non-adherence to guideline recommendations?	Exemplar quotes
	Lack of experience in managing LBP	Participants hold the belief that not all physiotherapists demonstrate equal interest and competence in treating LBP and that even if recommendations are appropriate, their implementation is not effective.	"I want physiotherapists to demonstrate the exercises so that I can learn. I have seen therapists who periodically treat children assigned to me, and they are unable to demonstrate or answer queries to satisfaction." (R18, 54M, college educated, self-employment, urban location) "The physiotherapist says my technique is wrong. But, he never demonstrates all the exercise progressions." (R17, 57F, housewife, no formal education, rural location) "I think a physiotherapist is unable to target the diseased structures with his management. That's why he pass the ball on to me, saying no structures are identified as sources of pain or refer to complex factors as sources of pain." (R12, 29M, employed, college educated, urban location)
	Ineffective communication in conveying the rationale behind recommendations	Participants suggest that physiotherapists lack the communication skills necessary to persuade them regarding the foundations for the recommendations given. .	"There is hardly an explanation by my physiotherapist why I should stretch or strengthen my muscles." (R24,44M, college educated, employed, urban location) "I don't think physiotherapists are able to explain the concepts behind the exercises well. For example, he says that if I am not interested in participating in trunk muscle training, he recommends walking or cycling as an alternative. How will exercises that target the lower limb be a substitute for trunk muscles?" (R6, 39M, college educated, employed, urban location) "My physiotherapist puts things so unclearly. He says everything is in my head, and I need to get rid of my pain from the head. My family thinks I have some psychological disorder." (R17, 57F, housewife, no formal education, rural location)
	Non-compliance with CPGs	Participants claim that physiotherapists do not comply with the stipulations set forth in the guidelines, hence making patient acceptance unlikely.	"When he is called away for other work, my physiotherapist instructs the assistant to apply electrotherapy modalities for me. Given the importance of exercises, shouldn't I be required to participate in exercises?" (R22,53F, college educated, employed, urban location)
	Recommendations are inconsistent with expectations.	Participants state that the recommended interventions are incongruent with the personal and cultural expectations of their comprehension of pain. This hinders their acceptance of active treatment strategies.	"My physiotherapist says pain while exercising is acceptable. How can pain be an answer to my pre-existing pain?" (R1, 55F, no formal education, housewife, rural location) "I want pain relief. My physiotherapist says, 'if you improve your function, the pain will come down.' Isn't my function reduced because of pain?" (R5, 56F, housewife, school educated, rural location) My daily activities involve a significant amount of physical activity. Why should I engage in other exercises?" (R17, 57F, housewife, no formal education, rural location) "There are days when low back pain severely limits my function, and I do not wish to work. If exercise is management, this is not for me." (R15,33F, college education, rural location) "Statements like "low back pain has no source" and "exercises are the best pain management" would have led my entire family to believe I had been lying for all these years." (R13, 54F, school educated, housewife, rural location) "Going to physiotherapy clinics for electrotherapy is a relaxing experience. I get to know and interact with other people. Exercises do not provide this experience." (R15,33F, college education, rural location)

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Themes	Sub-themes	Description of link: How does the theme contribute to non-adherence to guideline recommendations?	Exemplar quotes
Healthcare related factors	Not on par with the medical practitioners	Participants perceive that physiotherapists do not occupy a central role within the healthcare system or the hierarchy of back pain management. Given their limited capacity to order investigations and establish diagnoses, the participants regard the physiotherapist's position as supportive, leading them to believe that their recommendations may not be strictly adhered to.	"The physiotherapists take orders from medical practitioners, and I will listen to their (medical doctors') recommendations, which are easy to comply." (R8, 45M, employed, college educated, urban location)
	Lack of consistency in recommendations among healthcare providers	The recommendations provided by physiotherapists contradict those of other healthcare providers, and this casts doubt on the validity of physiotherapists' recommendations.	"My physiotherapist says it's okay for me to bend forward; my doctor says no to bending forward. How can two different recommendations be appropriate?" (R18, 54M, college educated, self-employment, urban location) "Other health care providers do not appear to endorse exercises as strongly as a physiotherapist" (R14, 44F, college educated, housewife, urban location)
	No flexibility in treatment recommendations despite investigation outcomes.	Participants are of the opinion physiotherapists hesitate to alter treatment recommendations, leading to skepticism regarding the validity of the recommendations based on the investigation's results.	" My physiotherapists shows not much enthusiasm in interpreting these outcomes." (R14, 44F, college educated, housewife, urban location) "My treatment remains the same irrespective of the MRI findings." (R22, 53F, college educated, employed, urban location)
	Availability of alternative healthcare options	Participants believe that there are many alternative treatment methods available and that following physiotherapists' recommendations is not necessary.	"When we do not get better with the treatments and therapies provided in hospitals and clinics, we can rely on local healers and traditional therapies. There is no pressure on us to engage in exercises, which we do not prefer". (R32,58M, school education, employed, rural location)
	Negative expectations concerning recovery	Participants anticipate minimal positive effects from physiotherapists' recommendations due to the prolonged duration of their symptoms and their past experiences with various treatments.	"When they can't even confirm the possible reasons for pain, how do they propose a management plan? " (R32, 58M, school education, employed, rural location) "After such a long treatment, I am convinced there is no cure for my pain. All I expect is a non-aggravation of pain and some treatment that can ease my pain" (R22, 53F, college educated, employed, urban location)
Health information	Impact of media on healthcare options	Participants indicate that several media sources and healthcare providers disseminate supplementary information on exercise and other physiotherapeutic methods, making it challenging to determine appropriateness.	"None of the techniques my physiotherapist demonstrates resemble what I see on social media" (R10, 25M, PhD student, urban location) "I wonder if my physiotherapist possesses the same knowledge as the person who provides information on social media." (R10, 25M, PhD student, urban location) "There is so much conflicting information provided by healthcare practitioners that I do not know whom to trust" (R8, 45M, employed, college educated, urban location)

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c. Financial factors

The financial aspect is a significant factor that causes the participants to disagree with the recommendations. When prescriptions are based on international guidelines, the participants fear that treatment costs will increase.

"Due to the lack of standardization in healthcare costs in India, we worry that private healthcare organizations may escalate costs for therapy under the cover of international prescriptions." (R18, 54M, college educated, self-employment, urban location)

4. Physiotherapist related factors

a. Divergence in treatment recommendations among settings and physiotherapists

Most participants identified multiple issues associated with physiotherapists' care as potential causes of non-adherence. The participants mentioned the inconsistency among physiotherapists when it comes to treatment prescriptions. The participants observed that variations exist not only among physiotherapists employed in different healthcare settings but also among therapists working within the same institutions. Given the wide range of differences, the participants are skeptical about the validity of broad recommendations.

"*When it comes to physiotherapists, everything varies, from assessment to treatment prescriptions to home education*." *(R4, 31M, college educated, employed, urban location)*

b. Absence of close supervision

Another frequent critique is that physiotherapists do not offer regular supervision for exercise sessions, even though patients are expected to self-manage their symptoms.

"*My physiotherapist once demonstrated all the exercises; nobody supervised me after that." (R17, 54M, college educated, self-employment, urban location)*

c. Lack of experience in managing low back pain

The participants highlighted the insufficient availability of a sufficient number of physiotherapists, particularly those with competence in managing LBP. Another reason is the participants' gauge that physiotherapists who provide treatment do not refer them to other physiotherapists for their opinion or advice.

"*My physiotherapist dedicates the majority of her time to patients with paralysis. I hardly get any attention.*" *(R14, 44F, college educated, housewife, urban location)*

"*My physiotherapist does not always conduct treatment sessions directly. Students or attendants can take on that role depending on the physio's availability.*" *(R17, 54M, college educated, self-employment, urban location)*

d. Ineffective communication in conveying the rationale behind recommendations

In addition, they observe that physiotherapists are unable to adequately explain the rationale behind the treatment recommendations they make, even when those suggestions are listed in CPGs.

"*When I say exercises hurt, my physiotherapist asks me to continue them, saying painful exercises are better than painless exercises. I don't understand how*?" *(R19, 54F, school educated, self-employment, rural location)*

Participants believe that physiotherapists fail to effectively communicate the results of assessments or provide treatment recommendations as outlined in the CPG in a way that patients may easily understand.

"My physiotherapist says I will get confused if he explains the causes of the symptoms." (R20, 42F, college educated, housewife, rural location)

e. Expensive recommendations with little benefit

Participants also remarked on the link between the recommendations made by the CPGs and the financial advantages for the treatment clinics or physiotherapists.

"Anything endorsed overseas costs more in India." (R18, 54M, college educated, self-employment, urban location)

f. Recommendations are inconsistent with expectations.

Furthermore, the inability to meet expectations is the primary driver of non-adherence. There is a lack of consistency between patients and physiotherapists in meeting common goals.

"When the physician referred me to physiotherapy, he said I would be provided with electromassage. That's what I expect." (R13, 54F, school educated, housewife, rural location)

"Physiotherapy should be relaxing for aching muscles and joints. Not aggravate it." (R23, 57F, no formal education, housewife, rural location)

Participants also express the view that therapy recommendations, such as exercises, put them in a difficult situation because their complaints of pain and discomfort seem unreal.

"My family believes that if I can exercise, I can do all of my work at home. Nobody will now believe I have real pain." (R23, 57F, no formal education, housewife, rural location)

5. Healthcare related factors

a. Not on par with the medical practitioners

Participants believe that physiotherapists in India are not positioned at the highest level of the clinical hierarchy and express reservations regarding their proficiency in the field of pain management.

" Physiotherapists take orders from doctors like any other allied health worker." (R4, 31M, college educated, employed, urban location)

a. Lack of consistency in recommendations among healthcare providers

Other participants contend the recommendations provided by physiotherapists and other healthcare practitioners are contradictory.

"My doctor says to wear a belt (lumbar corset), and my physiotherapist says there is no advantage to belts." (R17, 54M, college educated, self-employment, urban location)

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b. No considerations for laboratory and radiographic investigations

During the interview, participants expressed concern that physiotherapists often disregard radiological findings and insist on making the same recommendations.

"I am not sure why I have to spend so much on investigations if it's not going to change my physiotherapy treatment." (R14, 44F, college educated, housewife, urban location)

c. Availability of alternative healthcare options

Participants indicate that there are numerous alternative treatment options available in India, which may render it unnecessary to adhere to uncomfortable recommendations.

"*There is no pressure on us to engage in exercises, which we do not prefer." (R1, 55F, no formal education, housewife, rural location)*

6. Health Information

a. Impact of media on healthcare options

The existence of healthcare professionals on diverse social media platforms, where many showcase their approaches and offer guidance and treatment suggestions, leads to significant confusion when it comes to choosing treatment choices for participants.

"The patients show instant results on the videos I see on social media. Such techniques are not listed as recommendations" (R10, 25M, PhD student, urban location)

"From nutrition to surgery, there are so many treatment choices. I am uncertain about whom to contact and which treatment options are good for me." (R6, 39M, College educated, employed, urban location)

Discussion

We conducted a qualitative analysis involving 33 participants to examine their perspectives on the physiotherapy recommendations for CLBP, as recommended by the CPGs. To enhance compliance with recommendations, it is essential to comprehend the underlying causes of non-adherence. The main findings of this research reveal that the determinants of non-adherence to guideline recommendations are multifaceted, involving various stakeholders such as the patient, physiotherapist, and institution, as well as the disregard of cultural, societal, and familial influences during the development of guidelines, among other healthcare-related factors.

Although CPGs offer us evidence, the relevance of this knowledge to particular patients in low-resource settings remains questionable. This ambiguity stems from the necessity to customize treatments based on the distinct attributes and requirements of individual patients. The skepticism shown by participants regarding the guideline recommendations may be ascribed to the distinctive impact of gender norms, familial support, religious practices, and communal influence in India. Indian cultures are frequently regarded as stringent, religious, familial, and abundant in traditions (34). Conventional gender roles can restrict women's participation in exercise, as societal expectations frequently emphasize home responsibilities and the maintenance of cultural traditions above exercise (35). Likewise, individuals, particularly females from disadvantaged socioeconomic backgrounds, bear greater family duties, which may considerably influence their exercise options. It has been found that individuals' attitudes and behaviors are influenced by societal norms related to the acceptability of specific exercises (36). Individuals are increasingly inclined to integrate yoga or meditation into their routines owing to its cultural acceptance and spiritual advantages (34).

Patients have the belief that if they are able to visually perceive a specific cause for their pain, their healthcare practitioners will possess a greater understanding of how to effectively address the issue. Participants anticipated receiving a definitive diagnosis, and, as a result, most of them expected their results to be meticulously analyzed and appropriate management to be prepared appropriately. This illustrates the prevailing notion that pain is solely a biological phenomenon and highlights the lack of widespread understanding regarding the assessment and treatment of LBP. This concurs with previous research indicating that participants' yearning for a diagnosis may stem from a need for reassurance regarding the source of their symptoms (37). Recent research indicates that pathoanatomical diagnoses exhibit a weak correlation with symptoms and outcomes in non-specific LBP (38). Patients appear oblivious to the weak association between imaging findings and symptomatology in lower back pain. There is a need to provide additional education regarding the indications for imaging tests in order to effectively manage expectations and influence patients' beliefs.

It is remarkable that individuals did not regard regular evaluation and physical examination as a crucial component of assessing LBP. This viewpoint is accorded with patients' belief that physical medicine and rehabilitation physicians are the most qualified providers for diagnosing and treating LBP, possibly attributable to their capacity to demand imaging studies (39). Further, this opinion may be associated with the view that participants hold the belief that their physiotherapists possess limited abilities and expertise in evaluating and treating LBP. The participants' perspectives align with findings from another study indicating that patients doubt physiotherapists' ability to diagnose back pain, highlighting the necessity for physiotherapists to enhance confidence in their knowledge regarding the therapy and diagnosis of LBP (40).

Patients with CLBP may have viewed their bodies as 'broken machines' due to the biomedical interpretation of their pain (41), leading them to believe that they should avoid exercises and functional movements to prevent further structural damage (42). The patients' preference for passive therapy can be attributed to the perceived advantages associated with the utilization of advanced equipment, the immediate and temporary alleviation that these treatments can provide, past experiences with previous care, or their existing beliefs and assumptions about CLBP, as well as the passive nature of decision-making. While various passive treatment approaches are suggested in CPGs (27), it is necessary to investigate if they can effectively contribute to the development of a therapeutic alliance and the establishment

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of trust between patients and physiotherapists. It is crucial to acknowledge that exercises may not be suitable for all patients with LBP at every stage of their treatment, regardless of the advice provided in CPGs.

The ambiguity surrounding the most effective treatment for CLBP might result in people attending clinic appointments that fail to match their expectations, ultimately leading to inadequate adherence to the prescribed treatment. Our study also revealed that participants expected to receive appropriate care from a competent professional in order to receive the appropriate treatment, notwithstanding their lack of knowledge regarding which expert could assist them or who the most competent care provider for their condition was. This finding aligns with a recent qualitative study that revealed individuals suffering from LBP experience ambiguity over the appropriate course of treatment they should pursue (43). Participants expressed skepticism over whether consulting a physiotherapist was the best course of action to begin their treatment. The participants had a lack of clarity on the role of the physiotherapy, as they expressed a preference for receiving passive treatments, while failing to grasp the significance of exercise. Participants also express cynicism regarding the efficacy of self-management methods despite multiple research highlighting the significance of these interventions for managing LBP (44). Patients' ability to navigate the healthcare system could impede their access to care and results (40). Thus, further information is required to address patients' perceptions and expectations regarding the role of physiotherapy and what constitutes effective evidence-based practice for the treatment of LBP.

The relationship between the clinician and the patient is a crucial aspect of delivering healthcare and ensuring the impact of therapy. A prior study has demonstrated a significant correlation between the role and relationships of healthcare providers with patients and the likelihood of patients adhering to their treatment plan (45). For example, elderly individuals appear to prioritize engagement and rapport with the physiotherapist over alterations in symptoms when considering therapy suggestions (46). The effectiveness of provider-patient communication and patient-centered practice, which includes shared decision-making and hearing input from patients on treatment goals, has been identified as crucial factors in enhancing patients' overall adherence to treatment and quality of care (47). Therefore, it is crucial for healthcare providers to actively involve patients in treatment and diagnosis instructions (48). Continuity of care is a crucial element in healthcare. To enhance care continuity, it is vital for healthcare practitioners to offer clear guidelines and directions regarding a patient's treatment plan (49) and to respect patient appointments. Enhancing and cultivating enduring provider-patient relationships would be advantageous for patients. Therefore, the act of providing patient education is highly valuable in encouraging compliance with healthcare advice (50).

The participants' fear of increased expenditures linked to guideline recommendations is similar to the copayments incurred by patients during physiotherapist specialist consultations in the United States, potentially leading to a substantial rise in their out-of-pocket expenses (40). Multiple studies on private providers have revealed that patient overcharging is rampant in India (51), primarily due to insufficient regulation (52) and the higher investment in infrastructure compared to public facilities (53). Modifications are also required on the part of healthcare infrastructure and/or policymaking in order to be cost-effective.

The impact of the information disseminated by media in influencing perspectives has the capacity to create unjustified expectations (54) and adverse emotional reactions. The acquisition of new information or knowledge from different media outlets can either increase patients' faith in their healthcare provider and improve their understanding of their health situation (55) or have the opposite effect. Therefore, we suggest that it is crucial to meet the information needs of patients and take steps to be vigilant in monitoring magazines and websites that distribute health-related information, making sure that the material is supported by scientific research. It is crucial for healthcare practitioners, experts, consumers, and researchers to have an open conversation in order to close the gap between the treatment-related health information that patients obtain from the internet and other sources and the evidence that is now available. Given that participants see participating in exercises as not being part of the treatment culture, it may be deduced that greater levels of behavioral and lifestyle modifications will be linked to better levels of overall adherence. It is essential for healthcare practitioners to possess strong interpersonal and communication skills in order to effectively engage in joint decision-making. Given the limited infrastructure and human resources for rehabilitation services, policymakers should prioritize investment in exercise promotion activities (56) and effective pain education strategies (57). It is important for policymakers to ensure that healthcare professionals receive evidence-based healthcare that is relevant to the complex healthcare system, which includes a busy practice and limited clinical time with patients. Furthermore, establishing a robust therapeutic alliance and allocating additional time for patient interaction will enable physiotherapists to develop a treatment strategy that aligns with evidence-based guidelines.

Patients reported receiving conflicting messages from various healthcare providers regarding the management of LBP, resulting in uncertainty regarding whose advice to adhere to (58). Given the inconsistencies in CPG treatment recommendations, we suggest all first-contact healthcare professionals advocate for exercise as an intervention in order to minimize variation in treatment recommendations. Medical professionals should act as gatekeepers, deciding on the precise type and quantity (number of treatment sessions and frequency per week) of physiotherapy services to prescribe (59). There is also an immediate need to address the communication gap between patients, physicians, and physiotherapists.

Another notable finding in the study is the patient's acknowledgment of heightened treatment expenses linked to electrotherapy prescriptions, notwithstanding their lack of preference for exercises and self-management initiatives. Similarly, despite not favoring self-management strategies, participants expressed a desire for consultation on goal setting and treatment preferences. Patients' unmet

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requirements for healthcare services, their expectation of rapid cures through more pain-centered passive treatments, their perception of a lack of empathy from healthcare personnel, and the inadequacy of the offered services may all contribute to this situation (60). Future studies should look at the divergent viewpoints of participants regarding these topics.

Interestingly, the findings of this study conducted in India exhibited numerous similarities to a study conducted in Belgium (61) about patient-reported impediments to the adoption of guidelines for an active physiotherapeutic approach to LBP in clinical practice. Patients at both locations preferred passive treatments, faced difficulties in understanding the precise objectives of the therapy, and reported issues in assuming responsibility and adhering to exercises. The stigmatization of psychological issues is prevalent, and individuals reported receiving contradictory guidance from various healthcare practitioners. Barriers to the adoption of CPGs in both developed and LMICs must be taken into account during the development of these guidelines.

The strengths of the study are as follows. The interview guide provided a comprehensive understanding of the anticipated outcomes and first-hand encounters of those living with CLBP. Due to the prolonged length of pain, we were able to gain a more comprehensive understanding of the diverse range of experiences among participants. The methodology of analyzing interviews was intended to ensure that the findings were derived only from the data and not influenced by the researcher's perception. Not including a physiotherapist in the interview team may have created an environment where participants felt comfortable and were able to provide their comments without feeling pressured or coerced. A noteworthy advantage of our study is the inclusion of people receiving treatment from both government and private establishments.

It is important to take into account the limitations of this study. The patients' interviews were contingent upon the accuracy of their recollection of events that occurred during their physiotherapy sessions. Their perceptions may have been influenced by the positive or negative progression of their symptoms over time. Given the extensive duration of treatment, it is conceivable that participants may not have recorded all facets of the patient experiences. Furthermore, we did not gather data regarding patients' assessment of the consultations they got from other healthcare providers. The generalizability of the research findings from India to other nations or circumstances may be limited due to potential changes in cultural backgrounds or contextual factors.

Conclusion

A patient's perception and expectation of a physiotherapy intervention recommendation might be influenced by their comprehension of CLBP, as well as the therapist's instruction and implementation of the treatment. The perception of exercise can be significantly influenced by the social environment and culture. Indian physiotherapists should consider suggesting active interventions that are culturally appropriate, and developing communication skills could enhance their ability to manage patient expectations that contradict guideline suggestions, hence potentially improving adherence to guidelines.

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