BMJ Open

Understanding how patients' pain beliefs influence chronic low back pain management in Ghana: a grounded theory approach

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To cite: Ampiah JA, Moffatt F, Diver C, *et al*. Understanding how patients' pain beliefs influence chronic low back pain management in Ghana: a grounded theory approach. *BMJ Open* 2022;**12**:e061062. doi:10.1136/bmjopen-2022-061062

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2022-061062).

Received 15 January 2022
Accepted 11 October 2022

Check for updates

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ABSTRACT

Introduction Chronic low back pain (CLBP) is associated with negative consequences in high and low/middle-income countries. Pain beliefs are important psychosocial factors that affect the occurrence and progression of CLBP and may be influenced by the sociocultural context and interactions with healthcare professionals (HCPs). The pain beliefs of Ghanaian patients with CLBP are unknown and the factors influencing pain beliefs in African contexts are unclear.

Objectives To explore the pain beliefs of Ghanaian patients with CLBP, how they influence CLBP management/coping and to identify the mechanisms influencing them.

Design Qualitative study using individual semistructured face-to-face interviews, situated within Straussian grounded theory principles and critical realist philosophy.

Participants Thirty patients with CLBP accessing physiotherapy at two teaching hospitals in Ghana.

Results Participants suggested dominant biomedical/mechanical beliefs (related to CLBP causes, posture and activity, and the belief of an endpoint/cure for CLBP). Maladaptive beliefs and practices, in particular fear-avoidance beliefs, and dependence on passive management and coping, were common among participants. These beliefs and practices were mostly influenced by HCPs and sociocultural expectations/norms. Although spirituality, pacing activity and prescribed exercises were commonly mentioned by participants, other active strategies and positive beliefs were expressed by a few participants and influenced by patients' themselves. Limited physiotherapy involvement, knowledge and awareness were also reported by participants, and this appeared to be influenced by the limited physiotherapy visibility in Ghana.

Conclusion Participants' narratives suggested the dominant influence of HCPs and the sociocultural environment on their biomedical/mechanical beliefs. These facilitated maladaptive beliefs and adoption of passive coping and management practices. Therefore, incorporation of more positive beliefs and holistic/active strategies by Ghanaian patients and HCPs may be beneficial. Furthermore, patient empowerment and health literacy opportunities to address unhelpful CLBP/sociocultural beliefs and equip patients with management options for CLBP could be beneficial.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This is the first study to highlight chronic low back pain (CLBP) beliefs in a Ghanaian context; and explicate the individual, structural and contextual factors that underpin patients' CLBP beliefs and management in an African context.
- ⇒ This study used systematic and rigorous data collection and analysis methods, which were consistently validated by the research team comprising expert qualitative researchers.
- ⇒ Sampling participants from two different geographical locations and varied sociodemographic status strengthens the transferability of the research findings.
- ⇒ The study could have benefitted from member-checking (ie, returning data/results to participants to ensure participant validation of the data/research findings) and a more comparable number of male and female participants.
- ⇒ This study may not be generalisable to other African contexts, due to cultural and structural variations (eg, different cultural beliefs, physiotherapy delivery or healthcare pathways).

INTRODUCTION

Low back pain (LBP) poses a significant burden worldwide,[1 2] ranking fourth in terms of the global disease burden[2] and being the leading cause of disability.[1] Global burden of disease studies suggest that the prevalence of LBP is on the rise, with low/middle-income countries experiencing the highest increase.[1] The estimated annual prevalence of LBP in Africa is 57%, which exceeds global prevalence estimates.[3] The prevalence estimates in Africa were derived from studies that mostly involved workers, due to limited availability of population-based African studies[3]; possibly accounting for higher prevalence estimates. In Ghana, LBP prevalence of 41% was recorded among individuals aged 50 and over[4] and LBP has been found to be prevalent

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among miners[5] and taxi drivers.[6] Although chronic LBP (CLBP) forms a smaller proportion of all LBP, it accounts for most of the negative effects associated with LBP, due to its multifactorial contributors.[7 8] These effects include disability, work absenteeism, adverse psychosocial consequences, direct and indirect economic implications.[9 10]

Research on patients'/population's CLBP beliefs has largely been focused in Western societies.[11–15] Only one African study conducted in Malawi has evaluated patients' LBP beliefs,[16] while another study conducted in Nigeria has explored lived experiences of CLBP.[17] These studies suggested that fear-avoidance beliefs (FABs), catastrophising[16] and beliefs related to biomedical or biomechanical causes of LBP (eg, degeneration, infection, indulging in manual work)[17] were common. Spiritual and cultural connotations were also ascribed to LBP.[17] No previous study has explored patients' CLBP beliefs in Ghana. This is significant as CLBP beliefs differ across contexts and populations, as evidenced in studies conducted among different populations and countries.[14 17–20] CLBP beliefs, however, are important psychosocial factors that impact on the management, course and outcomes of CLBP.[21] Beliefs related to the aetiology of CLBP, self-efficacy beliefs and unhelpful beliefs (such as pain equals harm, the back is weak and easy to harm) influence pain perception and adjustment.[22] Beliefs related to fear and poor recovery expectations negatively affect treatment outcomes and promote disability.[23] Moreover, patients' beliefs affect healthcare professionals' (HCPs') treatment choices.[21] Most LBP cases are non-specific, that is they have no readily identifiable causal pathology,[24] underscoring, among other reasons, the need for holistic management approaches.[8 25] Therefore, evidence supports a shift from reductionist biomedical responses to holistic/biopsychosocial CLBP understandings and management. Such approaches acknowledge and value patients as crucial stakeholders in the experience and management of CLBP. Additionally, patients' beliefs influence self-management and long-term coping strategies.[23 26] Previous research has highlighted the prominent influence of HCPs on patients' beliefs[21 27] and the influence of other factors such as internet, mass media and culture.[14 17 19] However, the influential factors underlying patients' beliefs and how patients manage and cope with CLBP have not been previously explored in Ghana.

Qualitatively exploring patients' CLBP beliefs, the mechanisms underlying patients' beliefs and how these influence CLBP management will facilitate in-depth understanding and provide foundational knowledge for HCPs and policy makers.

Study design

Qualitative research design using in-depth individual semistructured face-to-face interviews.

METHODOLOGY

Straussian grounded theory (GT) methods[28] situated within a critical realist philosophy[29] underpinned this research. Critical realism is concerned with the observations/explanations of patients (the empirical), what actually happens (the actual) and the mechanisms at play (the real).[29] In keeping with the principles of GT, no initial theoretical framework was used.[28] Categories, concepts and causal mechanisms/structures were derived using induction, deduction and abduction.[30–32] Discussions around the generation of a theory is beyond the scope of this paper.

Study setting

The study settings were two teaching hospitals that serve the Southern, Middle/Northern belts of Ghana. Two hospitals located in different geographical contexts were chosen to enhance the breadth of patients' narratives and allow for analysis of varied sociocultural or contextual factors (eg, cultural beliefs, healthcare pathways, literacy/illiteracy, employment type, religious beliefs) that may affect the beliefs of Ghanaian patients experiencing CLBP.

Sample

Purposive sampling was employed to identify participants who could provide rich and in-depth narratives that aligned with the research aims.[33] Purposive sampling took place at the physiotherapy departments of both study sites. A maximum variation of participants was aimed for to maximise in-depth coverage of the agencies and structures that might underlie participants' beliefs and practices.[34] Participants were purposively sampled across varied genders, age-ranges, occupation and literacy. Theoretical sampling, a central tenet of GT, was used to facilitate identification of participants to develop emerging categories, provide explanations and verify the dimensions and relationships established.[30] Theoretical sampling was initiated after a purposive sampling of 10 patients.

The inclusion criteria for this study were: adult male and female participants (>18 years), presenting with LBP lasting more than 3 months[35] who were attending physiotherapy at both study sites. The exclusion criteria were: Pregnant women and individuals diagnosed with specific or serious causes of CLBP (ie, trauma, infection, previous surgery, inflammatory causes or malignancy).[36 37]

Recruitment

Participants were recruited by two physiotherapists (gatekeepers) involved with CLBP management at both study sites from November 2018 to June 2019. The gatekeepers facilitated access to eligible patients and enrolment of participants into the study, that is, they identified patients who met the inclusion/exclusion criteria and introduced the research to participants. Participant information sheets were given to participants or explained to participants who were either non-English speakers or illiterates and had been receiving physiotherapy. Follow-up reminders were carried out by gatekeepers when patients reported for physiotherapy. After participants'

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registration of interest, introductions and interview dates/times were agreed on by participants and the first author, JAA. A consent form and a sheet that contained a participant code and captured demographic details (eg, age, occupation) was administered by the first author, JAA on the interview day.

Patient and public involvement

To facilitate patients' involvement in the research development process,[38] two patients were invited to discuss elements around CLBP management or beliefs that they deemed relevant to them. Two pilot interviews were conducted to assess appropriateness/suitability of the interview venue, content and structure. Following the discussions and pilot interviews, prompts to enhance clarity were added (eg, explaining the difference between herbal/complementary medicine, using examples) and another question rephrased.

Data collection

Data were collected by JAA, a Ghanaian female physiotherapist (with 10 years of physiotherapy clinical, teaching and research experience), who was studying towards a PhD at the time of data collection and had never experienced LBP. JAA thus situated herself as both an insider and an outsider during the research process.[39] JAA is a fluent English and Twi speaker. The interviews were conducted in a private room located within a tertiary institution at both study sites, audiorecorded and lasted between 30 and 50 min. The interviews were conducted in English and Twi (for non-English speaking participants). Data were collected until data saturation, that is, until no new information emerged, and all emerging dimensions had been fully explored.[39]

Conducting semistructured interviews allowed for flexibility and containment of the interview within the objectives of the research.[40] A topic guide derived from the research objectives and previous research[15 17 19] was used to collect the data (online supplemental file 1). The topic guide was translated to Twi by JAA and back translated to English by an independent English and Twi speaker, and then the original version and back-translated version compared by JAA and PKA, to ensure that meaning was retained. The topic guide contained broad and open-ended questions and several prompts around patients' understandings of LBP, experiences with CLBP, and beliefs about LBP causation, prognosis, coping and management. In line with theoretical sampling and sensitivity,[31] as data collection proceeded, several prompts were added to the topic guide (eg, prior to commencing physiotherapy, what did you think that physiotherapy would entail?). Reflexive notes were taken throughout the research and reflexivity was used to assess how the researcher's preconceptions and position may have affected the research process and analysis.[31]

Data analysis

Data were analysed using the principles of Straussian GT,[30] that is, using open and axial coding, induction, deduction, abduction and constant comparison of data.[28] All the interviews were transcribed verbatim and coded by JAA. The transcripts were discussed by the research team as data collection proceeded to identify emerging concepts, instances that needed further probing, theoretical sampling opportunities and keep the biases (eg, previous 'insider' views/knowledge that the interviewer may have been privy to, having been part of both research contexts at different time points in the past) of the interviewer in check. A random sample of five Twi transcripts were back translated using the same process as the interview guides. Data were managed and stored using NVivo V.12. Microsoft word was used to analyse the data. In addition, traditional methods such as multiple photocopies, coloured pens and sticky notes were used to identify initial codes and relationships. These provided visual cues that enhanced the researcher's analytical lens.[41] The use of both traditional methods and software has been validated as an appropriate and rigorous method for improving data interaction and generating categories.[42] Reflexive memos containing details of the analytic decisions that were made throughout the research were kept; and this provided an audit trail for the research.[31]

Open coding proceeded through line-by-line coding of each transcript. Descriptive and interpretative codes, derived from the meanings within the participants' data (induction), were assigned to phrases and sentences. Establishing relationships started in the open-coding phase; hence open and axial coding were carried out as fluid phases. Axial coding consisted of identifying the relationships between the codes, and the mechanisms underlying the codes being generated.[30] Using the coding paradigm, induction and abduction; conditions, actions, interactions and consequences were identified.[29 43] Abduction involved considering all plausible explanations, comparing them to the data to ensure identification of the most likely explanation.[44] Through theoretical sampling, categories were fully explored[45] (eg, online supplemental file 2). Concepts were derived by grouping similar codes. Categories emerged by grouping concepts that related to a higher-level concept (a category) (eg, online supplemental file 3). A category consisted of concepts and underlying mechanisms. Naming of the categories was guided by identifying a representation that adequately described the concepts that constituted the category, and how the concepts were described in the extant literature (deduction). Interviews, codes, concepts, mechanisms and categories were constantly compared throughout analysis.[40] To enhance the rigour of the study, all derived codes and their iterations were read in the context of the raw data and agreed on by the research team (comprising expert qualitative researchers: FM and CD).

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RESULTS

Thirty patients: sixteen (16) from site 1 and 14 from site 2 participated in the study. They comprised 10 males and 20 females aged between 27 and 87 (mean±SD; 51.2±13.1). The participants were either involved or had been previously involved in a variety of occupations. Duration between LBP onset and attending hospital ranged from within the first year of LBP onset to 15 years. Duration between reporting CLBP at a hospital and being referred for physiotherapy was 2 months to 25 years. Most participants (19) had waited at least 1 year between their first medical visit and their first physiotherapy attendance (table 1).

The results highlight patients' beliefs about the causes, prognosis, management approaches and coping strategies for CLBP. The findings suggest that Ghanaian patients may initially construct their CLBP experience within a biopsychosocial framework, which may be subsequently deconstructed into a biomedical framework following interactions with HCPs. The HCPs that patients mainly referred to in the current study were doctors and physiotherapists. The influence of the sociocultural environment and the 'self' are also discussed. Four categories emerged from participants' narratives: (1) the facilitated quest for legitimacy: biomedical/mechanical beliefs; (2) the consequences of healthcare and sociocultural beliefs: maladaptive beliefs and practices; (3) the Role of the 'self' in facilitating positive beliefs and active strategies and (4) limited physiotherapy knowledge and awareness. Nine concepts and six mechanisms were also derived (table 2).

Category 1: the facilitated quest for legitimacy—biomedical/mechanical beliefs

Biomedical causes of CLBP

All the participants believed they were experiencing a sickness or a disease, and the local name for LBP used by the participants, when directly translated to English reads, 'waist sickness'.

> Waist sickness is something that grips your back… (P2S1).

Participants' language often depicted the need for causal explanations of their chronic pain from medical encounters. Also, participants' language (the use of us and we) depicted this was a collective belief within the Ghanaian sociocultural space.

> Those of us who have the back pain we do not really know what the cause is so we would like the doctor to tell us that this is what causes it (P3S1)

Patients' accounts depicted a search for a definite diagnosis, highlighting patients' biomedical inclinations. All the participants had come to believe that the presence of a structural defect (eg, of the disc or lumbar vertebrae) was the cause of their CLBP, after receiving multiple imaging (X-ray and/or MRI) results, highlighting the influence of HCPs' biomedical beliefs.

Table 1 SocioDemographic characteristics of participants

	Frequency	%
Age(years)		
20–29	1	3.3
30–39	5	16.7
40–49	8	26.7
50–59	7	23.3
60–69	8	16.7
70–89	1	3.3
Sex		
Male	10	33.3
Female	20	66.7
Previous/current occupation		
Office workers	6	20.0
Seamstresses	5	16.7
Hospital workers	8	26.7
Market women/traders/businessmen	5	16.7
Farmers	2	6.7
Driver	1	3.3
Teacher	1	3.3
Police officer	1	3.3
Journalist	1	3.3
Literacy		
Illiterate	13	43.3
Literate in English and/or Twi	17	56.7
Duration between LBP onset and first medical Visit		
<1 year	10	33.3
Between 1 year and 5 years	13	43.3
5–10years	3	10.0
>10 years	4	13.3
Duration between first medical visit regarding LBP and being referred to physiotherapy		
<1 year	11	36.7
Between 1 year and 5 years	11	36.7
5–10years	5	16.7
>10 years	3	10.0

LBP, low back pain.

> We (doctors and patient) had gone for X-rays month in, month out, week in, week out, trying to figure out what was really the issue, but it wasn't showing up, until one day one of them disclosed that there was a problem with my L4/L5 spine (P7S1).

There was a widespread indication that CLBP resulted from degeneration caused by overuse of the body/overworking, falls, accidents and ageing.

> When you're uprooting a plantain stem, there is a child at your back; and you bend to plant. You…

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Table 2 Summary of categories, concepts and mechanisms

Categories	The facilitated quest for legitimacy: biomedical/ mechanical beliefs	The consequences of healthcare and sociocultural influences: maladaptive beliefs and behaviours	The role of 'self' in facilitating positive beliefs and active strategies	Limited physiotherapy knowledge and awareness
Concepts	Structural defects as underlying biomedical causes	Mal-adaptive Beliefs ► Maladaptive meanings and causes ► Fear-avoidance beliefs ► Catastrophising	Positive beliefs ► Self-efficacy ► Other positive ► Beliefs	Limited physiotherapy knowledge
	Posture and occupation as underlying biomechanical causes	Maladaptive behaviours ► Passive self-coping ► Passive physiotherapy and medical Strategies ► Multiple health-seeking consultations	Active strategies ► Prescribed exercises ► Activity as a form of Distraction ► Spirituality	Limited physiotherapy awareness
	Quest for cure including cure of underlying biomedical cause			
Mechanisms	Patients' and HCPs' biomedical/ mechanical orientation patients' biomedical expectations (diagnosis and treatment)	HCPs' biomedical/ mechanical orientation sociocultural beliefs	Patients' personal convictions/inherent beliefs HCPs	Physiotherapy visibility

HCPs, healthcare professionals.

carry load on your head yourself. So…as you grow up. It's like a brand-new car. When you buy a brand-new car and overuse it, in a short while the car gets weak (P10S1).

It appeared that participants had gained this knowledge related to degeneration from HCPs and began to add their personal layers of interpretation by reflecting on their previous livelihoods.

It's when I went to the hospital that they said some it's because of stress (working excessively), age. As for mine, I think it's stress (P14S1).

Although all the participants had come to believe that LBP was caused by structural defects, almost half of the participants believed that their backs were defected, yet capable.

It's just the pain but I think it is strong. It still has that capacity to perform its functions (P15S1).

While the rest of the participants believed the back was weak and had decreased capacity.

You know once there is a damage, definitely its function would reduce… it's somehow weak (P13S2).

Posture and occupation as biomechanical causes of CLBP

All the participants upheld biomechanical beliefs that implicated 'bad'/non-upright postures (eg, bending forward 90° and sitting with a slouched/bent posture), and adopting prolonged static postures (ie, prolonged standing, sitting, bending) as causes of CLBP. All the participants' accounts denoted that HCPs reinforced or introduced biomechanical beliefs related to CLBP.

From meeting lots of physicians and advice, I've realized that our sitting posture, the type of chair we use, the number of hours we sit, how we lift heavy objects… (P8S1).

All the participants expressed the belief that manually intensive jobs (such as farming) and/or sedentary jobs involving prolonged sitting (such as office workers, seamstresses, drivers and market women) were possible causes of CLBP and worsened CLBP. Some participants believed that rural dwelling, lack of support and poor socioeconomic circumstances led to engaging in manually intensive jobs. Therefore, these also facilitated the development of CLBP.

Those of us who stayed in the villages and stayed with people, they made us suffer…all those are part. Sometimes we wake around 1am to go and fetch water from another village. The plantain we are going to plant, they tie it, and you place it on your head together with one gallon of water. The farm that we are going to, we climb a lot of hills… When you're returning too you carry things (P10S2).

Quest for cure

Participants, having espoused biomedical causes, hoped for a treatment which was going to cure their pain and structural defects (the biomedical model), and facilitate return to previous activities. Patients sometimes hoped for cure symbolised by changes in their imaging; this was

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evident in the narrative of a participant who reported absence of symptoms.

> Looking at the MRI…the disc … needs to be corrected … I don't feel sick anymore but… seeing is believing so until the doctor may ask you go and do maybe scan to look at the defect if it has been corrected (P14S2).

Patients were divided in their opinions on the influence of HCPs in their quest for cure. About half of the participants suggested it was reinforced by HCPs' interactions.

> …I am praying that just like the doctor said, the back will heal properly (P6S2).

and the other half suggested otherwise.

> …I asked the physiotherapist if the treatment will let the pain stop? And they explained to me that they're managing the pain (P1S1).

It is therefore unclear whether this is a result of misinterpretation of HCPs' information or if this belief was supported by HCPs and transferred to patients during therapeutic encounters.

Category 2 healthcare and sociocultural influences: maladaptive beliefs and behaviours

Maladaptive beliefs

All the participants' accounts depicted FABs. They believed that activities which imposed a considerable amount of pressure on the spine and/or elicited pain, and postures that compromised maintaining a straight back were harmful to the back. Therefore, they mentioned avoiding: bending, lifting heavy objects, prone lying, slouched sitting or sitting without a back rest, and prolonged sitting, standing or walking.

> I don't do any heavy work. I don't wash. Driving I don't. I shouldn't bend, I shouldn't sit for a longer time… (P9S2).

All the farmers, most market women and seamstresses in this study totally avoided their work roles following HCPs explanations and/or personal painful experience associated with performing them.

> I have not been able to go to the farm. Also, I cannot even do household work. I was asked at physiotherapy not to bend… I have the psychological effect in the mind that when I do, I may get pains. So, I have decided not to do it at all (P6S1).

More than half of the participants believed there was a definite endpoint of CLBP. Therefore, some participants had suspended their jobs, chores, hobbies and sexual activities due to CLBP, pending an improvement of their condition.

> …I've stopped sewing. Bending to wash or sweep are the most harmful, so I don't do it. The more you're doing that then the sickness would last for long (P2S2).

Other activities were modified by the participants. This involved adopting 'correct' postures, that is, a straight back when performing domestic or work activities and reducing workload.

> I have not been to work for some time but if I go to work, I don't know whether I am still going to consult because I feel the problem is coming from the consulting because the chairs over there too are not good. My surgeon said they should put me at a place where I would do minor work. Maybe OPD (outpatient department). You check vitals, you get up and walk around (P9S2).

All the participants' accounts depicted that these FABs were normally prescribed and reinforced as coping strategies by HCPs. This showed an overarching influence of HCPs' biomechanical orientation on patients' reported beliefs and behaviours.

> At first when I came to physiotherapy, I used to do my normal work. When I came to physiotherapy and they told me that carrying heavy things, working aggressively, sweeping a lot, walking a lot, anything I do that ignites the pain is what is causing the problem, so I have to either stop it or take a break (P2S2).

Five participants expressed catastrophic thoughts around the delicate nature of the spine which could predispose to paralysis (P9S2, P13S1, P14S2), the central nature of the back (P2S2) and fear of the unknown (neurosurgery and physiotherapy) facilitating thoughts that CLBP was severe (P7S1). These participants described how interactions with HCPs and internet sources facilitated their catastrophic beliefs.

> Because he (doctor) said it's a spinal issue and it's very delicate. I learnt there is a problem with the disc so sometimes I get scared about paralysis. The internet they said it wouldn't kill you, but you would become paralyzed. (P9S2).

Maladaptive behaviours: passive coping and management strategies

Participants reported that they used passive self-coping mechanisms (eg, prolonged use of local spices, herbal medication, massage and analgesics) during the earlier months/years of CLBP. They suggested this was mostly informed by the sociocultural environment, specifically, family, friends and folklore.

> When the thing started, I was buying medications, taking medications, and herbal… recommended by family, people… So, it was later I realized I would go the doctor for an X-ray and see (P2S2).

Most participants expressed how LBP was considered as mild, or a normal occurrence from time to time or had

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become socioculturally normalised. Therefore, passive self-coping appeared to be viable option.

> As for waist pains since they gave birth to us, our grandparents go like our waist hurts, so when it hurts you stretch and get some painkiller and drink or you find some liniment to rub it, I did not think it was anything serious… (P12S1).

Participants' quest for cure led to multiple health-seeking consultations, dissatisfaction with services and further pursuit for a cure. Participants visited different hospitals, healthcare providers, herbal centres and complementary medicine facilities. Herbal medicine appeared to be a part of the Ghanaian health-seeking pathway.

> I've gone to so many clinics and hospitals, local drugs, so many… herbal medication. So many herbs were applied at the back. You apply this one for a while, no improvement, then you're advised to also check on this one to see (P8S1).

Participants' accounts showed that they mainly interacted with doctors and physiotherapists within hospitals. According to the participants, physiotherapy treatments predominantly consisted of electrotherapy, heat therapy and massage and sometimes corsets prescription.

> When I go for physiotherapy, they apply the heat, machines and do the massaging (P6S2).

Most participants depended on physiotherapy sessions for a cure or as an aspect of long-term coping with CLBP. A participant likened physiotherapy sessions to taking 'medicine' for her symptoms but raised concerns about the indefinite nature of her physiotherapy.

> Well, at least physiotherapy to help me to cope. It's a way of should I say kind of medicine. So long as you're taking your medicine, it (physiotherapy) is going to maintain me. So, I was thinking do I have to do physio for the rest of my life? (P15S1).

According to the participants, physiotherapists prescribed multiple physiotherapy sessions, in line with the dependence on electrotherapy and other passive strategies.

> I was referred for physiotherapy by my doctor 6months ago and I have been attending since then. I come once a week now. I was coming thrice formerly and then twice (P4S1).

Participants also reported that the main management approaches prescribed by doctors were prolonged medication (including opioids) and sometimes spinal injection and corsets.

> Now I take tramadol, baclofen, lyrica …These two and half years I've been on it. But sometimes when the pain is ok, I don't want to take the medications… (P9S1).

Some participants expressed dissatisfaction with the use of medications due to its inability to cure CLBP.

> Meanwhile I still feel the pain. It has been you feel the pain, you go they give you some painkiller… (P8S1).

Sick leave prescribed by doctors was also commonly mentioned by participants.

> They've given me some days off work. The doctor gave me four weeks (P9S2).

Another important finding was that the patients' language depicted the belief in a paternalistic model of care and a high level of trust in HCPs. This appeared to reinforce patients' reliance on HCPs. Participants often believed that HCPs were knowledgeable, had the solution, thus a final say in the management process.

> As we are on this earth if God is not there, the doctors are the ones there so whatever they say you must follow it. Physically it's the doctors who can help (P4S1).

Category 3: the role of the 'self' in facilitating active beliefs and positive strategies

An important finding of this study was that except for prescribed exercises and sometimes pacing, other positive beliefs and active strategies were used by few participants and where they were evident, they tended to be facilitated by patients themselves.

> I do exercises. I do squat, and press-ups. I like training. Even when it hurts, I'm able to still do it with pain, even though I've been told to hold on with it (P11S2)

Some participants expressed positive attributions and adoption of an internal locus of control as coping strategies for CLBP. Self-efficacy beliefs were demonstrated by few participants through narrations of how they confronted their daily activities, despite their pain.

> I do house-chores because sometimes I want to exercise. I ignore the pain, even when I have the pain, I try to do it (P9S1).

Spirituality was generally used as an adaptive coping strategy by most participants. However, a participant used spirituality to ascribe the cause of her CLBP to evil deeds perpetrated by others unto her.

> But you see I saw a friend who gave me some solution to rub around my waist in the night. The first day I rub it, the second day, the third day I had a dream. Three people were holding my waist. I saw this wonderful person. Could you believe that the next day I saw this person, she couldn't look at my face. So, the dream I had is true. So sometimes you see people relate this illness to spiritual, you can't blame them (P6S2).

According to most participants spirituality provided hope, comfort and psychosocial support.

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I use God's word. But for God's word, when you are ill you lose all hope. But when you're a Christian, you use God's word to comfort yourself" (P2S2).

Others reported how they used pacing as a strategy to carry-out daily activities. However, some patients indicated that pacing activities was suggested as a coping strategy by HCPs, to manage tasks without igniting pain.

When I went to the doctor and coming for physio, I have been advised to do my chores bit by bit" (P2S2).

Some participants believed that general exercises and sporting activities were beneficial to the human body, strengthened the bones, improved pain and function and prevented deterioration.

I usually do exercises because I think if I stop rather, it will get things worse (P5S2).

Consistent with the importance attached to exercises, participants expressed their expectation of exercises as part of physiotherapy and their engagement with exercises. The 55-year-old female shopkeeper reported performing exercises at home although she had been advised that exercises would be incorporated later in the course of her physiotherapy treatment.

With the exercises when I came to physiotherapy, they told me that when the pain reduces then they'd make me do some exercises. I just sometimes do some little exercises in my room myself (P2S2).

Seventeen participants reported the use of prescribed exercises by physiotherapists as a home management strategy, and the belief that exercises will facilitate cure.

The physiotherapists have thought me for my upkeep, two three exercises I need to be doing in the house to help with the healing process (P7S2).

Three participants also expressed the use of activities and hobbies (singing, rearing goat, sweeping) either to help forget their pain or distract them when in pain.

Even when I feel the pain, I can take that long broom, these plastic chairs I'd be arranging it. When I'm doing that, I don't even remember the pains (P13S1).

Category 4: limited physiotherapy knowledge and awareness

As participants' narratives consistently suggested late physiotherapy referral, the researcher explored participants' knowledge and awareness of physiotherapy. Most participants had never heard of physiotherapy and never accessed physiotherapy services prior to being referred by doctors.

I didn't know that physio also would have helped. I didn't know what it entails (P9S1).

Before physiotherapy, those that were aware of physiotherapy thought it was a healthcare profession that entailed massage or performing exercises with the aid of gym equipment or medication, but the mention of a home exercise programme was absent.

I know that with physio, it could be gym, it could be massage. I thought maybe if there is any exercise, we will do it at the physiotherapy department (P14S2).

Their knowledge and expectations of physiotherapy were further reinforced by their interactions with doctors.

He (doctor) told me that they would massage me (P4S2).

All the participants' accounts depicted late/non referral to physiotherapy by their doctors. Patients reported varied reasons that prompted physiotherapy referral. Physiotherapy was sometimes suggested by doctors after exhausting all other options/prolonged medication/as an alternative to surgical intervention. Others were signposted to physiotherapy by friends.

He said it's like I have taken a lot of medications and the medications are too many so let's add the physio and see how it goes (P3S1).

DISCUSSION

Participants had varied understandings of the influences of biopsychosocial aspects of CLBP. Some participants reported performance of daily activities before HCPs' interactions, and a subsequent avoidance/restriction of activities following HCPs' advice. Participants' accounts suggest that HCPs' interactions created an emphasis on biomedical/mechanical beliefs, maladaptive beliefs and behaviours (particularly FABs and passive coping) and physiotherapy was introduced late and for misplaced reasons.

Although biopsychosocial understandings of CLBP are currently advocated by the contemporary research and management guidelines of developed countries, it appears that biomedical/biomechanical understandings are the focal point of the beliefs of CLBP patients (and the HCPs involved in their care) in this current study and similar studies conducted in developed and developing countries.[11 14 17 19] This could be attributed to the complex nature of CLBP,[22] challenges associated with adoption of alternative management approaches,[14] the influence of HCPs on patients' beliefs[21] and a need for legitimisation by CLBP patients. Participants primarily understood their CLBP from a pathoanatomic and biomechanical perspective and believed this conferred the opportunity for cure. In contrast, findings from previous qualitative studies conducted in developed countries suggest these explanations result in patients having a poor expectation of recovery.[19 46 47] Therefore, for most studies conducted in developed countries,[11–14 18 23 48–50] beliefs related to poor prognosis of CLBP were common, because patients believed the back needed to be 'fixed'[14] or healed,[50] and perhaps understood that structural defects in the back may be difficult to 'fix'. In this study, nearly equal

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number of participants held the belief that either the back was weak, or the back was defected, yet capable. Studies assessing back pain beliefs among populations[11] and patient groups[12 13 15 17 48 49] have similarly identified patients' beliefs about the vulnerability of the back. Qualitative and quantitative studies conducted in developed countries[18 19 23] have reported that increased disability is mostly linked with thoughts of more negative beliefs. However, it is unclear from this current study whether the thought of a 'defected but capable back' could be linked to CLBP symptoms or disability levels.

In this study, patients attached importance to imaging (X-rays, scans and MRI), and this was facilitated by HCPs (physiotherapists and doctors). Also, a survey conducted in Canada on patients' CLBP beliefs[13] reported that most patients believed that scans were important. Patients' expectation of diagnosis and treatment were prevalent in the current study and appears to be an underlying mechanism facilitating HCPs' prescription of imaging and pathoanatomic diagnoses.[48] Another common belief among the study participants was the role of degeneration in the occurrence and progression of CLBP, which originated from/was reinforced by HCPs. Similarly, studies conducted in developed countries[14 23] and Nigeria[17] on patients' CLBP beliefs have indicated that patients believed LBP could result from degeneration and become progressively worse. However, a systematic review consisting of 33 imaging studies (3110 asymptomatic individuals)[51] suggests that degenerative signs do not predict pain intensity and disability. Moreover, degeneration has been reported to be more likely associated with predetermined genetics rather than an aggregation of activities over time, in a retrospective twin cohort study of 115 males.[52] Therefore, the supposition that patients' CLBP is caused by structural changes seen in imaging (which is facilitated by HCPs' interactions) is misplaced.

The belief that manually intensive jobs, poor socioeconomic circumstances, lack of support and rural dwelling caused CLBP, were also represented in the Nigerian study.[17] Furthermore, a systematic review by Morton *et al*,[53] on CLBP beliefs found an association between having a low income and unhelpful beliefs. Additionally, participants related the cause and course of CLBP to performance of postural and occupational activities. Similarly, mixed-methods study by[14 23 50] found that patients believed that poor posture caused and worsened CLBP. However, a meta-synthesis of eight high-quality systematic reviews that assessed the causal relationship between different occupation-related activities '(eg, twisting/bending, lifting) and LBP found no strong evidence linking any activity to the occurrence and severity of LBP.[54] Due to the complex nature of CLBP, it is difficult to attribute a particular element as the cause of LBP, and the majority of LBP is non-specific, that is, without a definitive cause.[24] The emphasis on causation by patients (reinforced by HCPs) in the current study, drove increased healthcare costs associated with numerous imaging, multiple healthcare and alternative medicine centres visit, medication and transportation costs; negative beliefs (FABs and catastrophising) and focus on a cure. Patients' focus on a cure resulted in dependency on the healthcare system, thus promoting an external locus of control[55] and sometimes fostered dissatisfaction with healthcare services, as previously reported in the study by Igwesi-Chidobe *et al*.[17]

FABs relating to the supposition that activities caused damage or worsened CLBP and therefore the back needs to be protected (through avoidance, suspension and modification of activities) were a predominant finding in the current study. These beliefs were similarly expressed by patients in most studies conducted in developed and low/middle-income countries.[11–13 15 16 23 48–50] Furthermore, the belief that rest was beneficial, which was recorded in this study, was reported in some studies conducted in developed countries.[13 50] Evidence suggests that cognitions, including beliefs and emotions influence neurological pain pathways and modulatory systems and thus affect pain perception and control.[22] Therefore, the FABs recorded in this study may promote increased disability, low self-efficacy, unfavourable neurological states such as central sensitisation, causing heightened and sustained pain perception.[56 57] A few participants reported catastrophising beliefs in this study, and catastrophising beliefs have been recorded in studies assessing/exploring patients' CLBP beliefs.[14 16 23 50] Findings from this current study and previous quantitative studies conducted on catastrophising in Nigerian and ethnic minority populations[58 59] strengthen the notion that racial or ethnic differences do not exclude some patients from pain catastrophising. Magnification, a catastrophic thought which is related to worry about the future consequences of CLBP, was expressed by the current study participants. According to Ogunlana *et al*,[58] magnification may be facilitated by inadequate HCP education of patients by HCPs regarding the causes and future consequences of LBP. This current study and previous studies, therefore, suggest that HCPs' information sharing to CLBP patients need to be considered to address catastrophising beliefs.

All the participants reported that their current passive coping and management strategies were predominantly influenced by HCPs. However, there is inconsistent and limited evidence supporting the effectiveness of passive therapies for CLBP,[60] and their use contradict evidence-based clinical guidelines.[60] The reliance on passive modalities appears to be common in Africa as evident in previously conducted surveys on reported CLBP management practices by patients and physiotherapists.[61 62] Additionally, there was widespread patronage of prolonged herbal and complementary medicine and self-medication, which was influenced by the sociocultural environment. Therefore, attempting to address unhelpful beliefs and practices may require population-based strategies and interventions. The convenience of self-medication could account for its preference in the initial phase of CLBP. In Ghana, Boom *et al*,[63] suggested that self-medication may be common due to its relatively cheaper cost and limited accessibility to health facilities. Although Ghana

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has a national health insurance scheme, patients still have to cope with time and transport costs directly linked to accessibility. Studies conducted in developed countries report that almost half of patients with LBP do not seek healthcare; and pain intensity and disability often enhance the possibility of visiting HCPs.[22] Moreover, current CLBP guidelines of developed countries suggest initial pain management by patients during the onset of LBP.[64] However, in the current study, the belief that LBP is not a serious illness (upheld during initial phases of LBP), and prolonged self-medication promoted late treatment seeking. This could have serious consequences, especially in LBP, that may be related to non-mechanical causes (eg, tumour, infection). Therefore, in population-based strategies attempting to promote positive beliefs and attitudes within the Ghanaian context, education concerning when to report CLBP symptoms to HCPs may be required.

Few patients in the current study reported positive beliefs related to self-efficacy and the importance of activity, facilitated by their inherent beliefs. However, some quantitative studies conducted in developed countries on CLBP beliefs have suggested that positive beliefs were common among patients,[11 13 18 65] and other studies have suggested that only few patients reported positive beliefs related to biopsychosocial understandings of CLBP.[14 17] Bandura[66] described four sources of self-efficacy. Three of these sources (mastery experiences, vicarious experience and emotional and physiological states) are linked with personal experiences/states or role-modelling. However, a fourth source (verbal persuasion) highlights the role of influential others in promoting self-efficacy. In the case of CLBP, HCPs may play such influential roles. Studies have sought to facilitate self-efficacy among CLBP patients through the implementation of self-management strategies and cognitive behavioural interventions.[67] These have been successful, highlighting the importance of the healthcare experience in facilitating positive beliefs such as self-efficacy. Spirituality was a popular coping strategy mentioned by most participants in this study and the Nigerian study on CLBP experiences. Similarly, religious beliefs were highlighted as a significant part of CLBP among Punjabis in the UK.[15] However, in this study, spirituality was sometimes used to explain the cause of CLBP. Similarly in the Nigerian study,[17] some participants believed their CLBP was due to evil deeds being perpetrated by others. This belief that spirituality is a possible cause of CLBP appears to originate from sociocultural dispositions. Although it may be important to shift patients' focus from a purely spiritual perspective to more biomedically tailored explanations, this approach is not without consequences (eg, patients' expectations of cure and FABs), as recorded in this study. Prescribed exercises were commonly mentioned by participants and appeared to be considered as a modality that would facilitate cure rather than a long-term strategy. However, the use of exercises suggests that the patients also use modalities that are in line with evidence-based guidelines of developed countries[60 64]

The influence of HCPs on patients' biomedical/mechanical beliefs, FABs and passive coping recorded in this study has also been documented in other studies on CLBP beliefs conducted in developed countries.[11 68] However, some studies conducted in developed countries indicate that patients who had visited HCPs concerning their LBP reported general positive beliefs and active coping strategies related to CLBP.[11 15 18] The current study participants described their limitations around the awareness and knowledge of physiotherapy as an aspect of CLBP management, prior to referral. This suggests limited physiotherapy visibility in Ghana. Similarly, a study conducted in Ghana[69] and Nigeria[70] on knowledge and awareness of physiotherapy among the general population and secondary school students suggested general limited knowledge on the general roles of physiotherapy.

Strengths, limitations, implications for future research

This is the first study to explicate the agencies(individuals) and structures that affect patients' CLBP beliefs and management in an African/Ghanaian context. This study used systematic and rigorous data collection and analysis methods, which were consistently validated by the research team comprising of expert qualitative researchers. Sampling participants from two different geographical locations and varied sociodemographic status strengthens the transferability of the research findings. However, the study could have benefited from member-checking (ie, returning data/results to participants to ensure participant validation of the data/research findings) and a more comparable number of male and female participants. This study may not be generalisable to other African contexts, due to cultural and structural variations (eg, different cultural beliefs, physiotherapy delivery or healthcare pathways). Furthermore, the findings may not reflect the beliefs of the Ghanaian population with CLBP, who have not accessed the Ghanaian healthcare system. Therefore, it would be beneficial to explore the CLBP beliefs present among the general Ghanaian populace and other African contexts to decipher other mechanisms underpinning patients' beliefs.

Implications for practice and policy

Patients' beliefs appeared to be influenced by their experiences and interactions with HCPs (physiotherapists and doctors) who adopted a predominantly biomedical model. Therefore, a review of Ghanaian HCPs' approach to care that incorporates holistic approaches, to facilitate patients' understandings of the complex, non-specific and long-term nature of CLBP could potentially address the reductionist biomedical/mechanical inclinations, numerous imaging and increased healthcare costs resulting from dependency on HCPs. Furthermore, HCPs' reassurance/emphasis on the importance of physical activity and active coping strategies may address patients' FABs, passive coping and dependency on HCPs. There is the need for the delivery of physiotherapy

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services that are tailored towards empowering patients to engage with more active approaches, particularly physical activity. The influence of sociocultural factors on the meanings attached to CLBP, late health-seeking behaviours of patients and paternalism were evident. Therefore, health literacy and patient empowerment approaches directed at addressing patients'/population unhelpful beliefs and repositioning patients as active partners rather than passive recipients may be beneficial. Strengthening policies on health literacy and offering public health initiatives/campaigns that target unhelpful sociocultural beliefs and educating the public on where to access timely information and also services could help address unhelpful patients' beliefs and practices. Strategies to increase physiotherapy visibility in Ghana so that patients can make first-hand choices regarding the option of physiotherapy care may also be required.

CONCLUSION

Ghanaian patients with CLBP highlight predominant biomedical/mechanical understandings of CLBP, characterised by maladaptive beliefs and practices and a few positive beliefs. However, active strategies, particularly exercises and pacing activity were popularly relied on as management/coping strategies. Limited physiotherapy visibility appears to impede timely physiotherapy involvement in CLBP management. These beliefs and how CLBP is experienced by Ghanaian patients, are influenced by personal convictions, the predominant influence of HCPs (physiotherapists and doctors) and association with family, friends and the Ghanaian sociocultural environment. Therefore, to address CLBP beliefs, these relevant constituents of the CLBP journeys of patients need to be considered.

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Acknowledgements We would like to thank all the participants and gatekeepers at both facilities for their contributions towards this research. Sincere thanks to Mr. George Ntim and Ms Rosina Adjei (patients) for their valuable contributions during the planning of the interview questions. Sincere gratitude to Margaret Asare and Emmanuel Baidoo for helping with back translation.

Contributors JAA, FM and CD were responsible for the conception and design of the study. JAA collected the data. JAA and PKA validated the back translated transcripts and topic guides. JAA was responsible for transcription, leading data analysis and initial drafting of the article. All authors contributed to analysis, interpretation and manuscript development. All authors approved final submitted manuscript. JAA is the guarantor of the study.

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

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval Ethics approval was granted by the University of Nottingham Faculty of Medicine and Health Sciences ethics committee (REF: 931808), the research and development, and institutional research boards of both study sites (IRB/000136/2018). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement No data are available. No additional data available.

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Supplementary File 1

Topic Guide

What do you think low back pain is? What is your understanding of low back pain?

- *What role do you think the spine performs?*
- *What do you think causes back pain?*
- *What do you think caused your back pain?*
- *What do you think about the function of your back now that you are experiencing pain?*

What is your experience with low back pain?

- *When and how did it start?*
- *How has it affected your daily activities or life (work, home and social activities)?*
- *What do you think worsens/may worsen your back pain?*

How have you managed your back pain since it started?

- *How do you cope with the condition? What do you do to feel better? What makes you feel better?*
- *Where did you gain information regarding some of the coping strategies you are using?*
- *Do you patronize other alternative therapies aside physiotherapy or seeing a medical doctor?*
- *Have you ever tried any alternative therapies?*
- *What are/what were your expectations of these alternative therapies?*

Why are you undergoing physiotherapy?

- *What are your expectations of the physiotherapy treatment you are receiving?*
- *What factors inform your treatment expectations?*
- *What are your treatment goals?*

Is there anything you would like to add?

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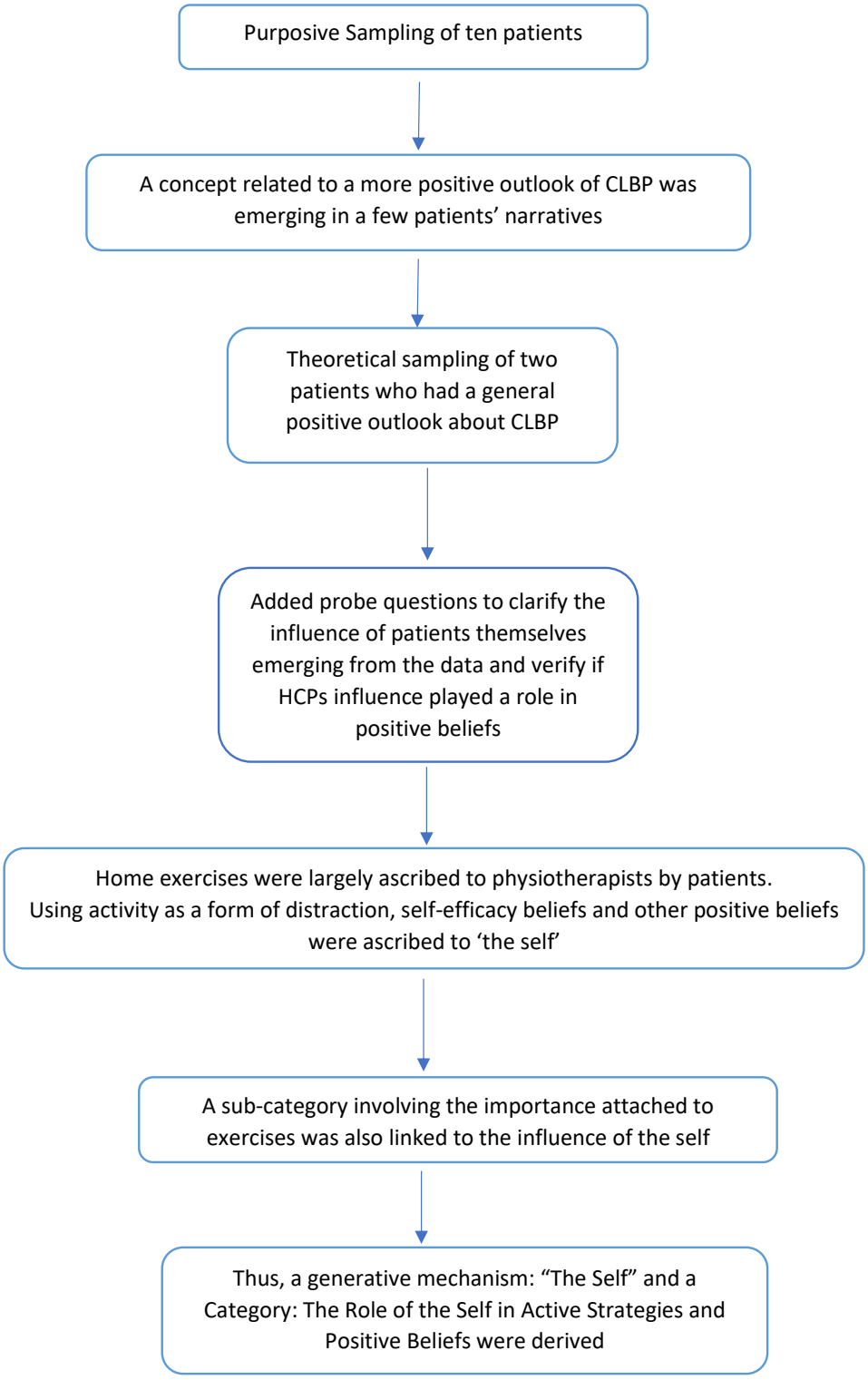

Supplementary File 2: An Example of Theoretical Sampling in Practice in this Research

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Supplementary File 3: Codes, Concepts, and Categories Groupings

Category 1: Biomedical/Biomechanical Beliefs

Concept: Structural Defects-Biomedical Causes

- Previous Trauma
- Progressive Damage; Wear and Tear,
- Weak back
- Defected but capable,
- Ascertaining Cause (X-rays, MRI)

Codes

Concept: Posture and Activity- Biomechanical causes

- Prolonged Static Postures/Inappropriate work furniture
- 'Bad' or 'Wrong' or Inappropriate Postures
- Manually Intensive Jobs/Stressful Jobs/Sedentary Jobs
- Excessive Back loading

Conditions

- **Predominant Conditions/Interactions:** HCPs' Education/Advice, HCPs' Biomedical Approach
- **Others**- Pain Response/Personal Experience, Poor socio-economic conditions.

Category 2: Maladaptive Beliefs and Practices

Concept: Maladaptive Beliefs

Fear-Avoidance Beliefs

- Avoidance, suspension, modification of 'bad' posture
- Avoidance of excessive back loading and lifting heavy objects
- Avoidance of maintaining prolonged static positions/walking
- Eliminating Cause/Activity (Work) Modification
- Avoidance of Excessive back loading/Activity
- Pain is a red flag
- Rest

Catastrophizing
Paternalism
Spirituality

Concept: Maladaptive Practices

Passive self-coping

- Herbal Medication, Analgesics, Massage, Warm Water
- Late Hospital Visits

Passive Physiotherapy and Medical Approaches

- Massage, Electrotherapy, Heat therapy
- Prolonged Analgesics Use
- Supportive Devices
- Numerous Physiotherapy sessions

Multiple Health Seeking Consultations
Multiple hospital visits
Numerous physiotherapy sessions

Conditions

Predominant Conditions: HCPs' Biomedical Approach to Treatment, Sociocultural Beliefs
Others: Accessibility, Time Constraints

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Category 3: Positive Beliefs and Active Strategies

Concept: Positive Beliefs

- LBP is not a serious illness
- Exercises are Beneficial
- Self-Efficacy Beliefs (Confrontation)

Codes

Concept: Active Strategies

- Activity as a form of Distraction
- Prescribed exercises
- Spirituality
- Pacing

Conditions

- **Predominant Condition:** Inherent Patients Beliefs
- **Others:** HCPs' education, Sociocultural Beliefs

Category 4 : Limited Physiotherapy Involvement, Knowledge and Awareness

Concept: Late Physiotherapy Referral

Concept: Limited Physiotherapy Knowledge and Awareness

Passive outlook (massage)

Gym exercises with machines

Unaware of physiotherapy prior to referral

Conditions

Predominant Conditions: Doctors' treatment approach, Limited Physiotherapy Visibility