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'Specialist before physiotherapist': physicians' and physiotherapists' beliefs and management of chronic low back pain in Ghana – A qualitative study

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ABSTRACT

Purpose: This study provides an understanding of the chronic low back pain (CLBP) beliefs and management practices of physicians/doctors and physiotherapists in Ghana, and the mechanisms underlying their beliefs and practices.

Materials/Methods: Thirty-three individual semi-structured interviews, involving eighteen physiotherapists and fifteen physicians involved with CLBP management, were carried out. Interviews were audio recorded, transcribed, and analysed using Straussian grounded theory principles and critical realist philosophy.

Results: Five categories were derived: The predominance of bio-medical/mechanical beliefs, maladaptive beliefs, maladaptive practices, limited involvement of physiotherapists and other healthcare professionals (HCPs) and evidence-based beliefs and practices. The predominant mechanisms underlying the HCPs beliefs and practices were: the healthcare environment (professional roles/identity hinged around paternalistic and biomedical care, fragmented CLBP management, limited physiotherapy/HCPs' knowledge) and sociocultural environment (sociocultural/patients' expectations of passive therapy and paternalism).

Conclusion: The CLBP beliefs and practices of HCPs involved with CLBP in Ghana is modelled around a professional identity that is largely hinged on paternalism and bio-medical/mechanical understandings. Lack of collaboration and sociocultural expectations also play a significant role. There is the need for a reconstitution of Ghanaian HCPs' CLBP beliefs and management approaches to align with evidenced-based approaches (e.g., imaging should not be universally prescribed, biopsychosocial and patient-centred care).

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> IMPLICATIONS FOR REHABILITATION


- The burden of low back pain is substantial globally, with an increasing burden identified in low-to-middle income countries.
- This study highlights a predominance of non-evidence-based understandings around chronic low back pain and its management among Ghanaian healthcare professionals, although some evidence-based approaches were also identified.
- Ghanaian healthcare professionals need to engage with current evidence for chronic low back pain management, incorporate psychological factors and consider non-specific chronic low back pain as a possible diagnostic label.
- Professional, structural, and sociocultural inclinations towards paternalism, passive therapies, biomedical and fragmented approaches to chronic low back pain management need to be addressed.

Introduction

The International Association for the Study of Pain (IASP) defines pain in terms of physical, sensory and emotional responses that could occur in the absence of tissue damage [1]. Consequently, consideration of an illness model (rather than a disease model) within the framework of pain management is advocated [2]. An illness model considers the individual and complex interaction of wider (biological, social and psychological) factors that may affect health/wellbeing, whereas a disease model considers the disease condition as having a defined cause which needs to be identified

and "fixed" or cured [2]. Chronic low back pain (CLBP) is a long-term condition, defined as pain/discomfort in the posterior aspect of the back from the 12th rib to the gluteal folds with or without referral to the lower limbs lasting for more than three months [3]. The annual prevalence of low back pain (LBP) in Africa is estimated to be 57% [4]. CLBP has been found to be prevalent (18%-59%) among individuals with LBP, workers and the general population in Africa [5]. In Ghana, there are limited population-based studies on LBP/CLBP. A study by William et al. [6] found an LBP prevalence of 41% among Ghanaian adults aged 50+. Low back pain has also been found to be prevalent among Ghanaian miners

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(67%) and taxi-drivers (34%) [7,8]. Globally, LBP is the leading cause of disability, affecting productivity and economies [9]. Labour laws of Ghana align with international convention [10]. In Ghana, it is advised that employees in the public sector receive full pay in the first year of sick leave, then half-pay subsequently and sick leave needs to be certified by a doctor [11].

The public and private healthcare system in Ghana is overseen by the Ministry of Health. The Ghana Health Service is the public sector institution responsible for the decentralization of Ghana's health services [12]. Healthcare service in Ghana is delivered through teaching hospitals, regional and district hospitals, mission-based hospitals, quasi-governmental hospitals (i.e., hospitals that are linked to specific institutions, for instance, police hospital), private sector hospitals and institutions, and alternative and traditional-based medicine [12]. Ghana has a national health insurance scheme (NHIS) which was implemented to provide free healthcare, although the NHIS does not currently provide universal coverage for all disease conditions. CLBP management is currently covered under the NHIS scheme in Ghana. Physicians and physiotherapists are the main healthcare professionals (HCPs) involved with CLBP management in Ghana. Ghanaian physicians and physiotherapists are licenced to practice after attaining a Bachelor of Medicine, Bachelor of Surgery (MBChB) and bachelor's degree respectively from a recognized university and passing statutory licensure exams [13,14]. Physicians, in Ghana and globally, serve as gatekeepers in the healthcare environment, responsible for the referral of patients to secondary care thus facilitating investigations and management choices [15]. Globally, physiotherapists are renowned for their role in the management of CLBP [16,17]. In CLBP specifically, doctors/physicians and physiotherapists may serve as initiators of long-term patient choices that may promote chronicity and disability, or otherwise [18]. Physiotherapy is an autonomous profession in Ghana. However, physiotherapy is not practiced as first-point-of contact in Ghana, hence physiotherapy practice is largely dependent on physician referral.

Previous studies conducted in developed countries suggest that CLBP management approaches are influenced by clinical practice guidelines (CPGs), patients' and health professionals' beliefs, sociocultural influences, and formal education [17,19]. However, the factors/mechanisms that influence the beliefs and management of CLBP among HCPs in African countries, including Ghana are unknown. Although CPGs are a core aspect of CLBP management in developed countries, there is very limited availability/uptake of CPGs in Africa and Ghana [20]. This may predispose to the uptake of diverse and potentially non-evidence-based/ineffective approaches for CLBP management. CPGs of developed countries recommend biopsychosocial approaches such as exercises, cognitive behavioural approaches, self-management, graded and early return to work, multidisciplinary approaches [21–23]. However, previous studies conducted among patients with CLBP in African countries (Ghana, Nigeria, South-Africa) and physiotherapists in Ghana [24] suggest the use of non-evidence-based passive strategies for CLBP, linked to a biomedical model of care [20,25–28].

HCPs' CLBP beliefs have been assessed in terms of treatment orientation: biomedical/biopsychosocial in various countries, excluding Ghana and other African countries. Previous surveys have been conducted among Hong-Kong primary-care physicians [29], general practitioners and physiotherapists in the UK [15], Brazilian physiotherapists [30] Irish doctors [31], Canadian physiotherapists [32] and Saudi-Arabian physiotherapists [16] using the Patient Attitudes and Beliefs Scale (PABS). All these studies reported that physicians and physiotherapists had mid-way scores for both the mean biomedical (range: 30.9–34.8/60) and

biopsychosocial scores (range: 31.7–35.6/54). This suggests some uncertainty among HCPs in developed/developing countries- recognition of biopsychosocial beliefs while still holding on to biomedical beliefs. In these studies, HCPs aligned with helpful beliefs such as bedrest is not beneficial while unhelpful beliefs such as the "special or vulnerable" nature of the back were also recorded. To date, no study has assessed the CLBP beliefs of healthcare professionals in African countries, including Ghana. Ascertaining the CLBP beliefs of HCPs is essential due to the potential influence of HCPs' beliefs on patients' beliefs and adopted management approaches. Previous studies have established that HCPs with a biomedical orientation or high fear-avoidance beliefs (FABs) were more likely to prescribe ineffective passive strategies (e.g., lumbar supports, rest, limited activity, sick-leave certification) [16,33]. Furthermore, the successful implementation of evidence-based approaches is dependent on HCPs beliefs. Therefore, contextual understandings of how CLBP is situated and managed may provide foundational knowledge to guide change implementation and adoption of evidence-based approaches in Ghana. Therefore, this study sought to explore CLBP beliefs and management practices of physicians working in family medicine, and physiotherapists in Ghana, and the mechanisms underlying their beliefs and practices.

Materials and methods

Study design

A qualitative study design, specifically the Straussian grounded theory approach, was adopted to facilitate in-depth exploration of a concept that had been unexplored and was not well understood in the research context [34]. A critical realist philosophy was adopted to promote an understanding of the mechanisms and structures at play, in addition to participants' CLBP beliefs and practices [35]. This provided a deeper and holistic explanation of the phenomena [35]. Critical realist philosophy focusses on an ontological perspective "the real" (i.e., causal structures and mechanisms) and individuals (agency) for comprehensive understanding of a phenomenon [35]. It suggests that there are multiple truths, but of unequal merit and therefore a superior truth which is subject to change could be uncovered to help with understanding of a phenomenon [36]. The principles of Straussian grounded theory that guided this research were induction, deduction, abduction, theoretical sampling, data saturation, constant comparison of data, open, axial and selective coding [37]. No initial theoretical framework was adopted since theory development was aimed at. However, discussions around theory development is beyond the scope of this article.

Participants and recruitment

Healthcare professionals working at two hospitals located in the Northern/Middle and Southern belts of Ghana (S1 and S2) were involved in this study. Male and female physiotherapists, and physicians working in family medicine/polyclinics at both study sites were included in the study. Physiotherapists and physicians with varied years of working experience and ranks were also included. Generally, family medicine physicians in Ghana are generalists who provide healthcare service for a wide range of conditions present across all ages [14]. Physiotherapists in Ghana also provide services across varied specialisms and patient groups (e.g., musculoskeletal, neurological, burns and plastics, cardiorespiratory etc) [13]. However, all included physiotherapists and physicians

in this study managed patients with CLBP. Physiotherapy and physician assistants/technicians were excluded from the study, because physiotherapists and physician were responsible for patient treatment/management decisions. The heads of the physiotherapy departments of both study sites served as gatekeepers and facilitated the recruitment of physiotherapists involved with CLBP management. They informed physiotherapists about the research, distributed information sheets and carried out follow-up reminders. Interested physiotherapists were asked to contact the researcher through a provided telephone number or in person. The head of directorate (consultant) and head of research (specialist) served as gatekeepers for the doctors in S1 and S2 respectively. Participant information sheets were distributed in doctors' consulting rooms twice a week in four designated weeks to ensure heterogenous representation of participants. Interested doctors informed the researcher or gatekeeper. Clinical meetings of doctors and physiotherapists were also attended by the first author to introduce the research. After participants' registration of interests, meetings and interviews were scheduled. A consent form was signed by participants. The recruitment of participants was designed to follow ethical/procedural requirements of research and both study sites.

Data collection

Physicians and physiotherapists involved with CLBP management were purposively sampled across different genders, years of working experience and ranks. This ensured that participants who could provide rich insight around the research area were included, and that a maximum variation sample could also be attained [38]. Theoretical sampling, i.e., identification of participants to provide a deeper/holistic understanding of an emerging phenomenon or concept was also used in this study [37]. Theoretical sampling was used to drive the iterative and concurrent process of data collection and analysis as stipulated within GT. Theoretical sampling and maximum variation facilitated an understanding of CLBP beliefs that pertained in different situations and thus facilitated data saturation. Theoretical sampling was initiated after sampling and preliminary analysis of data from six doctors and six physiotherapists. Instances of theoretical sampling in this study involved sampling doctors who had previously experienced LBP to further explore the dimension related to the perceived seriousness of other comorbidities versus CLBP; sampling higher ranked doctors and physiotherapists to confirm/disconfirm the emerging influence of the healthcare environment being recorded; sampling physiotherapists and doctors from both study sites to gain deeper insights into the reasonable variation around timing of incorporation of exercises and involvement of physiotherapy respectively. Purposive and theoretical sampling were carried out as concurrent processes during data collection.

Data was collected in the English language, using individual, face-to-face semi-structured interviews. The first author (JAA) conducted the interviews. JAA is a Ghanaian female physiotherapist (with 13 years of clinical, teaching and research experience) who had completed qualitative data collection modules and seminars, prior to data collection. JAA therefore approached data collection as an insider (a Ghanaian physiotherapist) and outsider (a UK postgraduate researcher). The interviews were conducted in a private room within both hospitals for physiotherapists and in consulting rooms for doctors. Data collection took place concurrently across both study sites. An interview guide ([supplemental file 1](#)) containing broad and open-ended questions for both HCPs, derived from the research objectives and prior interactions with

one physician, one physiotherapist and two patients with CLBP (patient public involvement-PPI), were used to guide participant interviews. The interview guide contained some prompts which differed for physicians and physiotherapists to allow for exploration of specific professional roles (e.g., referral). Two pilot interviews (one doctor, one physiotherapist) were conducted to assess the appropriateness of the interview questions, structure, and venue. The pilot interviews identified the need to add prompts to the question, "what is your experience with managing CLBP?" for better clarity. As data collection and analysis proceeded concurrently, questions (e.g., Have you ever experienced LBP? Does it affect the way you manage patients with CLBP?) were added to the interview guide to ensure exploration of emerging concepts and data saturation. Prompts such as "who", "what happened", "why", and "how" were used frequently throughout the interviews to enhance the building of categories, dimensions, and mechanisms [37]. Interviews were audio recorded and lasted between 20 and 40 minutes. Data was collected until no new emerging concepts were recorded and all emerging dimensions had been fully explored, i.e., data saturation [37]. Preliminary data analysis (transcription and coding) proceeded alongside data collection, with decisions such as "who to sample next", "what additional prompts are needed" and "when should data collection stop" dependent on the iterative and concurrent data analysis and collection [37]. After 29 participant interviews and preliminary analysis, the dimensions/categories and explanatory mechanisms appeared to be repetitive, with minimal new insights emerging. After a few more participants (two physicians and physiotherapists each) were interviewed, and preliminary analysis done, it was evident that no more new insights or explanations for current practices/beliefs emerged (i.e., data saturation was achieved), and the decision to end data collection was made by the research team. Data collection spanned a period of six months.

Data analysis

Data was analyzed and stored using NVivo version 12. Data was transcribed verbatim by the first author to enhance familiarization with and immersion into the data. The physiotherapists' and physicians' interviews were initially analysed separately since the research aimed to gain an in-depth understanding of the management pathways and beliefs present within each profession and the factors underpinning these, as well as understand the collective approach and beliefs regarding CLBP that existed in the research context. Data was analyzed by the research team. Initial codes were assigned by the first author, JAA and all codes were assessed in the context of the underlying quotes per transcript by all members of the research team. Final codes, categories and mechanisms were agreed upon by the research team (comprising of expert qualitative researchers (FM, CD). As it was evident that the physicians' and physiotherapists' data presented similar codes, concepts and mechanisms, both HCPs' data were merged. Data was first analysed using open coding. This consisted of a line-by-line coding of all the data. Initial codes consisted of assigning descriptive and interpretative codes to participants' phrases and sentences (induction) [37]. Relationships within each data set, between different data sets and across physiotherapists and doctors were also initiated in the open-coding phase [37]. However axial coding was the predominant phase where relationships within the data were established, and mechanisms were derived [37]. Abstraction and induction were used during the open and axial coding phases to derive codes and mechanisms. In deriving the mechanisms, every phrase and sentence was questioned (e.g.,

what does the data suggest? what are the factors underlying these thoughts? what led to this belief? why does this person think of this in this way? what does this represent collectively?) [39,40]. The coding paradigm (assessing conditions, actions, interactions, consequences) also guided the generation of mechanisms [40]. Codes highlighting a common/similar phenomenon or dimension were grouped to form concepts; similar concepts were then grouped to categories (supplemental file 2). Categories were named by considering a descriptive phrase that represented the grouped concepts. This included reference to the extant literature (deduction). Deduction also underpinned wording of mechanisms. Constant comparison of the data was carried out throughout the analysis to ensure coverage of all the nuances present within participants' narratives and refinement of the codes, concepts and categories [41]. Reflexive memos were used to record the analytical decisions made by the researchers during the research process. Reflexivity was carried out through keeping a shared record of the researchers' preconceptions around the research area. The first author (an insider and outsider) was responsible for data collection and leading data analysis. Therefore, bracketing of preconceptions was aimed at, and there were periodic meetings organized by

the research team during data collection and analysis to further ensure researchers' ideas were not driving data collection and analysis.

Results

This study included fifteen (15) doctors (six from S1; nine from S2) and eighteen (18) physiotherapists (nine each from S1 and S2). Most participants were males (20), and the rest (13) were females. Participants' ages ranged from 28 to 53 years. Doctors' and physiotherapists' mean ages (\pm SD) were 34.7 ± 5.4 and 32.4 ± 6.0 respectively. Participants' years of experience ranged from 2 to 15 years. Doctors' and physiotherapists' mean (\pm SD) years of experience were 8.9 ± 4.4 and 7.6 ± 3.2 respectively. The demographic details of participants are detailed in Table 1.

Five categories highlighting participants' CLBP beliefs were derived: (1) The predominance of bio-medical/mechanical beliefs, (2) maladaptive beliefs, (3) maladaptive practices, (4) limited involvement of physiotherapy and other HCPs, (5) evidence-based beliefs and practices. Fourteen concepts and four predominant mechanisms were also derived. The four predominant mechanisms are summarized under two broad headings: the prevailing influence of the healthcare environment (professional roles/identity hinged around biomedical and paternalistic care, fragmented CLBP management, limited knowledge of physiotherapy) and sociocultural environment (sociocultural/patients' expectations of passive therapy and paternalism) on participants' CLBP beliefs (Table 2).

Table 1. Demographic characteristics of participants.

	Physiciansn = 15		Physiotherapistsn = 18	
	No	%	No	%
Gender				
Male	10	66.7%	10	55.6%
Female	5	33.3%	8	44.4%
Age(years)				
20–29	5	33.3%	6	33.3%
30–39	6	40.0%	11	61.1%
40–49	4	26.7%		
50–59			1	5.6%
Rank				
Medical Officer	7	46.7%		
Senior Medical Officer	2	13.3%		
Specialist	6	40.0%		
Physiotherapist			5	27.8%
Senior Physiotherapist			8	44.4%
Principal Physiotherapist			4	22.2%
Deputy Chief-Physiotherapist			1	5.6%
Years of Working Experience				
0–5	6	40.0%	5	27.8%
6–10	3	20.0%	9	50.0%
11–15	6	40.0%	4	22.2%

Category 1: the predominance of biomedical/biomechanical beliefs

This category describes three concepts: Participants' beliefs on bio-medical causes, biomechanical causes of CLBP and the (im) possibility of cure. Participants' descriptions highlighted a professional identity hinged around a bio-medical/mechanical orientation as the predominant mechanism driving HCPs' biomedical and biomechanical beliefs.

All the participants attributed CLBP to degeneration of the spine resulting from ageing and in some cases, overworking. LBP was also commonly linked to trauma and falls. Most of the participants believed that there was always an underlying "legitimate" biomedical cause (underlying pathology or structural deficit) of CLBP symptoms, that needed to be diagnosed. Pathoanatomic

Table 2. Summary of categories, concepts and mechanisms.

Categories	The Predominance of Bio-medical/mechanical Beliefs	Maladaptive Beliefs	Maladaptive Practices	Limited Involvement of Physiotherapists & other HCPs	Positive Beliefs
Concepts	Biomedical Causal Beliefs <ul style="list-style-type: none"> • Degeneration and Trauma • Diagnosis of CLBP Causes • Specialists Referrals The (Im) Possibility of 'Cure'	The Significance of Pain	Prescription of Sick leave Prolonged Prescription of Analgesics Passive Physical Therapies	Limited Physiotherapy Referral	Activity and Exercises
	Biomechanical Causal Beliefs	De-Prioritizing CLBP	Late Hospital Presentation	Non-Involvement of other HCPs	Other Management Approaches
Mechanisms	Professional Identity <ul style="list-style-type: none"> • HCPs' Bio-medical/mechanical Orientation) 	Professional Identity <ul style="list-style-type: none"> • Paternalistic Healthcare • Bio-medical/mechanical orientation 	Professional Identity <ul style="list-style-type: none"> • Paternalistic Healthcare • Bio-medical/mechanical orientation Sociocultural Expectation of Passive Therapy and Paternalism	Fragmented CLBP Management <ul style="list-style-type: none"> • Limited Knowledge of Physiotherapy and other HCPs Professional Identity	HCPs' Biomedical Orientation

causes such as osteoarthritis, spondylosis, impingement, disc problems, spondylolisthesis were adduced as the major causal culprits of CLBP. Spondylosis (osteoarthritis) was the commonest cause of CLBP mentioned by participants. Specific and occasional causes of CLBP such as a tumour, vertebral fracture and tuberculosis were also mentioned by all participants. Only three doctors with working experience greater than ten years acknowledged that CLBP could result from non-specific or unknown causes.

There is usually an organic cause all the time, I have realized that when you do the X-ray, you do see something. Slipped disc, spondylosis, osteophytes. It is common in elderly population ... because of degeneration of the spine (D12).

All the participants believed that radiological imaging was important and helped to rule in/out red flags (signs of potential serious pathology), identify CLBP cause, improve care, inform referrals, and manage patients' expectation. Thus, they acknowledged prescribing at least an X-ray for all CLBP patients and, in some cases, an MRI. A few physicians reported being aware of the evidence that suggests that radiological imaging should not be universally prescribed. However, they indicated that patient satisfaction was a driver. Nonetheless, the explanation given to patients (as reported by the participants) appear to initiate/reinforce patients' desire for X-rays and reinforce medical paternalism.

Most of the time, the investigation, X-ray or MRI, always dictates or predicts the diagnosis. It also guides our treatment plan (PT17).

You don't just go and do X-rays when it's not too indicated. But from experience the people I see with CLBP, benefit from X-ray and sometimes patients also get satisfied (D8).

The participants held differing beliefs related to the prognosis of CLBP. Some participants believed that total resolution of pain was possible, others described CLBP as a lifelong condition or a progressively worsening condition or an unpredictable condition.

Back pain is very difficult, unpredictable, the chronic ones. Every day they still have the pain, even after six months (PT13).

All the participants believed that the occurrence of LBP/CLBP could be linked to posture and occupation, depicting participants' biomechanical orientation. Postures that compromised the maintenance of an upright/straight back when performing domestic and work activities were termed "bad" postures, and identified as causes/risk-factors of CLBP. Maintenance of prolonged static postures (sitting, standing, bending) were also linked to the occurrence of CLBP. The participants believed that furniture (e.g., mattresses, seats/chairs) that facilitated the compromise of a straight/upright back could cause and worsen CLBP. Manual intensive jobs such as farming, and jobs that demand maintenance of prolonged static postures (e.g., bankers) were also believed to cause undue strain to the back and thus caused CLBP.

I would say it's (CLBP) mechanical, their sitting posture, who sit for long hours, long distance drivers, those artisans like masons who lift heavy objects (D15).

Participants' narratives suggested an almost non-existent acknowledgement of psychological factors. Only one physiotherapist and one physician reported consideration of, and awareness of psychological factors respectively.

I don't mean its fully psychological, but people get used to the pain so much that sometimes even when it's not there they may think it's still there. I think sometimes depression can also be linked to that. Most of the time, we don't really go into details as regards psychological factors (D7).

Category 2: Maladaptive beliefs

Maladaptive beliefs reported by the participants are described around three concepts: the significance of pain, de-prioritizing CLBP and fear-avoidance beliefs (FABs). The predominant mechanisms underlying the participants' maladaptive beliefs are also discussed in this section (i.e., a professional identity hinged around paternalistic and biomedical care).

Although all the participants believed that pain and function were important indicators for CLBP management, pain-relief was considered the most important goal and was focused on in CLBP management. This significance ascribed pain was borne from experiences with patient interaction, according to some participants. However, it appeared that participants' professional role/identity of symptom treatment/control and bio-medical/mechanical understandings underpinned their focus on pain and pain-relief. Paternalism was also depicted in the narratives of participants as pain-relief goals appeared to be set 'for' patients and not 'with' patients.

LBP, radiculopathy, numbness. Those are the symptoms or signs that may be present. The pain is what we can manage (D10).

My first goal especially chronic pain is to bring the pain to a manageable level to the patient (PT4).

Half of the participating physicians' narratives suggested de-prioritizing CLBP. They reported that due to the serious consequences that could arise from comorbidities (hypertension and diabetes), they prioritized care for the other comorbidities when patients presented with CLBP and comorbidities. However, a few doctors indicated that they adequately prioritized CLBP management irrespective of other comorbidities.

If I have a patient with all three (CLBP, diabetes and hypertension), diabetes and hypertension would have more attention because they are associated with far more complications (D10).

You can't manage comorbidities and leave the pain out (D12).

All the participants, having embraced biomechanical causes of CLBP, indicated numerous FABs related to posture and activity performance, highlighting participants' biomechanical orientation. They indicated that these FABs were relayed to patients during therapeutic encounters and were expected to form an aspect of patients' long-term coping. All the participants reported advising patients to avoid prolonged sitting, standing, or walking; bending forward 90°; 'wrong' sitting (e.g., sitting in a slouched position) and sleeping postures (prone lying/sleeping on soft/sunk-in mattresses); lifting heavy loads. Whilst most participating physicians did not necessarily believe the perception that pain, when performing activities, equals more harm, some physiotherapists upheld this belief.

I advise them on their sitting posture, not to lift heavy things and watching the bed they lie on (D11).

Anything that they do that triggers the pain, they should stop. It's a red flag, that something is wrong (PT11).

Category 3: Maladaptive practices

The maladaptive practices reported by the participants are described around four concepts (i.e., prescription of sick leave, dependency on the healthcare system, passive physical therapies, and late hospital presentation). The predominant mechanisms underlying these (i.e., a professional identity hinged around paternalistic and biomedical care, and patients'/socio-cultural

expectations of paternalism and passive therapies) are also discussed in this section.

About half of the physicians reported recommendation of sick leave for patients with CLBP sometimes or occasionally. All the physiotherapists also mentioned that they advised the suspension of activities temporarily. Most participating physicians who supported sick leave for patients with CLBP reported being aware of the evidence that suggests sick leave facilitates poorer outcomes in CLBP, suggesting a dissonance between physicians' beliefs and reported practices. Reasons adduced for prescription/recommendation of sick leave included unbearable pain, rest and patients' expectation and preference for sick leave. This depicts the influence of patients' expectation of passive therapies on HCPs treatment choices.

Sometimes it may be a particular activity that you're doing at work that is causing the back pain...the risk-factor. You probably need to take some days off (PT10).

Most of our patients who come with CLBP, especially the working group, they tend to ask for excuse duty (sick leave). But evidence-based medicine says no. So, you collaborate; you want one week but I think resting for one week is not going to be helpful, so I'd give you some two days (D8).

In terms of treatment choices, the physicians reported that medications (particularly analgesics) were the predominant focus of CLBP management. This suggests the influence of professional identity on reported practices. All the participating physicians reported prolonged intermittent prescription of paracetamol, NSAIDs (e.g., Ibuprofen, diclofenac) and stronger analgesics (opioids, tramadol). Commonly prescribed neuropathic pain medication included: amitriptyline, pregabalin, gabapentin and methyl cobalamin. Muscle relaxants were also prescribed sometimes.

Most times the tendency is to start the patient on some analgesics. So, I would give my patients medications for say two weeks and ask them to come for review in a month. Based on the symptom control, I might probably continue the medication for some number of weeks (D2).

...because most people would have already taken the normal painkillers maybe diclofenac, ibuprofen, I give stronger ones like tramadol and medications for the nerve, amitriptyline, or methyl cobalamin (D3).

Physiotherapists believed that passive physical therapies (electrotherapy-TENS, ultrasound; moist/dry heat- shortwave, microwave, hot packs; massage; lumbar traction; corsets) were measures available and unique to them as physiotherapists to curtail patients' pain, suggesting an influence of professional roles/identity. They reported that knowledge about passive therapies were acquired from training, however, their practice environment reinforced and facilitated its use.

We try to relieve the pain. We use dry heat, moist heat then we try to stimulate the nerves. From training we are taught what treatment modality to use, and they are available and used in the facilities too... (PT16).

According to some physicians, the dependency on analgesics and unmet patient expectations resulted in long-term medical visits and thus, dependency on the healthcare system. Physiotherapists also facilitated dependency on HCPs through multiple and prolonged physiotherapy sessions (bi-/tri-weekly sessions for three or six months or years). Patient expectation and the belief about the permanency of structural defects facilitated prescription of prolonged physiotherapy sessions by participants. This depicts the influence of participants' biomedical orientation.

I have been working for 10years, I don't think I have had a patient with CLBP who has had good enough relief to not come back to me. It kind

of lingers on. Their expectations if it's not well managed will make them keep coming (D2).

We recommend on average twice a week. Minimum duration of treatment, three weeks. There's no maximum. You initially begin twice a week; then reduce it. But if I have to put a maximum let's say three months (PT10).

Consideration of patients' opinions/choices was absent in the narratives of most participants. This appears to depict the influence of professionals' biomedical beliefs, roles and paternalism during therapeutic encounters. All the participants cited cultural beliefs and practices that facilitated late hospital presentation by patients. These included: the use of herbal medications and over-the counter analgesics as first-line treatment for LBP/CLBP for considerable periods before reporting to hospitals, the belief that CLBP is not a serious ailment and CLBP seen as a normal part of ageing.

But I think sometimes patients have pre-programmed their minds on a treatment before coming, not often though. But after the assessment you are the therapist, and you should arrive at the best for the patient (PT1).

They (patients with CLBP) don't come early. They wait till the pain is bad before they come. You know herbal I would say is part of our Ghanaian culture. So, majority of patients that I've seen they always try the creams, the soaps (D6).

Category 4: Limited involvement of physiotherapy and other HCPs

Two concepts (limited physiotherapy referral and non-involvement of other HCPs) and three predominant mechanisms (professional identity, fragmented care, limited knowledge of physiotherapy and other HCPs) are described under this category. All the participants believed that physiotherapy had a role to play in the management of CLBP. However, about half of the physicians indicated that they rarely referred patients for physiotherapy; five referred sometimes and three frequently referred patients. All the physiotherapists also bemoaned late physiotherapy referrals by physicians.

With the physiotherapy referrals I send quite a few only when it's chronic (D4).

Sometimes, the doctors don't refer patients early. Most doctors, I believe, probably don't see the relevance of physiotherapy so they keep the patients to themselves... But when they don't have solutions to it then they eventually refer the cases. (PT10).

A phenomenon of "specialist care before physiotherapy or specialist care and not physiotherapy" was evident in the physicians' and physiotherapists' narratives. Most physicians generally believed that patients should be referred for specialist care if further/alternative care was needed; with physiotherapy mostly seen as a later or rare adjunct. All the participating physicians believed that referral of specific CLBP, severe, persistent, and disabling CLBP to an orthopedic and/or neurological surgeon was an accepted and collective protocol (the commonest referral pathway) used within their professional domain and working environment. This highlights the influence of a shared professional identity of doctors/specialists and the lack of collaborative working with other HCPs.

I would normally refer to the specialist first. Mostly go to the orthopaedic or neuro surgeon before the physiotherapist comes in (D11).

Aside patient referral, all the participants did not give any indication of interactions with other HCPs, suggesting a lack of

collaborative working and a potentially fragmented CLBP management.

If the situation has not improved after six weeks to three months, you (physiotherapist) send them back to the doctor. Our communication is just by referring to the doctor (PT16).

The participating physicians discussed several factors underlying the limited involvement of physiotherapy. A narrow viewpoint/lack of knowledge on the role of physiotherapy in CLBP management was evident, as doctors perceived physiotherapists as ‘activity/biomechanical experts’ who also used massage and heat therapy, while others reported limited knowledge. Few physicians believed that patients could be attended to by primary healthcare physicians, hence the limited need for referral; the need for numerous physiotherapy sessions, and limited accessibility to physiotherapy services were also barriers mentioned by few participants.

With lumbago and sciatica I’ve been wondering how much physio will do. I’ve not gone into researching to actually get any clues as to whether there is empirical evidence of an effect of physio on CLBP (D4).

As to the referral pattern, majority let’s say about 90% can be managed by the family physician so we tend to do the necessary investigations (D8).

Persistent and/or severe CLBP, patients with deficits in movement and performance of activities or purely musculoskeletal pain, younger patients and patients who were willing to try other therapies were more likely to be referred for physiotherapy by physicians. Few physiotherapists suggested that inability to fund surgery also prompted physiotherapy referral by physicians. Consistent with a predominant biomedical/biomechanical inclination, only one participant vaguely recollected referring a patient to a psychologist for counseling regarding living with CLBP. No other referrals or engagement with any other HCPs were mentioned by any of the participants.

...Sometimes patients come to us saying they were referred for physiotherapy because they cannot afford surgery (PT4).

I’m just thinking I might have done it sometime long ago but maybe there may be some psychological so psychotherapy to help the patient cope with the pain (D1).

Few physiotherapists also believed that the referral protocols and bureaucracy that patients with CLBP had to navigate contributed to late physiotherapy involvement in CLBP and therefore a first point of physiotherapy contact practice policy might assist in bridging this gap. This appears to suggest the effect of hierarchical influences/fragmented care on CLBP care.

We probably are proposing that the entry system should even be through the physiotherapist. Because going through the system, by the time they probably get back to you (physiotherapist), things might be late so I prefer entry system to our end before if we think we can’t handle it we refer to the physician (PT10).

Category 5: Evidence-based beliefs and practices

This category comprises of two concepts: activity and exercises; and other management approaches. Biomedical explanations were given by all participants to support the basis for their evidence-based beliefs and practices, suggesting HCPs’ biomedical orientation as a predominant mechanism. All the participants believed that the activity was beneficial for CLBP, albeit with caution. Activity modification was also mostly suggested.

The physicians demonstrated, in most cases, awareness that the performance of activity in CLBP is supported by evidence.

When you don’t walk, it actually worsens, for arthritic pains. Activity improves it. (D10).

...My advice is that keep being active (PT10)

All the physiotherapists believed that prescribed exercises were an essential aspect of CLBP management and therefore they reported prescribing varied back exercises (strengthening exercises, core stability exercises, stretches, and range of motion exercises). However, there appeared to be variations concerning when physiotherapists introduced exercises, with some introducing exercises immediately after assessment and others after significant pain relief. All the participants believed that pacing activities allowed for a safer way to encourage the performance of inevitable domestic and work tasks. Therefore, all the participants had reportedly suggested pacing to every patient with CLBP that they had encountered.

Some back-extension exercises, abdominal exercises, core-stability exercises, strengthening exercises (PT16).

Some patients sit down for so long a period without any breaks in between. I recommend that they have to occasionally be on their feet, do a few stretches, go on brief breaks (PT8).

Three physicians and two physiotherapists believed selective imaging was required for CLBP management and therefore resorted to imaging if CLBP persisted, was unresponsive to medications and to inform referral decisions. They further indicated that X-rays should be dependent on patients’ presenting conditions such as suspicion of red-flags, radiculopathy, visible disabilities/functional deficits. About half of the participants believed prescription of sick leave was not a panacea for CLBP and therefore not indicated in CLBP management. Some of the participants also believed that obesity could worsen CLBP. Therefore, they reported advising patients about the impact of weight reduction on their symptoms. Only one participant, however, indicated referring an obese patient to a dietician for weight reduction because of CLBP.

After taking medications and the pain is still there or I suspect there is something more to the pain then I request X-ray or MRI (D2).

I won’t give an excuse duty (sick leave) because of this chronicity. Because excuse duty would not solve the problem (D15).

Three physiotherapists believed that collaborative working was important in CLBP management. One physiotherapist also believed that CLBP should be considered and managed from a biopsychosocial perspective and therefore relevant healthcare professionals such as psychologists were needed.

...A biopsychosocial approach where we consider working together with other relevant HCPs is important (PT1).

Discussion

This study provides an important understandings around the CLBP beliefs and practices of HCPs in an African country and the factors underlying their beliefs and practices. All the HCPs who participated in the study expressed predominant biomedical/biomechanical beliefs concerning CLBP, maladaptive CLBP beliefs, and practices, limited involvement of physiotherapists and other HCPs as well as evidence-based beliefs and practices. Significant mechanisms underlying HCPs’ reported beliefs and practices were the

healthcare environment (a professional identity hinged around paternalistic and bio-medical/mechanical care, fragmented care, limited knowledge of physiotherapy and other HCPs) and the sociocultural environment (sociocultural/patients' expectations of passive therapies and paternalism). The prevailing bio-medical/biomechanical inclinations reported in this study agree with findings from Zangoni and Thomson [42] which suggests that HCPs tend to incline towards utilization of implicit professional (bio-medical) knowledge, rather than evidence-based approaches. In addition, Farre and Rapley [43] indicate that the nature of medical care that encourages autonomy and medical supremacy hinders the uptake of biopsychosocial interventions which demand collaborative effort and shared decision making. This resonates with the current study which portrays an inclination of HCPs towards the use of imaging and other diagnostics, goal setting "for" patients and independent (HCPs) decision making to facilitate the therapeutic dialogue between the "knowledgeable professional" and the "passive recipient" (patient): paternalist care. Biomedical beliefs and orientation have also been reported in surveys conducted on HCPs (physicians and/or physiotherapists) beliefs in Europe, Canada, Brazil, Hong-Kong and Saudi-Arabia [17,18,30–33]. These previously conducted studies reported mid-scores for both biomedical and biopsychosocial sub-scales of the PABs, suggesting some awareness and beliefs regarding biopsychosocial involvement in CLBP. In contrast, the present study findings suggest that there is almost a non-existent consideration of psychological factors and very limited beliefs around biopsychosocial considerations for CLBP among Ghanaian HCPs.

Biomechanical and fear-avoidance beliefs were expressed by all participating HCPs of the current study. However, there was an overarching biomechanical inclination of physiotherapists when compared with physicians. Previous studies have also highlighted that a biomechanical orientation is commonly adopted by physiotherapists [17,33,44]. Additionally, the current study findings indicate that participants' biomedical and biomechanical beliefs underlie their treatment choices and pathways. This aligns with findings from systematic reviews [17,42] and primary research [10,21] on HCPs' beliefs that have established significant associations between HCPs' treatment orientation/beliefs and treatment choices. On the contrary, a survey conducted by Fullen et al. [31] among Irish physicians reported that physicians' biopsychosocial beliefs did not match their treatment practices. Also, in the current study, there was a mismatch between physicians' beliefs regarding imaging and sick leave and their reported practices in a few instances. Physicians cited patient expectation and satisfaction as drivers for this mismatch. This agrees with studies by Corbett, Foster, Ong [45], Fullen et al. [31] and Gardner et al. [17]. In the present study, although physicians' discourses suggested an awareness of evidence-based practice (EBP), EBP as it is understood in the context of Western countries (i.e., the use of CPGs) was absent in participants' narratives. The limited uptake of EBP may be due to limited accessibility, availability, and emphasis on EBP. In developed countries, accessibility and availability of EBP have been driven by national structures, organizations and professional bodies [46]. Therefore, professional bodies and academic institutions in Ghana need to spearhead the conduct of home-grown research, adaptation and dissemination of existing CLBP management guidelines to promote engagement with and uptake of EBP. Health/national policy structures to facilitate accessibility to research, adoption of EBP and health research funding are also required. Generally, in the current study, physicians appeared to be more abreast with the current evidence on activity, imaging, bed rest and patient-centred care when compared to participating physiotherapists. Previous studies have shown that there are

healthcare professional variations in the uptake of evidence-based guidelines, even within interprofessional CLBP management settings [47,48]. Professional identity affects uptake of evidence-based guidelines and treatment choices, as evident in the current study where physiotherapists had a predominant biomechanical inclination and physicians referred to specialists first or only specialists due to their shared common professional identity. Interprofessional working has however been suggested as an important management framework for CLBP, to foster holistic patient care and a shared professional identity [49] and could be adopted within the Ghanaian CLBP healthcare space to address the mechanism of fragmented care identified in the current study.

It is worthy of note however that in the present study, most of the participants expressed beliefs and practices that mostly contradicted current evidence for CLBP management [21,22]. CPGs for CLBP in developed countries consistently suggest a patient-centred approach (i.e., shared decision making, individualized care and effective communication) [21]. CPGs for CLBP also suggest non-pharmacological management strategies such as cognitive behavioural therapy, prescribed exercises, biopsychosocial management, trying to keep patients at work and educational interventions/self-management for the management of CLBP [21,22]. NSAIDs, massage, and manual therapy are recommended as adjuncts due to their short-lived effectiveness and passive nature [21,22]. Paracetamol may be used, but not as a standalone medication. Routine imaging, opioids, selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, tricyclic antidepressants and anticonvulsants, and passive strategies such as rest, acupuncture, and electrotherapy are discouraged [21,22]. In contrast, within the present study, radiological imaging was considered appropriate and reportedly universally prescribed by most HCPs, passive strategies including intermittent and prolonged use of NSAIDs, opioids and paracetamol (as standalone), sick leave/rest, electrotherapy, massage, heat therapy were relied on for CLBP management. Paternalistic and biomedical care were used, with very minimal consideration of psychological factors, and education of patients mainly centred on the explanation of bio-mechanical/medical causes and recommending avoidance of certain activities. Similarly, a systematic review (twenty-six studies:195,000 patients with LBP) assessing the components of usual care in family medicine practice and emergency departments found that opioids were over-prescribed in family practice [50]. Additionally, the reliance on passive strategies recorded in this study agrees with review findings from a study on CLBP beliefs and management practices in Africa [20]. Paracetamol is advised against as first-line management and opioids are not recommended for CLBP due to questionable efficacy and the potential harm associated with opioids (overdose and death). Prescriptions of NSAIDs are also cautioned to be carried out taking cognizance of potential harmful effects of prolonged intake [21,22]. There is inconsistent evidence on the efficacy of electrotherapy, massage and heat-therapy for CLBP management [21,22]. Furthermore, passive therapies do not offer long term benefits for patients. Passive therapies also facilitate dependency on the healthcare system and hinder self-management and avoidance strategies promote inactivity and disability [51–53].

A systematic review (69 qualitative studies) on clinicians and patients views about imaging for LBP found strong to moderate evidence suggesting that the need for radiological imaging is driven by HCPs' desire to reassure patients concerning serious pathology, (fear of) medico-legal litigation, legitimizing patients' pain and patients' expectations [54]. The HCPs in the current study endorsed all the reasons for radiological imaging stipulated by Sharma et al. [54], except for medico-legal litigation that did not

appear to be an aspect of concern for physicians and physiotherapists in the present study. This may be related to the paternalistic care reported by HCPs in this study; hence patients demanding little accountability from HCPs. Research [54–56], suggests that imaging findings may facilitate negative beliefs, unhelpful behaviour, pessimistic outlook, FABs, anxiety, increased costs and overdiagnosis. Of concern is the absence of non-specific CLBP as a diagnostic label for CLBP in the discourses of all physiotherapists and most physicians who participated in the current study, which reinforces Ghanaian HCPs beliefs about identifiable CLBP causes. This contradicts research conducted in developed countries where the term non-specific CLBP provides an explanation for the nature of the highest number of CLBP patients reporting for care (>90%) [57]. All the physicians and physiotherapists in the present study gave credence to pain as the most important indicator, which other goals such as function were dependent on. Similarly, UK general practitioners in a mixed-method study on GPs' attitudes and self-reported practices about LBP believed pain control was a key focus for general practitioners managing CLBP [45]. However, Smith et al. [58] in a systematic review (nine articles from seven trials) comparing the effects of painful and non-painful exercises for chronic musculoskeletal pain found that painful exercises presented small but significant benefits over non-painful exercises. This systematic review depicts that exercising with pain is safe and therefore pain-relief should not be a compulsory antecedent to the achievement of other therapeutic goals.

The underlying mechanism of sociocultural/patients' expectations of a biomedical model of care and paternalism found in this study could be due to limited health literacy, and patients' unawareness of the role of evidence/research in healthcare delivery. Therefore, public health campaigns targeted at improving CLBP literacy, helpful beliefs, and practices, and the role of the patient as an active partner in healthcare delivery may be beneficial. Public campaigns have facilitated a change in population beliefs and CLBP literacy in developed countries [59]. Generally, there was an appreciation of exercises and activity as important aspects of CLBP management, suggesting that Ghanaian HCPs sometimes expressed beliefs and practices that were in line with current evidence for CLBP management [21]. However, physiotherapists in the present study reported a prescription of specific back exercises, rather than facilitation of general function or activity performance. The current evidence for CLBP management however suggests that no specific exercises are more effective for CLBP and a concentration of facilitation of functional activities should be prioritized [52,60]. Additionally, the bio-medical/mechanical and pain contingency approaches which require the identification of causal factors to drive CLBP management [44] aligns with CPGs recommendations around activity modification, pacing, and specific LBP (identification red-flags) [21,22].

The strengths of this study include the involvement of two different geographic locations and two categories of HCPs which provides an opportunity for data triangulation, broader and deeper insights. Trustworthiness was promoted through using rigorous methods, involvement of experienced qualitative researchers, agreement of all data collection and analysis processes by the research team, keeping an audit trail through memo-writing, NVivo and reflexivity. Although this study adopted a purposive sampling approach with the aim of sampling across a varied range of participants, this study did not include consultants, but other high ranked family physicians (e.g., specialists) participated in the study. The study findings may not be transferable to physicians who work in other specialties (e.g., orthopaedic surgeons or neurosurgeons) or HCPs in other countries. Member checking was

not carried out, although this could have enhanced the reliability of this study.

Conclusion

The CLBP beliefs and practices of Ghanaian HCPs are modelled around a professional identity that is mainly hinged on biomedical/biomechanical understandings and paternalism. Hierarchical influences/power play between doctors and physiotherapists, and limited engagement with evidence contribute to how CLBP is managed in Ghana. A reconstitution of HCPs' beliefs and knowledge to acknowledge the following: mostly CLBP does not have a readily identifiable cause, biopsychosocial perspectives provide a holistic understanding, activity is paramount, pain does not necessarily indicate more harm, patient empowerment, self-management, and collaborative working are key in chronic pain management, is warranted. Furthermore, uptake of evidence-based approaches may reduce: patients' dependency on the healthcare system, potential side-effects associated with prolonged analgesia, overdiagnosis and CLBP costs.

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Ethical approval

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