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Barriers and facilitators to the delivery of a biopsychosocial education and exercise programme for patients with chronic low back pain in Ghana. A qualitative study

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ABSTRACT

Purpose: Low back pain management has evolved with researchers advocating for a biopsychosocial management model. The biopsychosocial management model has been predominantly applied in high-income countries and underexplored in low- and middle-income countries including Ghana. This study aimed to explore the potential barriers and facilitators to patients with chronic low back pain (CLBP) and physiotherapists engagement with a biopsychosocial intervention (exercise and patient education) as part of a feasibility study.

Material and methods: This was a qualitative study embedded within a mixed-methods, sequential, feasibility study, in Ghana, applying semi-structured interviews. Two categories of participants involved in this study were, two trained physiotherapists, and six patients with CLBP, sampled within the feasibility study.

Results: Regarding the barriers and facilitators to the delivery of the BPS intervention, five interlinked themes emerged from the thematic analysis. These were: structure and process of delivery; patients' expectations; patients' health beliefs, autonomy, and engagement; external influences and personal and professional characteristics of physiotherapists.

Conclusion: The themes that emerged from this study demonstrated many positive facilitators based on participants' improved understanding of LBP and the clarity and purpose of the biopsychosocial intervention. The results therefore demonstrate a potential to deliver the biopsychosocial intervention in a Ghanaian context.

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KEYWORDS

Low back pain; biopsychosocial model; exercise; patient education; low- and middle-income countries; barriers and facilitators

> IMPLICATIONS FOR REHABILITATION



- A biopsychosocial approach to managing chronic low back pain offers a promising alternative to patients and physiotherapists in Ghana.
- A biopsychosocial approach to managing chronic low back pain has the potential to improve physiotherapists' thoughts and attitudes, and have a positive influence on their professional development in Ghana.
- A biopsychosocial approach to managing chronic low back pain has the potential to reverse patients' maladaptive beliefs, improve their understanding of their condition, improve outcomes in Ghana.

Introduction

Low back pain (LBP) is a common musculoskeletal condition and the number one cause of years lived with disability (YLD), globally [1]. It is estimated that LBP is experienced by majority of people and accounts for 60.1 million YLD [2,3]. These trends exist in both high-income countries (HICs) and low- and middle-income countries (LMICs), including Ghana [4]. Evidence exists associating many persons' LBP with pain catastrophising, low self-efficacy, depression, fear avoidance beliefs, lack of social support and anxiety [5–9]. In addition, physical indicators such as reduced physical activity and self-reported disability, and maladaptive behaviours (for example, reducing range of movement, slow movement, complete bed rest) are associated with LBP [10–12]. These factors have been identified in both HICs [12] and LMICs [11], and are

consistent with the theory of the biopsychosocial (BPS) model of pain including LBP. Management should therefore be designed to address these factors. Applying BPS approaches for the management of musculoskeletal pain is recommended by both national [13] and international [14] practice guidelines.

However, BPS approaches are predominantly applied in HICs, with limited evidence demonstrating its application in LMICs including Ghana [15,16]. Furthermore, the evidence of BPS approaches being applied in LMICs demonstrates low quality evidence with majority of the studies lacking methodological quality [15]. Evidence from Ghana suggests that LBP management is biomedically oriented with a focus on passive approaches such as electrotherapy, rest and postural advice [17]. Therefore, exploring the feasibility of delivering high quality BPS approaches in LMICs

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including Ghana is important. Various high quality BPS approaches are applied in evidence; for example, physical activity informed cognitive behavioural therapy [18,19], cognitive functional therapy [20], exercise informed behavioural graded activity [21,22]; however, based on resource constraints in most LMICs including Ghana, the Global Spine Care Initiative recommends that management of patients with LBP in LMICs should be underpinned by advice and education, self-management, and exercise/physical activity, within a BPS care model (for example, awareness of cognitive influence on pain, self-management and physical activity) [14]. The BPS intervention applied in this study was therefore underpinned by these recommendations and based on a systematic review of BPS interventions being applied in LMICs [15,23].

This research was conducted based on the framework of a mixed methods feasibility study, investigating the feasibility of delivering a BPS exercise and patient education intervention to patients with chronic low back pain (CLBP) in a Ghanaian context [23]. This BPS intervention was the first to be tested in a Ghanaian context and involved physical activity/exercise, self-management, and the awareness of cognitive influence on pain [23]. This BPS intervention does not align with the current management approaches physiotherapists apply in Ghana [17]. Key components of this BPS intervention include an encouragement of physical activity/exercise, encouraging self-management and providing an understanding of unhelpful beliefs and practices that may prolong symptoms [23]. The BPS intervention was delivered by trained physiotherapists to patients with CLBP in Ghana. The complete protocol for the BPS intervention has been previously published [23]. The barriers and facilitators to the delivery of BPS interventions have been predominantly explored in HICs [24–26]. A synthesis of the literature suggests facilitators relating to BPS interventions meeting patients' management expectations [24], physiotherapists 'buy in' regarding the concept and underlying principles of BPS interventions [25], and improved locus of control [24]. Regarding barriers the evidence suggests that patient's level of fear avoidance [26], and unmet management expectations [24], were key barriers to delivering BPS interventions.

This study was the qualitative aspect of the mixed methods feasibility study. The aim was to investigate the possible barriers and facilitators to the delivery of the BPS intervention from the perspective of the trained physiotherapists and participating patients with CLBP.

Materials and methods

Study design

This study adhered to the Consolidated Criteria for Reporting Qualitative Studies (COREQ) guidelines [27]. This was a qualitative study embedded within a larger mixed-methods, sequential, feasibility study. The rationale for this study was not to confirm or refute a hypothesis, it was conducted to establish new information to establish an understanding of the barriers and facilitator to the delivery of the BPS intervention and how it can inform the design of further studies. Philosophically, the authors adopted a critical realism approach, aimed at understanding phenomena by their causal mechanisms rather than empirical generalisations [28,29]. Ontologically, critical realism is stratified into the real (the potential causal mechanisms at an intransitive level), empirical (the reality experienced by a stakeholder in research whether directly or indirectly at transitive level) and actual (reality that happens but may not be perceived by stakeholders) [29,30]. The actual is the phenomenon that occurs in research but is influenced by the causal mechanisms (real) [28]; therefore, understanding

the real from the perspective of stakeholders gives a researcher an understanding of the potential barriers and facilitators to the achievement of a phenomenon. Practically, applying critical realism in this study meant that the qualitative data could demonstrate the potential mechanisms/factors by which it may be feasible to deliver the BPS intervention rather than relying on only quantitative data to draw such conclusions [31].

Methodologically, the critical realism paradigm recognises pluralism of methods whereby quantitative and qualitative methods can be combined to achieve a research aim [31]. This is useful when one research method cannot fully illuminate the complex mechanisms in research; hence data triangulation by applying more than one method through a retroductive process was applied [32,33]. This process further justified the philosophical paradigm of critical realism in this study. Approval for this study was obtained from the School of Medical Sciences/Komfo Anokye Teaching Hospital Committee on Human Research Publication and Ethics, Ghana (Reference Number: CHRPE/AP/610/19), the Faculty of Medicine and Health Sciences Research Ethics Committee, University of Nottingham, United Kingdom (Reference number: 384-1909) and the Head of Family Medicine Directorate of KATH to conduct the research in the Physiotherapy Department of KATH.

Setting

Komfo Anokye Teaching Hospital (KATH), one of the major teaching hospitals in Ghana was the setting for the conduct of this study. KATH is in the middle-belt of Ghana and serves as a major referral point for the northern-belt and the southern-belt. KATH attracts patients from diverse cultural and socio-economic backgrounds; thereby, enhancing the depth and breadth of narratives from patients. KATH is also a major agency under the ministry of health in Ghana, meaning the policy directions can influence the Ghanaian healthcare system.

Participants

Two categories of participants were recruited for this study. These were physiotherapists and patients with CLBP. Patient participants were recruited from the doctors' referral list of the physiotherapy department at KATH. Patient participants' inclusion criteria included all adult, both male and female (18 years or more) with non-specific CLBP. LBP was defined as tension, pain or stiffness in the area located above the gluteal folds and below the costal margins with or without referred leg pain [34,35]. Patients were considered if they had non-specific LBP persisting for 12 weeks or more. Non-specific LBP was defined as the resultant diagnosis after a diagnostic triage had ruled out pathologies such as lumbar spine specific conditions (for example, fracture, spondyloarthropathy, malignancy, neurological conditions such as cauda equina syndrome, epidural abscess); conditions beyond the lumbar spine (for example, abdominal aortic aneurysm), potential red flags (for example, pain at night, unexplained weight loss) [35,36]. The diagnostic triage was delivered by the principal investigator - PA. Physiotherapists included in this study were licensed male or female physiotherapists engaged in active management of patients with CLBP in KATH. There were no restrictions based on physiotherapists' level of degree qualification and years of experience.

Patients were excluded (based on a screening questionnaire administered by the PI) if they had CLBP associated with a specific pathology (for example, inflammatory diseases, fracture, infections, spinal stenosis, neurological conditions), were pregnant [35,36],

whether they had conditions such as severe psychological illness, whether they were unable to understand the participant information sheet and/or sign consent forms or they were medico-legal patients. Physiotherapy healthcare assistants were also excluded since physiotherapists directed patients' treatments and made all the decisions regarding patient care within the research context.

Sample

Since the main study was a feasibility study, a minimum sample size for patient participants was not estimated [37]. A sample of thirty ($n=30$) patients with CLBP were recruited for the main feasibility study. This number was deemed adequate based on literature [38] and the average number of new patients with LBP seen in the physiotherapy department of KATH monthly. Furthermore, a sample of two physiotherapists were recruited; this number was deemed adequate based on the available number of physiotherapists ($n=8$) that were managing patients with LBP in the physiotherapy department of KATH, during this study. It is

acknowledged that a sample of two physiotherapists may be deemed small; however, although 8 physiotherapists were involved in managing patients with LBP within the study context, the majority were constrained with other work commitments and could not volunteer to participate in this study.

Regarding this qualitative study, all patients and physiotherapists who were part of this study were invited to participate in the semi-structured interviews. All participating physiotherapists ($n=2$) were interviewed, as well as six participating patients, conveniently sampled. Patient participation was primarily based on patients' availability and their agreement to partake in the interviews. The number of patients interviewed was guided by data saturation, as no new participants were recruited for interviews once preliminary analysis indicated that no new information was emerging from participants' accounts [39]. Data saturation only guided patient participants data and not that of physiotherapist participants.

Public/patient involvement

The views of physiotherapists and patients formed an important aspect of this qualitative study. One physiotherapist and one patient who were not involved in the study were engaged for pilot interviews by the PI prior to the main study, to assess the appropriateness of the interview questions for this qualitative study. The pilot interviews enhanced the depth of the interview questions for this qualitative study.

Data collection

Semi-structured interviews were used to collect qualitative data from participant physiotherapists and patients. Interview data were collected by the PI who is a male Ghanaian physiotherapist and researcher. Semi-structured interviews were used to ensure that the interviews stayed within the boundaries of the objectives of this study whilst allowing flexibility in the interview process [40]. The interview guide (Table 1) was adapted from literature [41], followed by an update based on the data from the public/patient involvement, and the objectives of this study. Interviews were conducted in a room away from the clinical environment in the university building of KATH. All interviews were audio recorded and lasted between 30 min to 70 min. A research diary was used to capture reflexive observations and interview notes. The qualitative data collection (patients and physiotherapists) spanned a period of six weeks (February to March 2020). Qualitative interviews for patient participants began after the first set of patient participants completed their six-week BPS intervention; and patient interviews spanned a duration of three weeks. Once patients completed the six-week BPS intervention, they were eligible to arrange a slot for interviews, based on their willingness. Interviews for physiotherapist participants began after all recruited patients had completed their six-week intervention, and physiotherapist interviews were conducted within one week, based on the physiotherapist participants' availability. All participating physiotherapists were interviewed (2 physiotherapists), as well as six participating patients. Patient participation was primarily based on patients' availability and their agreement to partake in the interviews. Consent was sought from all participants who agreed to partake in the interviews. Physiotherapist participants' interviews were conducted in English. The rationale for the physiotherapist interviews was to determine their experiences after engaging with the feasibility study, in relation to

Table 1. Interview topic guide - Physiotherapists.

-
- Thank you for agreeing to take part in this study and thank you for agreeing to discuss your experience.
 - Can you please discuss your physiotherapy experience to date, e.g., length of time qualified, length of time specialist in outpatients?
 - What have been your professional experiences of treating patients with CLBP?
 - You were asked to deliver treatment according to the research protocol. Did you find the approach much different to your usual practice?
 - Did you have any issues delivering the intervention?
 - Were there any other issues that you experienced?
 - What has been your impression of the intervention?
 - What are your thoughts on patients receiving this treatment for their CLBP?
 - Would you use that approach to manage patient with CLBP management? If so, why?
 - Thinking about the study procedures, e.g., your recruitment / consent taking / training,
 - Did the patients report any problems to you about the trial?
 - Any other comments?
-

Thank you for your time

Interview topic guide – Patients

Thank you for agreeing to take part in this study and thank you for agreeing to discuss your experience.

- Will you begin by briefly describing your back complaint, how it affected you?
 - Did you find the physiotherapy helpful / did you get benefit from it?
 - What made you decide to enter the study and did the fact it was part of a research study affect your decision?
 - How useful were the information sheets (given prior to entering the study) in helping you understand what was involved?
 - How did you find the initial research consultation, including consent taking?
 - How have you found the questionnaires?
 - Were they understandable?
 - Were they easy to fill in?
 - Did they take long?
 - Do you think there were important questions that were missing?
-

Intervention:

- How did you feel about the intervention you received?
 - Did it feel safe?
 - Did you feel motivated to do the exercises?
 - Regarding the exercises, did you understand exactly what you had to do? Did you do them?
 - Is this what you expected from physiotherapy treatment?
 - Did you encounter any problems completing the exercises?
 - How did you feel about the education you received?
 - Has it made a difference in your perceptions about CLBP?
 - Are there any ways in which you would have preferred the intervention you received?
 - Is there anything further you would like to mention or discuss?
 - Thank you for taking the time to discuss your experience.
-

Adapted from: Smith et al. [38]

identifying potential barriers and facilitators to delivery and acceptability of the BPS intervention.

Patient participants' interviews were also conducted in English or the local language (Twi) depending on their preference; the rationale was to ensure that patients from all socio-economic backgrounds were considered. All interviews were conducted by the PI who is a fluent English and Twi speaker. A Twi version of the interview guide was available should any patient participant request an interview in Twi (2 out of the 6 patient participants requested to be interviewed in Twi). This guide was a translation of the English version. The translation was completed by the PI and back translated by an independent professional Twi expert. The back translation was to ensure that the import of the interview guide was not lost. Back translation is highly recommended and the most utilized method of translating [42] from a target language (for example, Twi language as applied in this study) back to the language of source (for example, English), and the similarities between the target and source versions assessed [43]. During data collection, previous interviews influenced subsequent interviews. When new dimensions were raised by participants, these were explored in subsequent interviews to expand the meanings and dimensions identified from participants. Prompts such as who, where, how and when were used throughout the interview to facilitate in-depth discussions and identification of important meanings and experiences. Summarizing, the use of non-verbal cues that signaled paying attention and affirmations were also employed to enhance the data being collected [44]. The basis for the patient interviews was to determine whether the BPS intervention met their expectations, whether there were any barriers/facilitators to their engagement, and whether the BPS intervention was acceptable. All interview data were collected through audio recording by the PI.

Data analysis

Qualitative data derived from participant interviews in this study was analysed using thematic analysis as described by Braun and Clarke, [45]. The six stages proposed by Braun and Clarke [45] were employed: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Thematic analysis at latent level was used, that is, analysis went beyond explicit ideas and semantic patterns to include interpretative analysis to identify generative mechanisms [45], in line with the precepts of critical realism. Preliminary data analysis started in the data collection phase as patterns and meanings began to unfold. The physiotherapists' and patients' interviews were coded/analysed separately and later synthesized together. However, descriptions referring to patients or physiotherapists were clarified throughout the results presentation. All the transcripts were transcribed verbatim by the PI to improve researcher sensitivity and familiarization with the data [46]. The two Twi transcripts were translated to English by the PI and back-translated into Twi by an independent professional Twi expert, to ensure that the import of the transcript was not lost.

Data analysis commenced with familiarization with the data. This involved listening to recordings multiple times, reading and re-reading of transcripts by the research team. This was followed by a line-by-line coding of the transcripts, in Microsoft Word Office 365 by the PI. The use of annotations, screen sharing, colour-coding, and searching within Microsoft word facilitated the data analysis process [47]. Coding facilitated initial identification of occurring ideas/descriptions, patterns and mechanisms that were emerging

from the data. Each code and the corresponding texts (quotes) across all the participants were grouped. Induction guided the data analysis; therefore, initial codes were named using descriptions emanating directly from participants' data. Codes that reflected similar ideas were grouped together under a broader description to form coding categories. Coding categories were further grouped under a more encompassing description relating to a particular idea/meaning/experience to form a theme. The generated themes were refined or moved, until a better representation was achieved and agreed upon by the research team. For instance, the generated themes were read and re-read within the context of the raw data by the research team to ensure that the meanings and patients' voices have been retained. The generation of the theme names was guided by previous literature (deduction) and induction. However, the analysis process itself followed an inductive approach, ensuring codes, coding categories and themes emerged from participants' voices. According to Ryan and Bernard [48], themes are abstract ideas that are generated before, during or after data analysis. Each theme comprised coding categories and codes (including generative mechanisms).

Field notes and reflexive observations were applied to minimise the possibility for the principal investigators' presumptions to influence the analysis. Furthermore, data familiarity and subjectivity were reduced through a peer review process by the research team throughout the analysis process (from coding to generation of themes). This peer review process was facilitated by regular meetings to discuss the interview processes and emerging data, reading of transcripts by the research team and discussion of codes and themes within the context of the raw data. All transcripts and data were stored on an encrypted laptop.

Results

The two recruited physiotherapists and six ($n=6$) patients participated in the interview stage of the study. Both physiotherapists were male with one being a senior physiotherapist with seven years working experience, and the other a physiotherapist with two years working experience. The physiotherapists were twenty-seven and thirty-four years of age. The patient participants comprised of two males and four females with an average age of 42.5 years and an average duration of LBP of 5 months. Table 2 presents the demographic characteristics of the interview participants.

The thematic analysis produced five interlinked themes. Theme 1 related to the structure and process of delivery of the BPS intervention. This theme highlights how the BPS intervention offered an appealing alternative to patients, the content and processes within the training programme and intervention delivery, and the factors that were barriers to engagement in the exercise arm of the BPS intervention. Theme 2 related to patients' expectations. This theme highlights the patients' preferences and expectations, the evidence of acceptance of the BPS intervention, and the positive relationship between the physiotherapists and patients. Theme 3 related to patients' beliefs, autonomy, and engagement. This theme highlights how the BPS intervention gave the patients a better understanding of their condition, reversed their unhelpful beliefs, improved their psychosocial outcomes, and facilitated patient autonomy and confidence. Theme 4 related to external influences. This theme highlights the impact that patient demographics had on the engagement with the intervention. Theme 5 related to personal and professional characteristics of physiotherapists. This theme highlights the physiotherapists' thoughts and attitudes towards the BPS intervention and how this informed their professional development.

Table 2. Demographic characteristics of interview participants.

Physiotherapists						
Participant ID	Gender	Age	Rank	Years of working experience	Specialty	
PT1	Male	34	Senior physiotherapist	7	*None	
PT2	Male	27	Physiotherapist	2	*None	
Patients						
Participant ID	Gender	Age	Duration of backpain (months)	Level of education	Employment status	Marital status
P1	Female	41	5	Tertiary	Employed	No answer
P2	Female	47	3	Tertiary	Employed	Married
P3	Female	55	12	Primary	Employed	Single
P4	Male	45	4	Senior high school	Employed	Married
P5	Female	34	3	Tertiary	Self-employed	Married
P6	Male	29	3	Senior high school	Employed	Single

*None: This means the physiotherapist has no post-graduate specialty training and therefore practice generally in all sections of the physiotherapy department.

Theme 1: Structure and process of delivery

Physiotherapists

Both participating physiotherapists were asked to reflect on their experience with the training programme and how it impacted on the delivery of the BPS intervention. There were positive comments from both physiotherapists in this regard. This was informed by the interactive approach adopted during the training programme, which gave clarity and an understanding of the purpose of the research and BPS intervention. These demonstrated potential facilitators to the delivery of the BPS intervention as highlighted by the physiotherapists.

"...I've gained a lot of experience from it." (PT1_7 Years' working experience)

"... because it was more of a discussion something, we were able to come out to ask what we thought the problem was going to be like. Then we were able to insist on it being an approach and it's a protocol, so we had to stick on to that and the varying parameters that we had to go through because it's a research. So, I would say the training was elaborated on well and we could understand the intention of the research and how best we can implement it here." (PT2_2 Years' working experience)

Physiotherapist participants discussed details of the BPS intervention which facilitated their understanding. These facilitated the overall organisation of the BPS intervention for the participating patients.

"It was well organised; we know where we are starting from, the next stage that we are going to, the expected outcome of it and all that. So, I think the intervention, my impression about the intervention is that it's really good for the kind of patients that we see in here." (PT2)

Patients

The details of the BPS intervention presented an alternative to the traditional passive modalities utilized in Ghana such as electrotherapy, and the reliance on pain medications by patients with CLBP. It appeared patients with CLBP who had either experienced physiotherapy in the past or heard about other peoples' experiences were in pursuit of an alternative approach, one that they could be convinced was viable rather than enduring protracted treatment regimens that did not satisfy their management needs. This presented a potential facilitator to the delivery of the BPS intervention.

"What actually came to my mind was like maybe you are trying something different, from the normal physiotherapy, because I also, I have a certain woman who has been coming here every now and then, but I know

consistently she's in pain. She told me that she will come, she will lie down on a machine for some time. So when he said it's a study, I really wanted to know what it entails, I thought then maybe something So, I just, I was like, OK let me try this could help." (P5_34-Year-old female)

Theme 2: Patients' expectations

Physiotherapists

Both physiotherapists reflected on the patients' perceptions and/or pre-conceived ideas about what physiotherapy entailed. Their account showed that patients perceived physiotherapy as involving the use of modalities such as electrotherapy. Therefore, their initial perception about the BPS intervention was that it was not going to work. This presented a potential barrier to the delivery of the BPS intervention.

"So when they came and we told them we are not going to do anything electrical, we are going to try and empower them, let them understand and also take control of their pain, it felt a little bit weird; they felt oh this is not going to work, why is someone enjoying then I'm going to go through series of exercises." (PT2)

Whilst patients' perceptions and/or expectations about physiotherapy seemed to be a potential barrier especially at the initial stages of receiving the BPS intervention, the positive communication strategies adopted by the physiotherapists, based on the content of the BPS intervention, facilitated their understanding and enthusiasm to adhere to the treatment regime. This presented a potential facilitator to the delivery of the BPS intervention.

"With this protocol they are able to break out of the cycle and you know that OK if you are able to motivate the patient and you are able to empower them, if you are able to give them the right information, you will be able to take them away from their pain or make them manage their pain." (PT2)

Patients

Patients opined that their initial expectation was that the process would be curative, although they later accepted the physiotherapist's assurance of a gradual management of their pain.

"I thought by the time I leave here I wouldn't feel any pain, but the physiotherapist made me understand that it may not go at once but with management it can decline gradually, so when he said that I said OK." (P3-55-year-old-female)

"It has helped me, in the sense that even the way they spoke to me made me realise I have to take it out of my mind and go on with life, and also try hard to do the exercises, that can help in the normal healing process." (P2_47-Year-old female)

Satisfaction with the BPS intervention was also highlighted by participants (patients and physiotherapists). Whilst the positive therapeutic relationship promoted the patients' satisfaction, patients also highlighted the fact that the improved outcomes they experienced, without relying on pain medications, also facilitated their satisfaction with the BPS intervention. These presented potential facilitators to the delivery of the BPS intervention.

"When I came to the physio and I went through within a week I realised that it was a solution, in the sense that I was not given any drugs but normal exercise and from where I am coming from as a soldier, I was thinking our training was the best but when I came here, I realised that the exercises that I go through rather gives me results." (P4-45-year-old-male)

Theme 3: Patients' health beliefs, autonomy, and engagement

Physiotherapists

Physiotherapist participants reflected on their observation of the autonomy patients had whilst engaging with the BPS intervention. Apart from the supervision patients received whilst undergoing their management sessions, patients were able to better self-manage their condition. This was a potential facilitator to the delivery of the BPS intervention.

"They will be patients taking charge of their own treatment going forth to self-manage themselves and all that. So, I think it's a very nice intervention for the facility." (PT2)

"It's a good approach, because it not only treats the patients, the pain they came here with, but it also tries to educate them, it equips them with that they can do on their own at home, because they learn how to do the exercises on their own, how to be disciplined with the exercises because they realised when they did it they had results." (PT1)

Patients

Patient participants commented on their autonomy whereby they mentioned self-management strategies they had adopted to go about their daily activities and reduce the reliance on health facilities for their management.

"It makes me realise that this is what I'm supposed to do and that is what I'm supposed to do. Yes, so when faced with any situation, he or she can devise strategies to solve the problem rather than bringing it to the hospital." (P2)

Educating patients about LBP, disabusing them of the myths associated with the condition, and educating them on the need for physical activity/exercise, were integral parts of the BPS intervention. Several participating patients indicated that the BPS intervention (especially the education aspect) improved their understanding of their condition and the need for physical activity/exercise as an approach to the management of LBP. These were important facilitators to the delivery of the BPS intervention.

"The education is, I think is very very important. Had it not been the education I think I would be having doubts about the exercise. If like I was asked to go through the exercise directly, I would have been having a lot of questions for the instructor as well. So, after the education it is like OK, now let's see how things will go, let me see how the exercises will affect the situation, will affect me." (P5)

Furthermore, there was evidence of positive engagement with the BPS intervention based on the understanding patient participants gained from it.

"Normal if you know what you are doing and you know where you are going, you will be more comfortable than somebody will just tell you do this. Then any normal person would ask; so, if I do this what will happen? If you are told that when you do this, you will get this at the end of the day you will feel more comfortable doing it." (P1)

The patient participants also commented on the positive psychological adjustment from the BPS intervention. This had a positive effect on their knowledge and beliefs about LBP, where patients expressed changes to prior beliefs and became aware of the multidimensional nature of LBP. The data further revealed that the fear the patients associated with having LBP was allayed, highlighting a potential facilitator to the delivery of the BPS intervention.

"I liked the psychological aspect. That one I liked it very much, because this is the only place, I came to realise that it's not like a death sentence. So, the education helped me allayed my fears, and it was like, I mean, let's say it was like a heavy burden lift, being lifted from my head, you know. Because initially I was seeing myself to be sick, to be, not to be fit, that's how I was seeing myself. I was also made to believe that you can just have a bad day, and it has to do with lifestyle and management, so that's exactly what I'm doing." (P5)

Additionally, a reversal of maladaptive beliefs previously held by patients was also highlighted.

"When you get into certain conditions, I have realised that it is not only medications that will work, but even having a conversation with the patient, by the time he or she gets home, that will even reduce the condition more." (P2)

An improvement in the self-efficacy of patient participants was also evident from the data. Patient participants recounted an improvement in their confidence in executing their normal daily activities.

"It has helped me to the extent that I have discarded some things, and physically too at least I'm able to go on with my normal activities, not fully but its better, so at least 80% to 90%." (P2)

"My self-confidence has bounced back. I'm OK, I feel like I'm OK I can do anything." (P5)

Theme 4: External influences

Physiotherapists

Physiotherapist participants reflected on the patient participants' age as a potential limiting factor to their engagement with the BPS intervention. They opined that the patient participants' level of literacy also limited their understanding and engagement with the BPS intervention. This presented a potential barrier to the delivery of the BPS intervention.

"But there are others too that they started and were able to do it well and they were seeing the results, and I saw that mostly in the elderly the elderly among the patient population and those with a lower level of education, it was very difficult to understand the exercises and how to do it well, so those were the ones that were let's say complaining." (PT2)

Patients

Patient participants reflected on their sociodemographic circumstances and how it affected their engagement with the BPS intervention. The data showed that time constraints due to external demands was a factor that limited their engagement with the BPS intervention. This presented a potential barrier to the delivery of the BPS intervention.

"I try to do it. It is not as if I do not do it at all, but the problem is at home where I do not get time." (P3)

Again, work related demands also posed a constraint to patient participants' engagement with the management sessions. This resulted in increased stress levels during scheduled appointments.

"My problem was with my place of work. So anytime I came I was a bit stressed up, but because I wanted something out of the treatment, I was overlooking that; but when I'm done, I have to rush back to the school to teach and all that. Yes, so that was my problem." (P2)

Theme 5: Personal and professional characteristics of physiotherapists

There was an initial lack of confidence in the BPS intervention by physiotherapist participants. They commented that there was a temptation to apply electrotherapy because they thought the BPS intervention was not yielding favourable outcomes.

"I was tempted to also put heat or a machine on a patient because I thought the intervention wasn't working. So, we the therapists as well, not all of us will have confidence just today that oh this intervention is going to happen. But as we keep practicing it, as we begin to see how it keeps on yielding results and the positive results, I think erm we will be able to overcome that confidence, we will be able to get the confidence we need in uh going through such an intervention here." (PT2)

Both physiotherapists were asked to comment on their experience and impression of the BPS intervention. Reflecting on his current approach to managing patients with CLBP, one physiotherapist acknowledged that the new knowledge gained had influenced his professional practice with regards classification of LBP and reliance on imaging.

"Now knowing that a lot of these back pain are non-specific and knowing that the imaging doesn't really correspond to. We will still take you through the treatment protocol for let's say a minimum of six weeks or in between, then reassess and see whether our protocol is working or not." (PT2)

The data also showed that the knowledge acquired changed physiotherapists' thoughts around the misconceptions previously held about LBP; thus, applying the new knowledge as a foundation to give patients an informed education. This was an important facilitator to the delivery of the BPS intervention.

"...it also let us say organised some thoughts and some myths that I had about back pain as well, as a therapist. Then on the foundation of those knowledge and those ideas, it cushioned me to give them an informed education and also how to organise my education for them, what to tell the patients and not to give them something which will rather be of negative to them." (PT2)

Commenting on how the research had improved their understanding and professional development, the other participating physiotherapist mentioned that their previous approach to applying certain exercises for patients with CLBP had changed. This was after they realised that they could get the same results by the patients doing those exercises on their own through easier means. They also mentioned that they had taken passive treatment approaches out of the management for patients with CLBP.

"I think with this research after going to read on it I realised that there were even easier means of achieving the same stretches, especially the piriformis stretch, I used to do it for the patients, but I got to know through this research that oh they could actually do it on their own, and then you could still get the same results. Yea and the numerous massage that we were doing, and I took some of them out and I've also added something to my own treatment protocols from this research. After the research I've

decided to go by this method because I realise, I could still get results without those electrotherapy." (PT1)

Overall, many barriers and facilitators were identified in this study. Table 3 provides a summary of the barriers and facilitators based on the qualitative data from the perspective of physiotherapists and patients, with exemplar quotes.

Discussion

This study is the first to investigate the barriers and facilitators to the delivery of a physiotherapist-led BPS intervention in a Ghanaian context. The results of the study demonstrate a potential to deliver the BPS intervention in a Ghanaian context. The positive facilitators identified appear to be based on participants' improved understanding of CLBP, and the clarity and purpose of the BPS intervention in the management of patients with CLBP. This facilitated participants' engagement with the BPS intervention, resulting in the change in knowledge and beliefs about LBP, patients activating self-management strategies, improvement in patients' outcomes, and professional development of physiotherapists. Whilst considering the positive facilitators, it is also important to consider participants' concerns regarding preconceived ideas/perceptions about physiotherapy, patients' age, and patients' socio-demographic circumstances, as potential barriers to the delivery of the BPS intervention. Furthermore, it is important to highlight that the findings from the physiotherapist participants in this study represents two very individual viewpoints, which are exploratory, and are not sufficient to inform practice. The qualitative study was primarily focused on the patient participants who are the service users.

The access to training and the improved understanding physiotherapist participants reported after engaging with the training and delivery of the BPS intervention, appeared to facilitate their improved professional development. This was an important finding since previous studies have suggested that difficulty in accessing and understanding evidence-based approaches appear to inhibit the successful delivery of research into routine clinical practice [49]. Synnott et al. [49], reported that physiotherapists report a lack of confidence or feel unprepared to manage patients with CLBP even after training. This lack of confidence was attributed to a low level of understanding of the BPS intervention resulting in physiotherapists questioning the relevance of addressing psychosocial factors [49]; these findings contrast with the results from

Table 3. Barriers and facilitators to the delivery of the BPS intervention.

Facilitators
Physiotherapists
1. Clear and purposeful training
2. Clear details of the content of the BPS intervention
3. Positive physiotherapist patient interaction.
4. Physiotherapists improved understanding and professional development
Patients
1. Structure and content offered an appealing alternative
2. Patients' satisfaction with the BPS intervention
3. Patients' autonomy with the BPS intervention
4. Positive impact of education on patients' psychosocial indicators
5. Changes to patients' beliefs
6. Understanding of BPS intervention stimulated positive engagement
Barriers
Patients
1. Patients' expectations - Preconceived ideas/perceptions about physiotherapy
2. Influence of patients age as a barrier to engagement
3. Influence of patients' socio-demographic circumstances as barriers to engagement

the current study. Holopainen et al. [25], on the other hand found that physiotherapists reported professional benefits, changes in understanding and practice, and meeting learning requirements, as positive facilitators to delivering a BPS intervention; these findings align with the results of the current study.

Patients' expectation was a major theme in this study. It appeared that the ability of physiotherapist participants to manage the expectations of patients about physiotherapy facilitated the delivery of the BPS intervention by physiotherapist participants, and a positive engagement with the recommendations of the BPS intervention. These assertions have been reported in previous qualitative studies, where it has been suggested that unmet management expectations were a potential barrier to adhering to management recommendations [50,51]. Similar findings with regards to patients' expectations have been demonstrated in other literature; Kamper, et al. [52], investigated the management expectations of patients with CLBP, and reported that individuals attend their sessions with clear expectations regarding the information they should receive, the investigations, and diagnostic processes.

The patient participants' perception of the viability of the BPS intervention was highlighted in the data. This was facilitated by the positive communication strategies, underpinned by motivation and empowerment, applied by the physiotherapist participants, hence the acceptance of the BPS intervention. Similarly, previous qualitative studies [53–57], highlight the fact that adequate training about the components of BPS interventions facilitate positive communication by physiotherapists. Furthermore, the positive communication approach appeared to facilitate a positive therapeutic relationship/alliance between participating patients and physiotherapists. Therapeutic alliance has been highlighted in previous studies [53, 58], as a positive facilitator to a successful delivery of BPS interventions. Synnott et al. [58], suggests that a good therapeutic alliance is an intrinsic requirement for physiotherapists to be able to address a patients' BPS factors.

Patients reported that understanding their condition culminated in changes to knowledge and beliefs about LBP, and positive engagement with the BPS intervention. Nijs et al. [59], highlights that patients' knowledge and beliefs regarding their LBP and the management is a result of the education and management approach adopted by physiotherapists. Furthermore, Dean et al. [60], in their qualitative research indicated that improved patient understanding about their condition (LBP) and course of management results in a positive engagement with their physiotherapy intervention. The positive engagement with the BPS intervention appeared to be an important factor in the patient autonomy and activation of self-management strategies, the patient participants experienced in this study.

The autonomy patients experienced whilst engaging with the BPS intervention has been described as locus of control [61], a psychological construct about the extent to which patients' feel they have control over their outcomes and actions [37, 61]. Patients in this study reported that the BPS intervention facilitated a development of self-management strategies to the management of their CLBP; therefore, explaining the change in locus of control/autonomy they experienced. Locus of control has also been linked to self-efficacy [62], which has been suggested as a predictor of improved management outcomes for patients with CLBP [63]. These findings have been corroborated in this study where patient participants reported improved outcomes (including self-efficacy) as a result of the positive engagement with the BPS intervention and their ability to activate self-management strategies.

It was noted that physiotherapist participants suggested that age may be a barrier for some patients to fully engage with the

BPS intervention. The findings from the systematic review by Jack et al. [64], do not support this view. Indeed, previous studies have reported conflicting findings regarding the influence of age as a barrier to patients' engagement with management [65,66]. Further studies are therefore warranted to firmly conclude on the influence of patients' age on their engagement with their management sessions in a Ghanaian context. Time constraints/competing demands have also been cited in a previous systematic review as a barrier to patients' engagement with physiotherapy [64]. The findings from the systematic review by Jack et al. [64], corroborates comments by the patient participants regarding time constraints/competing demands, as potentially affecting their engagement with the BPS intervention.

It is important to highlight that all the literature referenced in this discussion, were conducted in HICs although the results are predominantly similar to the results of this study (from a LMIC); therefore, this study provides relevant findings to the delivery of the BPS intervention in a Ghanaian context. The result of this study adds to the body of literature in this area of study; and more importantly coming from a LMIC context. These findings demonstrate promise regarding the barriers and facilitators that can inform the delivery of a BPS intervention in Ghana and other LMICs; and future studies aimed at developing and implementing BPS interventions in Ghana and other LIMCs. Therefore, the results of this study can inform the considerations into the design, training of participants, feasibility testing, delivery, and implementation of BPS interventions.

Limitations

This study was approached with a reproducible, transparent, clear, and robust methodological process to analysis of data and all research processes. The research and clinical expertise of the author's is situated in a BPS model of musculoskeletal pain. Although there was substantial effort to maintain the strength of this study, there was limitation with regards to conducting interviews for participants that were lost to follow-up. All participating patients in the main clinical study ($n=30$) consented to participate in the interviews at the beginning of the clinical study, with 9 patients being lost to follow-up. Furthermore, this study was conducted in a single clinical context; therefore, it is unclear whether results can be transferable to other clinical settings in Ghana. This transferability is in relation to both physiotherapists and patients in other clinical contexts, and in the general CLBP patient population in Ghana. Again, a sample of two physiotherapists applied in the study may be deemed inadequate and could affect the credibility of the results from the physiotherapists' perspective [67]. Therefore, further stakeholder involvement and exploration may be warranted to inform a future design and implementation of the BPS intervention.

Conclusion

The results of this qualitative study demonstrated important barriers and facilitators to the delivery of the BPS intervention. All participants provided positive comments about their experience with the BPS intervention. Participants appeared to have a good understanding of the BPS intervention and the purpose for the management of patients with CLBP. From the physiotherapists' perspective, the understanding gained from the BPS intervention protocol informed their professional development, stimulated a positive engagement and satisfaction. From the patients' perspective, the BPS intervention appeared appealing, stimulating a

positive therapeutic relationship with physiotherapist participants, and a positive impact on their autonomy and ability to self-manage their condition. Furthermore, work constraints and lack of support from work presents a potential barrier to the delivery of the BPS intervention. Within the Ghanaian context, this BPS intervention therefore provides a positive framework for further studies around the feasibility, acceptability, and delivery of the BPS intervention.

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