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## Original article

# ‘It’s very complicated’: Perspectives and beliefs of newly graduated physiotherapists about the biopsychosocial model for treating people experiencing non-specific low back pain in Brazil

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## A B S T R A C T

Non-specific low back pain is a common complaint frequently presented by patients and this complex clinical condition has challenged the biomedical model. The Biopsychosocial (BPS) model is recognized as an option for better guidance and patient management. However, physiotherapy training is based on the biomedical perspective, added to which, in clinical practice the applicability of the BPS model is a challenge for many professionals. In this article, we explore the feelings, beliefs, and attitudes of newly trained physiotherapists about using the BPS model to treat people with non-specific low back pain. It also aims to understand to what extent these physiotherapists are willing and prepared to use this model. Method: A qualitative phenomenological research was carried out in the Brazilian federal capital. A set of criteria was used to select 10 physiotherapists. The data were collected through semi-structured interviews and analyzed using five steps: familiarization, identification, indexation, mapping, and interpretation. Results: We identified one theme and three categories. The theme ‘a practitioner physiotherapist can consider BPS aspects, but it is not necessary in his/her role to approach them’ explains a shared belief about the use of BPS. The theme is better understood when looking at the three categories that explore and exemplify key elements of the theme: (i) understanding the BPS model and its relation to non-specific low back pain; (ii) the role of practitioner physiotherapists regarding the BPS model; and (iii) barriers: from undergraduate training to clinical settings.

## 1. Introduction

Low back pain is a common symptom presented by patients in primary care services, orthopedic clinics, and rehabilitation centers. The lifetime prevalence of low back pain is approximately 84% for least one episode and 55% of patients will have at least 10 episodes. The prevalence of chronic low back pain is 23% with a disability rate of 11–12% due to low back pain (Balagué et al., 2012; Iizuka et al., 2017). As low back pain is not a disease, but a symptom, its causes should be assessed and treated. However, the most common form of low back pain, non-specific low back pain, does not have any pathoanatomical cause and is a leading contributor to disease and disability worldwide (Maher et al., 2017). This complex clinical condition has challenged the biomedical model as traditional approaches have proven expensive and ineffective (Maher et al., 2017). Indeed, the biomedical model falls short in explaining non-specific low back pain and promotes negative beliefs and attitudes between health professionals and patients (Domenech et al., 2011).

Recent research has shown that non-biomedical perspectives of care

are more effective when treating people with low back pain, including non-specific low back pain. A Cochrane systematic review and meta-analysis indicates that the biopsychosocial approach is more effective than usual physical treatment to reduce pain and disability in people experiencing non-specific low back pain (Kamper et al., 2015). The Biopsychosocial Model (BPSM) was first presented by George Libman Engel in his classical 1977 manuscript in Science (Engel, 1977). He challenged the reductionist and dualist biomedical model, and shed light on how to advance health care. Engel argues that a “model must also take into account the patient, the social context in which a person lives, and the complementary system devised by society to deal with the disruptive effects of illness” (Engel, 1977, p. 196). In the early 80’s, he presented the clinical application of his model (Engel, 1980), and since then it has become an effective model for health professional training and assistance (Smith et al., 2013).

This model has recently been acknowledged as the best option for practice of physiotherapists and health professionals working with people experiencing non-specific low back pain (Hill et al., 2011; Kamper et al., 2015; Saragiotto et al., 2016). However, most students,

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as well as young, experienced physiotherapists feel unprepared for this potentially difficult task (Synnott et al., 2015; Zanoti-Jeronymo et al., 2009). Traditional physiotherapy training has been based on the biomedical perspective, meaning that cognitive, psychological, economic, and social factors have been left aside from professional training, and, consequently, in the assessment of a patient experiencing pain or disability (Nijs et al., 2013). Therefore, a thorough clinical biopsychosocial assessment by physiotherapists is required to understand the process of chronic low back pain in clinical settings and to allow an individualized, patient-centered explanation including biopsychosocial interactions according to practical guides based on scientific research and clinical experience (Wijma et al., 2016).

In 2008, the University of Brasília, Brazil created a five-year physiotherapy undergraduate program. This program is committed to overcoming the traditional biomedical model, to promote people functionality, and to advance social transformation aligned with the Brazilian Health System (*Sistema Único de Saúde-SUS*) (Marães et al., 2010). In a restricted sense, the program overcomes the traditional model using the conceptual framework of the Classification of Functioning, Disability and Health (ICF) and the students are trained to establish a common language for describing health and health-related states in order to improve communication among different health professionals. Another emphasis is in the application of ICF as a clinical tool, so it is possible to match treatments with specific conditions, under rehabilitation and social actions. Even considering the ICF as a unified and standard language and framework for a biopsychosocial description of health in various domains (body structure and function; activities and participation), there is currently no data on the perceptions, beliefs, and attitudes of newly trained physiotherapists regarding how they embed a BPSM approach in their practice. In this sense, qualitative studies are required to understand how the approach is contextualized and situated in clinical practice. Qualitative studies have been carried out in developed countries regarding physiotherapists' perceptions of the BPSM (Côté et al., 2009; Cowell et al., 2018; Sanders et al., 2014; Zangoni and Thomson, 2017). However, to the best of the authors acknowledge, this is the first qualitative study about physiotherapists' views and beliefs of the BPSM in patients experiencing non-specific low back pain in Brazil. In this article, we explore (1) the perceptions of new physiotherapists of the BPSM, (2) if they feel prepared to work with the BPSM, and (3) to what extent they are willing to work with the BPSM when treating people with non-specific low back pain.

## 2. Method

This phenomenological qualitative research took place in the Federal District of Brazil. A phenomenological perspective allowed us to explore the physiotherapists' everyday acting and thinking about their clinical practice with people experiencing non-specific low back pain. Phenomenology, as a theoretical position has been acknowledged as a suitable approach to access subjective viewpoints. As has been indicated elsewhere, 'It begins with experience of the individual and develops this in a reflexive form' (Hitzler and Eberle, 2004, p. 68).

### 2.1. Sampling

A set of criteria was used to select newly graduated physiotherapists working in clinical settings, potentially with people with non-specific low back pain (Merkens, 2004). Based on information from the student office at the University of Brasília, we identified a total of 221 physiotherapists graduated between 2012 and mid-2018. We collected former students' e-mails and sent a research invitation. Invitations were not sent as a mass message, but rather as individual electronic mail. We set the sample size at 10, guided by the notion of power information (Malterud et al., 2015). When this number was reached no more invitations were sent.

**Table 1**

Interview key questions.

How do you describe your experience treating people with non-specific low back pain?
How do you describe your responsibility as a physiotherapist when treating someone with non-specific low back pain?
How do you describe your experience of learning and applying the BPSM approach? What is your understanding about considering BPSM factors of someone experiencing non-specific low back pain?
How do you feel assessing BPSM factors?
Do you believe there are difficulties to conciliate the traditional physiotherapy approach with the BPSM approach? If so, explain.

### 2.2. Data collection

The first author collected data through semi-structured interviews (Table 1). Five face-to-face interviews and five video interviews were carried out. The interviewer was sensitive and open to the interviewees' preferences regarding location, time, and form of the interview. Thus, the interviews were conducted in agreed settings such as at workplaces, public spaces, and using videoconferencing devices. Each interview lasted about 30 min. All interviews were recorded and transcribed in Portuguese shortly afterwards by the first author, and all transcriptions were reviewed by the second author. Only selected quotations were translated into English.

### 2.3. Data analysis

The data were analyzed using five stages, as proposed by Pope et al. (2000): In the first stage of *familiarization*, all authors made an immersion in the raw data. This provided first insights about the material collected through listening to tapes and reading transcripts and creating individual study notes. Secondly, *identifying a thematic framework* was performed by the first and second authors to identify themes and create a detailed index of the data (i.e., manageable chunks of data for subsequent retrieval and exploration). This stage was carried out based on the inputs from all authors in the familiarization stage. In the third stage, *indexing*, the first author systematically indexed all the data into the thematic framework created based on the study aims. Fourthly, in the *charting* stage the material was organized into charts for abstraction and synthesis of the data collected. In this stage, the first author drew several drafts that were presented and discussed among all authors. Finally, in the *mapping and interpretation* stage the theme and three concepts were defined to present the nature of the phenomena.

### 2.4. Ethics

The Ethical Committee of the Ceilândia Faculty at the University of Brasília evaluated the project and approved the study (n. 2695102). All participants were informed about the study's objective and procedures, including their rights of anonymity and the option to leave/interrupt the interview at any moment. All participants signed a consent form, voluntarily agreeing to participate in the study. Participants were given a copy of this consent form.

## 3. Findings and discussion

A total of 63 invitations were sent, of which 25 physiotherapists replied to our contact. Of these, 10 declined the invitation and 15 agreed to participate in this study. After having accepted the invitation, five physiotherapists did not manage to meet the researcher during the data collection period, and consequently, were not included in the sample. A total of 10 interviews were carried out, which included six women and four men. The participants were young, aged about 27 years ( $\pm 3.92$  SD), with an average of 3-years working experience. Most were working in orthopedic services (Table 2). Five

**Table 2**  
Key characteristics of the physiotherapists.

ID	Sex	Age	Years qualified	Employers/Work hours per week	Post-graduate Qualifications	Continuing education courses (number)	Main field of work
P01	F	29	4	1/20	Master's degree	1	Neurology
P02	M	26	4	2/60	None	5	Orthopedic
P03	M	26	3	2/60	Specialist Certification	2	Orthopedic
P04	M	24	3	2/44	Physiotherapy residency	6	Oncology
P05	F	26	4	1/30	None	2	Orthopedic
P06	F	37	3	2/40	None	6	Orthopedic
P07	M	24	1	2/30	Specialist Certification	4	Orthopedic
P08	F	29	2	2/60	None	3	Orthopedic
P09	F	24	2	1/20	Master's degree	4	Cardiology
P10	F	28	5	1/30	None	3	Orthopedic

physiotherapists hold postgraduate degrees, and all attended continuing education courses for professional improvement in different areas of physiotherapy. This might be related to the research aims stated in the invitation, that this research would be related to non-specific low back pain.

*Theme: 'A practitioner physiotherapist can consider biopsychosocial aspects, but it is not necessary in his/her role to approach them'*

Drawing from the data analysis, we identified one theme and three categories. The theme 'a practitioner physiotherapist can consider biopsychosocial aspects, but it is not necessary in his/her role to approach them' explains a shared belief about the use of BPSM among physiotherapists working with people experiencing non-specific low back pain. The participants were aware about the existence of the theory and the literature available about BPSM and its relevance to people experiencing non-specific low back pain, however, they lacked clear understanding of the extent to which it was suitable for their clinical practice. Additionally, their professional role seemed to be limited by their undergraduate training which resulted in theoretical and practical doubts. The theme is better understood when looking at the three categories which exemplify the key elements of the theme. These will be described and discussed below.

### 3.1.1. Defining the biopsychosocial model and its relation to non-specific low back pain

The participants attempted to describe the BPSM by establishing a parallel with elements from the International Classification of Functioning, Disability and Health (ICF) as mentioned by P07.

"Every individual is understood as a set of structures, functions, activities, and interaction in each environment where he/she is living. Therefore, biopsychosocial factors are intimately connected to the function or dysfunction of each individual." (P07)

It is worth mentioning that the fact the participants mentioned ICF when they were questioned about BPSM can be understood as a positive aspect. In other similar studies, the interviewed physiotherapists did not indicate any relation to ICF when questioned about BPSM (Synnott et al., 2015; Zangoni and Thomson, 2017). The ICF offers a wider vision of an individual's life experience; similarly to the BPSM, the ICF somehow overcomes dualistic and reductionist views of health (Di Nubila and Buchalla, 2008; Üstün et al., 2003). Therefore, the ICF and BPSM present similarities and one supports the other (Schuntermann, 2005).

The interviewed physiotherapists also tried to explain the elements of BPSM, referring to the mental health problems of patients with non-specific low back pain. They claim that internalizing mental health problems is the cause of non-specific low back pain and being aware of this indicates that they know about biopsychosocial factors, as mentioned by P04 and P03.

"It's stress. It's one of the causes. We notice that the patient is a little

nervous, a little stressed out. I think that, maybe, this leads to chronic low back pain. I don't think it involves biopsychosocial factors, which include age and obesity. Concerning biopsychosocial factors, I don't know much about them. I know that examples of the biopsychosocial factors would be financial income, which is a social factor. Psychological factors would include depression, anxiety, and nervousness. I believe that this is related to that." (P04)

"Most patients had psychological influences. They were already depressed and suffering from anxiety. Those from low income families presented more severe pains for a long time that were poorly treated or sub-treated. The majority of patients had allodynia and kinesiphobia, so would be afraid whenever they had to be examined." (P03)

It is clear that physiotherapists have little understanding about the holistic view of BPSM. The participants were not able to indicate clearly or articulate what biopsychosocial factors are and their relation with non-specific low back pain. Other studies presented similar results; Italian physiotherapists have partial or inconsistent understanding of biopsychosocial factors and their relation to low back pain. Similarly, results from a systematic review indicate that physiotherapists' understanding of biopsychosocial factors was limited (Synnott et al., 2015; Zangoni and Thomson, 2017). In a strict sense, even considering the similarities between BPSM and ICF, it is clear that the learning process using the ICF content does not provide a sufficient theory base for a thorough understanding of BPSM. Thus, it is necessary to employ academic discussions in undergraduate settings on how these deficits could be corrected and inserted in the curriculum of physiotherapists. In this sense, other professionals such as psychologists could suggest content (cognitive and emotional factors) to facilitate the biopsychosocial intake of patients with chronic low back pain. At this moment, only physiotherapists teach in the University of Brasilia undergraduate course of physiotherapy.

The physiotherapists demonstrated that they were aware of specific characteristics in relation to the chronic low back pain of their patients. However, they did not know clearly what characterized the patients' negative experiences. They tried to exemplify the characteristics that they observed in their professional experience:

"We expect that people with chronic pain have been living with this pain for months, at least, or even years. They arrive emotionally discouraged, especially because of previous inefficient treatments, so they come with low expectations." (P01)

The physiotherapists also highlighted the fear that patients with non-specific low pain felt when considering doing the activities they were able to do before being diagnosed:

"The patient who constantly complains by always saying 'I'm not getting better' [...] is the one afraid of doing activities they used to do. There is always a factor that seems to make them more attached to us." (P05)

The attempt to understand and respond adequately to patients' suffering is a key characteristic of Engel's legacy (Borrell-Carrió et al., 2004). Additionally, as non-specific low back pain does not have a pathoanatomical cause, the participants indicated psychological and social characteristics commonly found among people experiencing non-specific low back pain. The most commonly reported factors were depression, stress, anxiety, and low income. This demonstrates that physiotherapists identify the influence of biopsychosocial factors in patients' experiences of non-specific low back pain. On the other hand, the treatment they recommend is not necessarily related to these factors, being more related to their perception of the physiotherapist's role, moral values, and professional training, as presented in the coming categories.

### 3.1.2. The role of practitioner physiotherapists in assessing and treating biopsychosocial factors in people experiencing non-specific low back pain

All the interviewees recognized the importance of considering biopsychosocial factors when providing care for patients with non-specific low back pain. Some argued that if these factors were ignored, the treatment would not evolve towards a successful end:

"[The physiotherapist] cannot be a technician who applies baseless techniques and who doesn't understand the individual as a whole. [...] The patient is not just a non-specific low back pain." (P1)

"Not only those related to non-specific low back pain (...), but all biopsychosocial aspects related to an individual must be assessed so that our attitude and intervention end up being fruitful and efficient." (P9)

Similar results were found in other studies in Italy and England (Cowell et al., 2018; Zangoni and Thomson, 2017), in which participants were aware of the importance of the influence of biopsychosocial factors and the model in relation to non-specific low back pain. Apart from stating the importance of biopsychosocial factors clearly and emphatically, there was no consensus concerning the role of physiotherapists towards them. Some argued that these factors could not be left out by physiotherapists, as suggested by P01 "It's much more than a role, it's a duty". On the other hand, the majority did not include this approach in their working environment or responsibility. In fact, they indicated that it was necessary to take these patients to psychologists or other professionals. Consequently, this leads to questioning of the professionals' responsibility when participant P08 says, "In my opinion, the physiotherapist is not responsible for these factors."

This ambivalent position of the interviewees in defending that a physiotherapist must acknowledge biopsychosocial factors but not considering themselves responsible for the assessment and treatment could be related to a lack of knowledge on how to approach these aspects inside physiotherapy clinical practice (Cowell et al., 2018). This is illustrated in the views of the participants, with show that they opted to refer patients to psychologists as soon as they noticed any emotional factor involved in their treatment. On one hand, this indicates that some physiotherapists have a multi-professional approach which helps activity coordination for health services (Gadolin and Wikström, 2016). However, it falls far short of the desirable inter-professional biopsychosocial rehabilitation (Semrau et al., 2015). Josephson and collaborators (Josephson et al., 2013) analyzed the views of 21 physiotherapists and found that they believed themselves responsible for treating easy cases, but were not sure of their role in more complex cases. Likewise, physiotherapists in Italy believe that patients who seek a physiotherapist expect to be treated only physically and not to be disturbed with questions about their social/personal issues and situations in life (Zangoni and Thomson, 2017).

Our findings indicate that the concerns of physiotherapist regarding their assessment skills is a core feature that defines their role: "I don't know if I am prepared (to assess) because I am not a psychologist, but I can

identify it [...] and identifying is different from assessing." (P06) "I think that there are many factors besides my understanding of what would be necessary [...] I don't feel prepared." (P10).

This finding supports the previous category and also, as Sanders et al. (2014) pointed out, that physiotherapists recognize non-specific low back pain as a complex issue that also involves social and psychological influences. However, they felt that their professional identity was a biomedical one and that they were inadequately prepared to approach these factors in a practical way. They also argued that training is responsible for shaping their role.

"I think that I have a deficit in relation to assessing biopsychosocial aspects of the patient. We tend to assess mechanical aspects, the muscular part and body coordination even in a physiotherapeutic way" P05

Among the physiotherapists who assess biopsychosocial factors in their patients, the majority indicate a preference for not using questionnaires, though being aware of the existence of specific ones: "I assess patients by what they report, what they did to treat the pain and how they describe it ... I don't use any instrument." (P02) "In the clinic where I work, we have a form, so there are some questions to assess ..." (P05). Only P01 mentioned the use of instruments during assessment.

"In my experience in the field of neurology, I have used many scales to assess all these aspects of ICF. Let's say that for activity and participation, I use the COPM (Canadian Occupational Performance Measure), which assesses complaints. By analyzing these complaints, we are able to notice many types of activities that the patient used to do and that are important for his/her rehabilitation." (P01)

Zangoni and Thomson (2017) verified that the assessment of these factors was an interactive process that evolved through sessions, but the participants in their study did not mention the use of questionnaires. It seems that physiotherapists opt not to use valid instruments. This is a complex phenomenon to be investigated because available research indicates a variety of instruments validated and adapted to the Portuguese language to assess biopsychosocial factors (Abreu et al., 2008; Cordeiro et al., 2013; Gomes-Oliveira et al., 2012; Junior et al., 2010, 2008; Pilz et al., 2017; Santos et al., 2017).

### 3.1.3. Barriers: from lack of training to moral assumption

The difficulty in managing the treatment of patients with non-specific low back pain was the striking point during the interviews in this study. It was clear in the participants' reports that this matter leads to professional insecurity since their skills are challenged and their training background is exposed by presenting the existing gaps in their knowledge, which are reflected during the patients' treatment process. Some physiotherapists share their professional insecurities in managing patients with non-specific low back pain.

"It's very complicated to make a patient with biopsychosocial factors involved in their diagnosis understand his/her functional and mechanical aspects. [...] I have experience with patients that cried during the entire assessment, which did not let me finish the process. [...] I think it is complicated to combine both things." (P05)

"It's very complicated to point out emotional factors that influence the pain without having psychological training for us to treat this. [...] We try to unveil that feeling, that emotion, but, many times, we don't have the tools. We don't have enough knowledge to calm down the patient who has to face that emotion." (P10)

"In many cases, the treatment is not effective due to emotional barriers. As much as we want to help, whatever we try doesn't work. The treatment ends up taking a long time, and there are patients who make us think that they don't want to be treated." (P02)

All these quotes express the lack of training of physiotherapists and

their struggle to carry out their clinical practice when facing patient experiences of non-specific low back pain. Besides offering a non-effective treatment, another drawback of these views is that they stigmatize patients. A large amount of literature indicates that stigma is one main challenge for vulnerable people (chronic illness, poverty, mental health problems) accessing high quality health care (Kleinman, 1989; Patel et al., 2007; Sartorius, 2007).

Physiotherapists have some theoretical understanding of the BPSM and the complexity of non-specific low back pain; however, they do not seem to have acquired the knowledge and skills to apply this approach confidently. These issues are mainly related to their undergraduate training, and have been acknowledged in similar studies in Italy (Zangoni and Thomson, 2017), England (Cowell et al., 2018), Canada, (Côté et al., 2009), and Greece (Billis et al., 2007). Physiotherapists consider it a big challenge to combine biomedical and biopsychosocial approaches (Sanders et al., 2014). The participants believe these factors to be extended beyond their practical scope, as presented in the previous categories. This self-perception is built during undergraduate training and consolidated during practice (Cowell et al., 2018; Fernandes et al., 2010; Jeffrey and Foster, 2012; Sanders et al., 2014; Synnott et al., 2015) The physiotherapists felt tension when attempting to advise their patients about their beliefs and attitudes. This result reinforces the need to use a broader health model in undergraduate training, leading them to consider the individual as a whole in the assessment and intervention (biological, psychological, and social aspects) in order to avoid the fragmentation of these patients from a professional perspective.

All the physiotherapists interviewed recognized that there were gaps in their understanding about BPSM and its implementation and that these gaps could directly interfere in the way they conduct their clinical practices with people experiencing non-specific low back pain. The awareness of these gaps could be a consequence of difficulties caused either by negative experiences with patients that have non-specific low back pain or by the questions in the interview that led to deep thinking about their experiences since they graduated.

“Considering this conversation (the interview), I think it's important to reflect and suggest the inclusion of some courses about how to approach people's emotions, even including professionals from psychology. This is clearly an important element that I haven't taken into consideration yet.” (P10)

“We pay a lot of attention to mechanical aspects, the muscular part, and body coordination even in a physiotherapeutic way ... and sometimes, we forget to do this biopsychosocial assessment of the patient. [...] This is a deficit that comes from the undergraduate training and that should be considered”. (P04)

Additionally, some participants presented the idea that patients with non-specific low back pain used their health problem to manipulate their family relationship or call people's attention: “Many times the patient refused to accept the treatment because she/he used the pain to get some benefits, such as the attention of his/her children.” (P02). Concerning the beliefs presented in the physiotherapists' reports, the same beliefs were reported in a similar study with Greek physiotherapists who said that patients used the pain to get attention from their family members in order to receive benefits (Billis et al., 2007). It seems that physiotherapists provide care based on the Gusfield notion of benevolent repression, arguing for moral standards of social relations (Gusfield, 1996). Here, physiotherapists are not only unable to properly address people's suffering but also make those in a vulnerable situation responsible for their misery. This issue goes beyond the dualistic view of health that Engel tried to overcome with the BPSM. Indeed, it indicates that physiotherapists lack sociological and anthropological views of health, illness, and disability.

#### 4. Conclusion

It seems that young Brazilian physiotherapists have fragmented knowledge about BPSM that results in both (i) poor quality when treating people experiencing non-specific low back pain, and (ii) questions related to their professional role. Undergraduate training has not yet been able to address this issue and further studies are required to promote better training, and, consequently, better care.

#### Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.msksp.2019.04.011>.

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