

Perception Amongst Physiotherapists Regarding the Psycho-Social Risk Factors and the Influence in Chronic Low Back Pain- A Qualitative Study

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Abstract

Aim: To determine the current knowledge and awareness of physiotherapists in India regarding psychosocial factors for managing patients with low back pain.

Background: Patients with low back pain are increasing globally. Physical dysfunction and psychosocial factors (often reported as yellow flags) such as stress, anxiety, and fear of movement, play a role in the perpetuation of low back pain. What is not known is the extent to which the yellow flags are screened for and treatment adjusted accordingly by Physiotherapists practicing in India.

Design: Semi-structured interviews gathered data from of six physiotherapists. The interviews were conducted online to adhere to COVID restrictions. The data was transcribed and analyzed using thematic analysis.

Result: The main findings were that the physiotherapists in India had a limited knowledge regarding psychosocial factors for management of low back pain. Patient were not supportive of adding the yellow flag screening into the routine treatments as patient were not aware of such screening tools Additionally, the physical elements of low back pain had more focus during the treatment rather than psychosocial, by the therapists and the higher authorities. Also, the physiotherapists noted that the high number of patients that patient were expected to treat daily left them with limited time in altering protocols for treatment.

Conclusion: There appears to be a lack of information and education delivered to the physiotherapists in India regarding psychosocial factors for managing low back pain. Access to screening protocols would enable them to adjust treatments if permitted by the protocols that patient follow. The addition of these factors in

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Received Date: 02-28-2023

Accepted Date: 03-04-2023

Published Date: 03-25-2023

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the education and treatment protocols could address these important factors when managing patients with low back pain in India.

Keywords: Low back pain; Global burden of disease; Population; Biopsychosocial; Anxiety.

Abbreviations

LBP: Low Back Pain; CLBP: Chronic Low Back Pain; P.S: Psychosocial; BPS: Biopsychosocial.

Introduction

Low back pain (LBP) is the most commonly occurring musculoskeletal problem globally, and it is estimated that approximately 85 percent of the total general population will experience.

LBP at least once in the lifetime. While previously it was thought that LBP is limited to the western countries, the recent study of Global Burden of Disease (GBD) states that it has become a global issue. The prevalence seen to increase with age, where only 4% of the population report LBP under the age of 40 and increases to approximately 20% in the 40 to 60 age group [1]. The presence of LBP is seen amongst all ranges of ages, occupation, gender, and diversity [2]. In Physiotherapy practice one of the most common complaints that patients have is LBP which shows a higher occurrence amongst general population and Physiotherapeutic treatment given for LBP aims at reduction of pain, increasing the mobility of the spine, along with an increase in the strength of the muscles of the back and abdominals. The spine is complex in terms of anatomy consisting of numerous vertebrae, discs, muscles, nerves, and blood vessels that extends from the cervical spine to the pelvis. As such the pain can be generated by any of these structures and part of physiotherapeutic treatment is to diagnose

the possible factors that initiate/or are responsible for the continuation of pain [3].

However, another important factor to consider is the accompanying Psychological (PS) aspect of the patients' presentation and the term "Biopsychosocial (BPS) approach" is now used to describe how to consider management of patients with LBP [4,5]. As a physiotherapist working in India the question arose as to whether a BPS approach is undertaken in India when treating people with LBP. Within the literature on adoption of determining and addressing PS factors when treating LBP in India there appeared to be a gap in the literature.

Therefore, the research study aims at studying the knowledge and perception of P.S factors amongst the Indian physiotherapists who are treating LBP patients. The importance of the work is by identifying these factors that can then inform future training requirements for Physiotherapists working in India, either at undergraduate or postgraduate level. It will lead to a more comprehensive approach that encompasses all the relevant aspects for patients with LBP, with the aim of improved patient outcomes.

The study is focused wholly on the Physiotherapy practice for LBP in India and as such will review the literature relevant to that continent. The literature will discuss the

importance of assessment of these PS factors, and treatment protocols that accommodate such. The literature review will be followed by the method used for data collection, to explain the reasons behind choosing the data collection method and how the process was carried out, followed by the data processing and analysis. It will then follow by the results and discussion section, which will illustrate the findings displayed in the study data. The discussion will extend into a conclusion that can be derived from the study, also mentioning the further research topics which will assist in understanding the question further and on a better scale.

Literature review

The following section is the literature review which reviews the relevant studies to the question about the knowledge and perception of P.S factors amongst the Indian physiotherapists who are treating LBP patients. The format contains search of terms, classification of studies, choosing of the studies for the review, followed by critical analysis of the literature review. It will culminate in a summary of the literature and the articulation of a discrete research question.

Search strategy

As the study aims to study the protocols followed in India related to the BPS approach, the search of literature and classification uses the application of the PICO format which looks at the Patient, Intervention, Comparator and Outcome as well as the PRISMA format which looks at the Preferred Reporting Items for Systematic Reviews and

Meta-Analysis. As the development of the research question required the inclusion of relevant literature, the PICO format was used exclusively for the research question development. However, once the question is formed, a detail of the specific research is required to study the question in a more accurate way, hence the PRISMA format is included for the classification of the literature which is reviewed in study Butler [6].

For a structured formulation and collection of the studies, four main factors were taken in consideration which were Population, Intervention, Comparator and Outcome. The PICO format resulted in acquiring the literature which can be reviewed to formulate the research question further. The question formed an application of PICO, concentrated to examine the ideas of Indian physiotherapists regarding the psychosocial factors when patient treat a patient with chronic lower back pain". For a wider search, the databases of CINAHL, EMBASE, Medline and Google Scholar were used. The key terms searched for were as follows:

Population: As the research included and was based upon the ideas of Physiotherapists, the search included:

1. Physiotherapist
2. Physical Therapist
3. Physio
4. Physiotherapy India
5. Physiotherapy for low back pain

Intervention

The research was aiming to study the perception and views of psychological and social factors of the therapists treating a lower

back pain patient, so the search terms were as follows:

1. Psychosocial factors
2. Psychological factors
3. Social factors
4. Psychological and Social factors
5. Low back pain
6. Chronic low back pain
7. Acute and Chronic low back pain
8. Yellow flags

Comparator

For study, to gauge the accurate understanding of the practice relating the above two terms, the search included:

1. Systematic Reviews
2. Meta-Analysis
3. Qualitative studies
4. Quantitative studies
5. Scoping reviews
6. Interviews
7. Questionnaires

The outcome factor which was considered of the highest importance in the collection of studies, was the reliability, validity, robustness, and the trustworthiness of the studies. The literature must present an idea of the current relation between the LBP patients and psychosocial factors, while also demonstrating the changes in the pain experience of the patient with the alteration of the psychosocial factors.

The collection of studies was expanded to physiotherapy protocols followed worldwide, as it was necessary to understand the

difference between the two practices followed in various countries along with the protocol followed in India. The aim was only to understand how the protocol in India is different from the protocol followed in other countries globally, and hence the review and study ensured that there is no comparison of protocols amongst any countries carried out. Each of the search terms were searched on the research databases with the key search terms, separately prior to combining the search of all the terms.

The resultant studies were then searched together with addition of “OR” first, and then with “AND”. The studies that matched the search terms were then to be taken for the next step, which was the selection of the suitable studies. The studies were classified and selected by using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) module. The inclusion and exclusion criteria were applied for obtaining the crucial papers for reviewing. These studies are included in the Table 1.

The PRISMA was then applied to the studies included once the exclusion and inclusion criteria was set. Figure 1 represents The PRISMA which resulted in the following data, after application of key search terms, and the above criteria. To review the existing literature, eleven studies that fit the criteria were selected for reviewing in the project. Various studies were also included which assisted in understanding the methodology and course of treatment in further detail.

Reason behind the criteria implemented in the study	Inclusion Criteria	Exclusion Criteria
The studies needed to demonstrate the relation between LBP and psychosocial factors.	Studies that include maximum key terms possible.	Studies that do not observe the key terms.
Acquiring complete texts gave a better idea about the study carried out rather than just the results. It was more detailed and accurate.	Full texts, complete studies available.	Locked texts, incomplete studies, and papers without explanation of the study process.
As the research question focuses on the differences between the countries, the language was kept to English to obtain a common ground.	Studies in English.	Studies in regional or foreign languages.
Studies that included knowledge and procedures followed in India and in foreign countries were able to show a measured difference between the established treatment protocols.	Psychosocial factors and LBP physiotherapy, correlation, or reviews of either or both the factors.	Papers that did not include either of the factors in the study.

Table 1: Inclusion and Exclusion criteria used for selection of the studies.

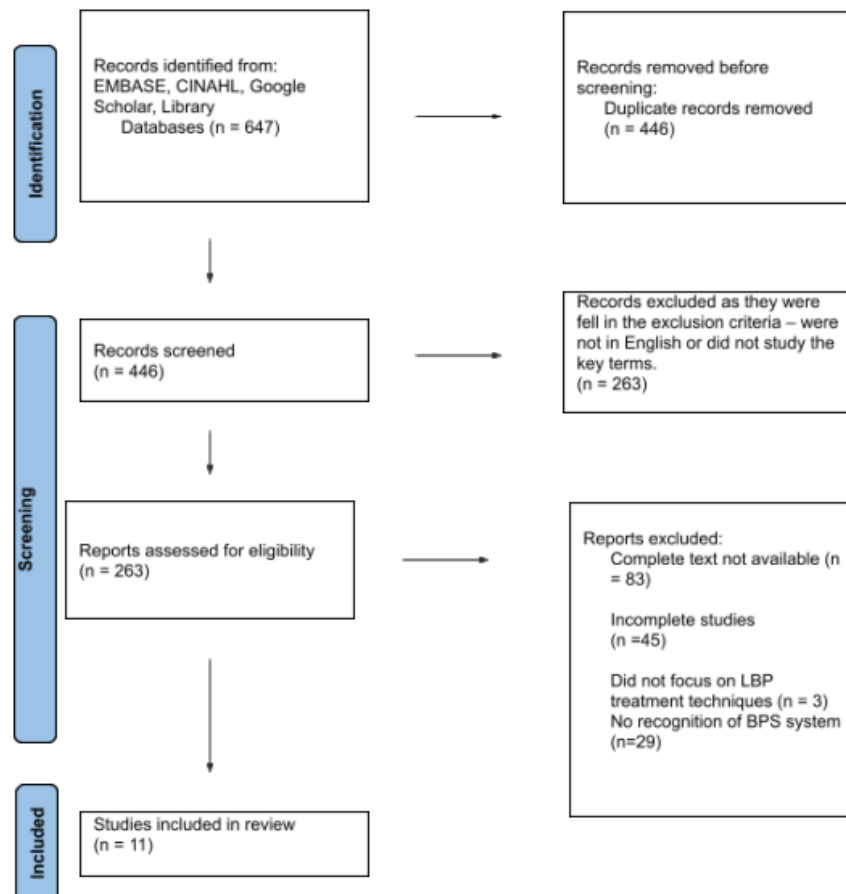


Figure 1: PRISMA flowchart for literature selection for the review.

Low back pain

Low back pain (LBP) is the most commonly occurring musculoskeletal problem globally, and it is estimated that approximately 85 percent of the total general population will experience LBP at least once in the lifetime. The prevalence is seen to increase with age, where only 4% of the population report LBP under the age of 40 and increases to approximately 20% in the 40 to 60 age group [1].

While previously it was thought that LBP is limited to the western countries, the recent study of Global Burden of Disease (GBD) states that it has become a global issue. Out of the 21 regions of the world, LBP was seen to be the leading cause of Years Lived with Disability (YLDs) in 13 regions [7]. There is a substantial financial, social, and familial burden that comes because of LBP. The cost of treatment, activity and participation limitations, access to proper healthcare and the socio-economic status has an impact on the individuals. The total expenditure for management of LBP in the UK in 2002 was estimated to be approximately £10 billion, while in 2001, Australia saw the highest expenditure spent on LBP which was about \$9 billion. The burden is particularly hard on countries with a lower socio-economic status. [2]. As LBP has affected a wide population globally, to be able to understand how the pain can be resolved, a deeper understanding of the condition needs to be understood amongst physiotherapists. In most cases, the pain is short lived and resolves over time. However, if the pain keeps recurring over time, chronicity develops which may lead the patient to develop disability. To differentiate

between the two, pain occurring for less than 6 weeks is generally considered as acute or subacute type of pain, whereas pain extending for more than 6 weeks is considered as chronic low back pain (CLBP). As the low back is a complex overlay of multiple systems, the exact mechanism of pain can be challenging to diagnose. Additionally, as Waddell (2010) pointed out, back pain is a symptom and not a disease. However, the rehabilitation and treatment are hugely based on the diagnosis of the patient, and hence an accurate diagnosis in the case of back pain is a necessity, and proposed the “diagnostic triage” approach, which was a simple and effective method to classify the back pain into nonspecific back pain, pain with nerve involvement or serious pathology [5].

Classification of LBP

For an accurate diagnosis, it is first important to classify the pain broadly into categories. A critical analysis and review carried out by Riddle in 1998 focusing on different classification systems and the relevance in clinical practice. The paper discusses the reliability and validity of various methodologies used for classification and concluded that better systems for classification of low back are required. However, the common practice was the divide them into Specific and Non-Specific, which was as follows:

Specific LBP is when the origin of the pain is due to an underlying pathology or mechanical cause, such as fracture of the spine, infection, malignancy, and inflammatory disorders. The pain onset is either acute or subacute usually,

and the rating of pain is on the higher side. As there is an underlying pathology which originates the pain, the diagnosis of specific LBP is observed to have slightly lesser difficulty in diagnosis when compared to the next category, the Non-Specific LBP. As Non-Specific LBP, however, is usually multifactorial, as it arises from non-mechanical issues, including faulty posture, muscle weakness, neural tightness, and muscle fatigue. It is important to observe that the diagnosis of the origin for such pain was relatively difficult [8]. However, it is observed that none of these systems of classifications explored a very important aspect that was identified in recent years and is seen to play a major factor in LBP which are the Psychosocial (PS) factors [9].

Biopsychosocial (BPS) approach and advantages

The conventional physiotherapy treatment for LBP recommended by National Institute

of Health and Care guidelines (NICE) predominantly seeks to resolve the symptoms, reducing pain, and strengthening of the abdominal and spinal muscles. The exercise protocol and goal setting altered according to the period of pain which includes acute, sub-acute and chronic, as well as the characteristics of duration, and severity of the pain, along with age of the individual were also included. However, the importance and inclusion of psychologically informed practice into physiotherapy has been greatly discussed over the years. Any musculoskeletal pain will be associated with psychological changes within the person, and hence it is important to accurately screen and address them for a better rehabilitation of the patient [10]. To categorize the possible factors that can have an influence over the patient due to pain, “The Flag System” was devised. It contained 5 categories, each addressing the different psychological, social, emotional, and contextual factors.

Flag	Nature	Examples
Red	Signs of serious pathology	Cauda equina syndrome, fracture, Tumour
Orange	Psychiatric symptoms	Clinical depression, personality disorder
Yellow	Beliefs, appraisals, and judgments Emotional responses Pain behaviour (including pain coping strategies)	Unhelpful beliefs about pain: indication of injury as uncontrollable or likely to worsen Expectations of poor treatment outcome, delayed return to work Distress not meeting criteria for diagnosis of mental disorder Worry, fears, anxiety Avoidance of activities due to expectations of pain and possible reinjury Over-reliance on passive treatments (hot packs, cold packs, analgesics)
Blue	Perceptions about the relationship between work and health	Belief that work is too onerous and likely to cause further injury Belief that workplace supervisor and workmates are unsupportive
Black	System or contextual obstacles	Legislation restricting options for return to work Conflict with insurance staff over injury claim Overly solicitous family and health care providers Heavy work, with little opportunity to modify duties

Table 2: Summary of Different Types of Flags.

The term “yellow flags” was coined in 1997 by Kendall and colleagues, which included the psychological and social factors that posed a risk for the development of CLBP leading to disability. These factors, also called Psychosocial (PS) factors, included Anxiety, depression, Kinesiophobia which is seen as the fear of movement, usually due to pain, catastrophizing (which is perception of the current situation as worse than it is, usually stemming from a traumatic past incident) and fear-avoidance attitudes.

There are also workplace PS factors that are seen to influence pain presentation, such as: work dissatisfaction, repetitive tasks, or support from managerial staff within the workplace, and work-related stress. Although the exact etiology regarding the PS factors and the effect patient have on pain remains unclear, the factors show a great amount of influence on the development of LBP from acute to chronic. Many papers have focused on the importance of the identification and screening of yellow flags and PS factors in patients with LBP, and whether early screening of yellow flags reduces the development of chronicity of the associated pain. A study by Hill and Fritz looked at the influence of PS factors in the role of screening, treatment mediators and monitoring in a clinical setting. Patient were able to conclude that screening a patient of CLBP for PS factors and implementing in clinical practice will be beneficial for better treatment care.

Similarly, an evidence review paper by Waddell, et al., demonstrated that early identification of yellow flags in patients with work-related LBP can reduce the chances of developing disability and chronic pain. The

paper includes many strong evidence systematic reviews, narrative reviews, and scientific studies as well. It was also ensured by the authors that papers which have a strong and moderate evidence of reliability and validity are included in the review, and hence the paper demonstrates characteristics of a strong evidence review. It was observed that the patients were reluctant about returning to work after the treatment, as patient usually related the work to the pain and were worried about it either recurring or getting injured again. The paper also highlighted the importance for development of screening tools for yellow flags, as early screening for the PS factors will enable the therapist to provide a better rehabilitation for the patient. One such approach which is being gradually accepted and implemented in clinical practice is the BPS approach [11].

The BPS approach was proposed first by Engel in 1977, which predominantly suggested the inclusion of the psychological and social factors along with the pathological treatment of the patient. It approaches to revolves around more patient-centered rehabilitation, where factors like the social and cultural background, psychology of the patient and work environment are also taken into consideration during treatment. It provides the patient with a more holistic rehabilitation, hence effectively reducing the recurrence of pain or development of chronicity.

Engel’s approach was received with considerable criticism, but in the last 10 years, especially after the development and classification of the term “yellow flags”, the

BPS approach was implemented into clinical practice [9].

Many studies have looked at the benefit of including the BPS approach in Physiotherapeutic treatments for CLBP, and most were able to conclude that inclusion of early screening and identification of PS factors was beneficial. Sullivan and Adams compared the results of conventional physiotherapy treatment versus physiotherapy along with psychosocial intervention in patients with LBP and concluded that the group that received psychosocial intervention showed reduced disability and better treatment outcome when compared to the other. A review by van ERP also demonstrated similar results, where the best treatment protocol included PS factor screening and BPS approach along with conventional therapy.

Challenges in implementation of BPS into physiotherapy

The BPS approach is very extensive, as many factors need to be considered. Within physiotherapy delivery there were several factors that could pose as barriers for therapists to adapt the BPS approach into routine clinical practice. Foster, et al., observed the challenges that are faced during the implantation of the BPS approach in Physiotherapy. The paper studies the challenges at a wider perspective taking in consideration the educational and clinical practice and has demonstrated detailed analysis of the challenges faced as well. However, the research paper has observed and assessed the treatment challenges and protocols in the year 2011, and hence there is

a gap of 11 years until the current year of 2022. Due to the time gap, the validity and reliability of the paper is moderate. The paper has noted that the factors that can present as challenges are seen to be affected on two levels:

Level one

Level one starts at the entry level training of a physiotherapists, and the two main challenges that present itself are:

The priority of the educational training: At an entry level, the therapists are expected to develop and follow a more routine biomedical approach, and hence most of the time is invested into focusing on anatomical, biomechanical, and physical attributes. The psychological effects of pain are not given some time but the attention as the priority is given to development of basic skills and training of widely used therapeutic methods.

The imbalance between what is taught and clinical practice: During the entry level training the physiotherapists are expected to get clinical practice, during which patient are expected to follow certain protocols that are set and do not include the BPS approach. The paper also suggests that an inclusion of pain and how it alters the psychology of the patient into entry level training of a physiotherapist will prove beneficial, along with an inter-professional education which will help broaden the perspectives.

Level two

Level Two are the set of challenges observed in current clinical practice which were:

That therapist follows the traditional methods and the biomedical model in a clinical practice. Thus, the therapist's reasoning tends to be more anatomical or physiological without inclusion of the psychological aspect. It was largely attributed to the type of training the therapists were given at entry level.

There was a lack of continued learning as therapists found it difficult to find educational courses on the effects of PS factors especially in treatment of CLBP. The courses tend to focus more on the biomedical approach rather than the BPS approach by Foster and Dellito.

However, in a paper by Main et al., [12], it was observed the patient's expectations as the patient commonly has a set mentality about LBP and expects pain resolution when patient seek physiotherapy treatment. A higher level of patient-satisfaction is seen when the therapist provides hands-on treatment over any other approach.

The therapist's lack of expertise and knowledge to assess and treat the PS factors was a drawback, and one more study demonstrated a similar finding. It was also observed that mere identification of the yellow flags is not enough, and that appropriate implementation of screening of the PS factors and the expertise to treat them is a necessity [12].

There are qualitative studies aimed at exploring the therapist's knowledge and perception regarding the PS factors and the extent of its influence in CLBP. A meta-synthesis by Synnott, et al., which reviewed 12

such studies, presented three common themes that emerged:

1. limited recognition of the therapist regarding the PS factors and the role in CLBP,
2. therapists' thinking that patient have a limited role when it came to treating PS factors, and
3. stigmatization of the therapist towards patients who demonstrated a psychosocial behavioral pattern

Most of the Physiotherapists stated that patient feel unqualified to treat the PS factors and felt rather confident in treating the mechanical aspects instead. It was also seen that the physiotherapists only partially understood the role of PS factors and its effects in CLBP patients, and while some recognized the need for screening, but felt patient did not have appropriate tools for diagnosis, and it became a barrier towards implementing the BPS approach. Daykin and Richardson and Zangoni and Thomson agreed with the above in conclusions, with maximum importance given towards increasing the therapists' knowledge and beliefs regarding the PS factors and how taking these into consideration will help the patient receive a holistic rehabilitation. The study by Daykin and Richardson carried out in 2004 is a qualitative exploratory study by the usage of semi-structured interviews of 6 physiotherapists, and hence the reliability along with validity of study is on the lower range. If the study included higher participants or updated the study in recent years, it will increase the validity of the findings and make it more reliable to the current practice. The study carried out by

Zangoni and Thomson is an exploratory qualitative study that collects data with a semi-structured interview as well, and shows a lower reliability and validity due to similar reasons as the prior study. The study includes eight physiotherapists who work in Italy, and hence narrows the findings and results of the study to a small database who was recruited only from private clinical settings. If study had included a wider base of data with more participants who worked in private as well as government hospitals, it would increase the reliability and give a wider perspective of the research study. It is seen that the majority of these studies have been carried out in different parts of the United Kingdom, United States, Australia, and Canada. However, there seems to be no such study to look at the perspectives of physiotherapists practicing in India. Physiotherapy and the importance of it in rehabilitation is increasingly acknowledged in India. As physiotherapeutic treatment gains more traction in the country, it is essential to know the extent of knowledge the therapists have about PS factors along with the challenges patient might face during implementation of the BPS approach into clinical practice.

Healthcare in India

Introduction

India is a country with a plethora of cultural backgrounds, languages, dialects, and social practices throughout the total of 28 states. With a population that constitutes nearly 17% of the total world population, it ranks second in the world for the most populous country. A large population like it followed by socio-economic problems, such as poverty, lack of

education, financial issues, and the most important, health. Medicine has been an ancient practice in India, with traditional methods such as Homeopathy, Unani and Ayurveda being taught since generations. After World War 1, the medical profession particularly bloomed as more individuals took it up as a profession. Over the years, healthcare became one of the biggest sectors in India, and yet, most of the population suffers health issues from very early on in the life [13].

Physiotherapy practice in India

The practice of physical therapy in India started during the epidemic of poliomyelitis in 1952 and was established as a profession in 1953. In 1962, physiotherapy became independent practice and separated from orthopedics, and the Indian Physiotherapy Association (IAP) was formed in 1887.

The scope and extent of Physiotherapy increased over a period slowly, and as the education related to Physiotherapy began in India, the profession gained recognition. It was prescribed to deal with only serious pathologies in the beginning, and gradually was divided into specializations over years. Currently, the physiotherapists trained in India follow the treatment protocols etched out by the Indian Government. The handbook stated that the physiotherapists will be concentrating on development of Clinical care, communication, ethical accountability, leadership, and lifelong learning (Ministry of Health, 2007). Commonly, the International Classification of Functioning Disability and Health is used for the classification and

analysis of the patient. It includes three main components, which are divided into:

Body functions and structures

The section is to examine the impairments, alteration in the body structure and function, according to the disability of the patient. Activities and Participation-Focuses on the restrictions faced by the patient while

performing the regular day activities and participating in social or personal attributes. Personal and Environmental Factors-The factor focuses on the restrictions added or faced by the patient which increases the pain, which are caused due to the environment patient live in or the social habits during the day in or the social habits during the activities during the day.

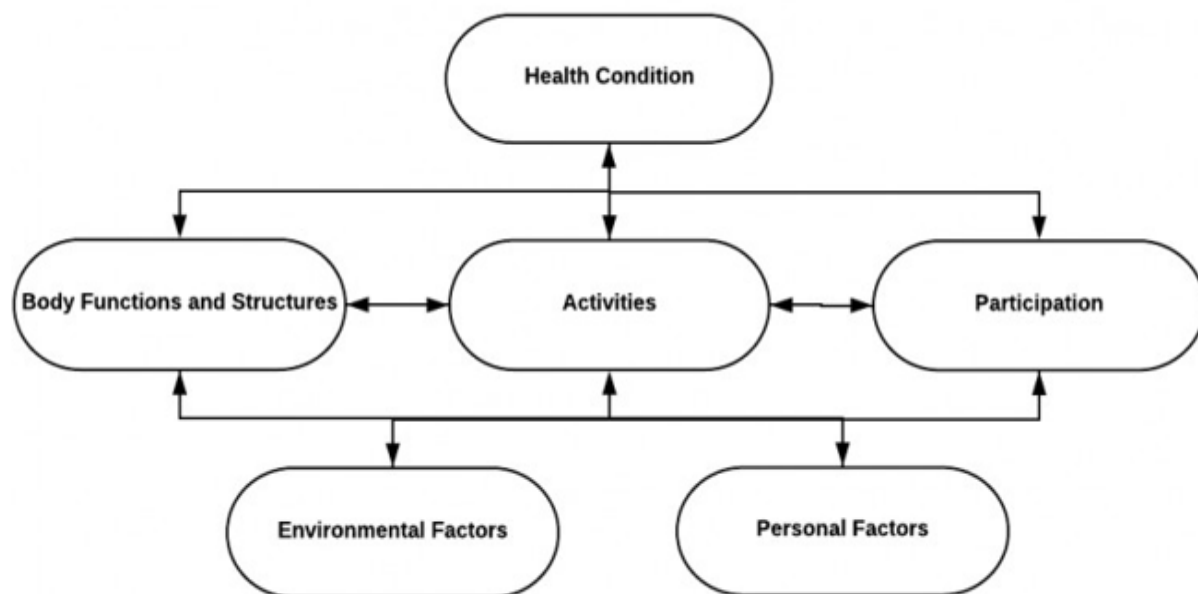


Figure 2: ICF classification module.

The ICF classification includes the division of the three factors into “Barriers” and Facilitators”. It concentrated on communicating with the patient about which activities reduce the pain, and which one aggravates the pain. The information will aid in deciding the treatment to be given to the patient. The implementation and to produce a better healthcare process began in India after the WHO included the country as part in January 1948. Along with adding research and evidence-based practice, monitoring

healthcare processes, and updating the standards, the ICF format was also implemented. It started with critical medical cases, and slowly reflected in physiotherapy as well. Currently in India, for the physiotherapy LBP is given to patients is classified and conducted through the ICF model.

Physiotherapy for LBP patients in India

One of the most frequently treated pain in the Indian population is related to LBP. With a

large population, different professions and age, the number of LBP amongst the population was large in number. The accurate data of India is difficult to collect, but many studies have shown that the cases reporting LBP were on the higher side.

The general population displayed about 6% to 90% had a prevalence of pain in the lower back, while in a study displayed on approximately 11,000-12,000 working class public, 20% of them experienced back pain. In a study by Fidvi and May which be carried out as a quantitative type of research study where a high number of 350 participants were included, the data was collected through a questionnaire to study the protocol that is followed by physiotherapists to treat a patient with LBP.

The study recruited the participants who are registered physiotherapists and ensured that patient was all under the Indian Physiotherapy Association (IPA) and excluded the participants who did not treat patients with LBP or did not practice in India. The final data is collected from 267 physiotherapists, and hence study shows a high reliability and validity. From paper, it was studied that the protocol for treatment of LBP followed the protocol commonly used for India, which includes:

Exercises

These include the evaluation of the strength of the core and pelvis muscles, which is seen to be affected. The therapeutic exercises given to the patient included Core stability, Back strengthening exercises in static and dynamic positions, stretching for the back, lumbar

stabilization, and McKenzie exercise routines. Some therapists also governed manual therapy for pain relief.

Advice on back care

The patient is educated about the postures which must be avoided or changed into a more beneficial position to reduce the back pain. It also included the advice on applying hot water packs in the day, along with the timings. The advice on sitting and standing postures, corrections in footwear, regularizing exercise, resting periods was also included in section.

Electrotherapy

The usage of modalities was administered mainly for pain relief in condition. Most used modalities were Short Wave Diathermy and Interferential Therapy, along with Ultrasound, Transcutaneous Electrical Nerve Stimulation, and Traction. If the pain rate was on the higher side, hot and cold packs were also provided by the therapists [10].

An epidemiological review of LBP patients in India carried out by Bindra studied a little more than forty studies in the time gap of 2001 to 2013, and were able to pinpoint the important factors which contributed to aggravate the pain which were as following:

Age

One of the significant factors was age, and it was observed that pain was prevalent in adults who are above 35 or 40 years old. It was seen equally affecting in males and females, in occupation as well as daily living activities.

Gender

Most of the studies were able to demonstrate that the pain was frequent in females rather than males, especially in the geriatric population.

Occupation

There was a noticeable significant pain present amongst the population having occupations which required handling of loaded items, followed by jobs requiring long standing or sitting positions during work. Such as in cases of personnel who professed miners, drivers, construction workers, manual laborers, and nurses.

The main issue pointed out here was the deflection of posture from the mechanical one, and the prolonged use of being in the faulty position without governance of breaks during the job. The wrongly designed equipment caused the patient to hold a wrong posture for a stretch of time, hence aggravating the pain. It was also seen that long working hours along with a faulty sitting standing or loading posture led to aggravation as well.

Lifestyle

The observation studied that individual who had a healthier daily activity had fewer episodes of back pain when compared to those who followed an unhealthy regime. It was seen to relate with obese patients as well as patients who followed smoking, along with in patients who had a less physical exercise. However, both the research papers by [10,14] do show an inclusion of an important factor

seen to affect the pain felt in individuals, which is the BPS Factor.

BPS approach in Indian physiotherapy

Bindra looked at the psychosocial factors affecting LBP Patients. The study is a review of literature articles that collected epidemiological studies from the years 2001 till 2013 of patients presenting LBP. The review included 42 studies excluding the experimental or randomized control trial studies, and the trustworthiness of the paper increases as the included studies had a large sample size that had participants covering all genders, age groups, occupations, living conditions, factors of pain and the treatment patient were taking for LBP. The number of studies included in study can present a large population of India, as well as the data collected from a span of approximately 13 years increases the robustness of the study as well. It was observed that approximately 60% of the patients suffering back pain had altered psychosocial issues, which included job dissatisfaction, mental stress, anxiety, and depression. The factors were seen to affect females more than males, and the professions of the individuals varied greatly. It was seen equally affecting in higher, middle-, and lower-income working-class jobs, such as in dentists, nurses, computer handlers, businessmen, shop keepers, drivers, daily wage laborer's and homemakers.

In cases with CLBP the psychosocial factors seemed to have a greater chance of increasing the pain and reducing function in the individual. The satisfaction and work required at the job was found deranged in more amounts, along with a higher

prevalence towards depression, anxiety, and work stress. Patient noted that more than 70% of the individuals who complained of severe pain in the lower back, had a significant correlation with developing depression [15].

In a similar cohort study carried out by Asrar [15] included 1531 participants and the data was collected amongst all genders, age groups and occupations through a face-to-face interview. The data collector ensured that the investigator was able to converse, understand and speak in all languages that the participants were comfortable with. The study also excluded the participants who were not willing to participate in the interview. The questionnaires followed the study show a high validity and reliability, and hence cohort study shows a high trustworthiness of the data and results obtained. It was observed that the psychosocial state of more than 55% of the patients was seen to alter after experiencing back pain. The patients were assessed for stress, anxiety, and depression using the DASS-21 along with the quality of life relating to mental and physical health, using the Short Form Version 2 scale. The results indicated that approximately 32% of the patients' showed signs of depression and fear of losing the occupation. Anxiety was seen in the low and moderate stage amongst 20% LBP patients, while stress was observed among 27% in the mild to moderate stage. When the patients were examined for the changes in the quality of life, major changes were evident. The activities which included the patient in daily-life realms, participation in social events, leisure activities, work or occupation related were all moderately

affected, and the patient had reduced the quality and participation instead. In all the factors, the study also showed that female patients were more affected than male, the physical activity, body mass index and job application correlated with the pain severity among the patients [15].

Gourav, et al., investigated biomedical approach and the inclusion of BPS factors screening in the physiotherapeutic treatment of LBP. It is a narrative study including 5 studies which spoke about the Clinical Practice Guidelines set for LBP patients in Canada, United Kingdom, United States of America, Europe, and Italy. The result and data of the study shows moderate trustworthiness as it included only 5 countries instead of global study, and the study looks at the guidelines which were present 7-8 years ago. A higher robust data would be achieved if the study was carried out in the recent years to demonstrate and include the changes in the guidelines that may have occurred over the years. It was studied that the back pain resolved better if the changed psychological or social beliefs of the patients were identified, and there was an earlier rate of return to work, improvement in daily activity and reduction in repeated episodes of pain. The main factors that seem to affect the patient due to a change in psychosocial attribute were Hypervigilance and Pain Interpretation:

- A. Hypervigilance concentrated on the abnormal and increased focus of the patient related to the back pain. Patient are seen to develop procedures to restrict activities that cause pain by reducing the physical

activity and shifting the focus to biomedical procedures even after facing failure in the treatment. The factor seemed to increase the perceived pain by the patient over time, leading to higher chronic development of pain.

B. Pain Interpretation: In the same paper it was also studied that the pain interpretations aimed to look at the emotional and mental processing by the patient in pain. It was assessed through studying the altered behaviour through the beliefs and comments reported by the patient. These included:

- i. The changed belief of the patient towards the pain, which was more towards the negative rather than the positive. Patient thought that the pain is going to cause them harm, which will reduce the activities further.
- ii. The patient's attitudes towards the pain had also altered, where the patient considered a short-term treatment or ignorance towards the pain will reduce the back ache. Patient were also seen depending more on the therapists to treat the pain rather than themselves taking an effort.
- iii. The changes seen in the emotional range of the patient was evident too, where the patient thought that the back pain and reduced mobility will cause them to not be able to move out of the house and will not be able to continue with the occupation. It caused a lot of patients to feel depressive or distant.

- iv. The expectations of the patient towards the activities or occupation had also been seen as a stimulator towards the pain. The patient thought that continuing the activity or the participation will increase the back pain.

The message of the study is important, because if these factors were not considered by the physiotherapist during the treatment, it will lead the patient towards or exacerbate the fear-avoidance strategy, which results in avoiding physical activity, reduction in the job and social interactions, development of anxiety and depression, along with increasing the risk of developing disability over a long period of time.

A similar case study report [16] aimed to observe whether the inclusion of Cognitive Behavioral Therapy (CBT) while treating a patient with CLBP. The patient presented in the case study complained of pain over the lumbar and pelvic region for more than 8 years, and was assessed using the routine protocol, with an addition of the Fear Avoidance Belief Questionnaire (FABQ) as well. The FABQ questionnaire shows a high validity and reliability when used for BPS factors in LBP patients [17]. The FABQ examination showed that the patient had altered muscular and motor patterns along with incorrect ergonomic postures due to the changes in the cognitive and behavioral factors.

The observation was then used into inclusion of the patient's education regarding the pain, the importance of posture, importance of stability, regarding the disadvantages of

incorrect movements and hence demonstrating the advantage of following the correct movement patterns and postures. The study was able to conclude that the inclusion of CBT technique in the physiotherapeutic treatment from the assessment stage could be able to show a better and faster relief of the CLBP, and how the recognition of these factors in the physiotherapy treatment might be able to give a more positive result. However, the case study cannot be included in the results as the data analysis has been performed on only one participant and hence holds low-quality [16].

There have been multiple studies which aim to observe the relation between the psychological and social factors and the occupation of the individual. In a quantitative survey study carried out by Mehta, et al., aimed at evaluating the prevalence of LBP relating to the psychological risk factors in about 75 Information Technology employees working in India. The employees were assessed through three sets of questionnaires, which included the Job Satisfaction Questionnaire (JSQ), Subjective Workload Assessment Technique (SWAT) questionnaire and the Pain or Discomfort scale. The three outcome measures used show a high reliability and validity to assess the BPS factors affected in a work setting [18,19] When evaluating the results, it was observed that most of the participants were affected by psychological factors. It included the mental pressure of the work, the high amount of work with a low amount of time to finish the task and less support from the senior staff or supervisors. The highest and most affected psychological factor was the reduced support

of the co-working staff amongst most participants.

The study pointed out the advantage of educating the working staff regarding the work ergonomics, knowledge about posture and work-related stress causing or increasing the occurrence of LBP. Along with this, the study also concluded that by inclusion of training in the beginning of the profession will help the individual to observe the factors that are psychologically stressful and be able to take measures before the pain extends to chronicity. The study shows a high reliability and validity as the questionnaire set was suitable and reliable to the data collection, however the robustness of the data will increase if a higher number of participants included was on a wider based population which will be able to represent better upon the high population of India [20].

French published a book which talks about more than 25 topics in which investigate the impact of BPS in physiotherapy practice throughout a very wide database of participants globally. The book shows a very high trustworthiness as it has included data from various countries and studied the causes of the alterations of the data by relating it to the ethical, social, psychological, and occupational state of the country. Each chapter of the book includes many researchers involved in data collection and analysis, and by studying the data collected over many years increases the robustness of the book. One of the chapters demonstrates how alterations are required to be made into the third world country healthcare systems, such as India. In brief, the author accurately mentions that with the large population of

India, the psychological and social changes amongst patients is seen quite clearly. It includes the everyday functionality issues as well, such as poverty, job insecurity, stress at home, unequal payment, unclear chances of living and more.

Another literature review performed by Bansal, et al., [21] documented in 2007 in the Indian Journal of Physiotherapy and Occupational Therapy agreed with the fact that BPS approach should be taught more effectively to disseminate into regular physiotherapeutic practice. The review studied twenty-eight research articles in detail to assess if the attitudes and beliefs of the physiotherapist towards the patient with LBP in a clinical scenario have any effect in the pain management of the patient.

It was reported that the lack of implementation of the approach still exists strongly within the medical field and cites how beneficial it will be for the patient recovery, it was noted that although Psychology is taught for almost one year in the four- and half-year duration of education in India, however the physiotherapists practicing so not seem evident with the methods of identification and classification of psychosocial factors. The literature review shows only a moderate robustness as the study was reviewed 6 years ago, and hence will not be able to give a complete reflection of the practice following currently. The review also mentions that there are novel aspects which patient have come across in the literature, which can reflect on the requirement of implementation of BPS in Indian physiotherapeutic practice [21].

In a randomized controlled trial, which was conducted on approximately 150 participants that included patients from 18 years old till 70 years old reporting of LBP for more than three months aimed at studying the activities of the patient. The study of the large sample size was allocated into two groups and the assessor of the data was blinded to increase the robustness of the data. The patients were given two questionnaires, where the changes in the physical activities of the patient and the alterations in the perception of the pain was collected from the participants. The data demonstrates a high trustworthiness as the study collects data by using questionnaires of high reliability on a high number of participants which can be considered to give a better reflection of the population. It was seen that cognitive and BPS interventions embedded into the physiotherapeutic treatment in other countries with similar conditions as India was seen to be successful in reducing the pain of the patient, which was achieved by simply educating the patient of the pain felt in the lower back and acknowledging the factors included in the life which can cause aggravation [22].

Summary and research question

The literature review emphasizes on the importance of including the BPS interventions in the treatment of LBP. It shows that if these factors are not considered by the physiotherapist during treatment, it leads the patient to a strategy of avoiding or worsening fear, resulting in avoidance of physical activity, reduced employment and social interaction, anxiety, and depression along with increased risk of development. disability for a long time.

The study does not aim to compare the BPS factors and physiotherapy amongst the countries. However, the review of the available literature does seem illustrate that the addition of BPS in the physiotherapeutic treatments, by adding awareness, examination, and assessment in the patients is currently excluded in Indian physiotherapy practice. The review shows the high number of LBP cases in the country, and even though psychological and social factors are taught for one year in the physiotherapy undergraduate education, it is not utilized during the treatment. These factors are asked for on a very basic level in patient's pain history, but the assessment and evaluation does not seem to be included in the treatment governed by the physiotherapists working in India. Hence, by examining the extent of knowledge about psychosocial factors among contemporary Indian physiotherapists, patient will help in evaluating and implementing therapy into the system. It will be beneficial for the development of physiotherapy in the country, along with assisting the patients to reduce pain and avoid deformities. The study will also display the advantages and disadvantages caused due to the exclusion of the P.S factors, along with suggesting ways in which change can be implemented in India. As the population which complains of LBP in India, it will be beneficial to study the research question in detail to get a meaningful insight. Hence, the participants included in the research are confined to Indian physiotherapists who work in India.

Therefore, the study aims to carry out qualitative research to explore the ideas and perspectives of Indian physiotherapists about

the psychosocial risk factors along with the affection during the treatment of CLBP patients.

Methods

Research design

The data collected in study was gathered to understand the perception of physiotherapists working in India on the psychosocial factors when patient assess and treat a patient experiencing LBP. The most appropriate method was a qualitative design and interviews were deemed the most appropriate format [23]. The data collection was conducted during the COVID pandemic and although author was based in India when conducting the interviews, the data collection was conducted online as it was seen as the safest format for the interviews.

The context of the study was based on the literature available with regards to the training and utilization of such with respect to the knowledge of and utilization of BPS when treating people with LBP in India. The research aims to concentrate on the practice of BPS followed only in India, and not to compare it with the BPS practice followed in any other countries. Hence, the participants included in the research are confined to Indian physiotherapists who work in India. As author wanted to provide an open platform for the physiotherapists to be able to express the opinions and experiences while treating patients with LBP, the qualitative data was collected in the form of a semi-structured interview [24]. Focus groups were not appropriate as author wanted to probe individual opinions and a group setting may

have inhibited opinions being verbalized. As the literature review done in the beginning of the study demonstrated that it was an important factor that required more detailed information, it would have altered the individual physiotherapist's experience if it was collected as a group with different years of experiences. It would not have been beneficial to study the psychosocial elements of the diverse participants in the study, and a structured questionnaire would have put a limitation on understanding the experience of the participant over a period. Rather, author wanted to gain information on a wider ground of ideology that was presented in the study, hence choosing the form of the semi-structured interview [25]. To understand the opinions of Physiotherapists and the use of BPS in patients with LBP, the data collected in the study was performed using a semi structured interview. This method was a benefit to the participants, to reflect over the question before answering, and mention examples from the experience which was related to the question Adams.

The interview allowed the interviewer to bring the focus of the participant to the key elements of psychosocial factors, along with letting the participants think about the asked question, and then answer. It gave the participant some flexibility while answering, which added an advantage of them adding any information which occurred to them the method also gave an insight into the thought process and reasoning of the participant towards the question, which also allowed reflective thinking by them. As the interview was performed individually with each participant, it was ensured that the opinions

and answers given by participants were not shadowed or influenced by the presence of another participant Sutton and Austin.

As topic has not been studied previously in India, the semi-structured interview procedure helped the interviewee and the participant to go beyond the current ideology of treatment followed in India. The structure of the interview design concentrated on Connectivity, Humanness and Empathy (CHE principle) [26]. The structure was used to ensure that the participant feels included and responsive towards the questions, along with allowing them to take the time to answer.

The interviewee also confirmed with the participant prior to the commencement of the interview, that if the participant wanted to take a break at any point, patient should let me know. Along with this, author informed the participant to feel completely free to ask me to repeat or explain any question throughout the questionnaire if patient is unclear about anything [27].

The interview questionnaire followed for data collection in study is attached in Appendix 1. The methods for participant recruitment, invitation for the participants, collection of consent, sampling, data collection, ethical considerations, and data analysis are reported below.

Participants

The participants recruited in study are qualified Physiotherapists working in India. To add diversity and generalizability of the data the participants were recruited from different states of India. Due to COVID

restrictions, the recruitment, consent process, sampling and collection data was done virtually through the internet. The interview was carried out through an online call which only included audio and not the

video, while the rest of the procedures were carried out through email.

The inclusion and exclusion criteria for the participants were as follows in table 5.

Inclusion Criteria	Exclusion Criteria
The participant holds a valid Physiotherapy bachelor's degree from a university based in India.	Participant who is currently in working in educational setting
The participant holds a valid license and permit to practice Physiotherapy in India	Participants who are not active in clinical treatment.
The work experience should be based on	Participant with less than 6 months
Indian patients.	experience in treating Chronic LBP Patients.
The participant must have a minimum 6 months of experience, should be a relevant experience of treating Chronic LBP patients in India.	
Can communicate and understand English	
Access to internet connection	

Table 3: Inclusion and Exclusion Criteria of Participants.

Participant number

The sample size of participants was continued until data saturation or until the data number was appropriate for completing project is achieved in the limited time frame available. Data collection continued to the point where six participants consented to participate, as it was seen that it would provide a rich amount of data that can be analyzed to evaluate the objective of the study and be sufficient for the project.

Participant invitation

The recruitment for the participants for study was done through a purposeful sampling method [28]. As the data collection was done during the COVID restrictions time, an Invitation (Appendix 2) with the relevant information about the study and why participation will help in studying the

research question. The invitation was circulated among the groups of physiotherapists around the country along with colleges and alumni groups of physiotherapists, to spread the word among the working therapists. It was also posted on social media platforms such as LinkedIn, WhatsApp, Instagram, and Facebook for a wider reach. The interested participants were requested to contact the researcher on email ID, provided on the invitation.

Recruitment process

The individuals who responded back through email to the researcher with the interest to participate and fulfilled the inclusion criteria, were sent with the Participant Information Sheet (Appendix 3). The document mentioned the inclusion and exclusion criteria, the aim of the study, and what will be

the role when patient participate, along with informing them that the interviews will be taken online and recorded for data usage. The participants were asked to read the Information Sheet and were requested to ask any questions patient to have regarding the participation by contacting the primary researcher. Once the participant confirmed the availability, the Consent Form (Appendix 4) was sent to them via email. Patient were also asked in the email regarding the date and time patient will be comfortable with to schedule the virtual interview in the following week. The participant was also asked about the online platform patient preferred to

attend the video call on, and of all options, the participants chose the application Zoom Communications.

The table below demonstrates the dates when the participants were communicated with regarding the interview, and when the forms were sent to the participants to go through the information and consent mentioned regarding the interview. Patient were requested to sign the consent form and send the copy through email. The date for the interview is set after the signed consent form was received.

Participant	Date when forms were sent	Date when the forms were received	Date of the interview taken
Participant 1	4/11/2020	10/11/2020	20/11/2020
Participant 2	6/11/2020	12/11/2020	13/11/2020
Participant 3	6/11/2020	12/12/2020	17/12/2020
Participant 4	9/11/2020	11/12/2020	13/12/2020
Participant 5	11/11/2020	14/11/2020	16/11/2020
Participant 6	15/11/2020	16/11/2020	17/11/2020

Table 4: Details of communication with participants prior the interview.

Once the participant signed the consent form and sent back a scanned copy to the researcher through email, a copy of it including the researcher's signature was sent back to the participant in under 24 hours for the own record. Once the signed form was sent to the participant for the record, patient was requested to confirm with me that patient can access the signatures and that the form is clearly visible.

All 6 participants in study have confirmed that patient have received and are able to access the signed consent form. A date and

time were set according to the participant's preference where patient will be able to participate in the interview, and a zoom meeting invitation was emailed to them accordingly. The dates of the interview of the participant are mentioned in the Appendix. Patient were also informed that a copy of the transcription of the interview will be sent to them as soon as it is ready.

After each communication with the participant, the researcher enquired whether the participant had any questions before the participation began. The most frequently

asked question from all participants was whether the names will be included in the project, to which the researcher confirmed that the names will not be mentioned in any way throughout the project.

Patient were once again ensured that the personal data will be deleted from the system as soon as the analysis ends. The process ensures the trustworthiness of the data and hence increases the transparency of the data as well.

Ethical considerations

The researcher followed the CHE principle [27] to ensure that the ethics and decorum of the interview is maintained. The questions which were used in the interview were kept clear and short, and there were no factors that could cause a mental or physical stress on the participant. Ethical approval for the study was gained through the School of Healthcare Sciences Ethics committee, Cardiff (Appendix 5) in 2020. The main factors taken in consideration in the ethical governance were:

Data security

The collected data, which was in an electronic format was stored and compiled on a protected drive of a computer. The computer along with the storage drive where the data was stored required a password for access, which was not shared with anyone. Only the researcher had access to the data, and it was not stored in any external device or USB.

Destruction of data

The data was stored only until the interviews of the participants and transcription process

was in process. As soon as the data was collected and studied, the information was permanently deleted from the computer device.

Anonymity of participant

The information which could be traced back to the name, gender, age, or location of the participant was excluded from the data. Patient were also instructed in the consent form and during the interview to kindly refrain from mentioning any personal data about themselves or others in the answers. In case any such information was mentioned in the interview, it was excluded in the transcripts. The transcripts of the interview were sent via email to the participant to ensure the anonymity is maintained, and the participant confirmed that no modifications in the data is required.

Risk assessment: The research was assessed for the risk factors, and it resulted in having low risk and harm towards me and the researcher. However, a few modifications were added in the study to ensure the participant is comfortable during the interview. The participant was requested prior to the interview to inform the researcher if patient experience any signs of difficulty or distress throughout the interview. Patient were provided time to process and answer the question rather than implying a time limit in the process, along with addressing any concerns or enquiry regarding the question asked. The researcher was observing and evaluating any changes or reactions of the participant during the interview which could point to discomfort. Patient were also informed that the interview can be stopped at

any point or skip any question if patient is uncertain about continuing forward.

Methodology

Pilot study

Prior to the collection of data with the recruited participants, a pilot study was carried out by the researcher. The pilot was carried out by interviewing a physiotherapist previously known to the researcher, and data collection was not included in the final data collection. The pilot interview assisted the researcher with the bias and flaws that can occur during the data collection, and these were attended to before the start of the final data collection started. After the collection of the pilot interview data, it was studied by the researcher, and the following alterations were made:

- a. The participant was given more opportunity to ponder and think upon the question after it was asked.
- b. The researcher informed the participant to not to hesitate and ask if any query occurs to them during the interview.
- c. More supportive comments to motivate the participant to continue with the thought process if it is related to the content.
- d. Repetitive questions that kept leading the participant to the same thought process or answers were eliminated or the wording was changed in the questionnaire.
- e. The questions were asked in a slower and more steady manner to allow the

participant to grasp the question accurately before answering.

- f. The participant was asked periodically during the interview if the audio is clear and whether there has been any lag on the internet when the questions are being asked. If so, the researcher has ensured the participant not to worry and repeated the question.

Along with this, the audio quality of the recording was also assessed by the researcher and found to be satisfactory and clear that would enable the researcher to transcribe the interview data.

Data collection

Interview

Once the participant had joined the interview call, basic instructions were given to them. These included what to do in case patient want to pause the interview due to any factor such as technical issues, including poor internet connection or audio quality. Patient were also instructed not to mention any patient's name in the answers. Before the questionnaire started, the researcher asked whether the participant is comfortable with starting the recording of the session.

The semi-structured interview schedule was carried out by the researcher, and the participant was encouraged to take the time when patient answer. The researcher also requested the participant for examples from the experience, and as the questions were open-ended and probing, the researcher also added some prompting questions of follow up [28]. At the end of the interview, the

participant was also given a period where patient could add any relevant information related to the aim of the study which has not been discussed during the interview.

Once the participant was comfortable with ending the interview, the participant was thanked for taking part in the session. The recording was stopped, and the researcher reminded the participant that a transcription copy of the interview will be sent to the participant for the own record and for checking the contents that it represented.

Data processing

Transcription

Once the interview ends, the audio recording of the session is played by the researcher on the laptop. Once the entire recording is clear to hear in terms of speech, pronunciation and terms used by the participant, the transcribing verbatim of the interview is processed on it.

The researcher uses the speed modulator to make the audio recording at slow speed, and types as the recording is played. The replies given by the participant were added to the list of questions asked by the researcher, and the transcription was checked in its entirety three times. As the interviews ranged from 30 minutes to 55 minutes in time range, each transcription took one to two weeks for completion. After the audio was transcribed, the audio was played one more time along with the written format to evaluate any mistakes.

The final transcript was then emailed to the participant within one month of the

interview, along with informing them that the answers will not be changed or altered.

Coding

After the transcription data was approved by all the participants, it was coded into themes. Coding was to divide the data from the participants into themes that indicated towards similar topics [29]. For the coding process, the following steps were taken:

Proofreading: The transcriptions of data were laid out in an orderly format on my screen. The interviews did not include any information regarding the participant; hence the bias was minimized. Author carefully read through the entire interviews, while formulating some vignettes and ideas about the relevant data which was forming similar ideas in all interviews. Author wrote down these vignettes on a sheet of paper.

Highlighting: Once author read all the interviews, Author began the next step which was highlighting the data. Author divided color for highlighting, for example yellow color represented factors pointing to psychosocial factors, pink depicted factors in education, and blue represented techniques used in treatment protocols. Author highlighted the sentences in the interview that represented the factors.

Organizing: After the highlights, Author started to note down all the factors which featured in the interviews. These factors were then organized in the sequence where the frequently mentioned one was placed prior, until the least mentioned one. It gave an insight into the basic codes which were formed in rough to begin with.

Formation of Themes: After organization and formation of basic codes, Author analyzed the themes further. The codes were redefined into a clear structure, which was then followed by development of themes [27,30,31].

Data triangulation

As the study uses multiple participants to study the research question, the application of data triangulation must also be considered. Study can point towards three types of data triangulation out of the four different types, as summarized in the study by Nancy Carter.

The most prominent type of data triangulation that can be observed is the data source triangulation, as the study included six different individuals who had experience of working in Physiotherapy practiced in different states throughout India. The differences in age and gender show variations amongst the participants as well, and hence can provide a wider perspective to study the research question in detail. The second type is the theory of triangulation as the data is divided and formed into themes and sub-themes. As each theme looks at various factors with a theory that is pointing to support the theme and sub-theme, an inclusion of various theoretical observations can be seen in the analysis of the data.

The method triangulation should also be considered as a different interview was arranged with each participant instead of carrying out a group interview of all participants. It is important to note that the interview questionnaire used for the same with each participant, however the

observations differed according to the participant's experience.

The investigator triangulation is not observed in study, as there was only one researcher in study, and the data was collected, transcribed, coded, and drawn into results by the inclusion of no other researcher, hence does not cover triangulation type [32].

Reflexivity

The reflexivity in qualitative research is to observe and evaluate the bias and influence that the study can have due to me as a researcher who performed the data collection. The two elements which are important to be evaluated are the reflection and interpretation of the study and whether it is biased due to the involvement of me as the researcher [27]. The study reflexivity in the two key elements is as follows:

- A. Regarding the reflection element:
It is seen that the data collected from the participants in the study follow the profession, which is the same profession as the primary researcher. However, it is important to consider that patient did not have any prior contact or background of the participants who have taken part in the interview and hence reduces the bias of the data collected. The data is collected online and extends to participants working in different cities, states, and age groups as well. Therefore, there is no bias which can demonstrate that patient have selected a certain

group or professionals to alter the reflection element of the study [27].

- B. Regarding the interpretation element: As the aim of the study is to observe an element of BPS knowledge in physiotherapists concentrating on LBP patients, the literature review performed in the study prior can demonstrate the reduced amount of data present in topic. Hence, the interpretation element of bias does not apply here as the study maintained a semi-structured interview where the participants are free to include the relevant experiences in relation to the question asked. The data analysis was performed after all the data was collected from each participant, and there was no theory or knowledge which was set regarding the topic during the data collection. The ensured that the personal bias was maintained to minimum as the interpretation of the data was to study the aim of research question in detail [27].

Results and discussion

The section will be presenting the results of the collected data combined with the discussion in relation to the review of literature. The objective of study was to perform qualitative research which assesses and explores the ideas and perspectives of Indian physiotherapists about the

psychosocial risk factors along with the implication during the treatment of CLBP patients.

The result is further discussed which shows that the objectives of the study have been achieved. The results are reported with respect to the themes which were commonly identified and discussed by the physiotherapists. It followed by the discussion regarding the themes. The discussion will also include the clinical implications, strengths, limitations, along with further research sections.

The data collected from the six participants through the interviews aimed to gain an insight into the current perspective held by the physiotherapists practicing in India, specifically regarding the psychosocial factors in patients with d LBP. The results indicated an overall representation of six themes, which show a co-relationship amongst themselves. The pattern of themes depicts a great deal of similarity to the two challenges discussed by Foster and Dilleto, which is mentioned in the study that aimed to look at the P.S perspectives in LBP management and integration of the same in physiotherapy along with its challenges.

The two challenges of implanting the BPS approach in the therapeutic practice occurs mainly at the educational and clinical practice stages. Hence, the themes presented the study are also divided into educational level and clinical practice level.

The themes observed are noted below in the Table 6, which is divided into the two levels:

Sr. No.	Theme Name	Sub-Theme Name	Description
A	Knowledge, identification, and screening of Psychosocial Factors.	Screening tools unavailable.	The physiotherapists had limited knowledge of the psychosocial factors. Patient were not able to mention any screening tools or identification protocols and were unsure whether the identification would be beneficial during treatment of the patient. Physiotherapists also mentioned patient had a rough idea about the yellow flags, but did not alter the treatment for the patient, as there was no scale/range/medium for evaluation.
B	Concentration on the physical element of treatment	Psychosocial factors were not included in the physical element of treatment.	The usual protocol for physiotherapeutic treatment in LBP was based upon the physical element which was inclusive of factors such as pain, strength, mobility, and posture. However, the psychosocial factors were not focused on while designing the treatment.
C	Doubt regarding the efficacy and identification of the P.S factors	Preferred a psychologist to identify rather than the physiotherapist.	Even though in the undergraduate degree Psychology is taught and examined among students, the practicing physiotherapists expressed the doubt regarding identification and implementing findings in the treatment. Patient thought that a psychologist dealing with such factors will be more beneficial, rather than the physiotherapist.
D	Population of India related to the number of Physiotherapists		A large population in India is affected by Low Back Pain, and hence the physiotherapists preferred assessing and treating the basic factors such as pain. The ratio between the number of patients and the available physiotherapists to treat them does not favour the physiotherapists. The physiotherapists mentioned that with the large number of patients waiting for treatment in every session, patient will not be able to include psychosocial identification and treatment.
E	Greater exposure in master's degree rather than bachelor's degree		An additional detail of knowledge and higher-level understanding was facilitated in the physiotherapists who pursued master's degree.

Table 5: Related to Physiotherapy treatment taught in India for Low Back Pain.

Theme A

Knowledge, identification, and screening of Psychosocial Factors. The most common theme that arose which had inputs from all the participants was the limited information that the physiotherapists had regarding the P.S factors screening process and the identification of P.S factors while delivering the treatment. The physiotherapists have mentioned that patient have only a small amount of information regarding the P.S

factors, along with mentioning that those factors are not focused on during the educational level at college. The physiotherapists who did identify P.S factor present in LBP patients, also commented that patient did not include or screen for the factors. The physiotherapists mentioned that patient did not have any screening tools or scoring scales that patient knew how to use and measure the factors. shows a possible lack or deficit at the education level regarding the P.S factors that the physiotherapists receive

during the training phase.

“It’s just a lack of information and knowledge. So, a lot of clinicians probably are unaware that these factors could play such a big role in a patient’s prognosis. And hasn’t been instilled into clinicians at the education level” (Interview 4, page 41)

“So normally we are not taught so much on psychosocial factors. So, we don’t to detail. The detail of that (Interview 5, page 53)”

Only a few physiotherapists did mention having experience about P.S factors and noted the presence of P.S factors when giving treatment to patients, but none of them had any experience of using any screening tool for the identification of the P.S factors. The physiotherapists who mentioned patient had limited knowledge also claimed that P.S factors were not accounted for in the treatment protocol. It was also mentioned by a few physiotherapists that the topic of PS factors was not focused on in the education phase either, hence patient was not aware of the importance and relevance of the inclusion of P.S factors in the treatment protocols. Even if the current information and knowledge of the physiotherapists regarding the P.S factors and the screening as reported by them is unclear, there is a positive response verbalized by the physiotherapists here. After discussion of the P.S factors, most of the physiotherapists agreed that P.S factor was an important concept, and the inclusion of screening of the factor would be beneficial for the patient to relieve the symptoms. Along with this, patient also agreed patient would be very favorable to getting access to a short screening scale or sheet which patient can use

for the evaluation. It is a novel finding for which there does not appear to be previously reported.

“Like I said, I, we don’t really check for that psychosocial component as much. Right. You know, I know why theoretically, there is correlation to psychosocial and back pain, but I haven’t really used it practically” (Interview 1, page 9) “I’ve used a special test of for the low back pain, but not really any tools for, uh, finding out like the type of social factor associated there”. (Interview 2, page 18)

“No, I haven’t really used anything in the past” (Interview 2, page 20)

“And even like I said, we don’t use, uh, any tools or something to specifically, uh, distinguish the psychosocial factors. So, I don’t think it’s been accounted for.” (Interview 2, page 20)

“I am not using any scales or particular, uh, screening tools” (Interview 4, page 43)

“No, I haven’t used any screening, just like, I don’t know, uh, any screening tool.” (Interview 5, page 56)

“Psychosocial factor, No, not that. So, it was more of the bio- part on the schedule used for more of that, which is pretty common. But, uh, for psychosocial part, no, I don’t remember me using scales.” (Interview 6, page 68)

The physiotherapists were aware of the yellow flags, as it was included at undergraduate educational level, yet the physiotherapists did not assess or make any alterations in the treatment protocol with the yellow flag

recognition. It can also be observed that the physiotherapists were not aware regarding the importance of recognition of the yellow flags and the disadvantages in the exclusion of assessing the factor in the treatment protocols.

“Yeah, I have definitely heard about yellow flags, but I don't think I've really paid attention to a lot of yellow flags when it came to patients with low back pain.” (Interview 2, page 20)

“If you are doing an activity or doing a particular movement or doing something, a yellow flag basically means, that, uh, that particular action, movement or whatever, could aggravate your condition, you need to be careful while doing it.” (Interview 4, page 43)

“Yellow flags are something which can, uh, you can keep in mind. You have to be cautious, but you can go ahead with the treatment”. (Interview 5, page 56)

“Yellow flags, basically, um, you know, the signs that tell you to be, um, alert, you know” (Interview 6, page 73)

As categorized by Nicolas, the yellow flags are used as identifiers that may detect if patients are at risk of development of P.S factors in CLBP and these factors would include included anxiety, depression, repetitive tasks, work dissatisfaction, kinesiophobia, fear avoidance, reduced amount of support of co-workers and work-related stress amongst the population. However, when the physiotherapists in the interview mentioned that patient were aware about the yellow

flags, patient mainly only mentioned about being more vigilant with the treatment. Either patient was not aware or did not seem to recall the many other yellow flags present in the patient's patient treat, and it is interesting to study the factor goes a little against the identification of the yellow flag knowledge that the physiotherapists mentioned that patient are aware of. Patient did not state the types of yellow flags as mentioned, and another important element to note here, is that the physiotherapists also stated that after identification of the yellow flags the treatment protocol will not have any alterations which is seen very clearly in the next theme.

Theme B

Physiotherapists' focus on the physical element of treatment in patient with LBP.

The physiotherapists spoke about the reason the treatment protocols followed the physical evaluation and assessment of the patient. It was mainly because the physiotherapists followed the systems taught to them at college, which followed the International Classification of Functioning and Disability. It is classification mainly included evaluation of 3 main components, which included

- a. Body functions and structure,
- b. Activities and participation, and
- c. Personal and Environmental factors.

However, it was noted and observed in the physiotherapist's statements that the Body function and structure which included assessment of strength, mobility, range of

motion, and pain was conducted out in more detail rather than assessment of the Personal and Environmental factors. Another study by [10] which studied the routine protocol for LBP patient treatment protocol detailed that there was a focus on the exercise regime prescription taught by the physiotherapist, advice on back care which included aggravating and relieving factors, and electrotherapeutic management aimed at pain reduction. It is very interesting to note that during the interview, the physiotherapists were able to recall the facilitating and barriers that patient assessed in the patient and that patient made alterations to the treatment which aimed to assist the patient to reduce pain and increase function. Along with this, though it was not clearly mentioned by the physiotherapists, patient indicated that the supervisors that the physiotherapists worked under also preferred a development in these physical elements rather than the P.S factors. It was seen in the statements made by them which facilitated that more importance was given to the assessment of physical components, and the P.S factors were not included in that.

“No, I haven't, because we see more of the, uh, what do you call physical component, right? Like we try to reason out with only, uh, like, you know, maybe this is, uh, the muscle is tight, or maybe that muscle is weak, or maybe the proprioception is bad. We don't really go up to that psychosocial component.” (Interview 1, page 9)

“I'm going to, I'm going to, uh, use my routine protocol, but I think I'm going to go slow with them” (Interview 6, page 75)

The physiotherapists did report that the protocol always included assessment and treatment of pain, mobility, strength, and posture. However, the assessment and evaluation of P.S factors was not included in the protocol. When the physiotherapists were asked to whether patient would make any alterations if patient were treating a patient with evident yellow flags or P.S factors present, and the common response amongst the physiotherapists was that patient would prefer to stay with the protocol which manages the physical factors which concentrated on the strength and mobility of the low back.

“No, I think that it is, I would stick to the same” (Interview 1, page 12)

“Improving his functional ability and work absenteeism. That is the best thing you can deliver for a low back pain patient” (Interview, page 33)

“it's more of passive modalities. Like I've seen a lot of electro therapeutic modalities being used, everything from, uh, TENS and short-wave diathermy. And patients seem to like that better because you know, patient don't have to work too hard for it. So, it might also end up working like a placebo for them. But, um, there's not much consideration of the natural history and psychosocial factors and environmental factors happening.”

When the physiotherapists were asked why patient would prefer not making any alterations, the physiotherapists discussed that the supervisors and seniors expect them to follow the protocols set out. The physiotherapists are graded or supervised by

the hospital for the quality of treatment given to the patient, patient choose to follow the set protocol rather than making any changes. Hence, the focus of the treatment protocol e followed a set format rather than allowing the physiotherapist to make a wider assessment including P.S symptoms and designing the appropriate tailored rehabilitation protocol for the patient.

Theme C

Physiotherapist's opinions regarding the skill sets required for identification of the P.S factors.

Three out of the six physiotherapists mentioned that patient would prefer a psychologist to review a patient for the assessment of the psychosocial factors. The physiotherapists were quite confident regarding the assessment of the physical factors including wrong postures, mobility, and strength, but did not have the same confidence regarding the identification of the P.S factors. The physiotherapists mentioned that patient did include ergonomic advice to the patients who had increased pain due to the work posture and positions but did not take in consideration the factors of depression, anxiety, and stress. As studied by Asrar, these three factors are evidently present in more than 50% of LBP patients in India, hence the exclusion of these psychological alterations can affect a large population. The presence of P.S factors appears to be evident in vast public numbers, and in a study by Bindra economic income, occupation, work hours, gender, age, and lifestyle was affecting the patient more rather than relieving the pain. The same Bindra

study also points out another important detail, that 60% of the LBP affected patients also displayed a change in the P.S factors.

"I would ask them to counsel a psychologist actually for that, because patient is better to handle that situation." (Interview 1, page 12)

"I kind of referred him to a therapist, a psychologist, and then patient started sessions, a combination of my exercise therapy sessions and that, worked much better than, you know, just the exercise therapy was working." (Interview 3, page 37)

"I feel, like, you know, patient all benefit, uh, with going to, um, a psychologist or any therapist. I would definitely refer them to a specialist like that". (Interview 4, page 44)

The physiotherapists in the interviews demonstrated that patient was not confident about performing the screening and recognition of the P.S factors, and hence felt referring them to a specialist will be more beneficial. It is interesting to note as the points to a positive thought process which is observed amongst the physiotherapists and demonstrates that patient want the better treatment for the patient, however it also shows the necessity of education of P.S factors amongst the physiotherapists.

The physiotherapists reported that patient was taught the subject of Psychology at undergraduate level for an entire year which included examinations as well, however patient still had doubts whether patient will be the appropriate physiotherapists to assess the P.S factors. The psychology subject taught to the physiotherapists seemed to include the

factors which are affected, however the physiotherapists seemed to be unaware of the scales used for assessment of the P.S factor. The preference was referring the patient to a psychologist, regardless of the knowledge patient gained during the undergraduate level. The Theme E mentioned below includes further details on the influence of education as well.

Theme D

The population of India related to the number of Physiotherapists.

The theme is quite important to note as it demonstrates that the ratio between the physiotherapists available to provide treatments for LBP and number of LBP amongst the common population to be treated is another theme that is evident in the data gathered from the Physiotherapists. The physiotherapists have stated that the number of patients patient must treat in the given timeline is extremely large when compared to the time allotted to them for delivering the treatment. Patient mentioned as well that rather than devoting time for evaluation and assessment of the P.S factors of the patient, patient will refer the patient to a psychologist instead. The theme represents a novel finding, as there was no clear literature or study which has been performed which correlates LBP patients and BPS approach in physiotherapy in India.

Hence two out of the six physiotherapists mentioned that with the large number of patients waiting for treatment in every session, patient will not be able to include psychosocial identification and treatment.

“Adding this would be time consuming because you actually have a lot of patients in a day. Right. So, I think it would be time.” (Interview 1, page 10)

“There was a huge inflow of patients, so you get really less amount of time to spend with every patient, and probably you never end up seeing that patient again.” (Interview 4, page 41)

The rest of the 4 physiotherapists mentioned similar in a different form. Patient either related it to the large population of the country India, or it was regarding the screening and assessment of the P.S factors.

The physiotherapists mentioned that the reason patient will not be able to screen or assess the P.S factors as it would be time consuming to perform it in the large population of patients with LBP. In a particular day patient would have a high number of patients to treat, and the inclusion of the assessment of P.S factors might delay or lengthen the amount of time patient can treat a patient.

“In like a busy OPD setup, how do you, like you don't do it, in a short amount of time. And how does the patient open up to you in that short amount of time?” (Interview 4, page 42)

“So, in that short time period, you will, you are, you don't go into that psychosocial factor, and you see assess physically, which is like not complete” (Interview 5, page 53)

“In clinical practice you don't get so much time” (Interview 5, page 55)

“There is a time, time factor also is there.” (Interview 5, page 57)

Theme E

Greater exposure to knowledge of psychosocial factors related to treating patient with LBP in master's degree rather than bachelor's degree. The last theme focuses on the two responses noted by physiotherapists, which was that patient gained more focused theoretical knowledge during the post-graduation or master's degree than during the undergraduate or bachelor's degree. However, there was still no detailed education or mention of P.S factors in clinical practice during master's degree. One participant in the 6th interview also mentioned that the knowledge regarding the P.S factors was due to his colleagues' studying masters in any other country outside India, otherwise patient would have been unaware of the factors. It was a novel finding and hence there is no prior reference which was found that supported and finding. It will be beneficial to study factors in more detail regarding why the P.S factors were more inclusive in the master's education even if a greater amount of educational and clinical time is given in bachelor's degree as well.

"Uh, during my master's, yeah, it was a little bit more specific. We did go into many theories of, uh, but patient didn't teach us MFR or like certain things, you know, like, but patient did go a little more specific on the low back pain patients." (Interview 1, page 2)

"Yes. Uh, the main focus which we did in like master's program is like, improving the mobility of the spine, and improving the stability of the spine." (Interview 2, page 24)

However, the knowledge included more theoretical and muscular abilities of the

patient rather than P.S factors. Both the statements display the attention on improving the mobilization and stabilization of the back, rather than any education regarding the P.S factors. The demonstrates that the clinical inclusion of assessment of P.S factors was not included in master's degree, and the focus remained more towards the educational prospect and not in the clinical aspect.

Summary

The qualitative study was carried out in the amongst 6 physiotherapists working in India, regarding physiotherapeutic treatments to LBP patients. The results and discussion are demonstrating some novel findings regarding including P.S factors in the assessment and treatment for patients with LBP. One of the most stated aspects is regarding the knowledge regarding the P.S factors that physiotherapists hold, and currently the amount of detailed knowledge suggests being on the deficient side. The physiotherapists have only a limited amount of information regarding the P.S factors, the role it plays in affecting an LBP patient, and the measures that can be implemented to alter the treatment protocol delivered to the patient. The physiotherapists appeared confused when asked several of the questions and gave the question a lot of thought, which may suggest that patient was not confident regarding the answer and shows the deficiency in holding accurate knowledge., The physiotherapists were also unsure about the yellow flags and the screening tools to be used for assessment and evaluation of the flags in the patient. Even though the physiotherapists mentioned patient were aware about the yellow flags, patient were not able to accurately mention a

few yellow flags which patient have assessed or evaluated previously. it suggested that the knowledge regarding the P.S factors needs to be implemented on a deeper understanding level amongst the physiotherapists.

The physiotherapists also noted that there was a focus on the physical aspects of the patients during the treatment, which did not include the P.S factors. Patient preferred following the set protocol, which is followed in the workplace, rather than spending time on screening for the factors. Lack of time was also a large factor seen in the choice of treatment chosen by the physiotherapists, a majority mentioned that patient have a high number of patients to treat in a day and thought that an addition of extra screening will increase the stress over the physiotherapist to finish the treatment faster. At the points out to the idea that the physiotherapists are not aware of a screening tool which can be used in a short amount of time parallel to the treatment protocol decisions. The physiotherapists also mentioned that patient would refer the patient to a psychologist for the screening of the P.S factors as patient did not feel confident regarding the screening themselves. Once again suggestive towards the deficiency in the knowledge and training regarding the P.S factors amongst physiotherapists.

The positive responses and comments from the physiotherapists in the interview included a few mentioning that patient would like to be more informed and learn more about the P.S factors. Patient felt that identification and management of P.S factor is an important element which should be included in the treatment but did feel like patient require a little more time to understand the aspect in a

complete manner. One of the participants also mentioned that his knowledge has come from colleagues and friends who were studying regarding the P.S factors, rather than him learning about it in his university. Hence the physiotherapists do seem to understand the importance of the P.S factors, however an inclusion the educational and clinical practice will implement a better healthcare system for LBP patients who seek physiotherapeutic treatment.

Clinical implications

The themes and the results possibly suggest that there is some awareness and perception regarding the P.S factors that need to be considered when treating patients with LBP. There is evidence that P.S are evident to a small degree in the educational system in India. The themes presented in the study can show that a further detailed study of the P.S factors included in the educational and clinical practical sessions will benefit the physiotherapeutic protocol when treating patients with LBP. The clinical implications are noted from the point of view of the physiotherapists working in India are stated below. The suggestions can help improve a better pathway towards enhancement of the treatment protocols for patients with LBP:

- A. An addition and introduction of a valid and reliable screening tool. The most repeated and common experience amongst all the six physiotherapists interviewed study displays that there is not an evidence-based screening too available. By accessing such a tool to the physiotherapists will allow and encourage them to undertake the P.S

factors when patient evaluate the patient.

- B. Inclusion of P.S factors in treatment protocols. The physiotherapists did mention that patient do notice or feel like such factors can be tested, but do not go in detail with the patient regarding that, as it is not included in the set treatment protocols. If screening tools were more widely available and the concept acknowledged then supervisors, seniors and professors can be instructed to encourage the physiotherapists to include P.S factor assessment in the treatment protocol.
- C. Inclusion of educational lectures/part of continued professional development. A set of lectures can be added to the theoretical learning during undergraduate courses, and also as 'in -service training' along with practical examples discussed by the educator. It will develop the thinking process of the physiotherapists and will allow them to include it into the clinical practice. It can be implemented throughout the educational period, so that the therapist is confident about the assessment of the P.S factors when faced with patients with LBP.
- D. Encouragement of altered treatment protocol. The physiotherapists should be educated regarding the changes or improvements that should be made after the assessment shows that the patient displays aggravated P.S factors. The physiotherapists should be educated and taught about the

advantages of the designed treatment protocol regarding how it will be beneficial towards reducing patients LBP symptoms.

- E. Reduction in number of patients assigned. Most of the physiotherapists mentioned not having enough time for carrying out the entire treatment protocol with the patient, as the number of patients is quite high. The physiotherapist should have a set number of patients that are assigned to them for that period of the day, which will hence provide the therapist and the patient with an increased amount of time to carry out the treatment. Alternatively, the therapist can make the patient understand regarding the
- F. P.S factors and why the inclusion of that treatment will benefit the patient.

What about education of seniors/workforce about importance of PS and autonomy of Physio to make appropriate decisions.

Strengths and limitations

As far as the author is aware a novel study ascertaining Indian physiotherapists opinions about the use of assessing and treating P.S factors in patients with LBP. As the knowledge regarding the P.S factors is yet to be developed in Indian physiotherapy, the qualitative study using semi structured interviews shows the areas where the education must be developed. The physiotherapists in the semi structured interview allowed them to speak more openly and state the opinions and did not feel constrained. It allowed an insight into the perspective of the physiotherapists currently. The interviews demonstrated that the

physiotherapists were keen to learn more regarding the P.S factors. As the study was regarding LBP which affects most of the population, the progression of the treatment protocols will assist many patients. The participants had good experience in current treatment protocol that is followed for LBP patients, and hence gaining the insight regarding the knowledge patient hold currently assisted in demonstrating the current correlation between the P.S factors and treatment protocols. An important feature of the study was that it was related to the treatment which affects a major population of India, which is the LBP. Hence, the study can be applied and related to understand and assist a bigger population of Indian patients to be treated in a more advanced and better way. It was also ensured that the bias which could be reflected from my side as an interviewer is maintained at the lowest degree, as the sample size of participants has been chosen by circulating the invitation online on all platforms. It ensured that the participants are not known by me from a prior basis and as the questionnaire was prepared before the participants were interviewed, it reduces the bias as well.

The small sample size is an evident limitation and was deemed suitable for MSc level. However, a larger sample size coming in from a wider number of participants from a wider geographical region of India or wider would be very beneficial. In addition, to cover the large population of India, a greater number of physiotherapists working in different sectors will give a better insight. As the recruitment of only six participants was carried out in the study, one needs to consider that the data

saturation might not be achieved. The greater number of physiotherapists can also be focused on inclusion of physiotherapists that work in different sectors of physiotherapy and include a wider base of population from the educational and clinical phase of work. In addition, as the project was carried during the COVID restrictions, the interview was carried out online, along with the recruitment and participation search. It gave access only to participants who had internet access, and hence excluded the search and recruitment of physiotherapists who are older and not comfortable using the internet. Since the project sample size was small, it was carried out by one researcher, however in a bigger population multiple operators can take part which hence can widen the research question more. It will assist in exploration of the question in a further and more expansive manner.

Recommendations of further research

As the study was based upon focusing only on the P.S factors in LBP patients, further research needs to work with education delivery in Higher Education Institutions across India to place P.S factors for LBP in the curriculum. Further research could identify if P.S factors are relevant in the Indian population with broader musculoskeletal disorders, which includes injuries that are some of the highest in India. Further enquiry is needed as to what would make physiotherapists more confident in delivery of a “Biopsychosocial” approach rather than a “bio approach”. In addition, research into patients’ opinions on P.S approach would be useful with a targeted population of patients

who exhibit P.S factors as to what patient felt about the best treatment approach.

The study was carried out by the method of semi structured interviews, however further research can be carried out by including methodologies that implement relevant different qualitative approaches and quantitative data collection.

A quantitative study analysis will be able to produce numerological data which can be studied further towards assessing the key factors that require development. The study participants who work in physiotherapy as a practitioner, but an inclusion of the interview given by lecturers, professors, and educators will benefit in strengthening of the data as well. The group of participants can be enquired regarding why the BPS is not included in the education process along with the limitations that prevents the BPS factor to be assessed and included in the examination in clinical practice.

The study also included a very small sample size of 6 participants to fit the study, but further research with more participants, who are included from all parts of India, working in government and private clinics can also be included in equal numbers. It will target inclusion and treatment of patients from all social cycles in India, and hence give a deep insight into the factors which can be useful to bring about a change. A larger sample size of participants will be able to represent the data in relation with the population of India in a more efficient manner. An additional study can be carried out upon segregating the causes of LBP, such as occupational, gynecological, traumatic, periodical, or variational. It can

include associated diseases as well, as the factorization will assist in understanding the different levels at which the P.S factors have an effect amongst the population.

Conclusion

The qualitative research aims to study the awareness and perspectives of Indian physiotherapists regarding the BPS factors in patients with LBP. These physiotherapists are the ones who are working in India, and the objective of the study was to gain a deep insight regarding the BPS factors and the inclusion of these factors into the physiotherapy protocol given by the physiotherapists. The study interviewed six physiotherapists, and the results of the data give an aspect of where the physiotherapists practicing in India regard P.S factors while delivering the treatment to LBP patients. The data is collected through a semi-structured interview of six participants through an online audio call after gaining consent from the participant. The call was recorded with the permission of the participant, transcribed into written data, and a copy sent to the participant. Once the participant approved, the data was studied and divided into themes along with sub-themes.

The review of literature shows that multiple studies carried out by Bindra S, Asrar, Sharma have discussed about the importance of recognizing P.S factors in the medical and physiotherapeutic treatments in India. The most important factors as mentioned before is the limited amount of education regarding the P.S factors that the physiotherapists have gained during the educational and clinical period. When the therapists were asked

regarding the P.S factors, patient mentioned factors which are more significant to the physical evaluation of the patient rather than P.S factors. Patient did evaluate the patient and ask them regarding the environmental and work-place related factors which cause an aggression in the level of pain in the back, however patient did not include P.S factors as mentioned in the literature review. In the cases where the physiotherapists did know any of the factors, patient also mentioned an issue of not having any device to screen for them to assess and evaluate. Hence, an addition of the knowledge delivery in the early phase of education can be beneficial towards implementing the P.S factors in physiotherapy. The participants also agreed with having additional information regarding the topic to make the treatment beneficiary to the patient. The delivery of the knowledge will also require clinical exposure too, as the P.S factors must be implemented in the clinical practice as well.

Another important factor here is the time limits as mentioned by the physiotherapists. As discussed before, the population in India that suffers through the LBP is quite high, and the number of physiotherapists who must undertake the treatment is quite low. It causes a load of patients to be treated by one physiotherapist in a day to be very high, and hence time factor concern was raised by all the physiotherapists. The time limitation causes the physiotherapists to gauge the set protocol of testing the physical factors quickly, rather than asking the patient about any P.S factors. The disparity in the ratio causes the therapists to exclude factors such as yellow flags or P.S factors, hence causing the knowledge gap to extend further. However, as mentioned by the

therapists, patient would like to implement a short screening tool if it was introduced to them during clinical rounds. A short questionnaire that screens the P.S factors can be included in the assessment and evaluation of the patients, and the physiotherapists can be informed about the alterations that can be made in the protocol. The workload of therapists can also be reduced by implementing a process through which patient are assigned a defined number of patients per day, which will ensure the quality and quantity of the therapy given to the patient. The short questionnaire will assist the physiotherapists with another observation which was made in the study where the physiotherapists mentioned about referring the patient to a psychologist rather than assessing the P.S factors themselves. It displays an idea of the deficiency in the confidence that the physiotherapists hold regarding the evaluation of the P.S factors, which is interesting to see as the physiotherapists receive one year of psychology as a taught subject in the bachelors during undergraduate in India. Yet, the education and confidence in assessing the P.S factors is not implemented accurately in the physiotherapists so that patient can make use of it in the clinical treatment protocols.

Another interesting situation mentioned by the physiotherapists claims that the supervisors or seniors supervised only the physical elements of the treatment and not the P.S factors. Patient have merely concentrated on improvement of the patients' physical factors, which mainly included the pain, however it did not have inclusion of P.S factors assessment. The physiotherapists also mentioned that patient would not prefer to

take the risk of changing the treatment protocol which is not followed by the supervisors or seniors yet. Hence an inclusion of these factors at an educational level will help to restore the balance and assist in the inclusion of the P.S factors. It helps the therapists to gain confidence in the own assessment rather than referring the patient to a psychologist, even though enough education is delivered to the physiotherapist in the subject of psychology. The study can demonstrate that the education regarding the P.S factors is quite unclear amongst the physiotherapists, however patient do have a faint idea regarding the same. Patient did mention having knowledge about yellow flags, however, were not confident enough to implement the same into the practice.

Hence a more defined educational pattern of addition of the P.S factors will assist in the increase of knowledge of the factors amongst the physiotherapists. It should be implemented in the clinical practice as much as educational, which will ensure that the therapists use the P.S factors clinically for assessment, management, and treatment as well. An introduction of a short screening tool along with training given to the physiotherapists regarding how to use the tool will also help the therapists to concentrate and assess the P.S factors in the patient without losing confidence in the evaluation. It is important to note a limitation that the study was carried out on a small sample size of six participants, and the data is collected online through an audio call. Hence for further research, a higher number of participants which include educators as well can be interviewed in person instead of an audio call

as it will add to the robustness and trustworthiness of the data.

Acknowledgment

The most valuable gratitude I have is towards the participation of the physiotherapists in the study, as without the kind contribution for the data collection gaining the results would have been quite difficult. Patient participated in the study after complete information regarding the participation and hence were able to be involved in a proper manner. The honesty towards the answers and sharing of the experience is what made the study successful. My biggest thank you goes to Dr Valerie Sparks, as her support and help was constant throughout the study. She has taken her time to understand my project, along with making sure that I take care of my health and well-being as I carry out the project, which led me to finishing the study on time. Along with this, I am very thankful for the support of the School of Healthcare Sciences of Cardiff University for the contribution and help for the completion of the study. Lastly, I want to whole-heartedly thank my family who took more responsibilities in the house, so I can solely concentrate on my study. It allowed me to focus my time and efforts on ensuring that the study is carried out and presented in an accurate manner.

Author contribution

Sanika L: Primary researcher, responsible for data collection, data organization, investigation, and writing-original draft, writing-final.

Valerie S: Reviewer and guide for research, validation, supervision the contributions of each author should be described.

Conflicts of interest

The authors declare that patient have no conflicts of interest.

Ethical approval

Ethical approval for the study was gained through the School of Healthcare Sciences Ethics committee, Cardiff University, Wales, United Kingdom.

Consent to participate

The participants were asked to read the Participant Information Sheet and were

requested to ask any questions patient have regarding the participation by contacting the primary researcher. Once the participant confirmed the availability, the Consent Form was sent to them via email and was requested to sign the Consent Form and send it back via email.

Consent to publication

Informed consent to publication was obtained from relevant participants.

Availability of data and materials

Not applicable.

Funding

Not applicable.

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