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Original Research Article

RELATIONSHIP BETWEEN DECISION-MAKING IN LOW BACK PAIN AND KNOWLEDGE, ATTITUDES, BELIEFS, AND INTOLERANCE OF UNCERTAINTY

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ABSTRACT

Background: Low back pain (LBP) remains a prevalent health problem that is characterized by ambiguity and can progress towards chronic disability. Recently, researchers have started to focus on understanding whether and how attitudes and beliefs of health professionals influence their decisions and outcomes among LBP patients.

Objectives: The purpose of this study was to characterize Lebanese doctors of physical therapy (DPT)s attitudes and beliefs towards LBP and its management. A secondary objective was to examine whether and how DPTs own intolerance of uncertainty (IU), knowledge and treatment orientation predicts work and activity recommendations among their LBP patients.

Methods: A national survey targeted 129 physical therapist (PT) and included: 1) a filter question; 2) socio-demographic section; 3) a question about recent LBP clinical practice guidelines (CPGs) knowledge; 4) pain attitudes and beliefs scale for physiotherapists (PABS-PT); 5) intolerance of uncertainty scale-12 (IUS-12); 6) and two clinical vignettes that described patients with LBP.

Results: A total of 16 DPT completed the survey, of those, 62.5% followed a biomedical orientation, and were restrictive in the recommendations given to their patients. In addition, knowledge of CPGs showed a significant strong relationship with IU (P=0.005) and the recommendation to return to activity (RA) in vignette 1(P= 0.031).

Discussion: The current results showed partial adherence to recent LBP guidelines, where most of the DPTs had a biomedical orientation that impacted negatively their recommendations for patients with LBP and DPTs who showed knowledge of LBP CPGs had the lowest IU and tended not to be restrictive in their recommendations to RA.

KEY WORDS: DPT, Decision-making, Low back pain, IU, Orientation.

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INTRODUCTION

Low back pain (LBP) remains a prevalent and recurrent health problem that affects the quality of life and is still a leading cause for disability and early job retirement [1,2]. Estimates of the lifetime incidence of LBP in

European and American countries ranged between 49% and 70% [3], and 20 to 56% of adults will experience LBP within a single year [2].

LBP is defined as "pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without sciatica" [4], for which physical therapy services are required.

The purpose of the PT assessment and treatment was to locate and then to treat the neuromuscular impairment or the specific structures that were believed to be the source of pain. This method of managing LBP reflects the biomedical orientation [5], which proposes that a simple correction of the underlying pathology will result in eliminating symptoms and restoring normal function.

However, clinical experience and epidemiological data on LBP often highlights that many patients will continue to experience pain/symptoms even after their recovery. In addition, it has been well demonstrated that surprisingly many people will experience little to no pain even with the presence of a significant tissue pathology (arthritis of the spine, bulging discs, bone spurs, etc.) [6].

Since, it is now clear that most of LBP cases are due to non-specific causes rather than a specific structural problem or a neuromuscular dysfunction [7], and non-specific LBP causes more disability globally than any other condition, this lead to the rise of the biopsychosocial orientation in contrast to the previous biomedical orientation which assumes that biological, psychological, and social factors play a significant role in human functioning in the context of disease [5].

Many studies were conducted to search for psychological factors underlying LBP [8]. Other studies, focused on identifying and managing predictive psychological factors of outcomes among LBP patients [7]. However, findings remained unsatisfactory as LBP is still prevalent and outcomes are modest.

Physical therapists (PT)s clinical practice guidelines (CPGs) for both acute and chronic LBP stress the importance of the biopsychosocial orientation. CPGs recommend that patients should be, re-educated about LBP, advised to avoid bed rest, stay active and return to work (RTW); and taught self-management. Rest is not recommended unless it's time-limited and if necessary, rest should be accompanied by advice on activity resumption [7],[9].

In addition, PTs must recommend moderate-to-high intensity exercise for patients with chronic LBP and endurance activities for the pain management. However, although recommendations of CPGs were endorsed in previous studies, minimal progress was recorded either in lowering the prevalence or in improving the outcomes among LBP patients.

It is thought recently that in order to obtain an improvement, researchers should shift their attention to understand knowledge, attitudes, beliefs, and behaviors of health care providers and how these characteristics influence the management, and outcomes of patients with LBP. In fact, Bishop (2007) [10] concluded in his study that attitudes and beliefs of PTs about back pain can influence how they manage their patients. Additionally, studies assessed the influence of PTs intolerance of uncertainty (IU) on decision-making. IU is defined as the "tendency to react negatively on an emotional, cognitive, and behavioral level to uncertain situations and events." [7].

Unfortunately, uncertainty often affects clinical judgment, especially in areas where the pain is chronic and nonspecific, such as among LBP patients [7].

Recently, a new DPT program was established in Lebanon, aiming to increase PTs clinical decision-making and prepare them for independent practice. To our knowledge association between the recommendations offered to patients and DPT own IU, knowledge, attitudes, and beliefs towards LBP, have not been explored in Lebanon. Therefore, the primary objective of this study was to assess Lebanese DPTs attitudes and beliefs towards patients with LBP and its management. A secondary objective was to examine whether and how DPTs own IU, knowledge and treatment orientation predicts work and activity recommendations among their LBP patients. An exploration in this area might highlight the role of DPT in solving and reducing disability among LBP patients.

METHODS

Design: A cross-sectional survey was conducted to investigate the impact of the DPTs knowledge, their treatment orientation, and IU on the recommendations among LBP patients.

Ethical approval was obtained from the Lebanese German University Institutional Review Board. DPTs consent was automatically obtained once they filled-in their socio-demographic information as mentioned in the survey's introduction. In addition, DPTs participation was fully voluntary and could withdraw from the survey whenever they wanted to. All the data collected were confidential and kept in a safe place, and were reviewed only by the study principal investigators.

Participants and selection criteria: To practice in Lebanon, all licensed PTs must be registered in the Order of Physiotherapist in Lebanon (OPTL). The OPTL maintains a database of all members and is the body responsible that allows eligible PTs to hold the DPT title upon the completion of the program. All DPTs who worked in public or private settings with an outpatient clientele in rheumatology or orthopedics, and treated patients with LBP were recruited. DPTs who didn't treat LBP patients on at least a monthly basis were excluded. Recruitment pool targeted 129 graduate PT who completed the DPT program, between the 5th and 24th of November 2016.

Procedure: Procedure: To recruit the participants, a list of the eligible DPTs was requested from the OPTL. In addition, a customized website was created for this survey. Eligible participants were contacted via e-mail that included: 1) an information sheet; 2) and a link to access the survey's website. Simultaneously they were contacted through telephone calls to confirm their reception of the sent e-mail and encourage them to participate. DPTs data were anonymously collected.

The survey started by a brief introduction to the study, followed by a filter question "Do you treat patients with low back pain on at least a monthly basis?", that was used to exclude DPTs who didn't treat patients with LBP on monthly basis. Furthermore, DPT consent was obtained and they were automatically enrolled in the survey once they started to fill-in their socio-demographic information that included: 1) gender; 2) age; 3) years of clinical expertise; 4) and post-graduate education.

Afterwards, DPTs answered a battery of scales that included: 1) Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT); 2) Intolerance of Uncertainty Scale (IUS-12), and solved two clinical vignettes of patients with LBP.

Knowledge: DPTs knowledge was assessed in this study by checking if they could identify any recent CPGs for patients with LBP, for this purpose, a question was added in the survey "Can you identify any of the recent clinical practice guidelines for low back pain?" and DPTs had to answer by "Yes/No", and if answered by "Yes" a box below was added to be able to state narratively their knowledge of the CPGs.

Pain Attitudes and Beliefs Scale for Physiotherapists (PABS-PT): The aim to test attitudes and beliefs of the DPTs was to find if the DPTs followed a biomedical or a biopsychosocial orientation.

Ostelo et al. (2003) [11] developed the PABS-PT to assess the strength of two possible healthcare professionals (HCP) orientations towards the management of patients with chronic LBP among PTs in Netherlands.

The 'biomedical' orientation was described as one in which the HCP believed in a biomechanical model of disease, where disability and pain are a consequence of a specific pathology within the spinal tissues and treatment is aimed at treating the pathology and alleviating pain.

Whereas, 'behavioral' orientation was one in which the HCP believed in a biopsychosocial model of disease and pain that does not have to be caused by tissue damage, and can be influenced by social and psychological as well as biomechanical factors.

The revised tool has 19 items, 10 within the biomedical subscale and nine within the behavioral subscale. DPTs indicated on a six-point Likert scale ('Totally disagree' = 1 to 'Totally agree' = 6) the extent to which he/she agrees or disagrees with each statement. Subscale scores were calculated by a simple summation of the responses to the subscale items. Higher scores on a subscale indicated that DPTs adopted this orientation.

The biomedical subscale has been shown to be stable and robust with only minor variation in the composition of items between studies and with typically high internal consistency (Cronbach's 0.73 to 0.84). Whereas, behavioral subscale has proved to be more problematic. The different versions that have been developed, attempted to improve the structure of the original behavioral subscale, although internal consistency (Cronbach's α0.52 to 0.68) has consistently fallen short of recommended levels [12]. Though there was evidence for content and construct validity [11,13] although there is no 'gold standard' with which to compare scores on the PABS.

Intolerance of Uncertainty Scale (IUS-12): IUS-12 was used in this survey to measure DPT's IU, which represents their worry and anxiety. IUS was measured a construct related to worry and anxiety. The reduced 12-item version (IUS-12) was used in the current study. IUS-12 is divided into two factors: 1) "inhibitory anxiety" that referred to uncertainty inhibiting action or experience; 2) and "prospective anxiety" that referred to fear and anxiety concerning future events.

Items were rated on a 5-point Likert scale, ranging from "not at all characteristic of me" = 1 to "entirely characteristic of me" = 5. A high total score indicated a high general IU, and this means that an individual worries that a negative event will occur regardless of the probability of it occurring, and who may resort to inaction and/or avoidance of ambiguous situations. The IUS-12 had an exemplary internal consistency (Cronbach's α = 0.91) thus a good construct validity [7].

Clinical Vignette: At the end of the survey, DPTs decision-making in patients with LBP was measured based on their answers to two clinical vignettes.

Two vignettes previously used in research of doctors' attitudes and beliefs regarding chronic LBP were included [14].

Vignette 1 described a female patient with chronic nonspecific LBP, while vignette 2 described a male patient with chronic neuropathic pain. These vignettes were designed to trigger responses that would categorize doctors' management.

In each vignette DPT had to answer four questions (5-point Likert scale), and to rate the severity of the patients' symptoms (mild to severe), severity of spinal pathology (no spinal pathology to extremely severe), recommendations regarding return to activity (RA) (no activity limitation to limitation of all activity), and recommendations regarding RTW (work full time to remaining out of work). Each question of vignette 1 & 2 was calculated separately [14].

Data analysis: Data were analyzed using the statistical software SPSS version 20.0 for Windows.

Descriptive statistics (frequency and percentage) were used to characterize DPT socio-demographic characteristics, their knowledge, and treatment orientation.

Independent t-test was used to determine associations between measures of the DPTs gender and their decision-making (symptoms, pathology, RA and RW); CPGs knowledge; IU; and biopsychosocial and biomedical orientations.

In addition, Analysis of variance (ANOVA) test was used to determine associations between measures of the socio-demographic characteristics and decision-making; IU; and biopsychosocial and biomedical orientations.

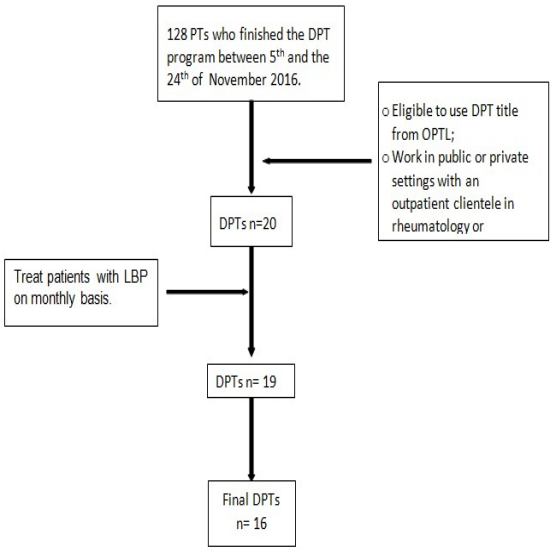
Pearson correlation test was used to determine associations between decision-making; IU; and biopsychosocial and biomedical orientations.

Finally, Chi-square test was used to determine associations between socio-demographic characteristics and the DPTs knowledge, in addition, Fisher exact test was used since the sample size was small and cells had expected count less than 5, for bicategorical variables and likelihood ratio for multi-categorical variables to interpret the significance.

RESULTS

The recruitment pool comprised of 129 Lebanese PT who completed their DPT program, of those 109 did not meet the inclusion criteria, and from remaining 20 eligible DPTs, one was automatically excluded by answering "No" on the filter question and three refused to participate in the survey. Finally, 16 eligible Lebanese DPTs were enrolled and completed this survey.

Fig. 1: Flowchart representing DPTs recruitment pool.



Most of the participating DPTs were male (81.3%) (table 1-a), and 50 % of all the participants had an age between 25 and 34 years and more than 10 years of clinical expertise (table 1-c). In addition, 62.5% of the DPTs were able to identify recent CPGs for LBP (table 1-b) and followed a biomedical orientation (table 2).

Concerning the postgraduate education, 18. 8% of the DPTs had a combined training in McKenzie techniques, manual therapy, and core stability (table 1-d).

DPTs gender showed to have an influence on RTW (p= 0.021) in vignette 2. In addition, the biomedical orientation showed a significant positive weak correlation (r= 0.510) with the recognition of symptoms in vignette 2 and the biopsychosocial orientation showed a significant weak positive correlation with the recommendation to RA in vignette 1 (r= 0.549).

DPTs IU had impacted decision-making where it showed an extremely strong positive correlation (r=0.792) with the RA and a very strong positive correlation (r= 0.694) with the RTW in clinical vignette 1. In addition, IU showed a positive weak correlation with the RA in vignette 2 (r= 0.503).

On the other hand, biomedical orientation showed significant negative weak correlation with the recommendations to RA (r= -0.528) in vignette 1.

Knowledge of CPGs affected the recommendation to RA in vignette 1(P= 0.031) and showed a significant strong influence on IU (P=0.005).

Table 1-a: Frequency and percentage of DPT gender distribution.

	Frequency	Percentage
Gender		
Male	13	81.30%
Female	3	18.80%

Table 1-b: Frequency and percentage of recent LBP CPGs knowledge.

	Frequency	Percentage
CPGs[1] (knowledge)		
No	6	37.50%
Yes	10	62.50%

Table 1-c: DPT socio-demographic characteristics.

	Frequency	Percentage	Mean	SD
Age Groups (years)				
25-34	8	50%		
35-44	5	31.30%	2.75	0.931
45-54	2	12.50%		
55-64	1	6.30%		
Clinical Expertise (years)				
Less than 5	2	12.50%		
Between 5 and 10	6	37.50%	2.38	0.719
More than 10	8	50%		

Table1-d: Frequency and percentage of DPT postgraduate education distribution.

Postgraduate Education	Frequency	Percentage
None	2	12.50%
Manual Therapy	2	12.50%
Core stability retraining+ Motor control	2	12.50%
Acupuncture/IMS[1]	1	6.30%
Manual therapy+ Acupuncture+ Pilates	1	6.30%
McKenzie+ Manual Therapy	1	6.30%
McKenzie+ Manual therapy+ Pilates+ Core stability	2	12.50%
McKenzie+ Manual therapy+ Core stability	1	6.30%
Manual therapy+ Pilates	3	18.80%
McKenzie+ Core stability	1	6.30%

[1] CPGs: Clinical practice guidelines
[2] Intramuscular stimulation

Table 2: DPT treatment orientation distribution

Orientation	Frequency	Percentage
Biomedical	10	62.50%
Behavioral	6	37.50%

DISCUSSION

The current paper aimed to characterize Lebanese DPTs knowledge, attitudes and beliefs

towards LBP and its management. In addition, whether and how DPT's knowledge, attitudes and beliefs, and their IU predicted their work and activity recommendations to patients with LBP. DPTs were asked to rate the level of (spinal symptoms; spinal pathology; recommendations to RA and RTW) for both vignettes. Gender showed to have an influence on RTW (p= 0.021) in vignette 2, where females DPTs tended to recommend their LBP patients to stay out of work. In addition, biomedical orientation showed significant negative weak correlation with the recommendations to RA (r= -0.528) in clinical vignette 1 (non-specific LBP) since there was no specific cause of LBP in this patient. This correlated with the work of Fullen, (2010) [1] where DPTs were quite restrictive in their recommendations toward RTW and RA despite estimating both patient vignettes as being at low risk. In addition, DPT with a biomedical orientation showed a significant positive weak correlation (r= 0.510) with the recognition of symptoms in clinical vignette 2 (neuropathic pain). These results are in line with other studies [1,7,15].

On the other hand, biopsychosocial orientation showed a significant weak positive correlation (r= 0.549) with the recommendation to RA in vignette 1.

Current guidelines reflect the biopsychosocial nature of nonspecific LBP and suggest the importance of considering using a behaviorally oriented approach to managing LBP, despite that results showed that the majority of Lebanese DPTs followed a biomedical orientation (62.5%).

In addition, CPGs have been considered as an important element of best evidence, and during the last years, there has been a proliferation of CPGs in LBP [16]. Research showed that CPGs adherent care is generally related to better clinical outcomes and lower costs. Therefore, it was disappointing to find that only 62.5% of the Lebanese DPT showed knowledge of CPGs despite that they worked with patients having LBP on a monthly basis. In addition, CPG's knowledge affected the recommendation to RA in vignette 1(P= 0.031) where the lack of CPGs knowledge led to the restriction of activities to a moderate exertion. CPGs knowledge also showed a significant strong relationship with IU (P=0.005) what correlated with the work of Fullen, B.M., (2011) [1], where he found that a strong correlation between intolerance of uncertainty and the DPTs knowledge existed. In the current paper, DPTs had the highest IU when they showed lack of knowledge of recent LBP CPGs.

CONCLUSION

This paper characterized attitudes, beliefs, and IU of Lebanese DPTs regarding their management of LBP and the factors that influenced their decision-making using validated questionnaires (PABS-PT; IUS-12; and two clinical vignettes).

Most of the Lebanese DPTs followed a biomedical orientation (62.5%), and those tended to give a negative recommendation to patients with non-specific LBP and were able to recognize symptoms in those with neuropathic pain. In addition, females tended to recommend their LBP patients to stay out of work when those patients had chronic neuropathic pain.

On the other hand, those with a biopsychosocial orientation gave positive recommendations to patients with nonspecific LBP.

Only 62.5% of the Lebanese DPTs showed knowledge of recent CPGs related to LBP, despite that they worked with patients having LBP on a monthly basis, whereas, those who failed to provide evidence for recent CPGs had the highest IU and this affected negatively their recommendation to RA among patients with nonspecific LBP.

Some limitations are to be acknowledged in this study. To start, the small sample size due to a limited number of PTs who completed the process to obtain and use the DPT title as mentioned before. In addition, written vignettes were open to individual interpretation by DPTs, and a recommended substitute is vignettes of real patients with LBP that are tested by a panel of experts showed to have acceptable validity [14]. Finally, the outcome measures of this study were self-reports; therefore, responses may have been biased by social desirability.

Additionally, further research is needed to explore the attitudes and beliefs of both the patients and DPTs to test patient-therapist interaction.

Finally, based on this study findings, DPTs should

increase their knowledge of recent CPGs of LBP, and adopt a biopsychosocial orientation, to lower their IU, improve their recommendations and thereafter the outcomes of their LBP patients. This paper findings could be considered as a baseline for future studies.

ABBREVIATIONS

LBP - Low back pain
DPT - Doctor of physical therapy
IU - Intolerance of uncertainty
CPGs - Clinical practice guidelines
PT - Physical therapist:
IUS-12 - Intolerance of uncertainty scale-12 items
PABS-PT - Pain attitudes and beliefs scale for physiotherapists
RA - Return to activity
RTW - Return to work
OPTL - Order of Physiotherapist in Lebanon
HCP - Healthcare professionals

Conflicts of interest: **None**

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