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Assessing Physiotherapists' Fear Avoidance Beliefs Regarding Chronic Low Back Pain: A Cross-sectional Study

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Abstract

Background: Clinicians' fear-avoidance beliefs (FABs) can significantly impact their clinical decisions and the advice they give to patients, but it is less investigated. This study aimed to examine the FABs of physiotherapists about chronic low-back pain (LBP).

Methods: A cross-sectional study of 149 Nigerian physiotherapists in musculoskeletal practice from eight public hospitals was conducted. FABs about chronic LBP were assessed using the Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS). Multiple regression analysis was applied.

Results: About 84.60% of the respondents had moderate FABs. The mean total HC-PAIRS score was 30.06±18.11. The highest and lowest mean scores were observed in factors 1 (19.52±11.76) and 4 (4.54±2.73) of the HC-PAIRS. With an explained variance of 3%, the model showed that age, sex, and marital status are not associated with the total HC-PAIRS score.

Conclusions: FABs about chronic LBP are prevalent among Nigerian Physiotherapists but are not influenced by socio-demographic factors.

Keywords: Attitudes; low back pain; spine; Nigeria; Rehabilitation

Introduction

Psychosocial factors are predictors for chronicity of low back pain (LBP) [1, 2] and such factors are depression, poor cognition, somatization, poor self-efficacy and coping strategies, and fear avoidance [3-7]. Specifically, fear-avoidance beliefs (FABs) are a significant psychosocial contributions to the development of chronic disability and impairments among patients with chronic LBP [8-11]. Fear-avoidance describes the avoidance of movements or activities based on the fear of increased pain or re-injury [12, 13], while avoidance is a construct that refers to a type of learned behaviour that delays or avoids the presentation of an adverse event [12, 13]. Thus, fear of pain results in the perpetuation of pain avoidance behaviours and the development of the deconditioning syndrome, even in the non-existence of verifiable organic pathology [14]. Furthermore, fear-avoidance is recognized as one of the common aspects of the chronic pain experience within the fear-avoidance model of pain [15], which is a product of a cognitive interpretation of pain as threatening, which in turn affects attention processes and results in the avoidance behaviours [16].

The disability suffered by patients with FABs often results from deliberate and continuous restriction of physical and social activities due to fear of aggravating their pain [12, 14, 17, 18]. Meanwhile, epidemiological data has shown that about 85% of LBP are non-specific, i.e., the symptoms of pain experienced by patients cannot be linked to any specific pathology, inflammation, and biomechanical or structural changes [19]. However, patients erroneously believe that movements may injure or aggravate their back pain and therefore refrain from such movements or daily activities leading to disuse and chronic disability [11, 12, 14, 17, 18]. Meanwhile, healthcare providers, including physiotherapists, have been reported to present with FABs as well [9, 11, 20]. As patients with FABs about LBP may suffer from chronic

disability, evidence has suggested that clinicians having the same beliefs concerning their patients may inadvertently worsen the clinical outcome of patients by projecting their fears onto the patients. This could be evident in their advice and treatment recommendations of functional-limiting activities such as prolonged bed rest which could potentially reinforce patients' fear avoidance behaviours [9, 11, 21, 22].

Therefore, FABs of caregivers are an important determinant of treatment plans and optimal health care, but it has been less investigated among clinicians [20]. Few available studies on FABs among healthcare providers have been conducted in Western countries [11, 20]. However, the environment is considered an important external factor that may influence FABs [23-25]. Yihunie et al. posit that studies on the fear-avoidance model from Western liberal society cannot be generalized to other cultures with different socio-cultural environments [26]. Interventions such as education and cognitive-behavioural strategies may mitigate the impact of FABs among physiotherapists on patient care, thus, highlighting the importance of evaluating their prevalence and correlates.

Furthermore, therapists' beliefs and attitudes can significantly influence their clinical decisions and patient interactions. If therapists hold FABs, they might unintentionally reinforce these beliefs in their patients, leading to less effective treatment outcomes. Understanding the prevalence of FABs among therapists can identify areas needing additional training or support, leading to targeted interventions to improve patient care. Data on therapists' FABs can also inform broader research and policy decisions, shaping guidelines and best practices for managing chronic pain [27, 28]. Therefore, this study aimed to evaluate Nigerian physiotherapists' attitudes and beliefs about the degree to which pain symptoms justify impairments and disability in patients with CLBP and if the beliefs are associated with socio-demographic variables.

Materials and Methods

A cross-sectional study including physiotherapists practicing in musculoskeletal care from eight public hospitals in South-west Nigeria was carried out. Eligible respondents were those with a minimum of one year of clinical experience. The sample size for this study was determined using the formula for the unknown population size, $n = \frac{(z)^2 \times p(1-p)}{d^2}$, where: n = sample size, Z = 95% confidence level, set at 1.96, P = expected proportion in the population, and d = absolute error or precision [29]. $Thus, n = \frac{(1.96)^2 \times 0.11(1-0.11)}{0.05^2} = 150$. A total of 155 physiotherapists were contacted in person in the selected institutions. The survey was distributed to them, and 149 physiotherapists responded with validly completed questionnaires, thus yielding a 96.1% response rate.

Instruments

The Health Care Providers' Pain and Impairment Relationship Scale (HC-PAIRS) was used to assess Physiotherapists' FABs about CLBP. The HC-PAIRS scale contains 15 statements suggesting that the impairments and disability found in patients with CLBP are directly attributable to pain [10, 30]. The Likert scale responses on HC-PAIRS range from 1 = completely disagree to 7 = completely agree with total scores ranging from 15 to 105 with higher scores indicating strong beliefs by health care professionals about the disability and limitation imposed by CLBP [10]. The known group and concurrent validity of HC-PAIRS had been found adequate, while its reliability was considered excellent with Cronbach's alpha of 0.84 [10, 22, 31, 32].

In this study, responses were collapsed from a 7-point-likert scale to 3 points where completely agree, largely agree, and somewhat agree were analysed as agree; while completely disagree, largely disagree, and somewhat disagree were analysed as disagree. Furthermore, FABs

items were grouped according to 4 factors elucidated by Rainville et al. [10]. Factor 1, entitled "functional expectations," includes items 1, 2, 3, 6, 7, 8, 9, 11, and 12. Factor 2, entitled "social expectations," includes items 5, 7, 11, and 14. Factor 3, entitled "need for cure," includes items 4, 9, and 15, while Factor 4, entitled "projected cognition," includes items 10 and 13. The HC-PAIRS has been validated showing adequate construct validity and test-retest reliability [32]. For the purpose of analysis, the total FABs of the respondents were categorized as low (50% HC-PAIRS total scores), moderate (50-75% HC-PAIRS total scores), and high (>75% HC-PAIRS total scores) based on percentile distribution. The four factors (functional expectations, social expectations, need for cure, and projected cognition) were similarly categorized. Data on socio-demographic and work/job characteristics was obtained using a self-developed proforma. Ethical approval for this study was obtained from the Research and Ethics Review Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria (IPH/OAU/12/1778). All respondents provided signed consent.

Data analysis

Data was summarized using descriptive statistics of mean, median and standard deviation, frequency, and percentages. Multiple linear regression was used to test the association between FABs and demographic variables. The alpha level was set at $p < 0.05$. Data analysis was carried out using IBM SPSS Statistics for Windows, version 21.0 (IBM Corp., Armonk, N.Y., USA).

Results

The demographic characteristics of the respondents are summarised in Table 1. The mean age was 35.9 ± 7.18 years. The majority (39.6%) of the respondents fell in the 31- 40 years age group and most respondents were females (55.0%). Table 2 shows the frequency distribution of the responses given to the items in the HC-PAIRS questionnaire. The total HC- PAIRS score was

30.1 ±18.11. Factor 1 had the highest mean score (19.5 ± 11.76), while the lowest mean was factor 4 (4.54 ± 2.73) (Table 3). The distribution of levels of FABs of the respondents is presented in Table 4. The majority of respondents (84.6 %) had moderate FABs, which is comparable to findings from international studies, though variations exist across regions. The multiple linear regression analysis revealed no significant associations between age, sex, marital status, and total HC- PAIRS score (Table 5). From the results, age, sex, and marital status explained only 3% of the variance in HC-PAIRS scores ($R^2 = 0.03$), suggesting that other unmeasured factors (e.g., clinical experience, education level, etc) contribute to pain-related attitudes.

Discussion

This study aimed to evaluate Nigerian physiotherapists' beliefs about the degree to which pain symptoms justify impairments and disability in patients with CLBP and if the beliefs are associated with socio-demographic variables. The findings of this study indicated that Nigerian physiotherapists had moderate (84.6%) to high (15.4%) FABs about CLBP. Specifically, more than half of the physiotherapists presented with high functional expectations, social expectations, and projected cognition aspects of FABs about CLBP. Physiotherapists recorded moderate FABs only in factor 3 of the HC-PAIRS (need for cure) aspect of FABs. The high prevalence of moderate FABs among Nigerian physiotherapists may be influenced by several factors, including cultural factors which have been found to shape beliefs about pain and disability in Nigeria which often lead to cautious or overly protective approaches to pain management [33, 34]. Furthermore, workplace practices and clinical experience in Nigeria, where active rehabilitation strategies are often relegated to biomedical or passive intervention approaches like electrotherapy and muscle techniques may also play a role in this high prevalence [35].

The high rate of FABs observed in this study is similar to the findings from Western countries among healthcare providers [9, 11, 20]. Rainville et al. found moderate FABs about back pain among community healthcare providers in the United States [10], while orthopedic spine surgeons and family physicians of varying education and experience in the Northeast region of the United States showed elements of FABs in their recommendations for activity and work to patients with chronic LBP [12]. In another study evaluating the FABs of 60 general practitioners and 71 physiotherapists about chronic LBP, many of the healthcare providers reflected FABs [9]. The findings showed that more than two-thirds of the participants reported that they would advise a patient with LBP to avoid painful activity or movements, with more than one-third had the belief that patients with chronic LBP must have pain reduction as a prerequisite before returning to work, while about one-quarter of these health care providers believed sick leave as a viable treatment LBP [9]. This is counterproductive, especially for those with non-specific LBP.

This high rate of FABs among frontline healthcare providers responsible for managing chronic LBP has been attributed to the retention of the injury model of LBP pathology which has been successfully disproved [36]. The previous biomechanical models of explaining low back pain postulated that back pain is a result of cumulative mechanical stresses imposed on back structures through various activities like awkward or prolonged posture, lifting, etc [36-38]. This model that promotes the notion that the spine is susceptible to injuries during physical activity and exhaustion was the main rationale for the healthcare providers exhibiting FABs and therefore adopting fear avoidance behaviour (including prescription of prolonged bed rest, sick leave, activity avoidance, etc.) for their patients [36-38]. It is regrettable that many healthcare professionals still hold on to the injury model of LBP despite evidence to the contrary [38-46].

Fear avoidance behaviours exhibited by health care professionals including physiotherapists are inimical to the health of patients with LBP. Unfortunately, there is limited knowledge yet on how to influence the beliefs that fuel these behaviours [36]. There seem to be only a few documents on attempts to correct FABs in health [20, 46]. These authors, in their studies among physiotherapy students embedded educational materials in their training module in tackling FABs. Their findings underscore the importance of training and retraining frontline healthcare providers in the management of LBP on current evidence, pathogenesis, and course of the condition. Adje et al. [20] were able to show, that it is possible to influence FABs substantially with a well-designed educational approach. In this study, socio-demographics (age, sex, and marital status) showed no associations with FABs. A related study had reported an association between gender and FABs [9], however, the influence of demographics on FABs is still inconclusive, thus, further studies in this regard may be warranted.

The lack of association between FABs and socio-demographics such as age, sex, and marital status suggests that other factors, such as culture and professional education, may be more crucial. In many cultures, including Nigeria, societal beliefs about pain and disability often emphasize caution and avoidance, potentially shaping physiotherapists' attitudes toward pain management regardless of their demographic background. Additionally, physiotherapy education and clinical training may have a stronger influence on FABs than personal characteristics. If curricula primarily emphasize biomedical models of pain and lack sufficient exposure to pain neuroscience education, physiotherapists may adopt more rigid, fear-based attitudes toward pain management, irrespective of age or sex. However, we acknowledge that the low R^2 value suggests that age, sex, and marital status alone do not sufficiently explain variations in HC-PAIRS scores in this study. Other unmeasured cofounders, including level of clinical experience,

level of education, prior exposure or training in pain management, and psychological factors (empathy, health locus of control, attitude/belief to disability, pain-related cognitive biases) may play a significant role. For instance, available evidence indicates that extensive training in pain science tends to reduce FABs [47]. Thus, future research should explore the impact of cultural norms, professional training, and clinical exposure on pain-related beliefs among physiotherapists to better understand the determinants of FABs.

Strength and limitations

Apart from using large and robust samples and completeness of data in this study, this is the first study on FABs among clinicians coming from Sub-Saharan Africa. However, due to the cross-sectional study design, we cannot infer that the high prevalence of FABs observed may translate directly to fear avoidance behaviour in actual practice. More research may be needed to ascertain the influence of FABs on the actual practice behaviour of healthcare providers. Selection bias and desirability effect may also limit the findings of this study. Longitudinal and experimental studies are needed in the future to investigate the association of FABs with confounding factors.

Conclusion

FABs for chronic LBP are prevalent among Nigerian physiotherapists. Socio-demographic features, including age, sex, and marital status show no associations with FABs among Nigerian physiotherapists. This suggests that other influences, such as cultural beliefs and professional education, may play a more substantial role. Addressing these factors through targeted educational interventions and evidence-based pain management training could help reduce FABs and improve physiotherapists' clinical decision-making. Further research is needed to explore and evaluate interventions aimed at modifying FABs among physiotherapists to enhance their approach to pain management.

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Table 1: Demographics of the respondents (N=149)

Age, years; mean (SD)	35.88	7.18
Age group, n (%)		
30 years and younger	42	(28.2)
31-40	59	(39.6)
41-50	41	(27.5)
51 and older	7	(4.7)
Sex, n (%)		
Male	82	(55.0)
Marital status, n (%)		
Married	133	(89.3)

Table 2: Frequency Distribution of response to items in Health Care providers pain and impairment relationship questionnaire (N=149)

Item by item	Disagree	Neutral	Agree
	n (%)	n (%)	n (%)
1. Expected to fulfill responsibilities	92 (61.7)*	12 (8.1)	45 (30.2)
2. Should stop present duties	0 (0.0)	0 (0.0)	149 (100.0) *
3. Cannot go about normal activities	0 (0.0)	11 (7.4)	138 (92.6) *
4. Would be active as before	48 (32.2)	50 (33.6)	51 (34.3) *
5. Should have same benefits with the handicapped	110 (73.9) *	16 (10.7)	23 (15.4)
6. Should perform usual activities	58 (39.0)*	53 (35.6)	38 (25.5)
7. People expect too much	81 (54.4) *	56 (37.6)	12 (8.0)
8. Should not do anything that can aggravate the pain	0 (0.0)	0 (0.0)	149 (100.0) *
9. Will never be able to live well as before	0 (0.0)	0 (0.0)	149 (100.0) *
10. Very hard to concentrate on anything else	7 (4.7)	5 (3.4)	137 (91.9) *
11. Should accept they are disabled	147 (98.7) *	2 (1.3)	0 (0.0)
12. No way to return to formal duties	0 (0.0)	7 (0.7)	142 (99.3) *
13. Frequently thinking about pain	0 (0.0)	11 (7.4)	138 (92.6) *
14. Don't notice pain while busy	104 (69.8) *	23 (15.4)	22 (14.7)
15. All problems would be solved if pain go away	78 (52.4) *	49 (32.9)	22 (14.8)

*Responses with highest frequency were asterisked.

Table 3: Health Care providers pain and impairment relationship questionnaire total and factors' scores (N=149)

Factors	Min	Max	Mean	S.D.
Factor 1, functional expectation	0.00	49.00	19.52	11.76
Factor 2, social expectations	0.00	16.00	4.98	2.94
Factor 3, need for cure	0.00	19.00	6.40	3.80
Factor 4, projected cognition	0.00	11.00	4.54	2.73
HC-PAIRS Total	0.00	77.00	30.06	18.11

Table 4: Distribution of fear avoidance belief levels (N=149)

Levels	n	%
Factor 1, functional expectations		
Low	0	0.0
Moderate	66	44.3
High	83	55.7
Factor 2, social expectations		
Low	0	0.0
Moderate	11	7.4
High	138	92.6
Factor 3, need for cure		
Low	0	0.0
Moderate	93	62.4
High	56	37.6
Factor 4, projected cognition		
Low	0	0.0
Moderate	22	14.8
High	127	85.2
HC-PAIRS Total		
Low HC-PAIRS	0	0.0
Moderate HC-PAIRS	126	84.6
High HC-PAIRS	23	15.4

Table 5: Multiple linear regression between age, sex, marital status and fear avoidance beliefs

Variable	B	SE	β	t	p	95% CI for B	
						Lower	Upper
Constant	68.41	2.11	------	32.44	<0.001	64.24	72.58
Age	0.01	0.04	0.02	0.27	0.79	-0.07	0.09
Sex	1.11	0.59	0.16	1.88	0.06	-0.06	2.27
Marital status	-0. 63	1.01	-0.06	0. 63	0.53	-2.27	1.36
	R= 0.16						
	R^2=0.03						
	Adj R^2=0.01						

SE standard error, CI confidence interval