

Screening for Psychiatric and Personality Disorders in Patients with Chronic Back Pain

Ishita Kane*, Satish Kumar and Thomas Kishen

Department of Pain Management, University of Liverpool, United Kingdom

Abstract

The current study aimed to report psychiatric and personality disorders, as well as other psychological variables such as pain catastrophising, kinesiophobia and disability in patients with chronic back pain, among adults aged 18 to 65 years (n=204) who were selected for the study using purposive sampling. The instruments used were Mini International Neuropsychiatric Interview and International Personality Disorder Examination for assessing psychiatric and personality disorders in the population. Pain Catastrophising, Kinesiophobia and Disability were assessed using Pain Catastrophising Scale, Tampa Scale of Kinesiophobia and Oswestry Disability Index respectively. To determine the presence of psychological variables, descriptive statistics were used. The results revealed presence of anxious (38%) and depressive features (24%) in the chronic back pain population. About 8% of people had anxiety disorders. It was seen that among the CBP population, paranoid personality disorders (29%) were most prevalent, followed by anankastic personality disorder (27%) and Schizoid Personality Disorder (13%). Patients with chronic back pain also showed kinesiophobia (37.54 ± 7.41) and pain catastrophising (26.63 ± 12.28) along with moderate disability (64%). Results showed that personality and psychiatric disorders also play a role in chronic back pain.

Keywords: Chronic back pain; Pain catastrophising; Kinesiophobia; Disability; Personality disorders; Paranoid; Anankastic depression; Anxiety; Psychiatric disorders; Psychological variables; Back pain

Introduction

Chronic back pain is a prevalent condition characterized by persistent or episodic pain lasting over three months [1]. It is influenced by various physiological, psychological, and social factors. Psychological factors play a significant role in chronic pain, including chronic back pain, with evidence linking it to poor self-rated health, psychopathology, and reduced quality of life [2-4]. The biopsychosocial model emphasizes the importance of an interdisciplinary approach, considering the influence of physical injury on psychological distress, illness behaviours, and patient's perception of their condition [5,6]. Pain perception related to back pain is a complex phenomenon influenced by disease progression, neurophysiology, and psychosocial factors [7].

Radiographic evidence is commonly used to assess chronic back pain outcomes; however, there is often a discrepancy between the severity of symptoms and radiographic findings [8]. Pain cognitions, such as pain catastrophising and kinesiophobia, contribute to the maintenance of pain and disability in individuals with chronic back pain [9,10]. The fear-avoidance model emphasizes the role of negative pain perceptions in triggering catastrophic thinking, fear of pain, and avoidance behaviours, leading to a cycle of disability, depression, and pain [11].

In addition to psychological factors, personality disorders and psychiatric disorders can significantly affect the experience of chronic back pain. Personality traits, such as anankastic personality disorder or borderline personality disorder, may contribute to the development and maintenance of chronic pain conditions, as well as difficulties in pain management [12-14]. The presence of psychiatric disorders, including depression and anxiety, is higher in individuals with chronic back pain compared to the general population, which can further impact the quality of life and increase the likelihood of chronicity [15-17]. Understanding the influence of psychological and personality factors on chronic back pain is crucial for developing comprehensive treatment approaches that address the physical and psychological

aspects of the condition [18-20].

Radiographic evidence, in many cases, cannot sufficiently explain the complaints of disability and pain that are experienced by CBP patients. There is a lack of research on how psychological factors can play a role in chronic back pain. Limited research has been done on this topic in India. In clinical practice, we have identified chronic back pain patients exhibiting personality disorders and other psychological correlates. The role that personality disorders and other psychological factors can play in chronic back pain patients is poorly understood.

This study aims at screening various psychological disorders and personality disorders along with other factors like pain catastrophising, kinesiophobia and disability in Chronic back pain patients.

Methodology

The cross-sectional exploratory study was conducted in XXXXXXX, XXXX. Patients who experienced chronic back pain were included in this study. Two hundred four patients with chronic back pain were screened for psychiatric and personality disorders and other variables like pain catastrophising, kinesiophobia and disability. Inclusion criteria involved both sexes, aged between 18 to 65 years of age. Participants who had an existing psychiatric disorder and those who did not give consent were excluded. Descriptive Statistics were used to analyse the data. The variables were screened using questionnaires and a psychodiagnostic interview. The outcome measures were:

*Corresponding author: Ishita Kane, Department of Pain Management, University of Liverpool, United Kingdom, E-mail: kaneishita@outlook.com

Received: 24-Jul-2024; Manuscript No: jpar-24-143134; Editor assigned: 26-Jul-2024, PreQC No: jpar-24-143134(PQ); Reviewed: 09-Aug-2024; QC No: jpar-24-143134; Revised: 14-Aug-2024, Manuscript No: jpar-24-143134(R); Published: 21-Aug-2024, DOI: 10.4172/2167-0846.1000657

Citation: Kane I, Kumar S, Kishen T (2024) Screening for Psychiatric and Personality Disorders in Patients with Chronic Back Pain. J Pain Relief 13: 657.

Copyright: © 2024 Kane I, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

1. **MINI:** The Mini-International Neuropsychiatric Interview is a systematical diagnostic interview, developed by clinicians and psychiatrists from Europe and USA. It helps diagnose the 17 common psychiatric disorders. MINI-6 will be used in this study. Results of a study conducted by Sheehan, suggest that the diagnostic interview has good reliability and validity [21].

2. The IPDE Interview is a self-administered form with items that are binary in nature. The International Personality Disorder Examination (IPDE) was developed by a collaborative group of researchers from the World Health Organization (WHO) and the NIM [22]. In order to enable the investigator to ascribe a specific diagnosis item from the DSM- IV and ICD criteria are included. Results of various studies showed great test-retest reliability and validity [23].

3. The Oswestry Disability Index is a tool used for assessing a patient's long-term functional disability. John O Brien initiated the development of ODI in 1976 [24]. It has good test-retest reliability as well as construct validity [25].

4. The Tampa Scale of Kinesiophobia (TSK) helps to check fear avoidance, movement phobia, and fear of physical activity. The TSK contains 17 items and its scores range from 1 to 4. It was developed in 1980 by "Steven H. Kori, Robert P. Miller, and Dennis D. Todd". It is a reliable and valid measure [26].

5. The Pain Catastrophising Scale (PCS) developed in 1995; helps measure a person's pain experience [27]. People are asked to rate how frequently the aforementioned thoughts and feelings occur to them when in pain on a scale of 0 (never) to 4 (frequently) (always). Results of a study by Osman showed inter-rater reliability and validity [28].

6. The VAS is a popular pain measurement tool that measures the intensity of pain. The scale was developed by British anesthesiologist named Dr. Edward C. H. Simpson. Study conducted by Bijur showed good reliability and validity [29].

Data analysis

The study utilized SAS University Edition for data analysis. Descriptive statistics were employed to analyse the sociodemographic variables and screen the psychological variables in patients with back pain.

Results

204 patients with chronic back pain were recruited in this study. Patients were screened for psychiatric and personality disorders and other variables like pain catastrophising, kinesiophobia and disability.

Table 1 Represents the sociodemographic variables. Results showed that 57% of patients were below the age of 40. Most of the patients with back pain were married and lived in urban areas. 32% of people with chronic back were homemakers, and 19 per cent of people had desk jobs.

Table 2 represents the factors associated with back pain. Patients were diagnosed by the spine doctor. Results show that 40 percent of people had normal radiographic findings, 54 percent of patients were diagnosed with a disc pathology and only 5 percent showed spondylolysis. The duration of symptoms (in months) was 24.00 ± 48.09. 63 percent of patients show moderate disability due to pain.

Table 3 represents the presence of pain catastrophizing and kinesiophobia in patients with chronic back pain. Results

Table 1: Sociodemographic Variables.

Demographics	
Variable	Frequency (Percentage)
Gender	
Female	104 (50.73)
Male	101 (49.27)
Age (Mean± SD)	39.67±10.62
Less than 40 years	116 (56.59)
More than 40 years	89 (43.41)
Marital Status	
Married	179 (87.32)
Unmarried	26 (12.68)
DOMICILE	
Urban	131 (63.90)
Rural	74(36.10)
Occupation	
Unemployed	12 (5.85)
Business	35(17.07)
Teacher	17(8.29)
Desk Job	38 (18.54)
Labour	22 (10.73)
Doctor	7 (3.41)
Government Service	9 (4.39)
Homemaker	65 (31.71)
Education	
Uneducated	16 (7.80)
Secondary	37 (18.05)
Higher Secondary	46 (22.44)
Undergraduate	69 (33.66)
Postgraduation	37 (18.05)

Table 2: Factors Associated with Pain.

Variable	Frequency (Percentage)
Radiographic Findings	
Normal	82 (40)
Disc Pathology	111 (54.15)
Spondylolysis/ Degeneration	12 (5.85)
Aggravating Factors	
Sit	101 (49.51)
Stand	111 (54.41)
Walk	96 (47.06)
Bend	81 (39.51)
Morning	51 (24.88)
Afternoon	4 (1.95)
Night	77 (37.56)
Throughout	59 (28.78)
Duration of Symptoms (Median)	24.00 ± 48.09 (Interquartile range)
Pain Disability	
Minimal	38 (18.54)
Moderate	131 (63.90)
Severe	36 (17.56)
Vas Pain Intensity (Mean±SD)	6.64 ± 1.75

show significant levels of kinesiophobia (37.54 ± 7.41) and pain catastrophizing (26.63 ± 12.28).

Table 4 shows the prevalence of psychiatric disorders in chronic back pain patients. 38 percent of people with back pain showed features of anxiety, while 8 percent of people qualified for anxiety disorders. 24 per cent of people showed depressive features.

Table 5 shows the prevalence of personality disorders in chronic

Table 3: Pain catastrophizing and kinesiophobia.

Variable	Mean ± SD
Kinesiophobia (Mean±SD)	37.54 ± 7.41
Activity Avoidance	15.99 ± 3.84
Somatic Focus	10.69 ± 2.07
Pain Catastrophising Scale (Mean±SD)	26.63 ± 12.28
Rumification	8.27 ± 4.02
Magnification	5.80 ± 3.01
Helplessness	12.49 ± 5.91

Table 4: Psychiatric Disorders.

Psychiatric Disorders	Frequency (Percentage)
Depressive features	49 (23.90)
Anxious features	79 (38.54)
Generalised Anxiety Disorder	9 (4.39)
Phobic Disorder	2 (0.98)
Panic Disorder	6 (2.93)

Table 5: Personality Disorders.

Personality Disorders	Frequency (Percentage)
Paranoid	55 (28.95)
Schizoid	25 (13.16)
Antisocial	4 (2.11)
Impulsive	8 (4.21)
Borderline	8 (4.21)
Histrionic	12 (6.32)
Anankastic	51 (26.84)
Anxious	16 (8.42)
Dependant	11 (5.79)

back pain. Paranoid personality disorder was the most people, followed by anankastic personality disorder and schizoid personality disorder.

Discussion

Pain is a subjective experience comprising of interactions between psychological, biological and social factors [30]. Pain perception in Chronic Back Pain patients is influenced by disease progression, neuropsychology and psychosocial variables. In this study, we understand the prevalence of psychological variables in CBP Patients. 204 patients with CLBP were screened for psychiatric disorders, personality disorders and other variables like kinesiophobia, pain catastrophizing and disability.

This study showed that patients with chronic back pain do show certain psychiatric disorders. People who showed anxious features were the most common. Thirty-nine per cent of people with back pain showed anxious features, whereas 8 % of people qualified for anxiety disorders. 24 per cent of people showed features of depression.

When people experience anxiety, their body often responds with a 'Fight or Flight response'. This causes their muscles to stiffen up in anticipation of taking action [31]. If this tension in the body remains unresolved, it can lead to aches and pains in the body, particularly the back. Moreover, anxiety could also cause shallow breathing, which can reduce the amount of oxygen going to the muscles, which could cause pain. Finally, anxiousness can lead to bad posture or actions that put a strain on your back, including slouching over a computer or lifting heavy objects wrongly. A study was conducted by Sagheer [32] in order to understand the prevalence of anxiety in chronic back pain patients at a tertiary care centre. Results showed that high risk for developing anxiety disorders was seen in CBP patients.

24 percent of people with chronic back pain reported depressive features. Lee [20] conducted a study where they sought to explore patients with chronic pain. They studied the prevalence of unidentified depression in these patients who did not report any previous history of psychiatric disorders. Through the study, it was found that depression was most commonly reported in patients with chronic low back pain. Another study was conducted by Tsuji [33] in order to understand the impact of depression on the health-related quality of life in chronic back patients. The results showed that higher pain scores and lower health-related quality of life scores were all linked to depression in CLBP patients. Physical symptoms of depression include exhaustion, changes in eating habits and sleep patterns, and decreased activity levels. These symptoms can either lead to the development of chronic back pain or aggravate pre-existing pain. Reduced activity levels, for example, can result in muscular deconditioning, which can raise the risk of back pain.

Furthermore, depression might influence how a person perceives and copes with pain. Depression can cause negative thought processes such as catastrophizing or dwelling on pain, which can magnify the pain experience and make it more difficult to deal.

We also assessed personality disorders in patients suffering from chronic back pain. 27 percent of people showed anankastic personality disorder. Anankastic personality disorder, can cause chronic back pain in a number of different ways. Due to their extreme perfectionism and attention to detail, people with OCPD frequently spend a lot of time sitting rigidly in one position at a desk or computer or working long hours. Chronic tension in the back and as a result of this may eventually cause pain and discomfort. Additionally, those who have OCPD may be more prone to disregard pain or discomfort signals and continue with their work or exercise routines in spite of their physical discomfort. This can exacerbate any underlying conditions that may be causing chronic back pain by putting additional strain on the back's muscles and joints.

29 percent of people with CLBP showed paranoid personality disorder. A paranoid personality disorder is characterised by pervasive mistrust and suspicion of other [34]. Due to a general mistrust of medical professionals, people with a paranoid personality disorder may be more reluctant to seek medical attention for their back pain. This could result in a delay in the diagnosis or treatment of underlying conditions that might be causing their pain, which can eventually make the problem worse. People with PPD may experience muscle tension and pain in the back as well as other parts of the body due to their constant vigilance and hyperarousal [35].

Results in our study showed that 13 percent of people with chronic back pain showed signs of schizoid personality. Schizoid Personality Disorder is characterised by a persistent lack of interest in social interactions, emotional coldness, and detachment. Back pain may be a result of some of the signs and behaviours linked to this condition [36].

Lack of interest in maintaining social ties over time can result in a sedentary lifestyle and limited physical activity. The muscles in the back and other body parts may become weaker as a result, which over time, may cause chronic back pain. They may find it difficult to express their emotions, which can cause emotional stress and tension to accumulate, in turn contributing to pain. A study conducted by Polatin [17] assessing personality disorders in 200 patients with chronic back pain showed the most prevalent personality disorder was paranoid personality disorder (33%). These results were very similar to our findings.

Furthermore, Pain catastrophising was also assessed. Pain catastrophising is the tendency to emphasise or overstate the negative aspects of a painful experience and to feel helpless or overwhelmed by it [34]. Results showed that people experiencing chronic back pain do show pain catastrophizing. (26.63 ± 12.28). Pain catastrophizing causes heightened pain perception and increased mental discomfort, which can make back pain worse [37]. As a result of exaggerating the severity and effects of their suffering, those who participate in catastrophic thinking may experience greater stress and anxiety. Consequences of this include tight muscles, a decline in activity, and reluctance to engage in activities that can be beneficial for relieving back pain. The existing literature shows similar findings. A population cohort study on the general Dutch population by Picavet [38] showed similar findings. They attempted to determine the role played by pain catastrophizing and kinesiophobia in 'chronic low back pain' and its associated conditions. It was found that patients who had high scores on pain catastrophizing or kinesiophobia had an increased possibility of future chronic low back pain. Both pain catastrophizing and kinesiophobia can contribute to the development and maintenance of chronic pain by increasing pain-related distress and disability. For example, individuals who catastrophize about pain may experience heightened pain sensitivity and may have difficulty engaging in activities that are important for maintaining physical and psychological health. Similarly, individuals with kinesiophobia may limit their physical activity levels, leading to decreased muscular strength and flexibility and increased pain-related disability.

Additionally, Patients with chronic back pain do show disability due to the pain. 64 percent of people with chronic back pain showed moderate disability, whereas 18 percent of people reported severe disability. 19 per cent reported minimal disability. Fear avoidance is a typical psychological response to injury or pain in which people develop a fear of engaging in activities they think would bring on further pain or harm. This might start a vicious cycle of avoidance and inactivity, which would eventually impair physical ability and exacerbate disability. The existing literature is congruent with the current findings. A study conducted by Salvetti aimed to understand the prevalence of disability and factors associated with disability outcomes in 177 CLBP adults. The results showed that 65% prevalence of impairment, and 80.7% of them had a moderate-to-severe disability [39].

Another variable that was studied was kinesiophobia. Kinesiophobia is characterised as a severe, irrational dread of movement or physical exertion. People with chronic back pain did show kinesiophobia (37.54 ± 7.41). Patients suffering from chronic back pain may develop kinesiophobia as a result of their fear of experiencing pain while engaging in physical activity. Individuals suffering from chronic back pain may experience severe and disabling pain, leading them to believe that any movement or exercise will cause further damage or worsen the pain. Previous pain experiences during physical activity can reinforce this fear. Fear of pain can lead to avoidance of physical activity over time, creating a vicious cycle of pain, fear, and inactivity [40]. This cycle can lead to body deconditioning, resulting in additional weakness, soreness, and pain. This can lead to a further decrease in physical activity and an increase in kinesiophobia, perpetuating the cycle. Existing literature corresponds with the current findings.

Conclusion

The study revealed that personality and psychiatric disorders do contribute to chronic back pain. Other factors like pain catastrophizing and kinesiophobia also played a role. These findings suggest that addressing psychological components, alongside physical treatment,

may be crucial in managing chronic back pain more effectively. Future research could explore targeted psychological interventions to complement traditional pain management strategies.

Limitations of the Study

Even though this study provides information about the presence of psychological variables, it does not explain their correlation with the intensity of pain, leaving scope for further research. The role of specific personality disorders can be further examined.

References

1. Mason VL, Mathias B and Skevington SM (2008) Accepting Low Back Pain: Is It Related to a Good Quality of Life? *Clin J Pain* 24: 22–29.
2. Merskey H (1986) Classification of chronic pain: Descriptions of chronic pain syndromes and definitions of pain terms. *Pain Suppl* 3. Netherlands: Elsevier Science: 226.
3. Cousins M, Power I, Smith G (2000) 1996 Labat lecture: Pain—A persistent problem. *Reg Anesth Pain Med* 25: 6–21.
4. Crofford LJ (2015) Chronic Pain: Where the Body Meets the Brain. *Trans Am Clin Climatol Assoc* 126: 167–183.
5. Bevers K, Watts L, Kishino ND, Gatchel RJ (2016) The Biopsychosocial Model of the Assessment, Prevention, and Treatment of Chronic Pain. *US Neurology* 12: 98.
6. Moseley GL and Butler DS (2015) Fifteen Years of Explaining Pain: The Past, Present, and Future. *J Pain* 16: 807–813.
7. Sturgeon JA, Zautra AJ (2016) Social pain and physical pain: shared paths to resilience. *Pain Manag* 6: 63–74.
8. Fukui N, Yamane S, Ishida S, Tanaka K, Masuda R, et al. (2010) Relationship between radiographic changes and symptoms or physical examination findings in subjects with symptomatic medial knee osteoarthritis: A three-year prospective study. *BMC Musculoskelet Disord* 11.
9. Ibrahim ME, Weber K, Courvoisier DS (2020) Big five personality traits and disabling chronic low back pain: Association with fear-avoidance, anxious and depressive moods. *J Pain Res* 13: 745–754.
10. Leung L (2012) Pain Catastrophizing: An Updated Review. *Indian J Psychol Med* 34: 204–217.
11. Bunzli S, Smith A, Schütze R, Lin I, O'Sullivan P (2017) Making sense of low back pain and pain-related fear. *J Orthop Sports Phys Ther* 47: 628–636.
12. Dersh J, Gatchel RJ, Mayer T, Polatin P, Temple OR (2006) Prevalence of psychiatric disorders in patients with chronic disabling occupational spinal disorders. *Spine* 31: 1156–1162.
13. Volkert J, Gablonski T-C and Rabung S (2018) Prevalence of personality disorders in the general adult population in Western countries: systematic review and meta-analysis. *Br J Psychiatry* 213: 709–715.
14. Sansone RA and Sansone LA (2012) Chronic pain syndromes and borderline personality. *Innov Clin Neurosci* 9: 10–14.
15. Reme SE, Tangen T, Moe T (2011) Prevalence of psychiatric disorders in sick listed chronic low back pain patients. *Eur J Pain* 15: 1075–1080.
16. Baumeister H, Hutter N, Bengel J (2011) Quality of Life in Medically Ill Persons with Comorbid Mental Disorders: A Systematic Review and Meta-Analysis. *Psychother Psychosom* 80: 275–286.
17. Pincus T, Kim Burton A, Vogel S (2002) A Systematic Review of Psychological Factors as Predictors of Chronicity/Disability in Prospective Cohorts of Low Back Pain. *SPINE*.
18. Gunderson JG, Herpertz SC, Skodol AE (2018) Borderline personality disorder. *Nature Reviews Disease Primers* 4: 18029.
19. Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, et al. (2018) What low back pain is and why we need to pay attention. *The Lancet* 391: 2356–2367.
20. Lee HJ, Choi EJ, Nahm FS, et al. (2018) Prevalence of unrecognized depression in patients with chronic pain without a history of psychiatric diseases. *Korean J Pain* 31: 116–124.

21. Sheehan D, Lecrubier Y, Harnett Sheehan K, et al. (1997) The validity of the Mini International Neuropsychiatric Interview (MINI) according to the SCID-P and its reliability. *European Psychiatry* 12: 232–241.
22. Loranger AW, Janca A and Sartorius N (1997) Preface. In: *Assessment and Diagnosis of Personality Disorders*. Cambridge University Press xi–xii.
23. Samuel DB, Hopwood CJ, Krueger RF (2013) Comparing Methods for Scoring Personality Disorder Types Using Maladaptive Traits in DSM-5. *Assessment* 20: 353–361.
24. Fairbank JCT and Pynsent PB (2000) The Oswestry Disability Index. *Spine* 25: 2940–2953.
25. Vianin M (2008) Psychometric properties and clinical usefulness of the Oswestry Disability Index. *J Chiropr Med* 7: 161–163.
26. Tkachuk GA and Harris CA (2012) Psychometric Properties of the Tampa Scale for Kinesiophobia-11 (TSK-11). *J Pain* 13: 970–977.
27. Sullivan MJL, Bishop SR and Pivik J (1995) The Pain Catastrophizing Scale: Development and validation. *Psychological Assessment* 7: 524–532.
28. Osman A, Barrios FX, Kopper BA (1997) Factor structure, reliability, and validity of the Pain Catastrophizing Scale. *J Behav Med* 20: 589–605.
29. Bijur PE, Silver W and Gallagher EJ (2001) Reliability of the Visual Analog Scale for Measurement of Acute Pain. *Acad Emerg Med* 8: 1153–1157.
30. Turk DC and Monarch ES (2002) Biopsychosocial perspective on chronic pain. In: *Psychological Approaches to Pain Management: A Practitioner's Handbook*, 2nd Ed. New York, NY, US: The Guilford Press 3–29.
31. Michaelides A and Zis P (2019) Depression, anxiety and acute pain: links and management challenges. *Postgraduate Medicine* 131: 438–444.
32. Sagheer MA, Khan MF and Sharif S (2013) Association between chronic low back pain, anxiety and depression in patients at a tertiary care centre. *J Pak Med Assoc* 63: 688–690.
33. Tsuji T, Matsudaira K, Sato H (2016) The impact of depression among chronic low back pain patients in Japan. *BMC Musculoskelet Disord* 17. *BioMed Central*: 1–9.
34. Schütze R, Rees C, Slater H (2017) 'I call it stinkin' thinkin': A qualitative analysis of metacognition in people with chronic low back pain and elevated catastrophizing. *Br J Health Psychol* 22: 463–480.
35. Lee O and Robbins L (2021) Personality Disorder Patients in A Pain Clinic. *Headache Medicine Connections* 1: 1–5.
36. Akhtar S (1987) Schizoid Personality Disorder: A Synthesis of Developmental, Dynamic, and Descriptive Features. *Am J Psychother* 41: 499–518.
37. Elfving B, Institutet K (2007) Low levels of physical activity in back pain patients are associated with high levels of fear-avoidance beliefs and pain catastrophizing. *Physiother Res Int* 12: 14–24.
38. Picavet HSJ, Vlaeyen JWS, Schouten JSAG (2002) Pain catastrophizing and kinesiophobia: Predictors of chronic low back pain. *Am J Epidemiol* 156: 1028–1034.
39. Salvetti M de G, Pimenta CA de M, Braga PE (2012) Incapacidade relacionada à dor lombar crônica: prevalência e fatores associados. *Revista da Escola de Enfermagem da USP* 46(spe): 16–23.
40. Altuğ F, Ünal A, Kilavuz G (2016) Investigation of the relationship between kinesiophobia, physical activity level and quality of life in patients with chronic low back pain. *J Back Musculoskelet Rehabil* 29: 527–531.