



Impact of low back pain on fear of movement and functional activities

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ABSTRACT

Fear is an uncomfortable feeling, which results from the proximity of actual threat or pain. A strong correlation exists between fear and pain. Kinesiophobia is the phobia of activity and physical movement, which results from a sensation of sensitivity to painful injury or reinjury. Low back pain (LBP) is among the frequent disorders of the musculoskeletal system. LBP is mainly due to bad postures and poor organisational ergonomics. Kinesiophobia has adverse effects on rehabilitation outcomes. So the systematic application of graded exposure to movements is recommended in patients with Kinesiophobia to prevent pain-related anxiety. We compared Kinesiophobia's impact on patients with both acute and chronic LBP. We aimed to find out the role of Kinesiophobia in patients having LBP. The survey-based research using Tampa scale of Kinesiophobia was conducted with cross-sectional design. It included participants of both genders, in the age group of 18-65 who were diagnosed with acute and chronic low back pain. Tampa Scale for Kinesiophobia, Evaluation Performa, NPRS and Goniometer were used as outcome measures for the study. The patients were thoroughly examined, and they were evaluated using the Tampa Scale. Scoring to 17-items Tampa Scale was performed in 4-point Likert scale varying from "strongly disagree" to "strongly agree." After the inversion of items 4, 8, 12, 16, the final score was determined. The total score ranges from a minimum of 17 to a maximum of 68. It was concluded that Kinesiophobia plays a crucial role in LBP, especially chronic LBP.

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INTRODUCTION

Fear is an uncomfortable feeling caused by actual threat or discomfort when close to each other. It is one of humanity's oldest and intense emotions,

which is as vile as a fox or as evil as the rack (Cook *et al.*, 2006). It serves as a tyrant or ruler to every physical and mental operation. Fear and pain share a close bond. Fear can motivate avoidance, which can either be the avoidance of pain leading to cognitive avoidance, or avoidance of painful activities leading to behavioural avoidance. On the contrary, the phobia is an extreme, chronic and unreasonable fear of specific things, circumstances, or behaviours (French *et al.*, 2007). It is out of proportion to the perceived danger or hazard.

KINESIOPHOBIA is the phobia of activity and physical movement, which arise as a consequence of a feeling of susceptibility to painful injury or reinjury. In the chronic pain community, it is a crucial indicator of pain disability (Lundberg *et al.*, 2004). Kinesiophobia can be assessed by psychometrically based tools such as Tampa Scale (TSK), Fear-Belief

questionnaire (FBQ), etc. Miller, Kori, and Todd presented the Tampa Scale for Kinesiophobia. It's a list of 17 items rated into a 4-point Likert scale that ranges from "strongly disagree" to "strongly embrace" with scores varying from a minimum of 17 to a maximum of 68 (Goubert *et al.*, 2004; Lundberg *et al.*, 2004; Swinkels-Meewisse *et al.*, 2003).

Low back pain (LBP) is among the frequently occurring conditions of the musculoskeletal system. LBP is primarily due to bad postures and poor workplace ergonomics. At a certain point in their lives, it affects 85 per cent of adults resulting in work absenteeism (Ostelo *et al.*, 2007). Often, the LBP is managed conservatively. Physical therapy, in the form of physical exercises, plays a significant role in the management of LBP. Kinesiophobia has adverse impacts on rehabilitation outcomes (Nijs *et al.*, 2004). So systematic application of graded sensitivity to movements is recommended in patients with Kinesiophobia to prevent pain-related anxiety. It also helps therapists distinguish between actual physical disorders and disorders caused by avoidance of fear (Cook *et al.*, 2006; Grotle *et al.*, 2006). In this research, the function of Kinesiophobia was assessed in patients with LBP.

Aims and Objectives

The research was aimed to evaluate the impact and problems of Kinesiophobia in patients with low back pain. In contrast, the objectives of this study were to compare the effect of Kinesiophobia in patients with both acute and chronic LBP.

Further, we assessed the impact of Kinesiophobia on both sexes, the relationship between Kinesiophobia and previous patient exercise status, the association between the Numerical Rating Scale (NPRS) and Tampa Scale ranking.

METHODOLOGY

Study Design

This cross-sectional study was done in a survey-based set up with a sample size of 40, including participants who were diagnosed with acute and chronic low back pain.

Tampa Scale for Kinesiophobia, socioeconomic and demographic evaluation proforma, which includes Likert scale, NPRS and Goniometer are used to evaluate Kinesiophobia Figure 1.

Inclusion criteria

The participants included were the patients who were diagnosed with acute and chronic LBP.

The participants of both genders and in the age group of 18-65 were included in the study.

Exclusion criteria

Patients having a previous psychiatric disease, any primary neurological deficit (including higher function deficits), and secondary back pain due to pathology like tuberculosis, carcinoma, rheumatoid arthritis and fractures of the spine were excluded.

Procedure

A Performa evaluation was made before undertaking the study, including the 17-item Tampa Scale of Kinesiophobia Scale (TSK) in both Marathi and English languages, and pre-tested. After appropriate modifications, it was completed. The final version of the TSK is given in the appendix. The participants were thoroughly examined as per the eligibility criteria, and forty participants were included in the study. They were then administered with Tampa Scale. Scoring to 17-items Tampa Scale was done in 4-point Likert scale ranging from "strongly disagree" to "strongly agree." Following the inversion of items 4, 8, 12, 16, the final score was determined. The total score ranges from a minimum of 17 to a maximum of 68. The Data was collected and analysed to formulate the findings.

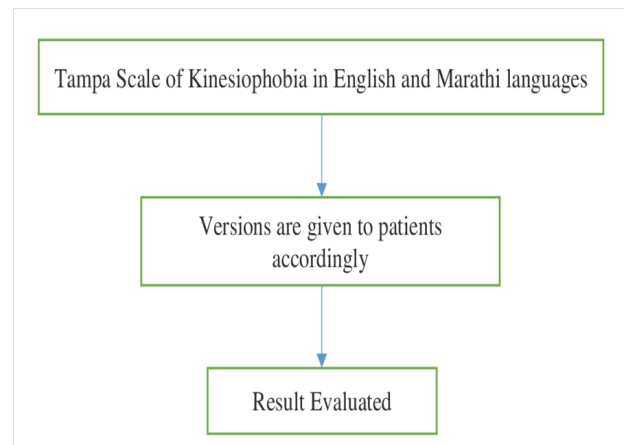


Figure 1: Methodology

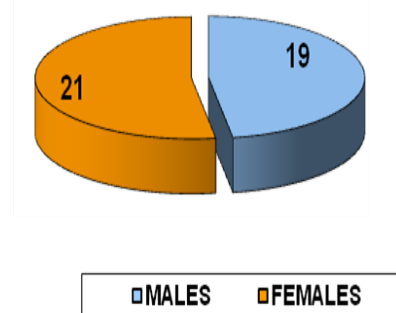


Figure 2: Gender Variation

Table 1: Gender Variation

	MALES	FEMALES
NO. OF PATIENTS	19	22

Table 2: Mean TSK score and gender variation (females is slightly higher as compared to males)

	MALES	FEMALES
MEAN SCORE OF TSK	36.68	38.61

Table 3: Patients with Low Back Pain

	ACUTE LBP	CHRONIC LBP
NO. OF PATIENTS	18	22

Table 4: Mean TSK scoring in chronic low

	ACUTE LBP	CHRONIC LBP
MEAN SCORE OF TSK	34.38	40.4

Table 5: Exercise status of patients

	EXERCISING INDIVIDUALS	NON-EXERCISING INDIVIDUALS
NO. OF PATIENTS	18	22

Table 6: Mean TSK scoring is less in exercising patients

	EXERCISING INDIVIDUAL	NON-EXERCISING INDIVIDUALS
MEAN SCORE OF TSK	35.44	39.54

Table 7: Mean TSK scoring and exercising status

NPRS	0	1	2	3	4	5	6				
NO. OF PATIENTS	0	0	3	3	5	9	3	10	7	0	0

Table 8: NPRS increases there is an increase in TSK score, but not in a linear fashion

NPRS	0	1	2	3	4	5	6	7	8		
MEAN SCORE OF TSK	0	0	31.6	34.6	35.6	34	38	40.9	43.1	0	0

Table 9: Patients with age group

AGE GROUP	21-30	31-40	41-50	51-60	61-70
NO. OF PATIENTS	4	11	10	8	7

Table 10: Mean TSK scoring and age variation (As age increases, the TSK score also increases)

AGE GROUP	20-30	31-40	41-50	51-60	61-70
MEAN SCORE OF TSK	35	36.43	40	38.25	36.85

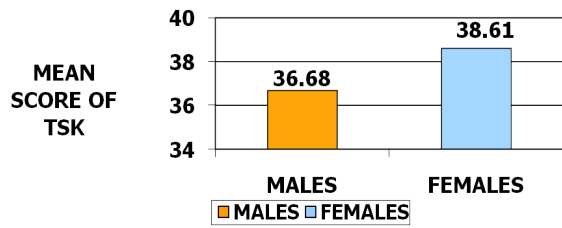


Figure 3: Mean TSK score and gender variation

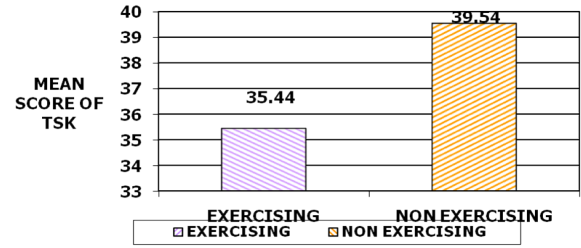


Figure 7: Mean TSK scoring and exercising status

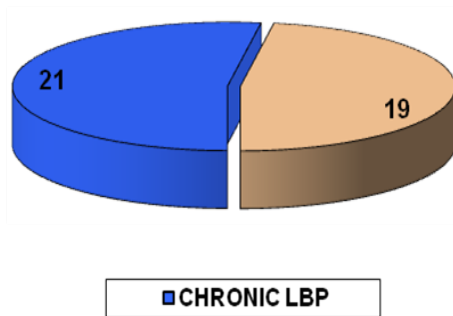


Figure 4: Mean TSK scoring in chronic low back pain

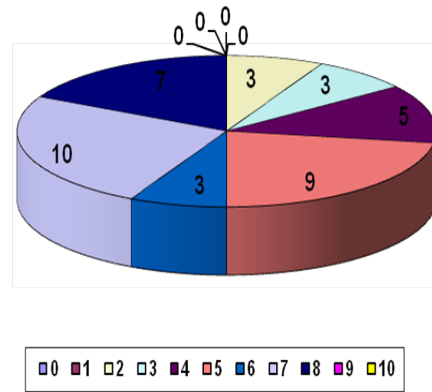


Figure 8: NPRS Score

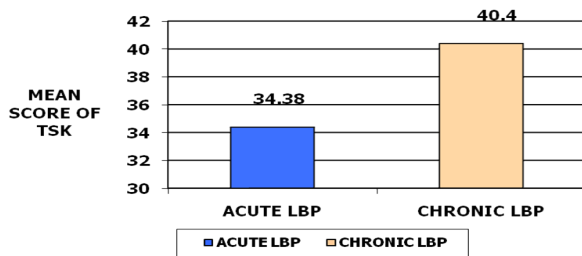


Figure 5: Mean TSK scoring in low back pain

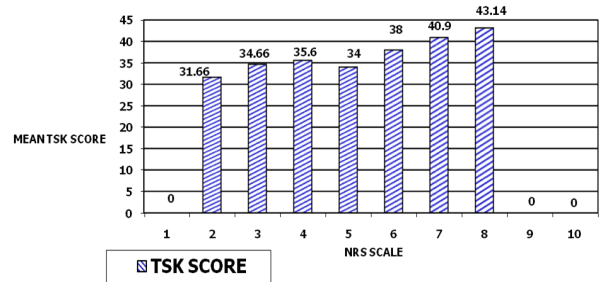


Figure 9: Mean TSK scoring and NPRS scoring

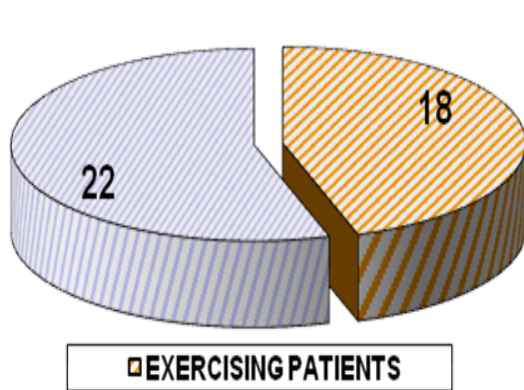


Figure 6: Exercising status of patients

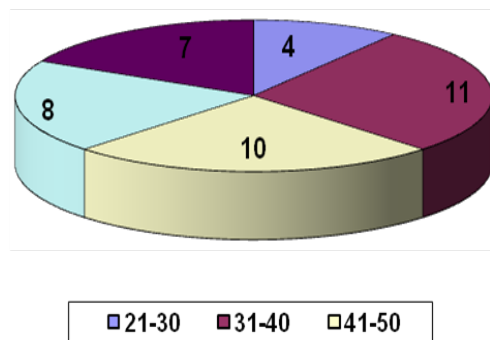


Figure 10: Patients with age group (Mean TSK scoring and age variation)

RESULTS AND DISCUSSION

Kinesiophobia or fear of movement plays a vital role in chronic LBP. The results and observation of the study showed that the Tampa Kinesiophobia scale score for chronic LBP was more similar to acute LBP scores (Ostelo *et al.*, 2007). The results were consistent with the literature available, which indicates that kinesiophobia is more common in chronic LBP as compared to acute LBP, and TSK is one of the useful instruments to classify Kinesiophobia in both acute and chronic LBP (Cook *et al.*, 2006).

When analysing the same data to determine TSK score differences among males and females, the results showed slightly higher scores in the female (Figure 2, Figure 3; Table 1, Table 2). No significant difference was found even in the literature between males and females TSK score (Vlaeyen *et al.*, 1995). The results of the research also demonstrated that people who were not exercising had more Kinesiophobia than who were exercising (Figure 4, Figure 5; Table 3, Table 4). According to the literature, this indicates that people who do exercises and are functionally involved may have less Kinesiophobia (Figure 5, Figure 6; Table 5, Table 6).

When TSK was compared with the numerical pain rating scale (NPRS), it was found that as the NPRS score increases, even the TSK score also increases, although not in a linear fashion, since literature also indicates that TSK and NPRS are interrelated (Figure 6, Figure 7 and Figure 8; Table 7, Table 8). When the data were examined to learn about TSK scoring in various age groups, it was observed that with an increase in age, there was an increase in the TSK scores (Figure 9, Figure 10; Table 9, Table 10). The literature also confirms that TSK scores are higher in the geriatric population.

CONCLUSION

It can be established that Kinesiophobia plays an important role, especially in patients with chronic LBP. The fear of movement can directly hamper functional independence in patients with LBP. Further research required to find the exact causes and remove the barrier and help patients to improve their practical activities.

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Author's contribution

All authors made the best contribution for the concept, assessment and evaluation, data acquisition and analysis and interpretation of the data.

Conflict of Interest

The authors declare that they have no conflict of interest.

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