A Study of Kinesiophobia in Elderly with and without Pain

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Abstract

Aim: Kinesiophobia is defined as an excessive, irrational, and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to painful injury or reinjury.[1] The current study aims to compare kinesiophobia in the elderly population with and without pain.

Methodology: Kinesiophobia (using The Tampa Scale for Kinesiophobia) and pain (using the Extended Nordic Musculoskeletal Questionnaire) was assessed in 30 elderly individuals with pain and 30 elderly individuals without pain.

Results: The kinesiophobia scores were higher in elderly individuals with pain compared to elderly individuals without pain. In terms of pain, the lower back and knees were the most commonly affected body regions.

Conclusion: The study concluded that the subjects showed a high level of kinesiophobia (mean=37.71, median=37). Elderly subjects with pain experienced higher kinesiophobia than elderly without pain.

***Key Words**: The Tampa Scale for Kinesiophobia, Extended Nordic Musculoskeletal Questionnaire, Kinesiophobia.*

Introduction

According to Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above) in India; 53 million females and 51 million males. A report released by the United Nations Population Fund and HelpAge India suggests that the number of elderly persons is expected to grow to 173 million by 2026. As an individual ages, physiological changes in various systems occur. Osteoporosis is frequently seen due to a decline in bone mass and the lean body mass declines due to atrophy of muscle cells. Degenerative changes occur in many joints, affecting the peripheral and axial skeleton.[2] These degenerative changes may cause severe pain and inhibit an elderly individual's locomotion. Hence aging may lead to limitations in functional abilities and in activities of daily living.[3]

Statistics show that pain is a critical public health problem affecting 37-41% people worldwide. The persistence of pain can lead to changes in behaviour for both physical and psychological reasons.[4]Pain has shown to have several negative effects like reduced participation in social and recreational activities, reduced social support, unemployment and disability.[5]

One of the factors associated with the presence of pain is self-limitation/fear of activities which are perceived to cause or aggravate pain. In 1983, Lethem, Slade, Troup and Bentley introduced a concept known as the fear avoidance model. The model attempts to explain how and why some individuals develop a more significant psychological overlay than others do.[1]When faced with fear, confrontation and avoidance are the two coping mechanisms available. Confrontation leads to a reduction of fear over time, while avoidance leads to an increase of fear. Avoidance has two components-

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cognitive avoidance which is avoidance of pain and behavioral avoidance which is avoidance of painful activities. Long term avoidance of physical activity impairs activities of daily living, leading to onset, maintenance and progression of disability.[5]Studies show a positive association between pain-related fear and disability which indicates that reductions in pain-related fear may improve pain-related disability outcomes.

Kinesiophobia, is defined as an excessive, irrational, and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to painful injury or reinjury.[1]

Kinesiophobia causes disability, disuse and depression.[6] It is a vicious cycle of increased fear of pain, more pain and disability. Kinesiophobia levels are negatively associated with health related QOL. [7] Higher degree of kinesiophobia leads to greater limitation in performing ADLs implying the need for institutionalizing the elderly.[3]

The Tampa scale for kinesiophobia (TSK) was developed to measure fear of movement/ (re)injury in chronic pain patients.[8] A valid and reliable psychometric measure, it has a high degree of internal consistency.

The relationship between kinesiophobia and pain has been studied in several populations .[4,7,9] but there has been very little research directed at the elderly.[3,6]A literature review has further revealed that there is a lack of uniformity with respect to the association between pain and kinesiophobia.[3,6]

The current study therefore aims to compare kinesiophobia in the elderly population with and without pain.

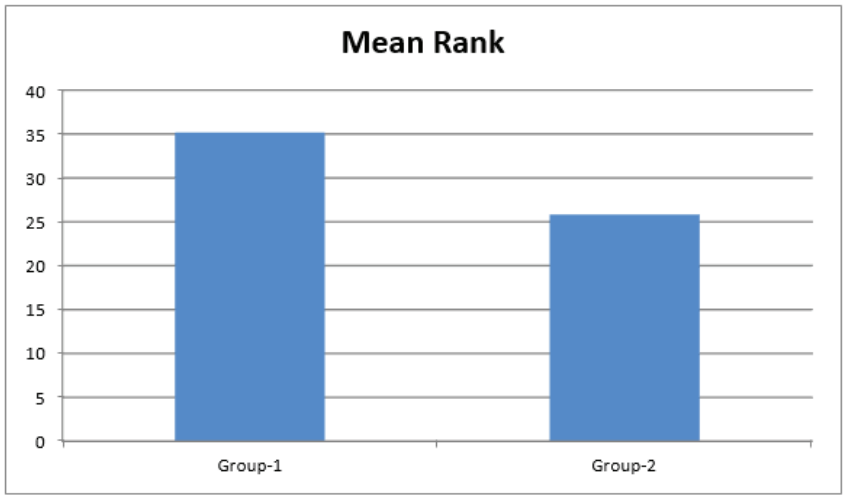
MATERIALS AND METHOD:

The study was approved by the Institutional Ethics and Research Committee at D.Y. Patil University. A community based cross-sectional survey was conducted on 30 elderly individuals experiencing pain since 3 years and 30 elderly individuals without pain since 3 years. The participants were assured that the information regarding their identification obtained during the study would be kept strictly confidential. The demographic details including name, age, gender, dominance etc were obtained. The Extended Nordic Musculoskeletal Questionnaire was administered to quantify the musculoskeletal pain and activity limitations in 9 body regions. Kinesiophobia was assessed by administering The Tampa Scale for Kinesiophobia, with higher scores indicating higher levels of fear of movement-related pain. The obtained data was statistically analysed and results were obtained

Data Presentation and Analysis

1) Comparison of TSK Scores between Group 1 and Group 2

Mann-Whitney U test was used to compare the significance of difference between two groups along with Independent t-test.



Graph 1 - Mann-Whitney U test results:

Group 1- 30 individuals with pain

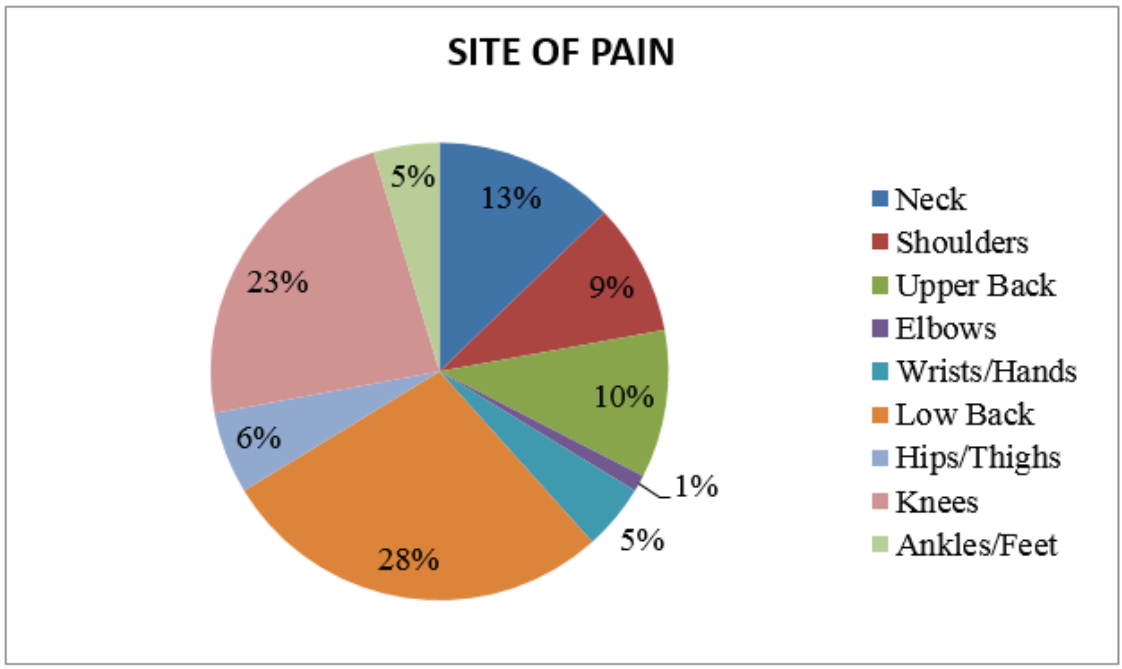
Group 2- 30 individuals without pain

As seen in the above graph, the scores in Group 1 are higher than Group 2.

Table 1 - Mann-Whitney U Test result:

	Value
Mann-Whitney U	309.500
Wilcoxon W	774.500
Z	-2.090
p-value	.037

Interpretation: Since p-value for the M-W U test is less than that of 0.05, it indicates significance of difference between the average TSK scores of Group-1 and Group-2.



GRAPH 2: INVOLVEMENT OF SITE OF PAIN

INFERENCE: The commonest site of pain was the low back (28%) and knee (23%)

Discussion

A study was conducted to compare kinesiophobia in elderly individuals with and without pain

The first objective of the study was to assess kinesiophobia in elderly with and without pain using Tampa Scale for Kinesiophobia (TSK). In a subject size of 60 elderly individuals above the age of 60, our study shows the TSK median score to be 37, which indicates that the subjects have high kinesiophobia.[10]

Our study shows the mean score to be 37.71. A study conducted by Larsson C et al [6] shows the mean score to be 22.8, which indicates significantly lower levels of kinesiophobia as compared to our population. The differences in results could be due to difference in

the population characteristics. The mean population age was high for the study conducted by Larsson C et al (mean age=74.8 years) as compared to our study (mean age= 68.8). Secondly the above study was conducted in a larger Swedish population (n=433) while ours was conducted on the Indian elderly (n=60).

Our study is in agreement with Milenković M.et al whose research indicates that kinesiophobia occurred in a considerable number of participants (more than a half) in a sample of elder institutionalized population with chronic pain.[3] Researches conducted by Crombez G et al,[11] Vlaeyen JW et al[12] and Roelofs J et al[13] state that kinesiophobia is not only an essential factor resulting in the avoidance of movement, but also the factor leading to disability even more than the pain itself.

Fear is defined as an unpleasant feeling that arises as a normal response to realistic danger. Being a basic emotion, fear appears as a reaction to a specific, identifiable, and imminent threat (e.g. a fall). [14] Kinesiophobia can be acquired through two forms: a direct aversive experience (e.g. pain or trauma) or social learning (observation and instruction)[15] Kinesiphobia is an important factor influencing ADL and, consequently, the extent of the assistance needed for the performance of ADL. Evidence suggests that lower degree of independence of participants in performing ADL corresponds to higher degree of fear of movement.[3]

The second objective was to assess pain in elderly using Extended Nordic Musculoskeletal Questionnaire (ENMQ). Our study showed that 28% subjects suffered from low back pain followed by 23% complaining of knee pain. 97% subjects had experienced pain in the previous 12 months and 100% had experienced pain in the previous month with 83% subjects experiencing pain the day the survey was taken.

Cross-sectional epidemiological studies have shown that the overall prevalence of pain increases with advancing age. [16,17,18,19] The prevalence of articular joint pain more than doubles in adults over 65 years old compared to young adults.[20] Gerontologists state that pathological load is an essential factor contributing to increased pain complaint with advancing age. [21]

The third objective of the study was to compare kinesiophobia in elderly with pain (Group 1) and without pain (Group 2). Using a Mann-Whitney U test, the difference between the two groups was found to be statistically significant (p-value = 0.037) , with the elderly subjects with pain experiencing higher kinesiophobia than elderly without pain.

Several studies have found that individuals with chronic musculoskeletal pain caused by degenerative changes can have fear of movement. [22,23,24,25] Data from 118 studies included in a systematic review showed strong evidence of an association between a greater degree of kinesiophobia and greater levels of pain intensity and disability; and moderate evidence for an association between greater levels of kinesiophobia and lower quality of life. [7] First, kinesiophobia alters how people move, possibly with the initial goal to avoid pain. It causes changes in the motor behaviour which affects the performance of actions related to the management and control of pain and pain-related disability. [26] Second, the processing of pain in people with chronic musculoskeletal pain (CMP) is related to how kinesiophobia is perceived.[27] A person in pain will refuse to perform certain activities because she/he anticipates that these activities will increase the pain and suffering. [23] People with pain avoid activities which are assumed to provoke a real or potential injury/re-injury, which leads to further physical inactivity. [25] This fear to carry out certain movements creates a negative vicious cycle wherein they show greater levels of pain, disability, emotional distress and as a result, poor quality of life. The fear-avoidance model of chronic pain states that pain-related fear contributes to greater disability among persons with pain. [5]Hence people with pain show higher levels of kinesiophobia. [28] Our results support this statement.

According to a study conducted by Bunzli et al, people who score highly on the TSK believe that painful activity will result in damage; and that painful activity will increase suffering and/or functional loss.[29]The relation between poor health and kinesiophobia is self explanatory because pain itself is regarded as a health factor. [30]

Conclusion

Based on the results of our study, the following conclusions can be drawn:

1) The subjects showed a high level of kinesiophobia and pain.

2) Elderly subjects with pain experienced higher kinesiophobia than elderly without pain.

Conflict of Interest: The authors report no conflict of interest in this work.

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Ethical Clearance: The study was approved by Institutional Ethical Committee of D.Y.Patil School of Physiotherapy.

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