"ASSOCIATION BETWEEN KINESIOPHOBIA AND FUNCTIONALDISABILITY AMONG PATIENTS WITH OA KNEE."

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ABSTRACT

BACKGROUND:

Osteoarthritis is a chronic, prevalent disease that affects synovial joints and can lead to disability. Signs and symptoms of osteoarthritis is joints pain, tenderness, crepitus, stiffness and limitation of movement with occasional effusion and varying degrees of local inflammation. Kinesiophobia is a fear of movement. For some patients with OA, kinesiophobia is a main reason for functional disability.

OBJECTIVE:

To find out the prevalence of kinesiophobia among patients with OA knee. To find out the correlation between kinesiophobia and functional disability among patients with knee osteoarthritis.

METHOD:

Prior commencing the study written consent was taken. Patients who were willing to participate in the study were evaluated. 90 patients were included in the study. Then the demographic data of the patients was collected.The TAMPA scale was used to measure the level of kinesiophobia. Functional disability was assessed using WOMAC.

RESULT:

90 patients were enrolled in study. Mean age of patients was (64.91±12.07). Out of 90

patients, 55 Female and 35Male were included. The mean ± SD WOMAC Score was43.13±18.61 and mean ± SD of TAMPA score was 40.53±10.48. Age and gender is significantlyassociated with WOMAC and TAMPA Score percentage. Normality was checked by KolmogorovSmirnov test &data were not normally distributed (p<0.05). p value of TAMPA (p-0.025), that suggest data is not normally distributed. p value of WOMAC (p-o.134), that suggest data is normally distributed. The result of significance level was p≤0.05. Correlation done by Pearson correlation coefficient that is moderate positive correlation between TAMPA and WOMAC According to TAMPA Score,48(53.33%) subjects belonged to high risk (score >40) and 42(46.66%) subjects belonged to moderate risk. In our study was found prevalence of kinesiophobia i.e. 53.33%.

CONCLUSION:

• This study concludes the prevalence ofkinesiophobia is 53.33% among patients with OA

Knee.

• It also concludes there is moderate positive correlation between kinesiophobia and functional disability among the patients with OA knee.

KEY WORDS:

Knee osteoarthritis

Kinesiophobia

WOMAC

TAMPA scale of Kinesiophobia

INTRODUCTION

Knee osteoarthritis (OA), also known as degenerative joint disease of the knee, is typically the result of wear and tear and progressive loss of articular cartilage. It is most common in the elderly [1].

Risk factors of knee osteoarthritis: Age, Genetic susceptibility, Obesity, Female gender, Trauma, Repetitive knee trauma, Bone density, poor muscle strength, Joint laxity, Mechanical forces, Kneeling, Squatting[2,3]. It is characterized by pain, swelling, tenderness, limited joint range of motion, crepitations, reduced joint position sense, impaired balance, and reduced flexibility. In chronic degenerative knee OA patient develops apprehensive attitude toward knee motion due to prolong or intermittent pain [4, 5]. It ultimately results in certain functional disability [6,7].

Clinical features of OA knee [4]

- Joint Pain

- Crepitus

- Joint effusion

- Swelling

- Stiffness

- Reduced Proprioception

- Functional Disability

- Bony enlargement

- Limitation of range of motion

- Varus deformity

- Kinesiophobia

- Impaired Balance

- Reduced flexibility

Radiological Finding[8]

Plain radiography remains the basis of OA diagnosis. The first formalized attempts to create a radio-graphic classification scheme for OA were described by Kellgren and Lawrence (KL) in 1957. The KL classification was originally described using AP radiographs of the knee. Each radiograph was assigned a grade from 0 to 4 that correlated with increasing severity of OA, with grade 0 indicating no OA and grade 4 indicating severe OA.
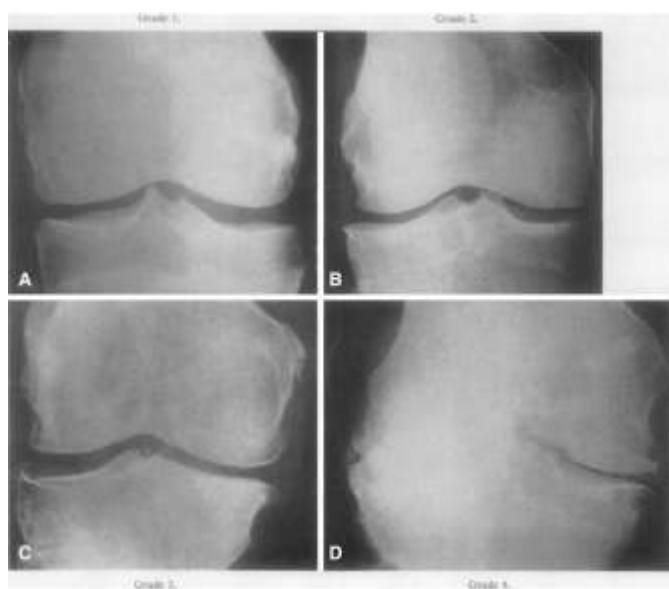
FIGURE

FIGURE 1 SHOWS AP radiographs of the knee referred to in the original Kellgren-Lawrence article.

(A) Representative radiograph of a KL Grade 1: knee demonstrating questionable narrowing of the joint space with possible osteophyte formation.

(B) Representative radiograph of a KL Grade 2: knee demonstrating possible narrowing of the joint space with definitive osteophyte formation.

(C) Representative radiograph of a KL Grade 3: knee showing definite narrowing of the joint space, moderate osteophyte formation, some sclerosis, and possible deformity of the bone ends.

(D) Representative radiograph of a KL Grade 4: knee showing extensive osteophytes formation, severe narrowing of the joint space with marked sclerosis, and definite deformity of the bone ends. Reprinted with permission from Kellgren JH, Lawrence JS. Radiological examination of osteoarthritis

There are many evidences showing prevalence of pain, disability, functional disability among patients with OA knee. There is less evidence available for prevalence of kinesiophobia in OA knee. There is no evidence available which focus over correlation between kinesiophobia and functional disability in patients with OA knee. So, significance of this study is to find out the correlation between kinesiophobia and functional disability among the patients with OA knee.

HYPOTHESIS:

1. NULL HYPOTHESIS[H0]

There is no significant correlation between kinesiophobia and functional disability in patients with knee osteoarthritis

2. ALTERNATE HYPOTHESIS[H1]

There is significant correlation between kinesiophobia and functional disability in patients with knee osteoarthritis.

METHODOLOGY

Study Design: Cross-sectional study.

Study Population: Patient with knee osteoarthritis of age between 50 to 65

Sampling technique: Purposive sampling

Study Duration: 6 Months

Sample Size: 90

Study Setting: the study was conducted from SPB Physiotherapy college and other private Physiotherapy OPD of Surat city.

Inclusion Criteria:

•   Patients with medical diagnosis of knee osteoarthritis.

•   Both male and female.

•   Age between 50 to 65

•   Patients with unilateral or bilateral knee osteoarthritis.

•   Patients who are willing to participate

Exclusion Criteria:

•   Patients who had undergone surgery of knee.

•   Corticosteroid injections within 3 months of study entry.

•   Hyaluronic acid injection within 6 months of study starts date.

•   Knee joint replacement.

•   Self-reported co morbidities including uncontrolled hypertension,

•   Co morbidities with overlapping symptoms (i.e., Rheumatoid arthritis)

Outcome Measures:

• TAMPA scale of kinesiophobia

• WOMAC scale for functional disability:

PROCEDURE

The ethical approval for the research was taken from the Institutional Ethical committee of S.P.B. physiotherapy collage, Surat. The patients were screened on the basis of inclusion and exclusion criteria and their demographic data was taken by an assessment performa. Prior to the commencement of the study, detail procedure of the study was explained to the patients and a sign written inform consent forms were taken from them. Then patients were given a scale to fill.

Kinesiophobia was assessed using the Tampa Scale of kinesiophobia which is a therapist administered scale which consists of 17 questions graded by 4 points ranging from "strongly disagree to strongly agree the functional disability was assessed by using WOMAC. It is

divided into 3 subscales: pain, stiffness and physical function scored on scale of 0-4, which correspond to: None (0), Mild (1), Moderate (2), Severe (3) and Extreme (4). Higher score on WOMAC indicate worse Pain, Stiffness, and Functional limitation.
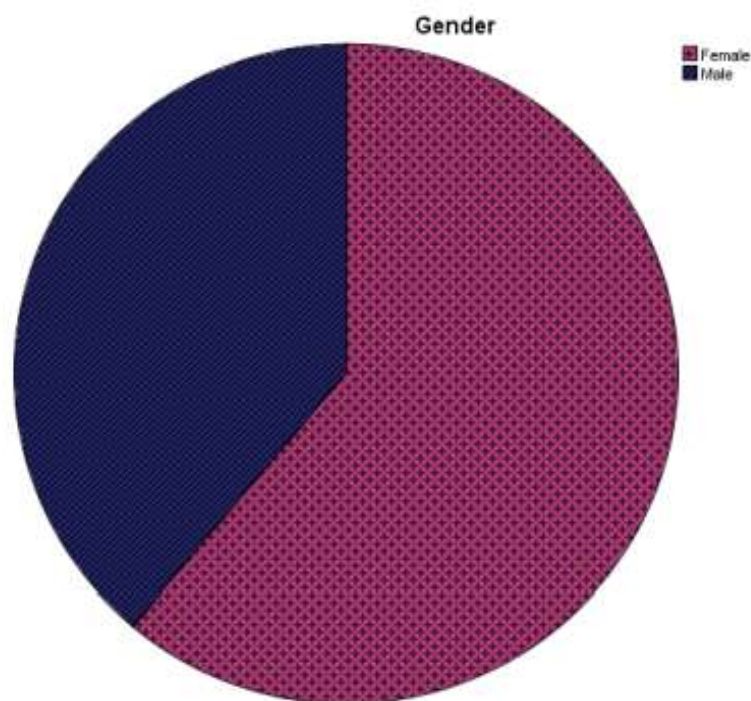
Statistical Analysis

Descriptive Statistics:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	55	61.1	61.1	61.1
	Male	35	38.9	38.9	100.0
	Total	90	100.0	100.0	

Table 1

Here, Table 1 Shows the Frequency of Male (35) and Female (55).

Graph 1

Here, the graph 1 showing the percentage of distribution of Male (38.9%) and Female (61.11%).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AGE	90	43.00	87.00	64.9111	12.07993
WOMAC	90	5.00	85.00	43.1333	18.61871
TAMPA	90	15.00	59.00	40.5333	10.48509
Valid N (list-wise)	90				

Table 2

Here, table 2 shows the mean and SD of the Age, WOMAC and TAMPA.

Test of Normality

|	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
TAMPA	.100	90	.025
WOMAC	.085	90	.134

Table 3

Here, table 3 shows the Test of Normality by Kolmogorov-Smirnov test. Significance level is $p \leq 0.05$. Here p value of TAMPA is 0.025, that suggest data is not normally distributed. p value of WOMAC is o.134, that suggest data is normally distributed. As one outcome shows non-normal distribution, further correlation test is done by using pearson correlation co-efficient
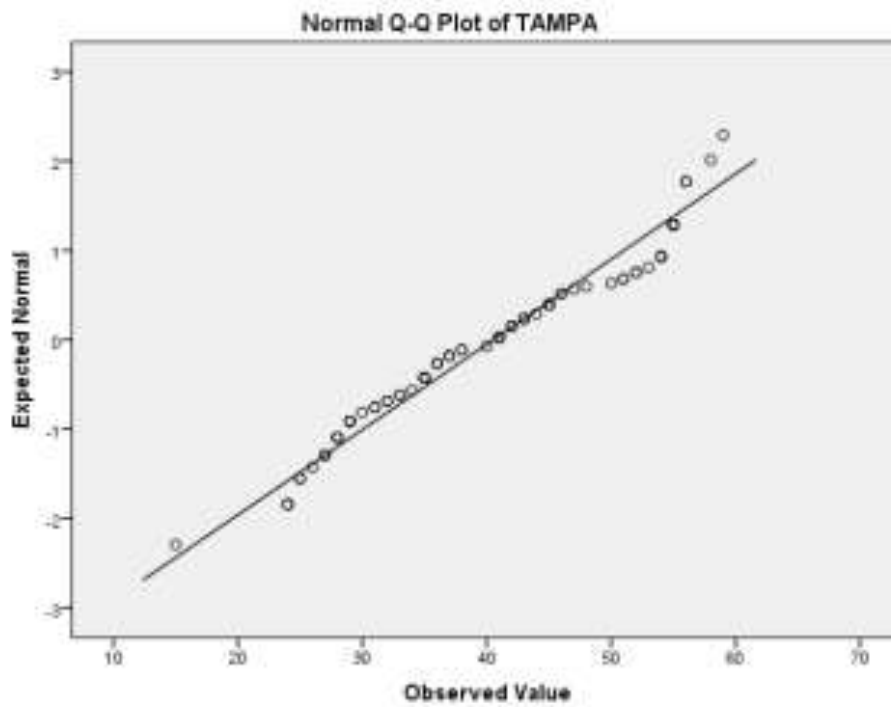
Graph 4

Here, graph 4 shows Q-Q Plot showing non-normal distribution of TAMPA score.
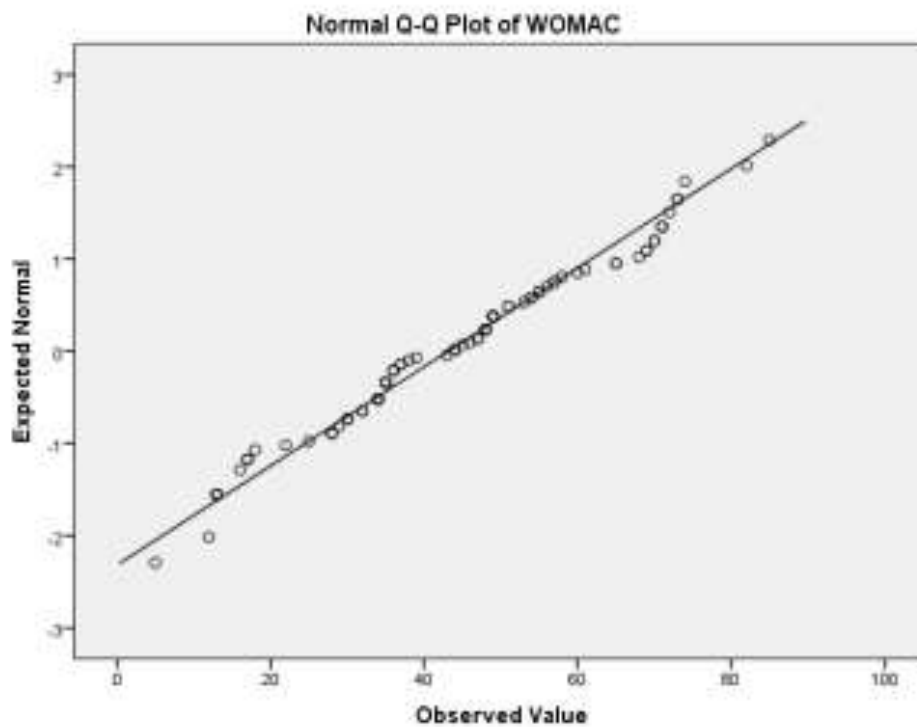
Graph 5

Here, graph 5 shows Q-Q Plot Showing Normal distribution of WOMAC score.

Descriptive analysis

	Mean	Std. Deviation	N
WOMAC	43.1333	18.61871	90
TAMPA	40.5333	10.48509	90

Table 4

Here, table 4 shows mean score of WOMAC (43.13333) and mean score of TAMPA (40.53333).

Correlations

		WOMAC	TAMPA
WOMAC	Pearson Correlation	1	.585**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	30852.400	10155.600
	Covariance	346.656	114.108
	N	90	90
TAMPA	Pearson Correlation	.585**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	10155.600	9784.400
	Covariance	114.108	109.937
	N	90	90

**Correlation is significant at the 0.01 level (2- tailed)

Table 5

Here, Table 5 Shows there is moderate positive correlation between WOMAC and TAMPA.

RESULT AND DISCUSSION

The prevalence of kinesiophobia among patients with osteoarthritis (OA) is a major concern, as it has been shown to have a significant impact on physical function and quality of life. In this study, we aimed to investigate the prevalence of kinesiophobia among OA patients and its association with physical function and quality of life. Our results indicate that kinesiophobia is a prevalent issue among OA patients, with 50% of participants reporting moderate to severe levels of fear of movement. Our study aimed to examine the prevalence of kinesiophobia among OA patients and its impact on physical function and quality of life. We recruited a sample of 90 patients with OA and administered the Tampa Scale for Kinesiophobia (TSK), a validated questionnaire that measures fear of movement, as well as measures of physical function and quality of life. Our results showed that 53.33% of patients reported moderate to severe levels of kinesiophobia, indicating that kinesiophobia is a prevalent issue among OA patients.

Graph 1represents the Female:Male ratio among total 90 samples.Table 1presents Female 61.1% and male 38.9%. Table 2 represents mean age of 64.91years. The mean WOMAC score 43.1333. The mean TAMPA score is

40.5333.

Table 5represents the correlation between TAMPA andWOMAC Pearson correlation coefficient is .585. That indicates there is moderate positive correlation between WOMAC and TAMPA. So, result suggests that there is moderate positive correlation between kinesiophobia and functional disability.

One potential explanation for the association between kinesiophobia and functional ability is the fear-avoidance model. According to this model, individuals who experience pain or fear of movement may avoid activities that they perceive as painful or dangerous, leading to decreased physical activity and subsequent muscle atrophy, which can result in a decrease in functional ability This suggests that reducing kinesiophobia may lead to an increase in physical activity, muscle strength, and ultimately, improved functional ability among OA patients.Furthermore, our study has important implications for clinical practice. Healthcare providers should be aware of the prevalence of kinesiophobia among OA patients and consider incorporating interventions aimed at reducing kinesiophobia into their treatment plans. Addressing kinesiophobia may help to improve functional ability and quality of life among OA patients. Additionally, healthcare providers should encourage patients to remain active and engage in physical activity, as physical activity can help to improve functional ability, muscle strength, and overall health outcomes among OA patients. [5,6].In addition to interventions aimed at reducing kinesiophobia, other factors should be considered when treating OA patients. These include addressing pain, inflammation, and comorbidities such as depression and anxiety. Pain management is a critical component of OA treatment, as pain can contribute to kinesiophobia and decreased physical function [10].Nonpharmacological treatments such as exercise therapy, physical therapy, and acupuncture have been shown to be effective in reducing pain and improving physical function among OA patients. In addition, addressing comorbidities such as depression and anxiety may also be important, as these conditions can contribute to kinesiophobia and decreased physical function among OA patients [10, 11].

In present study, we found the prevalence of kinesiophobia i.e. 53.33%.We also found there is moderate positive correlation between kinesiophobia and functional disability among patients with OA Knee.

Conclusion

• This study concludes the prevalence of kinesiophobia is 53.33% among patients with OA knee.

• It also concludes there is moderate positive correlation between kinesiophobia and functional

 Disability among the patients with OA knee.

Limitation and further recommendations:

• Patients were included only from Surat city. It can be perform at zonal level or state level in future.

• Limited numbers of patients were included. In future larger number of patients can be taken.

• Correlation of other outcomes can be taken in future study.

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