



CORRELATION OF FEAR OF FALL AND QUALITY OF LIFE (KNEE RELATED) IN OSTEOARTHRITIC KNEE PATIENTS

Physiotherapy

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ABSTRACT

Background: There is increase in number of osteoarthritic knee patients having fear of fall thus affecting quality of life. Author's specific goal was to examine how fear of fall and knee related quality of life is correlated in osteoarthritic knee patients in age group of 40-65 year. **Method:** A total of 24 participants were taken in 40-65 years of age group having osteoarthritis of grade II, III and IV as per Kellgren-Lawrence radiological classification. Fall efficacy scale – I scores and Knee related Quality of Life-26 scores were recorded. **Results:** The coefficient of correlation (r) value of Fall Efficacy-I and KQoL-26 is -0.8188 indicating inverse very strong correlation between two variables. The mean and standard deviation of fall efficacy scale is 30.125 and ± 13.979 respectively. The mean and standard deviation of KQoL-26 scale is 70.185 and ± 21.131 respectively. **Conclusion:** As the fear of fall increases, the knee related quality of life decreases.

KEYWORDS

osteoarthritis knee, fear of fall, knee related quality of life.

INTRODUCTION

Knee osteoarthritis (OA) is a prevalent chronic joint disease causing pain and disability¹. Osteoarthritis is the second most common rheumatologic problem and it is the most frequent joint disease with a prevalence of 22% to 39% in India². OA is more common in women than in men². Osteoarthritis is not reversible yet preventable thus, the process can be delayed by accurate care through daily recommended exercises suggested by physiotherapist. Falls or fear of fall due to osteoarthritic progress of disease is usually seen affecting the quality of living daily life thus creating hindrances.

Knee OA causing injury restricts an individual physically, socially, and psychologically, decreasing their ability to perform certain functions such as, cross sitting and ascending-descending stairs.

The Kellgren and Lawrence system is a common method of classifying the severity of knee osteoarthritis (OA) using five grades using x-rays³.

1. Grade 0: no radiographic features of OA are present.
2. Grade 1: doubtful joint space narrowing (JSN) and possible osteophytic lipping.
3. Grade 2: definite osteophytes and possible JSN on anteroposterior weight-bearing radiograph.
4. Grade 3: multiple osteophytes, definite JSN, sclerosis, possible bony deformity.
5. Grade 4: large osteophytes, marked JSN, severe sclerosis and definite bony deformity.

Usually primary aim remains to have symptomatic relief whereas fear of fall & quality of life are often considered secondary by patients & therapists. Many studies have been emphasizing on quality of life in osteoarthritic patients which deals with overall aspect of daily living and activities and not pertaining to specificity of activities with respect to the cause or affected joint. However, the information pertaining to how will fear of fall and quality of life (knee related) correlate in OA knee patients is inadequate in literature. This study also provides better reflection of quality of life and fear of fall interpretation.

METHOD

This was analytical cross-sectional study performed over a period of 6 months. This study was approved by Institutional Review Board at K.J. Somaiya college of physiotherapy, Mumbai. A written consent as well as oral consent (who participated through online platform) was taken after detailed explanation.

Participants: In this study, out of 24 participants having osteoarthritis of knee, in the age group of 40-50 years (6 participants all females), in age group of 51-60 years 13 participants (11 females and 2 males) and in age group of 61-65 years 5 participants (4 females and 1 male) were selected. These patients were chosen whose diagnosis of OA was confirmed by an orthopedic and when they came to the K. J. Somaiya Hospital for physiotherapy treatment as well as who fitted into the

inclusion criteria. Participants with osteoarthritis of knee were included based on the Kellgren Lawrence Scale Grade II, III & IV of osteoarthritis of knee. Participants with limb length discrepancy or those undergone Total knee replacement/Total hip replacement-open reduction or with implants, scoliosis/kyphosis/back surgery in recent one year, having painful arthritic conditions like Rheumatoid arthritis, Ankylosing spondylosis, having any neurological conditions like stroke, spinal cord injury, poliomyelitis, etc. and having any cognitive impairments like dementia, Alzheimer were excluded. The participants were asked to fill the Fall efficacy scale-I and Knee related Quality of Life-26 questionnaire.

Fall Efficacy Scale – I^{4,5,6,7}

FES-I a 16 item questionnaire, useful to the researchers and clinicians interested in fear of falling, with a score ranging from minimum 16 (low concern about falling) to maximum 64 (severe concern about falling). Since the scoring is as follows: 16-19 (low concern), 20-27 (moderate concern), 28-64 (high concern).

Knee related Quality of Life -26^{8,9}

KQoL-26 a 26 item questionnaire with subcomponents such as physical, activity and emotional components, studies knee related quality of life in knee specific insufficiency, ligamentous or meniscal injuries. The scores were approximately normal on a scale of 0-100 where 100 is the best possible knee-related quality of life.

RESULTS

The statistical analysis was carried out using GraphPad Instat version 3.10. The data distribution was confirmed to a Gaussian distribution using Kolmogorov-Smirnov test of normality. For correlation of fear of falls and quality of life (knee related) Pearson correlation test was used. 24 participants ranging in the age group 40-65 years were included in the study with 3 males and 21 females.

Table 1.
Distribution of participants as per age groups and grades of osteoarthritis

Gender		No. of participants	
		Males	Females
Age groups	40-50 years	0	6
	51-60 years	2	11
	61-65 years	1	4
Grades of osteoarthritis	II	2	10
	III	1	7
	IV	0	4

Fear of fall & Knee related Quality of Life correlation

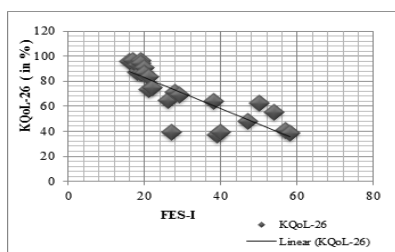
Through Pearson's correlation test this study stated the coefficient of correlation (r) value being -0.8188 indicates there is very strong inverse correlation between fear of fall and knee related quality of life in individuals with osteoarthritis of knee, thus when fear of fall increases the quality of life decreases.

Table 2.

Mean,SD & correlation using pearson's test of fall efficacy scale and knee related quality of life-26.

	FES-I	KQoL-26
Mean	30.125	70.185
Standard deviation (SD)	13.979	21.131
r value	-0.8188	-0.8188
p value	< 0.0001	< 0.0001

Graph 1. X axis: FES-I score Y axis: KQoL-26 score (in %)



DISCUSSION

The study was conducted to find out the correlation between Fear of Fall and Quality of Life (Knee related) in osteoarthritic knee patients in age group of 40-65 years. This population mainly was conducted in community setting and physiotherapy outpatient department. The study population included both males and females having both bilateral as well as unilateral osteoarthritis of knee, however predominance of females was observed. Out of 24 participants, in the age group of 40-50 years 6 participants all females, in age group of 51-60 years 13 participants (11 females and 2 males) and in age group of 61-65 years 5 participants (4 females and 1 male) with knee OA were seen. Fall efficacy scale-I was used to assess fear of fall^{6,7} and KQoL-26⁸ was used to assess knee related quality of life in knee osteoarthritic patients. Unlike other quality of life scales which emphasize on all general components KQoL-26 is condition-specific scale. It also includes the emotional functioning component which has largest effect size than physical and activity functioning component considering patients perspective. Thus we thought it was better suited for the purpose of study. The scale translated in Marathi and Hindi language were validated by the professors incharge for reviewing for the same. The study shows in individuals with osteoarthritis of knee, as fear of fall increases the knee related quality of life decreases. Considering the outcomes from this study and the radiographic features of kellegren-lawren scale³ when the individual is in Grade II of osteoarthritis of knee, the specific changes in the joint structure starts to become evident and the individual starts experiencing some concerns in climbing up or down or while walking on uneven grounds. Whereas when the grade of osteoarthritis of knee has progressed like in Grade IV, there is increased instability and deformity landing individual with high concern of fall and restrictions in daily activities while performing them thus, greatly affecting the emotional wellbeing of the individual. This can be inferred from the 'r' value of Fall Efficacy-i and KQoL-26 is -0.8188 indicating inverse very strong correlation between two variables. According to the article published in Orthopedic and Rheumatology journal, by Garima G. & Ankit S¹⁰, the study was conducted to view impact of osteoarthritis on balance, perceived fear of fall and quality of life in osteoarthritic patients of age 50-70 years having knee pain on most of the days of previous month in Kanpur city. Though the study states fear of fall shows correlation with quality of life, the outcome measure used for assessing quality of life is Arthritis Impact Measurement Scale 2 Short Form which specifically assess quality of life in Rheumatoid Arthritis and does not include knee related activity limitations seen in osteoarthritis. Moreover the study also includes geriatric population which may also have some confounding factors pertaining to age related issues in the body (general weakness, stiffness, etc.). The study also did not mention about the distribution of participants in the given age group. Thus our study was conducted considering all the above mentioned aspects, whereas the limitation to our study is that the sample population is minimum taking in consideration the covid condition.

CONCLUSION

The study further implies as the fear of fall increases the knee related quality of life decreases. Therefore fear of fall and quality of life becomes an important component to be inspected in all osteoarthritic knee patients. Early individual or group balance trainings can be incorporated daily or in exercise protocol in outpatient department to reduce the risk of falling and to delay the deterioration in knee related quality of life. Future studies should focus on intervention based studies of overcoming fear of falling in patients in osteoarthritis of knee.

REFERENCES:

1. Carolyn j. Page, Rana s. Hinman, Kim Bennell, Physiotherapy management of osteoarthritis of knee, International Journal of Rheumatic Diseases, May 2011;14(2):145-151
2. Bala K, Bavoria S, Sahni B, Bhagat P, Langeh S, Sobti S. Prevalence, risk factors, and health seeking behavior for knee osteoarthritis among adult population in rural Jammu – A Community based Cross Sectional Study. J Family Med Prim Care 2020;9:5282-7
3. <https://radiopaedia.org/articles/kellgren-and-lawrence-system-for-classification-of-osteoarthritis-of-knee>
4. Dewan N, MacDermid J. "Fall Efficacy Scale-International (FES I)." Journal of Physiotherapy, 2014. vol. 60, no. 1, p. 60.
5. Reliability and validity of the FES-I scale: L. Yardley, N. Beyer, K. Hauer, G. Kempen, C. Piot-Ziegler, and C. Todd, "Development and initial validation of the falls efficacy scale-international (FES-I)," Age and Ageing. 2005. vol. 34, no. 6, pp. 614–619.
6. <http://documents.manchester.ac.uk/display.aspx?DocID=38575>
7. <http://documents.manchester.ac.uk/display.aspx?DocID=38546>
8. Andrew Gratt, Stephen Brealey, et al; to know knee related quality of life in knee specific insufficiency, ligamentous or meniscal injuries, Quality of Life Research Journal March 2013, 22(9).
9. Garratt, A.M., Brealey, S., Robling, M. et al. Development of the Knee Quality of Life (KQoL-26) 26-item questionnaire: data quality, reliability, validity and responsiveness. Health Qual Life Outcomes, 2008; 6, 48.
10. Garima G, Ankit S. Impact of Osteoarthritis on Balance, Perceived Fear of fall and Quality Of Life. Ortho & Rheum Open Access J 2018; 11(5): 555824.