

Assessing Fear-Avoidance Belief Questionnaire and Quality of Life in Housewives with Knee Osteoarthritis : A Research Protocol

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Abstract

Introduction - Osteoarthritis (OA) is an inflammatory disorder of cartilage, degeneration of synovial fluid, osteophyte formation, thinning of joint space and sub-chondral sclerosis. The prevalence of osteoarthritis in India was found to be around 28.7%. Females are generally more affected than males with the ratio of 2:1. Of all the joints knee and hip joint are seen to be most commonly affected joint in OA. Prevalence of knee pain is common amongst housewives due to prolong standing and frequent bending. Strenuous physical activity, especially activities requiring kneeling, knee-bending, stair climbing, squatting, prolonged standing as well as knee injury and trauma have also been linked to a high prevalence of symptomatic knee OA. Knee OA causes pain of various degree depending upon the severity of disease which can cause fear in patients. The fear related to pain can results in decrease in quality of life.

Purpose - Purpose of this study was to assess fear amongst housewives related to OA using fear-avoidance belief questionnaire and the effects of fear on their daily life using WHOQOL-BREF.

Methodology - 200 housewives will be selected according to exclusion and inclusion criteria. Their knee radiography was done to look for level of OA. Then those ladies were interview to find their fear related to disease and its effects and how that affects their quality of life.

Results - Results are awaited till the study is completed.

Conclusion - Conclusion of this study depends upon the result of this study.

Keywords – avoidance; fear; housewives; inflammation; knee pain; osteoarthritis; quality of life;

Introduction

Osteoarthritis (OA) is an inflammatory disorder of cartilage, degeneration of synovial fluid, osteophyte

formation, thinning of joint space and sub-chondral sclerosis⁽¹⁾⁽²⁾. The radiographic evidence worldwide reflects 25.4% prevalence while 15.4% being symptomatic or clinically defined knee OA worldwide⁽³⁾. The prevalence of osteoarthritis in India was found to be around 28.7%⁽⁴⁾. The prevalence of OA in Maharashtra is 10.2% , in females (11%) and males (7%)⁽⁵⁾. Osteoarthritis is more common in female than male, its ratio is approximately 2:1⁽⁶⁾. OA is now recognized as a disease involving the entire joint including periarticular musculature⁽⁷⁾. Therefore accordingly, the impairment,

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activity limitation, and participation restriction related to OA goes far beyond the radar of synovial joint. OA leads to pain, disability as well as difficulty in joints and restrict the routine movements of human being⁽⁸⁾. No single factor predisposing an individual to OA has been identified, although aging is indeed strongly associated with OA⁽⁹⁾. Genetic factor account from between 39% to 65% of radiographic OA of hand, hip, knee and upto 70% in spinal OA⁽¹⁰⁾. Of all the joints knee and hip joint are seen to be most commonly affected joint in OA. Strenuous physical activity, especially activities requiring kneeling, knee-bending, stair climbing, squatting, prolonged standing as well as knee injury and trauma have also been linked to a high prevalence of symptomatic knee OA⁽¹¹⁾. Malalignment, including varus and valgus deformities, and leg length discrepancy are associated with greater prevalence of knee and hip OA, respectively⁽¹²⁾. Obesity has also shown risk factor for development of knee OA in later life⁽¹²⁾.

OA typically starts insidiously and gradually progresses and may even go unnoticed in some individuals when there is involvement of aneural articular cartilage. Pain is initial symptom. In later stages pain becomes dull aching, chronic and accentuated with episodic severe pain. There can be presence of synovial thickness as indicated by a joint tenderness with effusion, crepitation are felt during joint movement. OA is generally classified by Kellgren and Lawrence's classification which is based on osteophytes formation using five grades from 0 to 4.

Knee OA more commonly affects the medial joint due to greater load body-weight placed on this compartment. As a result, medial joint space narrowing occurs resulting in pseudo laxity of medial collateral ligament, stretching of lateral collateral counterpart, and a genu varus deformity. Genu valgus occurs due to greater lateral compartment involvement but is less common. A flexion deformity of several degrees can develop quickly in painful knee and contribute to functional leg length discrepancy, decrease step length and quadriceps muscular fatigue or strain. Patellofemoral compartment OA, with hallmark anterior knee pain, can occur in isolation as a result of patellar malalignment, abnormal tracking and loading, and direct trauma to patella.

Vast pharmacological and non-pharmacological treatment protocols are available for osteoarthritis depending upon the severity of the disease. Medical therapies focus on decreasing pain and inflammation. Early aggressive pharmacological therapy is associated with diminished joint damage and long-term maintenance of function. The physical therapy plays a pivotal role in helping patient with minimal disability gain confidence and experience in using self-management skills to deal with the condition.

In Indians, primary OA of knee is more common than secondary OA. It is perhaps due to frequent need of squatting and sitting cross-legged. Prevalence of knee pain is common amongst housewives due to prolong standing and frequent bending. The fear related to pain is seen amongst people. This gives rise in decrease in quality of life.

The World Health Organization Quality of Life Instrument, Short Form (WHOQOL-BREF) questionnaire is a commonly utilized generic measure of quality of life that is used to measure quality of life in healthy people and in different groups of patients. It is a short version of WHOQOL-100 scale which is used in larger research group and clinical trials. WHOQOL-Bref comprises of four main domains which is physical health, psychological, social relationship and, environment. It contains of total 26 item questionnaire that correlates well with the original WHOQOL-100 item questionnaire. It assess the individual's perception in the context of his/her cultural and value system, personal goal, standards, concerns, satisfaction with life and many more. Of the 26 items, 24 items were used to calculate the four QOL domains: physical health (7 items), psychological (6 items), social relationships (3 items) and environment (8 items). Transformed domain scores range from 4 to 20. A higher score indicates a better QOL. The two remaining items, sometimes used to calculate overall QOL and health, were not used in this study as recommended by the WHO. The WHOQOL-Bref have been shown to display good discrimination validity, content validity and test-retest reliability⁽¹³⁾.

Fear avoidance beliefs are measured by using validated self-reported questionnaire which is created by Waddle et al, the Fear avoidance belief questionnaire⁽¹⁴⁾. The Fear-Avoidance Beliefs

Questionnaire (FABQ) is a 16-item self-report questionnaire that focuses particularly on patient's fear avoidance beliefs about physical activity and work may affect and contribute to their pain and concomitant disability. Fields of assessment involves; Activities of Daily Living, behaviour, functional mobility, general health, life participation, mental health, motivation, occupational performance, pain, personality, QOL, self-efficacy, stress and coping⁽¹⁵⁾. The theory of fear avoidance is based on the notion that the patient believes incorrectly that the pain is sign of harm⁽¹⁶⁾. Fear of pain leads to avoidance behaviour, such as rest and consequent avoiding of physical activity can result in worsening of patient's condition⁽¹⁶⁾. It has been proposed that fear-avoidance behaviours are expressions of a person's belief system and that alteration of this belief system can cause in a more productive concept of pain and thus more positive behavioural responses, such as a steady return to activity and work⁽¹⁶⁾. This self-reported questionnaire contains 16 questions ranging from 0 to 6 (maximum score of 96; higher score indicates fear avoidance behaviour). The first 5 questions concern to physical activity while the remaining 11 discuss about work. The Physical Activity subscale (FABQ-PA, range from 0 to 24) is the total of component from 2 to 5. The Work subscale (FABQ-W, range from 0 to 42) is the total of component 6,7,9-12 and 15. The overall test-retest reliability of FABQ was found to be good (ICC=0.97)⁽¹⁷⁾. Evidence shows correlation between FABQ and Roland & Morris Disability Questionnaire. The correlation co-efficient for the FABQ was 0.52, the FABQ Work subscale was 0.63 and the FABQ Physical Activity subscale was 0.51⁽¹⁷⁾. The reliability of forty-eight hour test-retest for FABQ has been recorded with a Pearson *r* of 0.91 to 0.95 and 0.84 to 0.88 for FABQ physical activity scale⁽¹⁴⁾.

Gordon Waddell et al,(1993) conducted a study on FABQ and the role of fear-avoidance beliefs in chronic low back pain and disability in which he reasoned that the importance of fear-avoidance beliefs and showed that specific fear-avoidance beliefs about work are closely related to loss of work because of low back pain⁽¹⁴⁾. Asa Dederling et al, (2013) conducted a study on assessing Fear-avoidance Beliefs in patients with cervical radiculopathy in which he deduced that FABQ can be used for test-retest evaluations as 'good' reliability was found. Marcio Massao Kawano et al, (2015) conducted

a study on assessing QOL in patients with knee OA in which he interpreted that individuals with OA have a low perception of their functional capacity, functional limitation and pain in QOL. There is a clear link between poor education and low perception of quality of life⁽¹⁸⁾. Rajeetha Miraj et al,(2018) conducted a study on prevalence of knee osteoarthritis in women of rural and urban part of Jaffan in which she reasoned that osteoarthritis was higher in urban areas (42%) than rural areas (16%)⁽¹⁹⁾.

Chirstine Becks Mansfield et al, (2018), conducted a study on the effects of fear-avoidance beliefs on anterior knee pain and physical therapy visit count for young individuals in which he conclude that Fear-avoidance beliefs in adolescents are similar to that seen in adults. FABQ-PA scores did not impact the number of visits used to treat anterior knee pain or functional ability at discharge⁽²⁰⁾. Sara R. Piva et al, (2009), conducted a study on predictors of pain and function outcome after rehabilitation in patients with patellofemoral pain syndrome in which she concluded that change in fear-avoidance beliefs about physical activity was the strongest predictor of function and pain outcome. The fact that patients who decreased their fear-avoidance beliefs improved function and decreased pain indicates that perhaps fear-avoidance beliefs should be targeted during the treatment of patients with patellofemoral pain syndrome⁽²¹⁾. Jack Farr II et al, (2013), conducted a study on quality of life in patients with knee osteoarthritis: A commentary on nonsurgical and surgical treatments in which he concluded that surgical knee OA intervention generally results in good to excellent patient outcome. Knee OA has negative impact on health related quality of life (HRQoL)⁽²²⁾. Fatma Fidan et al, (2012), conducted a study on quality of life and self-reported disability in patients with knee osteoarthritis in which she concluded that patients with knee OA has significant poorer Qol compared with healthy controls. SF-36 is related to the clinical status and functional ability of patients with OA and can be used as sensitive health status measure for clinical evaluation. Also WOMAC can be used as a sensitive measure for disability of patients with knee OA⁽²³⁾.

In this study we hypothesize that due to fear of increasing pain due to movement there was deterioration in quality of life especially in level of independence.

Greater the pain and severity of OA larger will be the deterioration in quality of life.

In this study we are assessing Indian housewives with knee pain/Osteoarthritis with Fear-avoidance Belief Questionnaire and Quality of Life using short form (WHOQOL-BREF).

The objective of this study was to assess Fear-avoidance Belief Questionnaire and Quality of Life in housewives with osteoarthritis of knee joint.

Aim

Assessing Fear-avoidance Belief Questionnaire and Quality of Life in housewives with knee osteoarthritis.

Material and Methodology

The study will be conducted in DMIMS, Sawangi(M). The study design of this research is going to be cross- sectional study and with observational (survey) study type. Sampling procedure used for this study is purposive sampling method, where every member is selected by chance and every member of the population has an equal probability of being included in the survey.

Sample size - 200

Inclusion criteria - Patient who consent for this study.

Stage 1 -2 of OA according to Kellgren and Lawrence system.

Primary cause of OA.

Exclusion criteria - people who do not consent to participate.

Past history of fractures

Any orthopedic condition making it impossible to perform ADLs.

Secondary causes of OA.

Study duration – 6 months.

Material -

1) Fear- avoidance Belief Questionnaire - The overall test-retest reliability of FABQ was found to be good (ICC=0.97). FABQ Physical activity subscale

test-retest reliability (ICC= 0.72-0.90). FABQ Work subscale test-retest reliability (ICC=0.8-0.91). Evidence shows that there is correlation between FABQ and Roland & Morris Disability Questionnaire. The correlation co-efficient for the FABQ was 0.52, the FABQ Work subscale was 0.63 and the FABQ Physical Activity subscale was 0.51.

2) Short form WHOQOL- BREF – The WHOQOL-BREF have displayed good discriminant validity, content validity and test-retest reliability. Its sensitivity to change is under assessment. Domain score produced by the WHOQOL-BREF have been shown to correlate at around 0.9 with the WHOQOL-100 domain score.

3) Radiographic image of knee.

Procedure

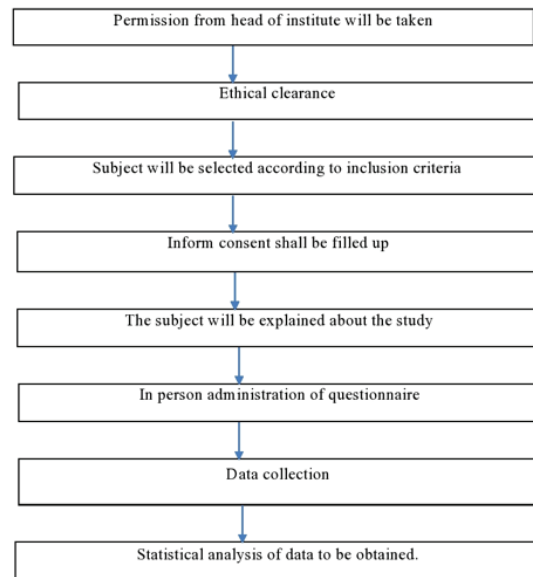


figure 1: description of the research protocol.

Institutional Ethical Committee (IEC) clearance will be obtained prior to the commencement of the study. Participants will be selected as per the inclusion criteria as has been mentioned. Purpose of the study will be explained and inform consent from the participants will be taken. The participants will be given FABQ and short- form of WHOQOL-BREF. After the results have been obtained data will be collected. A statistical analysis will be obtained and the conclusion will be given and a research paper will be created according to the study and published.

Statistical analysis - This is a descriptive study to find frequency and percentage of fear factor and QOL in housewives with knee pain.

Sample size was calculated using the standard formula of

$$n = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

where,

$Z_{1-\alpha/2}$ = standard normal variant error

p = expected proportion of population based on previous studies

d = absolute error or precision

The data obtained will be assessed using descriptive and inferential statistics. The use of paired-t test will be done for the analysis.

Expected Result

The expected outcome will be percentage of fear avoidance belief about physical activity and work which is present in the patients with knee OA. The fear-avoidance scale will be assess depending upon the overall function mobility,ADLs, behaviour, general health, life participation, mental health, motivation, occupational performance, pain, personality, quality of life, self-efficacy, stress and coping. Quality of life will be assessed to find decrease/detoritation in any domain of WHOQOL-BREF due to fear avoidance behaviour. After the completion the study result will be calculated by statistical analysis and will be prepared and published in the form of research paper.

Discussion

The research aims to assessing fear-avoidance belief questionnaire and QOL in housewives with knee osteoarthritis.

Our study is supported by a research conducted by Gordon Waddell et al.,(1993)in which he concluded that the importance of fear avoidance belief and demonstrated that specific fear avoidance beliefs about work are closely related to work loss because of low

back pain⁽¹⁴⁾. Another study by Marcio Massao Kawano et al, (2015) stated that individuals with OA had low perception of functional capacity, functional limitation and pain in their QOL⁽¹⁸⁾. In a study by R Piva et al, (2019) interpreted that change in fear avoidance beliefs about physical activity was the strongest predictor of functions and pain outcome⁽²¹⁾. Jack Farr II et al, (2013) deducted that patients with knee OA had negative impact on health related quality of life⁽²²⁾. An another study by Fatma Fidan et al, (2013) reasoned that patients with knee OA had significant lower QOL as compared to healthy controls⁽²³⁾.

Conclusion

The study will be conducted according to research protocol on the patients with knee osteoarthritis in the institutional setup. In this study we hypothesize that due to fear of increasing pain due to movement there was deterioration in quality of life especially in level of independence. Greater the pain and severity of OA larger will be the deterioration in quality of life. Once the study is completed, data calculation by statistical analysis will be done and published in the form of research paper.

List of abbreviation -

- 1) OA – Osteoarthritis.
- 2) FABQ – Fear-avoidance Belief Questionnaire.
- 3) WHOQOL-BREF – The World Health Organization Quality of Life – BREF.
- 4) AVBRH – Acharya Vinoba Bhave Rural Hospital.

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