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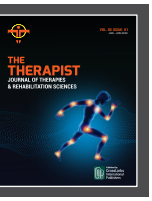

Original Article

Frequency of Back Pain in Knee Osteoarthritis Patients; A Cross Sectional Study

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ABSTRACT

Osteoarthritis is one of the major prevalent types of arthritis and knee joint is mostly involved site in geriatric patients in which half of the old patients with ages more than 50 years. It was found that these management strategies were effective in the reduction of pain and disturbance of the function induced by chronic low back pain and osteoarthritis. Therefore, the current study seeks to analyze the frequency of backache mainly in the region of low back is associated with the patients having knee osteoarthritis. **Objective**: To analyze and investigate the relationship amid back pain and knee osteoarthritis (OA) in order to check frequency of backache in knee osteoarthritis patients. **Methods:** A self-made questionnaires were distributed among the random population of 500 individuals and categorized them according to age, gender, occupation, body mass index, residence, back pain history, severity of pain and pain persistence. SPSS was used to analyze the results. **Results**: In this cross-sectional study, Back pain was associated significantly with knee osteoarthritis patients such as 310 (62%) individuals claimed to have backache with knee osteoarthritis (OA) as well. Obesity was also related with backache with 219 individuals suffer from backpain from 281 members. 67 patients had severe pain, 77 patients had mild pain and 150 patients experienced moderate pain. **Conclusion**: Back pain was found more prevalent (62%) from total collected individuals suffering from knee osteoarthritis.

INTRODUCTION

The most prevalent type of arthritis is osteoarthritis that develops from cartilage deterioration, disability in movement, long standing pain in muscles with marginal bony growth [1]. It distresses varying joints such as hip, hands and knee. Knee osteoarthritis frequently affecting men and women in their older age phases [2]. The Knee is mostly involved in geriatric patients involving half of patients more than 60 years. It is described by medical descriptions such as decreased joint space and osteophytosis [3]. The symptoms of knee OA are pain and functional disability. Functional disability is caused by pain and it also lessen quality of life and increase the probabilities of mortality and morbidity [4]. Risk factors of knee osteoarthritis includes generalized as well as mechanical risk factors. Generalized risks factors include sex, hereditary, genetic susceptibility, age, reproductive cycle factors which trigger the damage of cartilage functions. Whereas, mechanical risk factors include trauma and injury [5]. Obesity, occupation, dietary changes and bodily activity are adaptable factors for Osteoarthritis. Women who are overweight and obese are at high risk to knee OA than men. Females who are in ages of 55 years have exaggerated pain in their knees. Women of middle age have moderate-to-severe knee OA [6]. Radiological examination shows that knee Osteoarthritis have frequency of almost 19% percent in Framingham research study with almost 27 percent in Johnston project of osteoarthritis for the adults aged 45 years. The

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osteoarthritis that can easily be seen on radiographs is higher in adults having ages more than 60 years [7]. Patients having knee osteoarthritis suffer with pain in their affected joint that are knee, hip etc. On the other hand, knee OA also cause the onset of backache in the patients. Backache is predominant in the patients of knee osteoarthritis (OA) than those having rheumatoid arthritis (RA). Obese women are more prone for this disease. It is impartial of knee radiological findings, age, marital status and smoking but disability, night pain anxiety and global severity are those factors that contribute in the initiation of pain. furthermore, lower back pain is evidenced as universal source of functional incapacity that require further study to do due to rapidly growing ageing population worldwide [8]. Convincingly, back pain is related to body mass index and surges by the pain scale in the diseased people. Also, people with knee osteoarthritis also encounter pain in elbow, foot and their low back region [9]. Chronic low back pain and osteoarthritis are two principle musculoskeletal problems which are more prevalent in the population and poses high direct as well as indirect costs. This was suggested in the study conducted in 2010 by May *et al.*, in which the main aim was to manage these two problems with self-management systems such as exercise and self-medication followed by education and advise. It was found that these management strategies were effective in the reduction of pain and disturbance of the function induced by chronic low back pain and osteoarthritis [10]. Therefore, the current research seeks to analyze the occurrence of backache mostly lower backache in patients of knee OA in local inhabitants. Additionally, this research is also meant to aware the people regarding knee (OA), association of back pain and knee OA and take preventing measures for the prevention of back pain. A hypothesis has been designed in this perspective to check the correlation of low backache in patients with knee OA

METHODS

A self-made questionnaire was created to complete a cross sectional research by evaluating the frequency in osteoarthritis patients with backache. This self-made survey was distributed randomly in 4 hospitals including Allied Hospital, Jinnah Hospital Lahore, Social Security Hospital and also Mayo Hospital. Sample size was computed by means of following formulation for random sampling [11]:

$$n=\frac{z^2p(1-p)}{d^2}$$

Where n=number of samples, p= expected prevalence, z= level of confidence and d= absolute precision. Total five hundred members were answered in submitting the questionnaires. The contributors distributed and examined on the base in gender, age, residence, occupation, body mass index (BMI), pain severity and previous pain history. The gathered data were examined and decoded by means SPSS version 21.0. The results were exhibited in the form of tables, graphs and figures. Chi square method was consumed in deducing the statistical methodology to equivalence the results with each other.

RESULTS

Current research was executed in 4 hospitals i.e., the Allied Hospital, Jinnah Hospital Lahore, Social Security Hospital and Mayo Hospital. The respondents who were included in this research gave their pain history by filling the distributed survey form that showed that total 62 percent subjects had backache while 38 percent declined to have backache. The hospitals visited to gather responses from the patients for six months. From 310 positively responded participants, 94 percent subjects were appealed that they suffer from backache after knee arthritis and 6 percent participants practiced back pain before knee OA. Total 28% subjects were male and total 72% subjects are suffering from back pain. overweightness was also related with this disease as 219 subjects suffer with backpain from 281 total participants. Housewives were more affected by backpain followed by doctors, teachers and factory workers. 150 subjects were facing moderate back pain after 77 with mild pain in back and 67 participants with severe backache. Furthermore, most of the patients accepted physical therapy to suppress the pain while other adopted rest and analgesics to relieve their pain symptoms. Maximum data were collected from Allied hospital in Faisalabad and minimum as collected from Mayo Hospital in Lahore. There were 230 people who had visited Allied Hospital, 110 visited Jinnah Hospital, 90 came to Social Security Hospital and 70 had visited Mayo Hospital. The ratio of male suffering from pain in Allied Hospital is 145, in Jinnah Hospital is 73, in Social Security is 65 and in Mayo Hospital is 27(Table 1).

Patients		Allied Hospital	Jinnah Hospital	Social Security hospital	Mayo Hospital	Sum
Number of subjects/ individuals		230	110	90	70	500
Gender	Male	40	50	18	20	128
	Female	190	60	72	50	372
Back pain	Yes	145	73	65	27	310
	No	85	37	25	43	190

Table 1: Distribution of participants visited the hospitals.

Total 17 men had healthy BMI, 49 overweight and 62 were obese whereas 29 females were in healthy BMI range, with 124 were overweight and 219 were in obese range (Table 2).

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Gender	BMI			Total
	18.5-24.9 (Healthy)	25-29.9 (Overweight)	>30 (Obese)	
Male	17	49	62	128
Female	29	124	219	372
Sum	46	173	281	500

Table 2: Frequency of the BMI according to gender

In knee OA patients, 1.2% upper back and neck is involved with 4% midback, 31% low back, 1.2% buttocks and legs, 20.8% lower back radiating to other extremities and 0.6% are having non specified pain(Table 3).

Site of pain	Frequency (%)
Upper back and neck	6 (1.2%)
Mid back	20 (4.0%)
Low back	155 (31.0%)
Buttocks and legs	6 (1.3%)
Lower back pain radiating to other extremities	104 (20.8%)
Non specified	3 (0.6%)
Sum	294 (58.8%)

Table 3: Comparison of the back pain with other sites of pain in knee OA patients

Total 51% participants who are suffering from backpain are in age 50-59 with 34% in age 60-69, 13% in age range of 70-79 and 1.6% in 80-89 age ranges(Table 4).

Age (years)	Frequency (%)
50-59	255 (51.0%)
60-69	172 (34.4%)
70-79	65 (13.0%)
80-89	8 (1.6%)
Total	500 (100%)

Table 4: Frequency of age having back pain

DISCUSSION

The rationale of the current research was to explore the association between backpain and knee osteoarthritis by evaluating its frequency in the affected participants. The objective of the research was to examine the subjects of knee OA on the basis of their backpain. Five hundred individuals have been comprised that have knee OA. It is seen that 62 % have backache before the whole examination initiate. Moreover, 38 percent individuals have no backache. This research shows that backache becomes more predominant in patients with knee OA. Patients with knee OA mostly feel backache particularly in low lumbar region. earlier researched proved that 5 percent of the individuals with knee osteoarthritis suffer with back pain due to varying other factors including obesity, age and gender [9, 12, 13]. In a previous study performed by Zhang *et al.*, in which the relationship between low backache and age in knee osteoarthritis was labelled. The information extracted from these calculations suggested that the frequency of knee OA enhance with the aging especially after sixty-five years. This issue is related due to low muscular strength, cartilage thinning and oxidative damage [7]. Furthermore, this pathology is most widespread in women especially those who are symptomatic with knee OA [2, 14]. The current research showed that age is a major factor that increases the probability of backpain in the patients with knee osteoarthritis. Typically age 50 to 59 is mostly affected with this disease as compared to other individuals. This is due to calcium deficiency, low diet quality, excess physical work, heavy lifting, post-menopausal conditions and lack of awareness [15]. Additionally, most important aspect is obesity that counts for 56 percent in affected individuals with knee OA followed by 34 percent individuals who are overweight & 9 percent in subjects who are healthy. The data were arranged on the basis of their body mass index (BMI). However, BMI is considered as one of most important onset factors for knee OA as suggested by previous study performed by Heidari *et al.*, [6]. However, BMI is considered as one of most important onset factors for knee OA as suggested by previous study that the low backache, fatty body, diabetes, stroke and cancer are the adverse results of obesity. Metabolic disease, enhanced mechanical working and wear & tear are other features that results in obesity in patients with low back pain. Therefore, our calculations are found in agreement with previous researches performed on patients with low back ache in which it is related with obesity [7, 16-19]. Many patients suffer with pain during early morning. Many individuals reported that they feel pain mostly in evening, at night or in whole day time as well. Majorly 30 percent have early morning pain, with 13 percent at night and more than 7 percent in evening with 7 percent in whole day. Previous study done by Wolfe *et al.*, in Germany observed that the morning stiffness was found over 35 % for 60 minutes intervals [12, 20]. The presence of pain in varying times could be due to cartilage destruction, space narrowing, metabolic diseases, body structural changes and excess working with no healthy exercises as calculated by May *et al.*, [10]. Based on present study, it might be determined there is a major relation between back pain and knee osteoarthritis. To evaluate the patients with back pain, low back pain is most obvious in such patients while most importantly 20 percent individuals have backache that goes in other extremities. Besides, it is also discovered that low back pain is highly related with other factors such as gender, occupation and age etc. which enlightened the agreement of our results with previous researches [16].

CONCLUSIONS

Low backache was found more predominant (62%) from total collected individuals suffering from knee osteoarthritis. It was also significantly associated with other risks including women, elder ages, obesity, working professions. Furthermore, more work is required to

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understand the frequency of back pain in the patients with knee osteoarthritis.

Conflicts of Interest

The authors declare no conflict of interest.

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