# Awareness of Osteoarthritis among Housewives of Pakistan.

**Hafiza Aasia Malik[1], Dr. Sheharyar Saleem[2], Noor-ul-ain Fatima[3], Hina Khan[4], Sidra Bakhtawar [5] & Dr. Sana Hanif [6]**

[1] Department of Microbiology, Quaid-e-Azam University, Islamabad Email: asiamalik27@gmail.com

[2] Department of Microbiology, Quaid-e-Azam University, Islamabad Email: shehryarsaleem70@gmail.com

[3] Institute of Microbiology and Molecular Genetics, University of the Punjab, Lahore

[4] School of Biological Sciences, University of the Punjab, Lahore

[5] Institute of Microbiology and Molecular Genetics, University of the Punjab, Lahore
  Email: sidrabakhtawar21@gmail.com

[6] Department of Rehabilitation and Allied health sciences, University of Lahore, Lahore.
  Email: sanahanif@live.com

## ARTICLE INFO

## ABSTRACT

Osteoarthritis (OA) is the most common articular disorder that causes chronic disability because of the progressive resorption of bone and cartilage and results in joint failure specifically in elder population. Its incident rate varies according to region and ethnicity.

A cross-sectional study was conducted among 191 housewives belonging to Lahore,Islamabad and other major cities of Pakistan in 2017 to assess the awareness level of OA. Data were collected through a structured questionnaire that included personal details of participants, their awareness about osteoarthritis, its causes, treatment, and its effects. Then, data were analyzed by using SPSS and appropriate statistical tests like Chi-squaredfor different variables.

Almost 40% of the population sample belonged to 30-40 years of age group. Overall, about 39% participants had awarenessabout various aspects of OA and 57% individual had the awareness about the general information of OA. Awareness about factors affecting the OA condition was the lowest, only 24% individuals had the self-awareness about this. In this study, there was no significant association between the aspects about the awareness of OA with different age groups.

Most housewives of Lahore and other areas of Pakistan had poor to moderate awareness of OA. Proper awareness of OA will result in the better understanding of promising management modalities for the treatment of OA.

**OPEN ACCESS**

Corresponding Author's Email: sanahanif@live.com

## INTRODUCTION

Osteoarthritis (OA) is a chronic degenerative disease of multifactorial etiology characterized by deterioration of articular cartilage, marginalized hypertrophy of bone, various alterations insynovial membrane and joint capsule, biochemically and morphemically result in bones friction (Michael*et al.,* 2010; Silman & Hochberg, 2001).

In the later stages of OA, pathological changes, like softening and ulceration of articular cartilage with synovial inflammation, occur. Typical clinical symptoms include pain, stiffness of muscles, restrictedmovement which leads toreduced physical functionof joints(Hunter*et al.,* 2008; Ontario, 2018). Pain is experienced mainly after weight bearing and prolonged activity, whereas stiffness is experienced after inactivity (Akinpelu*et al.,* 2009). It commonly affects hands, feet, spine, hips and knee joints.Knee OA is the most common one among different OAs.(Akinpelu *et al.,* 2009; Lespasio *et al.,* 2017; Silman & Hochberg, 2001).

OA can be categorized as primary or secondary OA depending upon its etiology. In most cases, OAis idiopathic which is a result of unknownetiology and is referred as primary OA(Loughlin, 2001). It is characterized as localized, generalized or erosiveOA and is related to aging (Mathers *et al.,* 2002). In secondary OA,any other disease or medical condition is the main cause of OA (Michael *et al.,* 2010).

Prevalence and incidence of OA vary globally shown by different studies as its incidence vary according to region and ethnicity (Nelson, 2018; Neogi & Zhang, 2013). Worldwide, almost 240 million people are affected by this disorder(Alanazi *et al.,* 2021). Its prevalence increases with age, particularly after the age of 45 years (Felson & Hodgson, 2014). It is the most common joint disorder in the USA (Zhang & Jordan, 2010). It affects more women than men (Davis *et al.,* 1988; Pal*et l.,* 2016).

Major risk factors associated with OA include demographic features: age, gender, genetics, articular trauma, and anatomy of joint shape (Corti & Rigon, 2003; Vina & Kwoh, 2018) and lifestyle factors: physical activity, occupation and obesity (Muthuri*et al.,* 2011; Tran *et al.,* 2016). It is diagnosed mostly throughpatient history, clinical and radiological findings (Lespasio *et al.,* 2017).

OA is managed by two types of modalities: constructive management and surgical intervention (Rannou & Poiraudeau, 2010). In constructive management, non-pharmacological practices like physiotherapy and weight loss (Collins*et al.,* 2019)and pharmacological treatment like glucosamine, acetyl silicic acid, anti-inflammatory drugs for exampleacetaminophen,and intra-articular injections either hyaluronic acid or corticosteroids are used (Jamtvedt*et al.,* 2008). Surgical intervention is only considered when there is no use of conservative treatment (Alanazi *et al.,* 2021). Most women have inadequate awareness about OA, and they don't know the reason why they have difficulty doing routine activity (Chand*et al.,* 2021) thus, they are unable to manage the necessary health protocols of life during OA. To overcome this situation, this study is aimed to assess the awareness of OA in housewives in Pakistan.

**MATERIALS AND METHODS**

A descriptive cross-sectional study involving the housewives of District Lahore and other areas of Pakistan was conducted to evaluate the awareness of OA. Criteria for data collection involved housewives with minimum age of 30 years. Both, educated and uneducated participants were included in this study.

**Data collection:**

Data were collected in the form of questionnaire that consisted of two parts. Firstpart of questionnaire included sociodemographic features of participants like their age, location, educational details, and their caste, while second part consisted of awareness about osteoarthritis, its causes, treatment, and its effects and this part was consisted of 22 questions. In the questionnaire, five types of responses against each question were recorded and responses were: strongly agree, agree, neutral, disagree, and strongly disagree. The questionnaire was designed in national language (Urdu), so that participants can easily understand the questions and can accurately provide the response upon their proper understanding.

The cities from which data were collected by doing home to home interviews and filling out the questionnaire were Lahore and outside Lahore (Islamabad, Peshawar, Multan, Sialkot, Hasil Pur, Gujrat, Sargodha, Khushab, Rawalpindi, Okara, Behera, Sheikhupura, Gujranwala, Burewala, Nowshera, Balakot, Wazirabad, Muridke, Muzaffargarh, Sahiwal, Vehari, Mandibahaudin, and D.G. Khan). The data were collected over a period of 3 months from January to March 2017.

Participants were divided into five age groups i.e., 30 to 40, 40 to 50, 50 to 60, 60 to 70, and 70 above with ascending order.

**Statistical analysis:**

After collection, the data were revised, coded, and fed to statistical software IBM SPSS version 20. To evaluate the association between population's sociodemographic characteristics and itsawareness level, Chi-square test was applied. Binary code was used for scoring and one point was assigned to each correct answer while zero for incorrect answer. The *P* value less than or equal to 0.05 was statistically significant. Most participants were from Lahore, so, data was categorized into Lahore and outside of Lahore for proper evaluation.

**RESULTS**

A total of 191 housewives participated in this study from Lahore and outside of Lahore. Almost 26% participants were residents of Lahore and 74% were from different cities of Pakistan(Table1). Thirty-nine percent individuals belonged to the age group of 30-40 years which was followed by 40-50 years (30%), 50-60 years (21%), with only three individuals belonged to seventy and above age group. Approximately, 28% housewiveswere with education level of college and 20 % were with education level of high school, while 13% were with middle school level and 35 (18%) individuals were with university level education. Around 19% housewives were illiterate. The percentages of correct answers for each question are presented in (Table 2).

| Table 1: Sociodemographic characteristics and general information regarding osteoarthritis (*n*=191) ||
|---|---|
| **Variable** | **_n_ (%)** |
| **Residence Location** ||
| Lahore | 50 (26) |
| Outside Lahore | 141 (74) |
| **Age (years)** ||
| 30-40 | 75 (39) |
| 40-50 | 59 (30) |
| 50-60 | 41 (21) |
| 60-70 | 13 (6.8) |
| 70 and above | 3 (1.6) |
| **Education Level** ||
| Middle school | 25 (13) |
| High school | 40 (20) |
| College | 54 (28) |
| University Level | 35 (18) |
| Illiterate | 37 (19) |

**Table 2: Participants' Awareness of Osteoarthritis *n*=191**

| Statement | Correct answers, *n* (%) |
|---|---|
| Have you ever heard about osteoarthritis (inflammation of joints)? | 177(92%) |

| | |
|---|---|
| Has anyone from your immediate family been stricken by this ailment? | 142(74%) |
| Is this ailment intensified by either seasonal condition i.e., summers/winters? | 12(6%) |
| This ailment affects the various organs of the body. | 29(15%) |
| Calcium deficiency could be the cause of this ailment. | 27(14% |
| Vitamin-D deficiency could be the causative agent of this disease. | 89(46%) |
| Osteoarthritis usually onsets at/after the age of 30 or so. | 90(47%) |
| Are you afflicted by this ailment? | 87(45%) |
| Exercise and Yoga could escalate this ailment. | 28(14%) |
| Genetic grounds are the cause of this ailment. | 146(76%) |
| Calcium Supplements could be the cure of this disease. | 138(72%) |
| Women are more afflicted by this disease than the men. | 112(58%) |
| Losing weight could lessen the inflammation of the joints. | 122(63%) |

| | |
|---|---|
| MRI or X-Ray could be administered for effective diagnosis of this disease. | 30(15%) |
| Obesity is the cause of this disease. | 35(18%) |
| Osteoarthritis is a gruesome form of Osteoporosis. | 140(73%) |
| This ailment could be effectively cured. | 17(8%) |
| The inflammation could persist for years. | 61(31%) |
| ive people are very less often afflicted by this disease. | 60(31%) |
| Excessive Uric Acid in the body is the causative agent of this disease. | 21(10%) |
| You are quite familiar with the different kinds of this disease. | 71(37%) |

Most of the participants (57.3%) had moderate awareness about the general information of OA (Figure 1) and relatively little awareness about the factors causing and affecting the osteoarthritis' patient was observed in the participants.
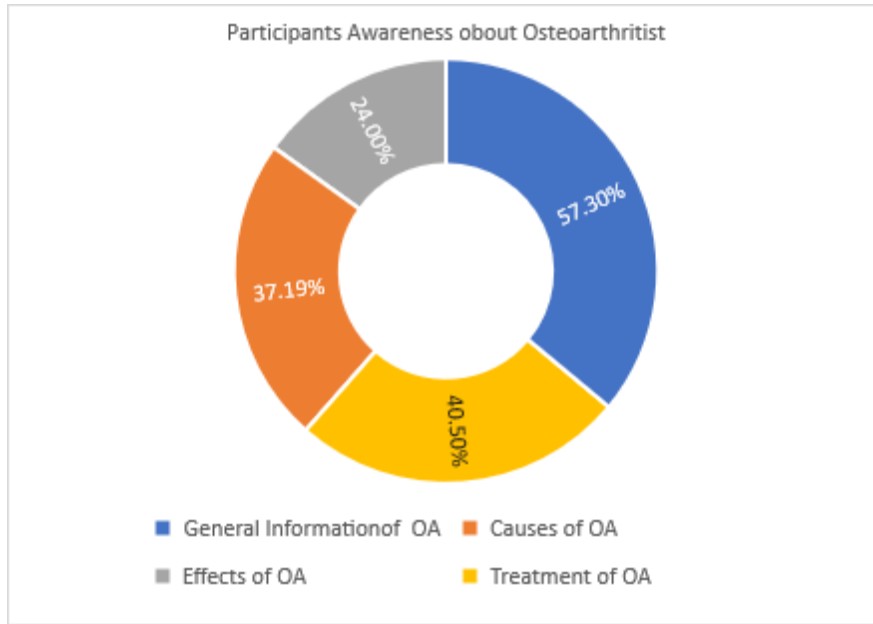
**Figure 1***: Awareness level of participants about different aspects of Osteoarthritis in Pakistan*

Awareness about treatment and effect was moderate as around 40% questions were answered correctly (Figure 2).
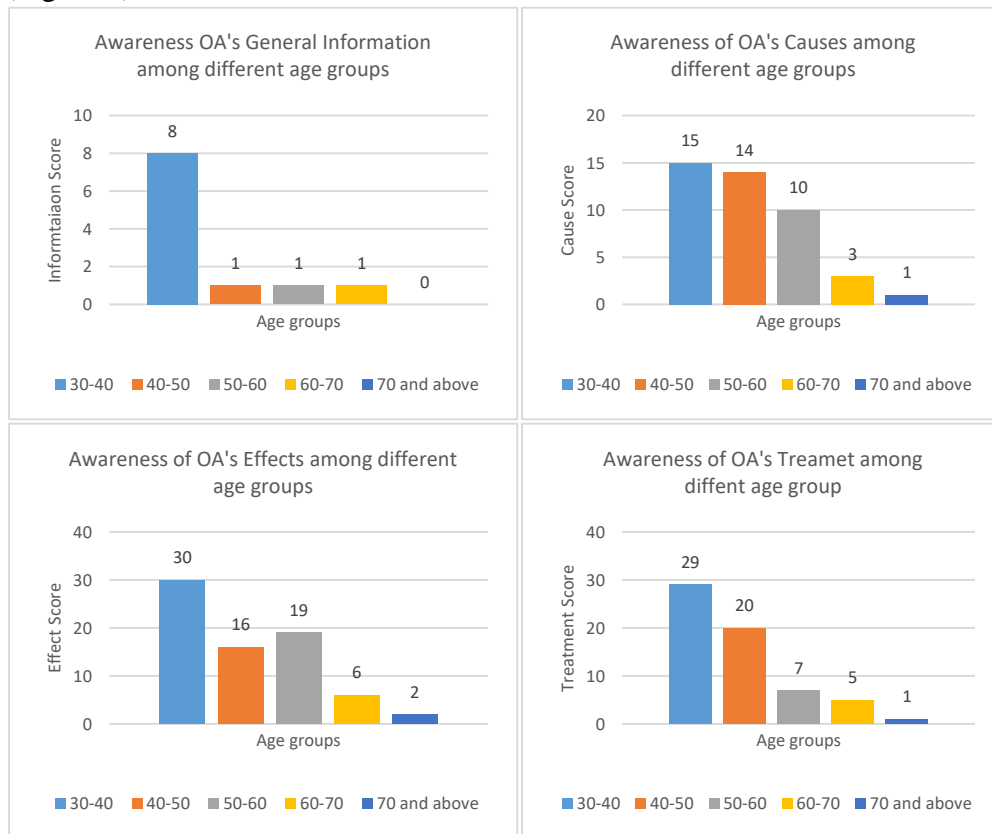


**Figure 2:** *Charts represent the scores of general information of Osteoarthritis, its causes, effects, and treatments among five age groups of housewives.*

The association between different age groups belonging to Lahore and outside Lahore,with their awarenesslevel about OA was studied through Chi-squared test. Based on location and age groups, there was no significant association in the awareness of OAof participants with an exception (Table 3). Participants residing outside Lahore showed significant association ($P=$ 0.025) with the awareness of effects caused by OA among different age groups.

| Table 3: Association between osteoarthritis (OA) awareness and location among different age group of housewives (*n*=191) | | |
|---|---|---|
| Aspect of OA | Significance *P* (Lahore) | Significance *P* (outside Lahore) |
| General Information of OA | 0.438 | 0.831 |
| Effects of OA | 0.305 | 0.025* |
| Causes of OA | 0.356 | 0.533 |
| Treatments of OA | 0.148 | 0.230 |

*Significant: there is significant association between the awareness of OA with different aged group of Pakistani housewives and thus null hypothesis is rejected.

*<*P* 0.05 is significant.

**DISCUSSION**

Osteoarthritis is characterized by the deterioration of meniscus or protective cartilage covering the boneproximities. It is more prevalent in women than men with increasing age indeterminately (Akinpelu *et al.,* 2009). Thus, this study was aimed to determine the awareness of OA in the housewives in Pakistan.

Of 191 participants, most had poor (25%) to moderate (50%) awareness about OA. Participants aged between 30-40 years (39%) were the main respondents of this survey and the outcomeof this study is similar to study performed by Alanazi *et al.,*(2021). The same age group had the moderate awareness of OA as compared to other agegroups (Mukharrib*et al.,* 2018). The data revealed that, majority of the population have poor awareness about OA. Only, 39% of participants had correct awareness about OA which is less than the previous studies (Alanazi *et al.,* 2021; Mukharrib *et al.,* 2018) and this can be attributed to the fact that target population of current study was housewives, and 20% of them wasilliterate. According to Alanazi *et al.,*(2021) majority of people of Sudair had moderate awareness about OA but in this study most of them were poor of it.

In this study, among four main aspects of OA, association between awareness about the factors affecting the OA conditions and different age groups was significant. Women agedabove 50 had poor awareness about the factors affecting OA like obesity and exercise (Juhakoski*et al.,* 2008). Our study had no significant association of these different aspects of OA with location too

and these findings are in concordance with a Saudi Arabian study (Alanazi *et al.,* 2021).

In our study, most of the participants (57%) had the general information about the OA that is corroborated by the study done by Alanazi *et al.,*(2021) and Alyami *et al.,*(2020). Women who had any family member diagnosed with OA had the more awareness about OA as compared to the ones who had no person suffering from OA and the same thing was documented byGanasegeran *et al.,*(2014). In their research, railway workers were questioned in Malaysia to obtain the information of OA mainly affecting knee joint.

The awareness about the treatment of OA showed the decreased trend with age. Women who belonged to 30-40 years age group had more awareness about treatment than older women;Saeed *et al.,*(2019) provided the same data that showed women ≥50 years had poor awareness about the factors affecting its treatment. Awareness about the causes of OA had the similar trend due to the social awareness of 30-40 age group through electronic means mostly. Awareness about the factors affecting the OA condition among different groups showed arbitrary trend. Women belonged to 40-50 age group had less awareness than older women due to the inclusion criteria or sociodemographic characteristics of these young women (Uncu*et al.,* (2005).

Prevalence of OA has been determined in the USA and European populations in different studies but there is dearth of data of OA obtained from southeast Asian populations mainly Pakistan. OA burden is expected to increase in Southeast Asia in the coming years, and Nguyen (2014)suggested thatthe increase of its burden will be due to the change in risk factors of OA. The research done by Rannou & Poiraudeau, (2010) and Smink *et al.,* (2011) emphasized on the importance of providing awareness to patients and counselling them to mitigate the severeness of symptoms mainly by non-pharmacological therapies.

Awareness of OA is necessary among the general population mainly in housewives, asKhormi *et al.,*(2021) revealed that inadequate information was being provided to the patients in the clinical settings about its medication, pain reduction, management and exercise (Petrella, 2000) that is why people misunderstood that exercise increases the OA condition (Hurley *et al.,* 2018; Jackson *et al.,* (2004) and current survey determined the same result as well. But research has shown that proper exercise, mainly physiotherapy is quite helpful in the management of OA(Jan & Lai, 1991; Page*et al.,* (2011). Awareness of OA and its symptoms are pertinent for the effective self-management.

**CONCLUSION**

Overall, the current study showed that most of the participants who were residents of Pakistan had poor to moderate awareness about the OA. There was no association between the awareness of OA in the housewives of different age groups. OA is a growing health condition in Southeast Asia particularly in the developing countries like Pakistan, so, from the above results it is inferred that awareness of OA is important and it should be provided through public health education.

**ACKNOWLEDGMENT**

perform this research work. We would also like to thankparticipants of this study for giving their consent and valuable time by participating in this.

**Financial support and sponsorship**

No financial support and sponsorship.

**Conflict of interest**

The authors have no conflict of interest.

**REFERENCES**

Akinpelu, A. O., Alonge, T. O., Adekanla, B. A., & Odole, A. C. (2009). Prevalence and pattern of symptomatic knee osteoarthritis in Nigeria: A community-based study. *Internet Journal of Allied Health Sciences and Practice, 7*(3), 10.

Alanazi, F., Alhokel, K. H., Alsaadoon, S. A., Almutairi, A. J., Alshammary, F. H., Alqabbani, A. A., Sami, W. (2021). Awareness of osteoarthritis among general population in Sudair, Saudi Arabia. *Advances in Human Biology, 11*(3), 245.

Alyami, A. H., Alswat, M. M., Omer, I. A., Ahmed, M. E., Alshammari, S. H., Alsaggaf, K. W., Aljafari, D. A. (2020). General population knowledge about osteoarthritis and its related risk factors in Jeddah Saudi Arabia. *Saudi Medical Journal, 41*(5), 516.

Chand, N., Sharma, P., & Yadav, P. (2021). Assess the knowledge regarding Osteoarthritis among the Osteoarthritis client in middle adulthood in Orthopedic OPD in Rohilkhand Medical College and Hospital, Bareilly UP, with self-developed Instructional module. *Asian Journal of Nursing Education and Research, 11*(3), 326-328.

Collins, N. J., Hart, H. F., & Mills, K. A. (2019). Osteoarthritis year in review 2018: rehabilitation and outcomes. *Osteoarthritis and cartilage, 27*(3), 378-391.

Corti, M. C., & Rigon, C. (2003). Epidemiology of osteoarthritis: prevalence, risk factors and functional impact. *Aging clinical and experimental research, 15*(5), 359-363.

DAVIS, M. A., ETTINGER, W. H., NEUHAUS, J. M., & HAUCK, W. W. (1988). Sex differences in osteoarthritis of the knee: the role of obesity. *American journal of epidemiology, 127*(5), 1019-1030.

Felson, D. T., & Hodgson, R. (2014). Identifying and treating preclinical and early osteoarthritis. *Rheumatic Disease Clinics, 40*(4), 699-710.

Ganasegeran, K., Menke, J. M., Challakere Ramaswamy, V. M., Abdul Manaf, R., Alabsi, A. M., & Al-Dubai, S. A. R. (2014). Level and determinants ofknowledge of symptomatic knee osteoarthritis among railway workers inMalaysia. BioMed research international, 2014.

Hunter, D. J., McDougall, J. J., & Keefe, F. J. (2008). The symptoms of osteoarthritis and the genesis of pain. Rheumatic Disease Clinics of North America, 34(3), 623-643.

Hurley, M., Dickson, K., Hallett, R., Grant, R., Hauari, H., Walsh, N., Oliver, S. (2018). Exercise interventions and patient beliefs for people with hip, knee or hip and knee osteoarthritis: a mixed methods review. Cochrane database of systematic reviews(4).

Jackson, B., Wluka, A., Teichtahl, A., Morris, M. E., & Cicuttini, F. M. (2004). Reviewing knee osteoarthritis—a biomechanical perspective. Journal of Science and Medicine in Sport, 7(3), 347-357.

Jamtvedt, G., Dahm, K. T., Holm, I., & Flottorp, S. (2008). Measuring physiotherapy performance in patients with osteoarthritis of the knee: a prospective study. BMC Health Services Research, 8(1), 1-7.

Jan, M., & Lai, J. (1991). The effects of physiotherapy on osteoarthritic knees of females. Journal of the Formosan Medical Association, 90(10), 1008-1013.

Juhakoski, R., Tenhonen, S., Anttonen, T., Kauppinen, T., & Arokoski, J. P. (2008). Factors affecting self-reported pain and physical function in patients with hip osteoarthritis. Archives of physical medicine and rehabilitation, 89(6), 1066-1073.

Khormi, A. A. M., Saud, A., Alharbi, A. A. B., Taher, F., Hijazi, F. M. A., & Alenezi, A. K. (2021). A cognitive behavioral perspective about awareness and quality of management of knee osteoarthritis: A cross-sectional survey. science, 25(115), 2344-2356.

Lespasio, M. J., Piuzzi, N. S., Husni, M. E., Muschler, G. F., Guarino, A., & Mont, M. A. (2017). Knee osteoarthritis: a primer. The Permanente Journal, 21.

Loughlin, J. (2001). Genetic epidemiology of primary osteoarthritis. Current opinion in rheumatology, 13(2), 111-116.

Mathers, C. D., Stein, C., Ma Fat, D., Rao, C., Inoue, M., Tomijima, N., Murray, C. J. (2002). Global Burden of Disease 2000: Version 2 methods and results. Geneva: World Health Organization.

Michael, J. W.-P., Schlüter-Brust, K. U., & Eysel, P. (2010). The epidemiology, etiology, diagnosis, and treatment of osteoarthritis of the knee. Deutsches Arzteblatt International, 107(9), 152.

Mukharrib, M. S., Al-Sharif, M. N., Alshehri, T. K., & Shaker, A. (2018). Knowledge of knee osteoarthritis among general population in Aseer region. Journal of Family Medicine and Primary Care, 7(6), 1385.

Muthuri, S. G., Hui, M., Doherty, M., & Zhang, W. (2011). What if we prevent obesity? Risk reduction in knee osteoarthritis estimated through a meta-analysis of observational studies. Arthritis care & research, 63(7), 982-990.

Nelson, A. E. (2018). Osteoarthritis year in review 2017: clinical. Osteoarthritis and cartilage, 26(3), 319-325.

Neogi, T., & Zhang, Y. (2013). Epidemiology of osteoarthritis. Rheumatic Disease Clinics, 39(1), 1-19.

Nguyen, T. V. (2014). Osteoarthritis in southeast Asia. International Journal of Clinical Rheumatology.

Ontario, H. Q. (2018). Structured education and neuromuscular exercise program for hip and/or knee osteoarthritis: a health technology assessment. Ontario health technology assessment series, 18(8), 1.

Page, C. J., Hinman, R. S., & Bennell, K. L. (2011). Physiotherapy management of knee osteoarthritis. International Journal of Rheumatic Diseases, 14(2), 145-151.

Pal, C. P., Singh, P., Chaturvedi, S., Pruthi, K. K., & Vij, A. (2016). Epidemiology of knee osteoarthritis in India and related factors. Indian journal of orthopaedics, 50(5), 518-522.

Petrella, R. J. (2000). Is exercise effective treatment for osteoarthritis of the knee? British journal of sports medicine, 34(5), 326-331.

Rannou, F., & Poiraudeau, S. (2010). Non-pharmacological approaches for the treatment of osteoarthritis. Best practice & research Clinical rheumatology, 24(1), 93-106.

Saeed, F., Humayun, A., Fatima, S. M., Junaid, V., Imtiaz, H., Zehra, M.,Shah, Z. Z. (2019). The Pressing Need to Raise Awareness about Osteoarthritis Care among Elderly Females in Pakistan: A Cross-sectional Study. Cureus, 11(8).

Silman, A. J., & Hochberg, M. C. (2001). Epidemiology of the rheumatic diseases: Oxford University Press.

Smink, A. J., van den Ende, C. H., Vliet Vlieland, T. P., Swierstra, B. A., Kortland, J. H., Bijlsma, J. W., Dekker, J. (2011). "Beating osteoARThritis": development of a stepped care strategy to optimize utilization and timing of non-surgical treatment modalities for patients with hip or knee osteoarthritis. Clinical rheumatology, 30(12), 1623-1629.

Tran, G., Smith, T. O., Grice, A., Kingsbury, S. R., McCrory, P., & Conaghan, P. G. (2016). Does sports participation (including level of performance and previous injury) increase risk of osteoarthritis? A systematic review and meta-analysis. British journal of sports medicine, 50(23), 1459-1466.

Uncu, Y., Sadikoglu, G., Afsar, L., & Bilgel, N. (2005). Socio-Demographic Characteristics of Osteoarthritis Patients in Turkey and Physicians' Therapeutic Approaches. JOURNAL OF APPLIED RESEARCH IN CLINICAL AND EXPERIMENTAL THERAPEUTICS, 5(3), 481.

Vina, E. R., & Kwoh, C. K. (2018). Epidemiology of osteoarthritis: literature update. Current opinion in rheumatology, 30(2), 160.

Zhang, Y., & Jordan, J. M. (2010). Epidemiology of osteoarthritis. Clinics in geriatric medicine, 26(3), 355-369.