



Correlation Between Knee Osteoarthritis Pain and The Ability to Perform Salat

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ABSTRACT

Introduction: Osteoarthritis (OA) has affected approximately 303 million individuals worldwide, making it the second most rapidly increasing disease behind Rheumatoid Arthritis. OA is the leading cause of lower extremity disability amongst older adults with an estimated lifetime risk for knee OA being approximately 40% in men and 47% in women. Osteoarthritis affects the entire joint which has symptoms that could intense pain and discomfort, making it difficult to carry out typical routine activities. This, of course, will conflict with Muslims who are obligated to perform daily prayers or salat which is an obligatory component of the daily routine of Muslims that is performed in the same way at least five times a day.

Objective: This study aimed to analyze the correlation between knee osteoarthritis pain and the ability to perform salat.

Methods: The method used in this study is an analytic observational method with a random sampling technique which was involved by 57 respondents in total. The data obtained was collected from April to May and showed frequency and percentage. Determination of the correlation between Knee Osteoarthritis and The Ability to perform Salat is done by statistical analysis with chi-square test using the SPSS application.

Results: The asymptotic value obtained was 0.238. The obtained asymptotic value is >0.05.

Conclusions: It can be concluded that there is no significant correlation between knee osteoarthritis pain and the ability to perform salat movements.

Introduction

Osteoarthritis (OA) is a chronic joint disease that causes pain, discomfort, and loss of function globally (Hunter, D. J., & Bierma-Zeinstra 2019) Global Health

Metrics estimates that 303 million individuals worldwide suffered from osteoarthritis in 2017 (James, et al 2018). The number of cases climbed by 31.4% in ten years, making it the second most rapidly

increasing disease behind Rheumatoid Arthritis (Kloppenburg, M., & Berenbaum 2020). OA is the leading cause of lower extremity disability amongst older adults with an estimated lifetime risk for knee OA being approximately 40% in men and 47% in women. The risks are higher still among individuals who are classified as obese. (Victoria et al. 2014). Obesity is still the most important risk factor for both the beginning and progression of osteoarthritis (OA). Overloading the joints due to increased weight was thought to be the primary cause of OA, leading to the loss of articular cartilage (Nedunchezhiyan et al. 2022). However, in cases of obesity, it can be overcome by intermittent fasting and physical exercise. According to research conducted by Aisyah and Salim (2022), it was concluded that intermittent fasting and exercise are both effective in losing weight.

Osteoarthritis affects the entire joint, including the cartilage covering it, the subchondral bone beneath it, the synovial membrane that lines it, the joint capsule that encloses it, the ligaments that support it, and the muscles that surround it. All joints can be affected, particularly the spine, hands, and large weight-bearing joints, mainly the knees (Mougui, et al 2023). This is because collagen and tension-reducing proteoglycans in joint cartilage change with age, and the flow of nutrients to cartilage

decreases (Lozada, 2013). Ultrasound can be used to evaluate and assess osteoarthritis during a cartilage examination. Soft tissue, bone contouring in joints, cartilage, meniscus, and other pathological disorders such as osteophytes, synovial hypertrophy, and effusion, among others, may be assessed with this process. (Pane et al. 2022)

Osteoarthritis causes pain and dysfunction in patients, affecting daily activities (Aisyah et al. 2022). A study of the quality of life of osteoarthritis patients using the SF-36 indicated that patients had limited functional skills ranging from mild to severe, resulting in a decrease of 25% in their quality of life (Kawano, et al 2015). This, of course, will conflict with Muslims who are obligated to perform daily prayers or salat. According to a previous study conducted by Aisyah (2020) on sit-to-stand test osteoarthritis patients to evaluate functional motor performance, the STST score was greater than normal, indicating that osteoarthritis patients had more mobility limitations.

Salat is an obligatory component of the daily routine of Muslims that is performed in the same way at least five times a day; each consists of a repeated unit called Rak'ah, which contains a series of seven to nine different gestures and postures. Standing, arm raising and lowering,

bowing, sitting on shins, prostration, and head rotation are some examples (Aldossary, 2023).

The majority of the body's muscles and joints are normally involved in salat performance. Prayer can be considered as a form of stretching exercise. The physical activities conducted during salat are easy and mild exercises that are compatible with people of all ages and conditions. Salat combines mild muscle contraction and relaxation, resulting in muscle flexibility without over-exertion (Chamsi-Pasha M 2021). According to Rabbi (2018) previous research, seven adult subjects investigated the electrical activity of two muscles located on the dorsal surface (the erector spine and trapezius muscles) during salat and discovered that both muscles maintain a balance in terms of contraction and relaxation during bowing and prostration positions. We found in 2008, Yilmaz researched the role of this repetitive motion on knee and hip osteoarthritis and osteoporosis, concluded that prayer has no harmful effect on knee and hip osteoarthritis. There has been no recent research on the correlation between knee osteoarthritis and the capacity to conduct prayer movements in populations outside the hospital in the previous ten years.

Methods

This study was conducted from April to May 2021, among the community around Ahmad Yani Islamic Hospital in Surabaya, while some people were unable to visit the hospital due to the covid pandemic. Data collection was carried out through a sampling technique using a questionnaire containing several questions about patients' complaints related to knee osteoarthritis such as patients pain level using VAS score, duration of illness, other body parts complaints, activity that triggers knee pain and to reduce the pain, and pain interfere for performing salat (prayer). Especially for the knee pain, we asked the pain if the severity of pain is between the numbers 1 to 10. Where 1-4 is mild pain, 5-7 is moderate pain, and 8-10 is severe pain, on what scale did the patient feel knee pain most often.

The collected data was then presented in tables and analyzed using the Chi-Square test with the SPSS 25 application. The inclusion criteria were respondents which diagnosed with OA from the results of the questionnaire they filled out. The exclusion criteria respondents were patients who didn't perform prayer.

Results

Fifty-seven respondents were assessed for eligibility, and 36 people (63.16%) met the inclusion criteria of knee osteoarthritis.

Their mean age was $49,30 \pm 9,48$. The highest frequency of patients experiencing knee OA was in patients aged 35-50 years (58.33%). The frequency distribution according to the age of respondents who had knee osteoarthritis is shown in table 1.

Table 1. Frequency distribution of knee OA based on ages

Patient's Age	Frequency (n=36)	Percentage (%)
<35	1	2.78
>65	1	2.78
35-50	21	58.33
50-65	13	36,11

Based on data from table 2, all of the respondents who met the inclusion criteria were women.

Table 2. Frequency distribution of knee OA based on genders

Patient's Gender	Frequency (n=36)	Percentage (%)
Women	36	100
Men	0	0

From table 3, The most common patient complaints of knee pain are on a scale of 1-4 or mild pain (58.33%), while the others are on moderate pain (30.56%), and severe pain (11.11%). Most patients complaint of OA 3 months until 1 year of OA (58.3%), while the less than 3 months were 19.4%, and more than 1 year were 22.2%.

Table 3. Frequency distribution of knee OA based on patient complaints

		Frequency (n=36)	Percentage (%)
Pain scale	1-4 (mild)	21	58.33
	5-7 (moderate)	11	30.56
	8-10 (severe)	4	11.11
Duration of sick	<3 month	7	19.4
	3 month – 1 year	21	58.3
	>1 year	8	22.2
Other Body Parts Complaints	Neck Pain	2	5.56
	Low Back Pain	17	47.22
	Hand/ Arm Pain	8	22.22
	None	9	25.00
	Actions that trigger knee pain	Stand up from a sitting position	20
	Squat	4	11.11
	Climbing up the stairs	12	33.33
Activity to reduce the pain	Take a rest	17	47.22
	Heat patch/ Massage	2	5.56
	Take Medicine	14	38,89
	Exercise	1	2,78

No action		2	5,56
Pain interferes with Salat	Yes	8	22.22
	Sometimes	4	11.11
No		24	66.66

The most common complaints of pain other than knee are back pain (47.22%), the cause of knee pain when getting up from a sitting position (55.56%), and the most action that patients did to reduce the pain by taking rest (47.22%). Most patients could do salat normally (66.66%), while 22.22% could not do salat normally and 11.11% occasionally feel difficulty during salat.

The data was then processed using the IBM SPSS 25 application, with Chi-Square test. Based on the results that have been obtained, it can be concluded that there is no significant correlation between knee osteoarthritis pain and the ability to perform salat movements ($p = 0,238$).

Discussion

Based on the study, it was found that the highest number of knee OA patients were in the age group of 35-50 years (58.33%). These results are different from the previous research conducted by Comelia (2019), concerning the Correlation Between Age and Degree of Joint Damage in Knee Osteoarthritis Patients, in this study the

results showed that the age group 60-75 has the highest incidence of knee OA, which is 74% more exactly at the age of 65 years. Meanwhile, from a study conducted by Deshpande (2016), the results showed that adults <45 years of age accounted for about 2 million cases, while those aged between 45-65 accounted for 6 million more cases.

According to table 2, the majority of patients (47.22%) experienced lower back discomfort in addition to knee pain. This conforms with Gusti's (2020) study, that the participants who had knee osteoarthritis and complained of myogenic low back pain were as high as 13 individuals, or 25%, whereas the number of study participants who did not have myogenic low back pain was as low as 12 people, or 23.1%. Low back pain in people with knee osteoarthritis is a non-specific myogenic form of pain caused by indirect muscle activity. There was an issue that LBP is likely to be caused by knee spine syndrome, a disease that produces a decreased angle in the knee. The degenerative phase of knee osteoarthritis causes lumbar lordosis (Triwahyuni et al. 2020).

Salat is a Muslim prayer that all Muslims must do five times a day. The majority of the muscles and joints are engaged during the numerous Salat postures and motions, which is akin to performing a low-intensity workout. Different Salat postures, however,

engage the biceps brachii, triceps brachii, pectoralis major, scapular musculature, rectus femoris, biceps femoris, tibialis anterior, and gastrocnemius. Salat has also been demonstrated to improve balance in both healthy and stroke patients, lessen the risk of knee osteoarthritis, and have cardiovascular and compositional advantages (Osama M, 2019).

The p -value obtained was 0.238 ($p > 0.05$), based on the statistical findings of the chi-square test, which shows that there is no correlation between knee osteoarthritis and the ability to pray. Therefore, it can be assumed that there is no correlation between knee osteoarthritis pain and the ability to perform prayer due to the fact that the majority of respondents only experience mild pain, which can be prevented or reduced as the prayer movement is also a movement therapy/exercise for joints that can reduce joint pain. Furthermore, because the majority of patients had less than one-year duration of OA, they might not have any limits in knee joint movement that interfered with prayer. Due to the pandemic condition, we did not take direct measurements of the knee range of motion.

Study Limitation

This study has some limitations. First, this study did not have data on the frequency and kind of drugs used by

respondents, there was no control group because all of the respondents performed salat prayer. Second, the diagnosis of knee OA was only obtained by questionnaire data and did not take any further physical examination due to pandemic. Third, this study did not set up a follow-up period with participants after the assessment. Last, strongly recommend that future studies include larger samples.

Conclusion

Based on the study and statistical data testing that has been done, it can be concluded that there is no correlation between knee osteoarthritis pain and the ability to perform salat.

Ethical Consideration

This research was approved by the Research and Community Service Center of Universitas Nahdlatul Ulama Surabaya from community service activities carried out by the researcher in 2021.

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