TRANSPUBLIKA INTERNATIONAL RESEARCH IN EXACT SCIENCES (TIRES)

DESCRIPTION OF OSTEOARTHRITIS CASES IN THE ELDERLY AT PERTAMEDIKA UMMI ROSNATI HOSPITAL, BANDA ACEH CITY

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Abstract

Osteoarthritis (OA) is a condition in which the joints experience a decrease in space and the cartilage is damaged, particularly affecting older individuals with a high Body Mass Index (BMI). The combination of a higher BMI and aging can exacerbate joint issues, leading to an increased likelihood of cartilage deterioration. The purpose of this study is to examine the prevalence of knee osteoarthritis at the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital in Banda Aceh. The research conducted is quantitative in nature, utilizing an observational approach and selecting 80 patients through purposive sampling. The findings revealed that a majority of cases occurred among individuals aged 55 to 65 years. To prevent obesity and protect the joints from harm, individuals are advised to maintain a nutritious diet, engage in regular exercise, and exercise caution during daily activities.

Keywords: *Osteoarthritis, Obesity, Elderly*

1. INTRODUCTION

Osteoarthritis (OA) is a degenerative disease characterised by narrowing of the joint space accompanied by damage to the joint cartilage (Soeroso *et al.*, 2006). The relatively high prevalence, chronic and progressive nature of osteoarthritis has a significant socio-economic impact, especially in the elderly it can negatively affect physical function making it a major cause of disability in the elderly. The spine, hips, knees and wrists are commonly affected by osteoarthritis. Generally, the elderly who are obese can increase the risk factors for osteoarthritis. In addition, gender is also an influence on the occurrence of osteoarthritis to increase which is around 60% of women are more often affected by osteoarthritis than men, especially women who have experienced menopause due to changes in hormonal roles in women more than men (Felson DT, 2022).

The results of WHO (World Health Organization) data, stated that in 2019 people suffering from osteoarthritis were around 528 million people worldwide with an increase of 113% since 1990. Approximately 528 million people suffer from osteoarthritis with a prevalence of 365 million people who have osteoarthritis of the most commonly affected knee, followed by the hip and hand.3,4 The prevalence of osteoarthritis is quite high in the South Asia region around 83.73%, around 56.99% in the East Asia Pacific region, and in the African region around 36.8% (Yahaya *et al.*, 2021).

In Indonesia, people with knee osteoarthritis have a high prevalence of 15.5% in men and 12.7% in women. The results of the Basic Health Research (Riskesdas) Indonesia in 2018, Aceh had the highest prevalence of osteoarthritis incidence at 13.3%.7 The high prevalence, especially in Indonesia and its chronic-progressive nature,

osteoarthritis has a large socio-economic impact because it is caused by pain felt by patients that greatly interferes with mobility and daily activities. This is especially true in developed and developing countries around the world. It is also estimated that around 1 to 2 million elderly patients in Indonesia suffer from disability due to osteoarthritis.

According to Arifah's research (2022), there were a total of 70 cases of obese patients suffering from osteoarthritis at Pertamedika Ummi Rosnati Hospital, Banda Aceh City with most of them having knee osteoarthritis, namely 35 patients (71.4%) (Paerunan, Gessal and Sengkey, 2019). The prevalence of obesity is also higher in urban communities than in rural communities.8 Obesity not only affects weight-bearing joints such as those in the knee, but affects osteoarthritis of other joints such as the hand or sternoclavicle (Soeroso *et al.*, 2006).

2. RESEARCH METHODS

The type of research in this study is quantitative with analytical observational methods. In analytical observational method is a type of research method by observing and examining the relationship between variables without any intervention on the subject under study (Sugiyono, 2013).

The place of this research was the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital, Banda Aceh City, The time of this research was conducted in April-May 2024. The population needed in this study were all outpatients diagnosed with osteoarthritis at the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital, Banda Aceh City. The sample is part of the number and characteristics possessed by a population to be studied. The sample used in this study was to use accidental sampling technique, which is a sampling technique by chance (Sugiyono, 2013).

Data collection was carried out using primary data in the form of interviews with osteoarthritis patients at the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital, Banda Aceh City in the April-May 2024 period.

3. RESULTS AND DISCUSSION

Table 1. Age Distribution

Age Category	Osteoarthritis	%	No Ostoarthritis	%
Middle Age (45 – 54 Years Old)	8	15	7	27
Elderly (55 – 65 Years Old)	28	52	11	42
Young Old (66 – 74 Years Old)	13	24	6	23
Old (75 – 90 Years Old)	5	9	2	8
TOTAL	54	100	26	100

Table above shows outpatients of the internal medicine polyclinic at Pertamedika Ummi Rosnati Hospital, Banda Aceh City who experience osteoarthritis in the Elderly age category (55 - 65 years), namely 28 patients or 52%.

Table 2. Frequency distribution based on the incidence of osteoarthritis

Diagnosis	Frequency	Percentage (%)
Osteoarthritis	54	67.5%
No Osteoarthritis	26	32.5%
Total	80	100.0%

The table 2 shows that outpatients of the internal medicine polyclinic at Pertamedika Ummi Rosnati Hospital in Banda Aceh City who have knee osteoarthritis are more, namely 54 people (67.5%) and do not have osteoarthritis, namely 26 (32.5%).

In research that has been conducted using accidental sampling technique to determine the incidence of osteoarthritis, all 80 research samples were obtained with 54 patients (67.5%) suffering from osteoarthritis and 26 patients (32.5%) not suffering from osteoarthritis at the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital, Banda Aceh.

The results of this study are also in accordance with Reza's research in 2020 regarding the Relationship between Obesity and Pain Degrees in Elderly Patients with Osteoarthritis Symptoms at the Elderly Posyandu Puskermas Medan Maimun in 2018, obtained that the most patients were obese as many as 21 patients (56.8%) (Gustiranda & Septina, 2020) Excess BMI can cause metabolic imbalances in adipose tissue resulting in thinning and damage to joint cartilage due to bearing an increasing load (Felson DT, 2022). Osteoarthritis affected joints are characterised by loss of cartilage accompanied by osteophytes and thickening of the subchondral bone (Husnah *et al.*, 2019).

Increasing BMI can cause metabolic abnormalities characterised by the production of leptin and adiponectin by adipocytes in adipose tissue that are not balanced in articular cartilage joint tissue, thus encouraging the development of knee osteoarthritis due to increasingly heavy load on the knee joint (Yunus, Nordin and Kamal, 2020). When osteoarthritis develops, matrix metalloproteases (MMPs) or degradative enzymes are produced in excess and imbalance resulting in complete loss of collagen and proteoglycans (Kisand *et al.*, 2018).

Macroscopically, these changes result in cracking and rupturing of the cartilage and eventual erosion of the articular surfaces (Kisand *et al.*, 2018). The occurrence of thinning of knee joint cartilage in patients with osteoarthritis is exacerbated by the magnitude of the load on the joint due to obesity, which can result in loss of cartilage elasticity and can lead to other complications such as bone deformity (Husnah *et al.*, 2019).

Some factors that may influence the absence of an association between BMI and the occurrence of knee osteoarthritis are because some patients have received non-pharmacological or pharmacological therapies to reduce pain and stiffness that have interfered with daily life (Lafifa, Zulhamidah and Arsyad, 2023; Kusuma, Warlisti and Widiastuti, 2019). A patient's BMI may also increase, decrease, or remain the same

compared to when they were first diagnosed with knee osteoarthritis, which may not affect their severity at the time of the study.

4. CONCLUSION

The study found a significant prevalence of knee osteoarthritis among outpatients at the Internal Medicine Polyclinic of Pertamedika Ummi Rosnati Hospital in Banda Aceh, particularly within the elderly age group (55-65 years). Specifically, 67.5% of the 80 patients studied were diagnosed with osteoarthritis, with 52% of these cases occurring in the elderly. The findings align with previous research indicating a strong correlation between increased BMI and the development of osteoarthritis, particularly in the knee joint. Excessive BMI can lead to metabolic imbalances in adipose tissue, resulting in the degradation of joint cartilage due to the increased load on the joints. This condition is exacerbated by obesity, leading to a loss of cartilage elasticity and potential complications such as bone deformity.

To mitigate the risk and impact of osteoarthritis, it is recommended that patients and their families prioritize maintaining a healthy diet and regular exercise to manage BMI. Additionally, proper body mechanics, such as correct posture when sitting and standing, and caution in daily activities, including driving and walking, are crucial to prevent further joint damage. For those already diagnosed, both pharmacological and non-pharmacological therapies should be considered to alleviate pain and stiffness, improve mobility, and maintain quality of life. Regular monitoring and management of BMI are also essential to prevent the progression of osteoarthritis.

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