




Original Research

Profile of Patients' Osteoarthritis at Tertiary and Teaching in Aceh, Indonesia

Alex Kurniawan Gan^{1*}, Armia Indra Nur Alam¹, Safrizal Rahman¹, Bellinda Paterasari¹

¹Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Aceh, Indonesia

*Corresponding Author:

Alex Kurniawan Gan, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Aceh, Indonesia.
email: alexkgan@gmail.com

Article info:

Received: July 1st 2022;

Received in revised: July 29th 2022;

Accepted: July 29th 2022;

Published: February 17th 2023.

This is an open access article under the CC-BY license (<https://creativecommons.org/licenses/by/4.0/>)



Cite this as:

Gan AK, Rahman S, Indra Nur Alam A, Paterasari B. Profile of Patients' Osteoarthritis at Tertiary and Teaching in Aceh, Indonesia. SPMRJ. 2023;5(1):25-31.

ABSTRACT

Background: Osteoarthritis is a degenerative joint disease characterized by damage of cartilage in the joints and subchondral bones that cause pain in a joint.

Aim: To describe the patients' profile of osteoarthritis at the Dr Zainoel Abidin Hospital Banda Aceh.

Material and Methods: A retrospective observational descriptive study on osteoarthritis patients who were treated at the Orthopaedic Clinic of RSUDZA Banda Aceh for the period March 2020 to February 2022.

Results: Two years of observation yielded a total of 397 osteoarthritis patients. Most cases are in female patients (63.4%), with the majority of those in the age bracket >55 years (61.9%), with the majority of patients being from Banda Aceh City (37.2%). The most diagnoses are knee OA, which is 330 patients (82.9%) and hip OA, which is 39 patients (9.9%). Only 108 patients received surgery, operations for knee OA, total knee replacement were 78 patients (23.63%), while for hip OA patients who needed total hip replacement surgery there were 26 patients (66.66%) and partial hip replacement was 4 patients (10.25%).

Conclusion: Osteoarthritis often occurs in female patients and mostly in the patient age group >55 years. Indications for surgery in OA are based on symptoms, stage of OA, and patient-related factors such as age, level of physical activity, and patient comorbidities.

Keywords: *Demographics, Descriptive, Diagnosis, Osteoarthritis, Patients' profile.*

Introduction

Osteoarthritis (OA) is a degenerative joint disease characterized by damage to joint cartilage and subchondral bone and causes joint pain.¹ Diagnosis is based on a history of joint pain exacerbated by movement, which can lead to disability in activities of daily living.²

OA is common in the knees, hips, hands, feet and spine, although OA can affect any joint. It is estimated that OA occurs in one in eight men and women worldwide.³ In a systematic review conducted in 2011 it was found that the highest prevalence of OA was found in the hand joints but the knee joints were the most reported. The prevalence of knee OA is higher in women than men, and OA based on radiographic results is higher compared in symptomatic patients.⁴

Based on the *Riset Kesehatan Dasar* (RISKESDAS) data in 2018, it shows that the average prevalence of joint diseases including OA in Indonesia in 2018 is 7.3% and with the highest cases occurring in Aceh, namely 13.3% and the lowest in West Sumatra 3.2%. Meanwhile, for the comparison of the number of cases in men, namely 6.13% and 8.46 women diagnosed with OA.⁵ According to Yuri Rorita's research, 24 OA patients visited the public health centre in Banda Aceh.⁶ Another research, done by Zurrahmi Sofyan at the Teungku Peukan Hospital in Southwest Aceh, found 70 patients with OA.⁷

The Kellgren-Lawrence (KL) assessment of OA was the most frequently used radiographic assessment, with a grade of 0, normal; grade 1, doubtful; grade 2, minimal: small osteophytes or small/mild joint space narrowing; grade 3, moderate: moderate osteophytes or joint space narrowing <50% and grade 4, severe: severely damaged joint space, cysts and sclerosis of the subchondral bone.⁴ Patients with Kellgren and Lawrence Grades 1 to 3, which are the "early" phases of OA, will

frequently benefit from nonoperative therapy for knee OA. But to treat or improve the latter phases of knee OA, surgical procedures are typically required (Grade 4).⁸

Pain relief, functional improvement, and a reduction in impairments should all be goals of treatment for knee OA.⁸ The patient's symptoms and the possibility of a quality-of-life improvement largely dictate how knee OA is treated. OA treatment consists of non-pharmacological, pharmacological, alternative, and surgical. Non-pharmacological therapies such as exercise can reduce short-term pain and improve physical function.¹

The primary pharmacologic treatment for mild OA is acetaminophen. When acetaminophen fails to control symptoms, or if symptoms are moderate to severe, non-steroidal anti-inflammatory drug (NSAID) therapy is the first choice.¹ Intra-articular corticosteroid or hyaluronic acid injections are an option for treating OA. The use of intra-articular corticosteroids can reduce inflammation and pain in the joints in the short-term lasting four to eight weeks. The use of this therapy is effective in knee OA but is not effective for shoulder or hand OA.²

Indications for surgery in patients with OA are pain and disability that continue despite conservative treatment. The most effective surgical intervention is total hip, knee, and shoulder joint replacement. Most of today's joint prostheses will function properly for 15 to 20 years.¹ The researcher is interested in examining this since there are no other studies that examine the number of cases in OA at Dr Zainoel Abidin General Hospital Banda Aceh.

Material and Methods

Research Design

This research is a retrospective descriptive observational study where the type of data in this study are secondary data obtained from the medical records of OA patients in the Surgery, Orthopaedic and

Traumatology Division of Dr Zainoel Abidin Regional General Hospital Banda Aceh. Data collection was carried out in March 2022 at the Orthopaedic Polyclinic, Dr Zainoel Abidin Regional General Hospital Banda Aceh.

Populations and Samples

The population of this study were all patients diagnosed with OA at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh. The sample of this study were all patients diagnosed with OA at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh who met the inclusion and exclusion criteria.

Inclusion Criteria:

Patients diagnosed with OA by an Orthopaedic and Traumatology specialist at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh for the period March 2020 to February 2022. This research comprised participants who had just been diagnosed with OA. Gender, age, patient origin, type of OA, and treatment received were all observed.

Exclusion Criteria:

Incomplete patient medical record

data, such as history taking, supporting examinations and laboratory tests that help in diagnosing OA.

Sampling Techniques and Statistical Analysis

The sampling technique used in this study was non-probability sampling using total sampling. The instrument in this study is the patient's medical record from which the data will be collected in the form of the patient's name (initials), medical record number, gender, place and date of birth, age, occupation, chief complaint, clinical appearance, and therapy. After the data were collected, a univariate analysis was performed to assess the distribution descriptively using the SPSS 25.0 application.

Results

This study was conducted with a total sample of 397 patients obtained from the medical records of OA patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh for the period March 2020 to February 2022 that met the inclusion criteria and exclusion criteria.

A. Sample Characteristics

The characteristics of the sample in the study grouped by gender, age, and area of origin are presented in Table 1.

Table 1. Distribution of characteristics of OA patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 – February 2022

Patient Characteristics	Frequency (n=397)	Percentage (%)
Gender		
Male	145	36.5
Female	252	63.4
Ages (by groups)		
3-16	9	2.2
27-30	28	7.0
31-44	34	8.5
45-54	80	20.1
>55	246	61.9
Areas of Origin		
Banda Aceh	148	37.28
Aceh Besar	79	19.90
Pidie	39	9.82
Lhokseumawe	21	5.29

Pidie Jaya	12	3.02
Bireuen	11	2.77
Aceh Timur	11	2.77
Aceh Barat	11	2.77
Aceh Tengah	8	2.02
Aceh Barat Daya	7	1.76
Simeulue	6	1.51
Aceh Tenggara	6	1.51
Aceh Selatan	6	1.51
Nagan Raya	6	1.51
Gayo Lues	5	1.26
Aceh Jaya	5	1.26
Aceh Utara	4	1.01
Sabang	3	0.76
Subulussalam	3	0.76
Bener Meriah	1	0.25
Aceh Singkil	1	0.25
Total	397	100.0

In Table 1, the distribution of characteristics of OA patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh for the period March 2020-February 2022 by gender shows that there are 145 male patients (36.5%) and 252 female patients (63.4%). Based on age group, it shows that OA patients are dominated by the age group >55 years, as many as 246 people (61.9%) and the age group 45-54 years, as many as 80 patients (20.1%). The regional origin of OA patients found in the Orthopaedic Polyclinic of Dr Zainoel

Abidin Regional General Hospital Banda Aceh Period March 2020 to February 2022, which is dominated by Banda Aceh City as many as 148 patients (37.28%), Aceh Besar District as many as 79 patients (19, 9%) and from Pidie District as many as 39 patients (9.82%).

B. Location of OA Patient

The location of OA in the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 – February 2022 is presented in Table 2.

Table 2. The location of OA in the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 – February 2022

Diagnosis	Frequency (n=397)	Percentage (%)
Knee OA	329	82.8
Right	127	31.99
Left	126	31.74
Bilateral	77	19.40
Hip OA	39	9.8
Right	17	4.28
Left	15	3.78
Bilateral	7	1.76
Ankle OA	16	4.0
Right	9	2.27
Left	6	1.51
Bilateral	1	0.25
Shoulder OA	9	2.2
Right	3	0.76

Left	6	1,51
Humerus OA	2	0,5
Left	1	0,25
Elbow OA	2	0,5
Right	1	0,25
Left	1	0,25

Table 2 shows that the diagnosis of OA reported by patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 to February 2022 was knee OA with 329 patients (82.8%). OA hip was also frequently reported in 39 patients (9.8%). Followed by ankle OA, shoulder OA, humerus OA and elbow OA.

The most reported knee OA locations were in the right knee in as many as 127 patients (31.99%), the left knee in as many as 126 patients (31.74%) and the bilateral knee in as many as 77 patients (19.4%). The most locations of hip OA were in the right hip as many as 17 patients (4.28%) and in the left hip as many as 15 patients (3.78%).

C. Distribution of Types of Treatment in OA Patients

Distribution of types of treatment in OA patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 – February 2022 is presented in Table 3

Table 3. Distribution of Types of Treatment in OA Patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh Period March 2020 – February 2022

Types of Treatment	Frequency (n=397)	Percentage (%)
Pharmacological	289	72.8
Surgery	108	27.2
Knee OA		
Total Knee Replacement	78	23.63
Hip OA		
Total Hip Replacement	26	66.66
Partial Hip Replacement	4	10.25

Table 3 shows that 289 OA patients received pharmacological treatment and only 108 needed surgery, with knee OA patients requiring total knee replacement surgery as many as 78 (23.63%), hip OA patients requiring total hip replacement

surgery as many as 26 (66.66%), and partial hip replacement as many as four patients (10.25%).

Discussion

OA is a degenerative disease characterized by loss of articular cartilage in synovial joints, associated with bone hypertrophy (osteophytes and subchondral bone sclerosis) and capsule thickening.^{1,10}

Based on Table 1, according to the gender of OA patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh in 2020-2022, there were 145 male patients (36.5%) and female patients as many as 252 (63.4%). This shows that female patients suffer from OA more than male patients. This result is in line with research conducted by Swain et al. in the United Kingdom from 1997 to 2017 which stated that the incidence of OA was higher in women (8.1 per 1000 people) compared to men (5.5 per 1000 people).¹¹ Moreover, Ferre et al. stated that the prevalence of OA was greater in women (23.5%) than in men (18.1%).¹² With a prevalence of 33.6% in the US, knee OA affects the majority of persons 65 years of age and beyond (12.4 million). Prevalence is higher in women (42.1%) than in men (31.2%). Women with radiographic knee OA are more likely than males to experience symptoms, and African Americans often report greater symptoms of the hip and knee than white people.⁸

Based on age group, it shows that OA patients are dominated by the age group >55 years, as many as 246 people (61.9%) and the age group 45-54 years, as many as 80 patients (20.1%). This is in line with the study of Andrianakos et al. that OA patients are rare under the age of 45 years and the prevalence increases significantly with age.¹³

The area of origin of OA patients in this study is often found in the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional

General Hospital Banda Aceh Period March 2020 to February 2022, which was dominated by Banda Aceh City as many as 148 patients (37.28%), Aceh Besar District as many as 79 patients (19.9%) and from Pidie District as many as 39 patients (9.82%). Dr Zainoel Abidin Regional General Hospital Banda Aceh is the main referral hospital in Aceh Province. This hospital is located in Banda Aceh the capital city of Aceh Province; therefore, in this study, the number of patients seeking treatment at the Orthopaedic polyclinic was dominated by patients from the city of Banda Aceh. Apart from patients from Banda Aceh City, many patients from other regencies such as Aceh Besar and Pidie also seek treatment at the Orthopaedic Polyclinic. This is because the distance between the two districts is quite close to Banda Aceh City. The referral system in Aceh Province divides several districts/cities into several regions so that the number of patients from other districts is not too many in the Orthopaedic Polyclinic.¹⁴

Table 2 shows that the diagnosis of OA is often reported by patients at the Orthopaedic Polyclinic of Dr Zainoel Abidin Regional General Hospital Banda Aceh. For the period March 2020 to February 2022 it was knee OA with 329 patients (82.8%). hip OA was also frequently reported in 39 patients (9.8%), followed by ankle OA, shoulder OA, humerus OA, and elbow OA. This is in line with other studies conducted by Prieto-Alhambra et al. in 2014 which stated that the incidence of OA was higher in knee OA (6.5 per 1000 people) compared to hip OA (2.1 per 1000 people) and hand OA (2.4 per 1000 people).¹⁵ In addition, O'Neill et al. said the increase in knee OA compared to other OA increased physical activity and the knee became the foundation of the body when doing physical activity.³

The most reported knee OA locations were in the right knee in as many as 127 patients (31.99%), the left knee in as many as 126 patients (31.74%) and the bilateral knee in as many as 77 patients (19.4%). The most locations of hip OA were on the right hip as many as 17 patients (4.28%) and on the left hip as many as 15 patients

(3.78%). In line with the research of Michael et al., it showed that knee OA in men aged 60-64 years was found to be more common in the right knee (23%) than the left knee (16.3%), while the distribution appeared to be more evenly distributed in women (right knee, 24.2%; left knee, 24.7%).

Based on Table 3, it shows that only 108 patients received treatment, whereas in knee OA patients who needed total knee replacement surgery there were as many as 78 patients (23.63%), while in hip OA patients requiring total hip replacement surgery as many as 26 patients. (66.66%) and partial replacement four patients (10.25%). Indications for surgery in OA are based on symptoms (e.g., knee pain and function), stage of OA, and patient-related factors such as age, level of physical activity, and the patient's comorbidities. Surgery was performed in late-stage OA, with failure of conservative treatment. Long-term results of total knee replacement have been documented with a survival rate of up to 98% in the first 15 years. Outcomes in younger patients are mostly reported to be lower with a survival ratio of 76% in the first 10 years. The purpose of the hip replacement action is to relieve pain, the ability to return to work and improve the patient's quality of life, such as doing walking activities.

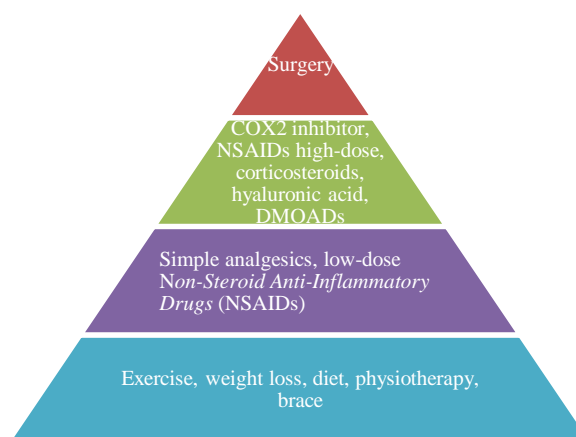


Image 1. Management regime of OA

Description: Each person receives OA treatment that is specific to them. Typically, doctors advise patients to adjust their lifestyles if they exhibit early and moderate symptoms. The patient is often treated with harsher treatment as the condition progresses to control the pain, and they are more closely watched. Joint replacement surgery is the last resort for treating OA.

Conclusion

OA often occurs in female patients and mostly in the patient age group >55 years. Knee OA was the most common, followed by hip OA, ankle OA, shoulder OA, humerus OA, and elbow OA. Indications for surgery in OA are based on symptoms, stage of OA, and patient-related factors such as age, level of physical activity, and patient comorbidities.

Acknowledgment

The authors would like to thank the Department of Surgery, Division of Orthopaedic and Traumatology, Faculty of Medicine, Syiah Kuala University/Dr Zainoel Abidin Regional General Hospital, Banda Aceh, which has assisted and collaborated in completing this research.

References

1. Sinusas K. Osteoarthritis: Diagnosis and treatment. *Am Fam Physician*. 2012;85(1):49–56.
2. O'Neill TW, McCabe PS, McBeth J. Update on the epidemiology, risk factors and disease outcomes of osteoarthritis. *Best Pract Res Clin Rheumatol*. 2018;32(2):312–26.
3. Pereira D, Peleteiro B, Araújo J, Branco J, Santos RA, Ramos E. The effect of osteoarthritis definition on prevalence and incidence estimates: A systematic review. *Osteoarthr Cartil*. 2011;19(11):1270–85.
4. Sasaki E, Ota S, Chiba D, Kimura Y, Sasaki S, Yamamoto Y, et al. Early knee osteoarthritis prevalence is highest among middle-aged adult females with obesity based on new set of diagnostic criteria from a large sample cohort study in the Japanese general population. *Knee Surgery, Sport Traumatol Arthrosc*. 2020;28(3):984–94.
5. Kementrian Kesehatan Republik Indonesia. Laporan Nasional Riskesdas 2018. Badan Penelitian dan Pengembangan Kesehatan. 2018. p. 198.
6. Christensen R, Bartels EM, Astrup A, Bliddal H. knee osteoarthritis: a systematic review and meta-analysis. 2007;433–9.
7. Stitik TP. Corticosteroid Injections for Osteoarthritis. 2006;(November):51–65.
8. Swain S, Sarmanova A, Mallen C, Kuo CF, Coupland C, Doherty M, et al. Trends in incidence and prevalence of osteoarthritis in the United Kingdom: findings from the Clinical Practice Research Datalink (CPRD). *Osteoarthr Cartil*. 2020;28(6):792–801.
9. Ferre IM, Roof MA, Anoushiravani AA, Wasterlain AS, Lajam CM. Understanding the observed sex discrepancy in the prevalence of osteoarthritis. *JBJS Rev*. 2019;7(9):1–10.
10. Andrianakos AA, Kontelis LK, Karamitsos DG, Aslanidis SI, Georgountzos AI, Kaziolas GO, et al. Prevalence of symptomatic knee, hand, and hip osteoarthritis in Greece. The ESORDIG study. *J Rheumatol*. 2006;33(12):2507–14.
11. Gubernur Aceh. Peraturan Gubernur Aceh Nomor 9 Tahun 2015 Tentang Pedoman Penetapan Dan Pelaksanaan Rumah Sakit Rujukan Regional di Aceh. Banda Aceh: Pemerintah Aceh; 2015. p. 6.
12. Prieto-Alhambra D, Judge A, Javaid MK, Cooper C, Diez-Perez A, Arden NK. Incidence and risk factors for clinically diagnosed knee, hip and hand osteoarthritis: Influences of age, gender and osteoarthritis affecting other joints. *Ann Rheum Dis*. 2014;73(9):1659–64.
13. Michael JWP, Schlüter-Brust KU, Eysel P. Epidemiologie, ätiologie, diagnostik und therapie der gonarthrose. *Dtsch Arztebl*. 2010;107(9):152–62.
14. Rönn K, Reischl N, Gautier E, Jacobi M. Current Surgical Treatment of Knee Osteoarthritis. *Arthritis*. 2011;2011:1–9.
15. Wood AM, Brock TM, Heil K, Holmes R, Weusten A. A Review on the Management of Hip and Knee Osteoarthritis. *Int J Chronic Dis*. 2013;2013:1–10.