Musculoskeletal disorders among patients during a one-day outreach at Juba Military Hospital

Mapuor M.M. Areu,[1] Brian B. B. Madison,[1] Akau A. Aguto,[1] James Alphonse,[2] Omojowk J. Bachay,[2] Aguer Warebek,[3] Zecharia P. Ajak[3]

1. University of Juba, Department of Orthopaedics and Traumatology
2. Juba Military Referral Hospital, Department of Orthopaedics Surgery
3. Juba Teaching Hospital, Department of Orthopaedics and Trauma Surgery

Correspondence:
Mapuor M.M. Areu
mapuorrr@gmail.com

ABSTRACT

Introduction: The number of patients presenting with musculoskeletal disorders to the outpatient clinic at Juba Military Hospital is increasing. The aim of this study was to determine the proportion and types of musculoskeletal disorders among patients attending the orthopaedic outreach clinic during September 2021.

Method: A cross-sectional study designed to determine the proportion and types of musculoskeletal disorders among patients presenting to Juba Military Hospital. One hundred and thirty-three patients were recruited. After informed consent, data were collected using a paper-based Questionnaire and analysed using Statistical Package for the Social Sciences (SPSS) version 22.

Result: A total of 327 patients presented to outreach clinic, 133 patients consented and were included in the study. The mean age was 41 years (3 to 73 years, SD 16.9); 52.6% were male and 47% female. The conditions diagnosed were osteoarthritis of major joints, 20.3%, low back pain 18.8%, non-union 15.8% and mal-union 11.3%. Among patients with knee problems, 54% were unilateral knee osteoarthritis and 28% bilateral knee osteoarthritis. Patients with back problems: 80% low back pain of unspecified cause, 16% spondylolisthesis and 4% Pott's disease of the spine. Also 29% mal-union femur and 25% femoral neck fracture. Tibia condition: 40% Non-union, 20% mal-union Tibia fracture.

Conclusion: Musculoskeletal disorders are common among the residents of Juba city. There is high proportion of osteoarthritis and low back pain among other diagnosed conditions.

Key words: Musculoskeletal disorder, Outreach, Outpatient clinic, Juba Military Hospital.

INTRODUCTION

The number of patients attending outpatient clinics with musculoskeletal disorders is increasing globally and is an occupational related health care issue.[1] The international Labour Organization (ILO) has reported nearly 160 million work-related disorders occurring around the world annually. "A musculoskeletal disorder is defined as an inflammatory and / or degenerative condition that affects muscles, tendons, ligaments, joints, peripheral nerves and supportive structures like in the spine vertebrae."[2,3,4] These disorders affect individuals and lead to a personnel and financial burden on businesses and institutions. The prevalence of musculoskeletal disorders is high: at 52.3% among cleaners in Mekelle (Northern Ethiopia), and 74.2% and 58.4% among nurses in Kenya and Uganda respectively.[3,5,6] The proportion and types of musculoskeletal disorders has not previously been reported in South Sudan hospitals and this study will provide preliminary data. This study was conducted during orthopaedic outreach clinics organized by the South Sudan Orthopaedics and Trauma Society (SOTS) in

September 2021. The aim of this study was to determine the proportion and types of musculoskeletal disorders among patients presenting during the outreach at Juba Military Hospital.

METHOD

This was a cross-sectional study designed to determine the proportion and types of musculoskeletal disorders among patients presenting during the outreach at JMH in September 2021. All patients attending outreach clinic who signed an informed consent, were assessed clinically and radiologically and were diagnosed with musculoskeletal disorder were included in the study. In advance the date of the outreach clinic was disseminated to the public through the South Sudan Broadcasting Corporation (SSBC) and local FM stations within Juba City. Patients were managed according to their diagnoses and were later asked if they were willing to participate in the study. The consent form was written in English. For those unable to read or write, consent was explained in simple Juba Arabic. It was explained that refusal to participate would not deny patients free treatment.

Data were collected using a paper-based questionnaire. Demographic data, clinical and radiological diagnoses were collected including age, gender, residence, clinical onset of the disease and the diagnosis.

Statistical Analysis: Data were collected on paper and analysed using the Statistical Package for the Social Science (SPSS) version 22. The proportion and categorical variable were reported as percentages and age as the only continuous variable, and it is reported as mean, range and standard deviation (SD).

RESULTS

A total of 133 patients participated in the study out of 327 who presented to the outreach clinic from 8:00 am to 5:00 pm.

The mean age was 41 years (range 3 to 73 years, SD 16.9). There were 52.6% males and 47.4% females. Commonly diagnosed conditions were osteoarthritis of major joints 20.3%, low back pain of no specified cause 18.8%, non-union 15.8%, mal-union 11.3% and chronic osteomyelitis 6%. Table 1.

Amongst patients with knee problem 54% and 28% were unilateral and bilateral osteoarthritis respectively. Of patients who presented with back symptoms, 80% were diagnosed with low back pain of no specified cause, 16% spondylolisthesis and 4% with Pott's disease of the spine. Mal-union of the femur and femoral neck fracture were 29% and 25% respectively. In patients with a tibial problem, 40% were non-union, 20% mal-union and 20%

Table 1. Common diagnosed conditions

Diagnosed cases	n (%)
Osteoarthritis	27 (20.3)
Low Back pain	25 (18.8)
Non-union of Fractures	21 (15.7)
Malunion of Fractures	15 (11.3)
Others	13 (9.7)
Chronic Osteomyelitis	8 (6.0)
Spondylolisthesis	5 (3.8)
Patients with Implants	5 (3.8)
Planter Fasciitis	3 (2.3)
Neglected Dislocation	3 (2.3)
AVN femoral head	2 (1.5)
Frozen shoulder	2 (1.5)
Genu valgus	2 (1.5)
Symptomatic BKA stamp	2 (1.5)
Total	**133 (100)**

AVN: Avascular Necrosis. BKA: Below Knee Amputation.

Table 2. Common diagnosed diseases according to their frequency of presentation

Disease condition	n (%)
Diseases affecting the knee	
• Unilateral OA Knee joint	17 (53.1)
• Bilateral OA knee joint	9 (28.1)
• Genu valgus knee joint	3 (9.4)
• Juvenile rheumatoid Arthritis knee	2 (6.3)
• Septic arthritis knee joint	1 (3.1)
Total	**32 (100)**
Diseases affecting the back	
• Low back pain	25 (80.6)
• Spondylolisthesis	5 (16.1)
• TB spine	1 (3.3)
Total	**31 (100)**
Diseases affecting foot and ankle	
• Mal-union bimalleolar fracture	16 (50.0)
• Planter fasciitis	8 (25.0)
• Neglected club foot	5 (15.6)
• Post-traumatic osteoarthritis	3 (9.4)
Total	**32 (100)**

chronic osteomyelitis. The commonest presentations in patients with ankle fractures were 50% with mal-union of bimalleolar (i.e., middle and lateral malleoli) fracture. Table 2.

Six patients underwent surgery with two non-unions being fixed with a Surgical Implant Generation Network (SIGN) nail, proximal humerus fracture and mid-shaft femur and bimalleolar fracture were fixed with plate and screws, and non-union patella was fixed using tension wire band. Patients who attended the outreach clinic came from almost all corners of Juba City.

DISCUSSION

The study was conducted among patients presenting to hospital during a surgical and consultation outreach clinic at Juba Military Hospital; 327 patients came from 20 residential locations around Juba, 133 patients were recruited into the study. Average age was 41 years, musculoskeletal disorder was higher among male 52.6% compare to female 47.4%. The commonest musculoskeletal disorders were osteoarthritis 20.3%, low back pain 18.8%, non-union 15.8%, mal-union 11.3%. our study found unilateral knee osteoarthritis at 54% was higher than bilateral knee osteoarthritis at 28%, compared to 14.6% knee osteoarthritis reported among Chinese health workers.[7] Low back pain was 18.8% in our study which is low compared to 38.7% reported among staff at special school in Germany and 34% among cleaners at university of Mekelle and 61.48% among the operating room personnel.[3,6] Our study has also found 15.8% non-union and 11.3% mal-union of fracture as complications among patients treated by traditional bone setters compare to 40.8% non-union and 24.5% mal-union higher as reported by Odatwuwa.[8] Chronic osteomyelitis was 6% in open fractures due to motor traffic crash injuries and were poorly managed by traditional bone setters, with tibial chronic osteomyelitis was 20% in our study, lower compared to 31 - 35% reported in sub-Saharan Africa.[9]

CONCLUSION

The proportion and types of musculoskeletal disorders has not previously been reported among the general population in the city of Juba. Our study has seen a high proportion of musculoskeletal disorders such as osteoarthritis and low back pain. There is a need to conduct a study with a larger sample size and to determine associating factors of musculoskeletal disorder among the residents of Juba city.

Limitation: First, our study was limited to the few patients who attended the outreach clinic at a specific time. Second, we did not look into factors related to musculoskeletal disorder in the country.

References

1. Tami AM, Bika Lele EC, Mekoulou Ndongo J, Ayina Ayina CN, Guessogo WR, Lobe Tanga MY, et al. Epidemiology of musculoskeletal disorders among the teaching staff of the university of douala, cameroon: Association with physical activity practice. Int J Environ Res Public Health. 2021;18(11):1.

2. Luan HD, Hai NT, Xanh PT, Giang HT, Van Thuc P, Hong NM, et al. Musculoskeletal Disorders: Prevalence and Associated Factors among District Hospital Nurses in Haiphong, Vietnam. Biomed Res Int. 2018;1-2.

3. Melese H, Gebreyesus T, Alamer A, Berhe A. Prevalence and associated factors of musculoskeletal disorders among cleaners working at Mekelle University, Ethiopia. J Pain Res. 2020;13:2239–46.

4. Tavakkol R, Kavi E, Hassanipour S, Rabiei H, Malakoutikhah M. The global prevalence of musculoskeletal disorders among operating room personnel: A systematic review and meta-analysis. Vol. 8, Clinical Epidemiology and Global Health. Elsevier B.V.; 2020. p. 1053–61.

5. Munabi IG, Buwembo W, Kitara DL, Ochieng J, Nabirye RC, Mwaka ES. Musculoskeletal disorders among nursing staff: A comparison of five hospitals in Uganda. Pan Afr Med J. 2014;17:1–8.

6. Mailutha JT, Mugga J, Kanali CL. Prevalence of musculoskeletal disorders among nurses in Kenya: Part 1, anthropometric data and MSDS. Int J Emerg Technol Adv Eng. 2020;10(4):158–63.

7. Li D, Li S, Chen Q, Xie X. The Prevalence of Symptomatic Knee Osteoarthritis in Relation to Age, Sex, Area, Region, and Body Mass Index in China: A Systematic Review and Meta-Analysis. Front Med. 2020 Jul 16;7:1.

8. Odatuwa-Omagbemi DO, Adiki TO, Elachi CI, Bafor A. Complications of traditional bone setters (TBS) treatment of musculoskeletal injuries: Experience in a private setting in Warri, south-south Nigeria. Pan Afr Med J. 2018;30:2.

9. Olivier K, Eugene U, Lynn L, Don Eliseo III L-P. Chronic osteomyelitis in Sub-Saharan Africa—A Review. Glob Surg. 2019;5(3):2–5.