



*Original Research Article*

# Prevalence of rheumatic diseases in a rheumatology outpatient practice of a tertiary hospital

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**Background:** To assess the distribution and prevalence of rheumatic diseases in a tertiary hospital rheumatology outpatient practice.

**Methods:** This was a prospective study of rheumatological diagnoses of 472 consecutive new and follow up patients over a period of three years (Jan 2011-Dec 2013). All patients with age 14 years and above whom presented with rheumatology diagnosis were included in the study. Detailed history and physical examination were carried out on all the patients. The disease prevalence was calculated for each group of rheumatological disorders.

**Results:** There were 3124 patients seen at the medical outpatient department of the hospital during the studied period. Four hundred and seventy two rheumatological cases comprising of 162 new cases and 310 follow up cases were seen. Two hundred and nineteen (46.4%) were female. Degenerative arthritis was the leading case (45.8%) while connective tissue disease was the least cases seen (4.9%). Osteoarthritis was the leading case in both new and follow-up cases while rheumatoid arthritis was second among the follow up cases. Osteoarthritis had the highest prevalence (4.35%) among the articular diseases, while non-specific low back pain had the highest prevalence (1.79%) among the soft tissue rheumatic diseases.

**Conclusion:** Degenerative conditions (osteoarthritis and spondylosis) and soft tissue rheumatism were the most common rheumatology diagnoses in new patients, while osteoarthritis and rheumatoid arthritis were most prevalent in follow-up patients. The predominance of auto-immune diseases in females was as earlier reported in the literatures.

**Key words:** Outpatient clinic, spectrum, rheumatic disease, tertiary hospital

## INTRODUCTION

Rheumatic diseases are one of the largest health problems in the World in both developed and developing countries. Rheumatic diseases are a usual cause of disability, and a large public health burden (Gran, 2003). Environmental factors, however affect their prevalence. The prevalence of rheumatic diseases may differ in ethnic population living in different geographical regions (Fessel, 1988; Chiffot et al., 2008) and it may change over time in people of the same geographical region. For example, in a US population, the incidence of rheumatoid arthritis progressively declined since early 1960, while the prevalence of gout doubled from 1969 to 1985 and it further increased by 80% from 1990 to

1994 (Helmick et al., 2008).

Rheumatology is characterized by a large variety of diseases including inflammatory, degenerative, soft tissue rheumatism and metabolic bone disease (Schumacher Jr, 1994). Data on the prevalence of arthritis and rheumatic diseases are necessary background information to understand the burden of disease and the potential need for health care for people with these diseases.

The prevalence of rheumatology diseases has not been studied in the country before now. We therefore examined the prevalence and distribution of rheumatic diseases in a tertiary hospital outpatient practice. Only a few available

**Table 1.** Major categories of rheumatic conditions seen during the study period

Major categories	Number	Percentage	Male (%)	Female (%)
Degenerative	216	45.8	109 (50.5)	107 (49.5)
Auto-immune	23	4.9	3 (13.0)	20 (87.0)
Inflammatory	21	4.5	7 (33.3)	14 (66.7)
Crystal induced	32	6.8	28 (87.5)	4 (12.5)
Soft tissue rheumatism	162	34.3	100 (62.7)	62 (38.33)
Spondyloarthropathy (Reiter's and Psoriatic arthritis)	4	0.8	3 (75)	1 (25)
Infective (septic arthritis)	2	0.4	1 (50)	1 (50)
Hypermobility syndrome	12	2.5	2 (16.7)	10 (83.3)

reports make a clear distinction between new and returning cases (Miedema et al., 1998 ; Sheppard, 1986), therefore, this study aimed at determining the prevalence of disease among the new and returning patients and also the prevalence and distribution of rheumatic diseases among the males and the females.

## METHODOLOGY

This was a prospective study of patients that attended the rheumatology out-patient clinic of Olabisi Onabanjo University Teaching Hospital from January 2011 to December 2013. The study centre was located in the South-West part of Nigeria. Sagamu, Ogun State. The centre is very close to Lagos which is the economic nerve centre of Nigeria.

All patients with age 14 years and above whom presented with rheumatology diagnosis were included in the study. Patients with traumatic joint disease were excluded from the study, also all patients below age 14 years which were considered as children at our centre were excluded.

Detailed history and physical examination were carried out on all the patients. Diagnosis of rheumatology diseases were based on the American College of Rheumatology (ACR) Classification Criteria. Investigations were tailored to the need of individual cases. Simple statistical calculations were employed to determine the percentages and prevalence of the rheumatological disorders.

The prevalence of rheumatic diseases was calculated among total patients seen at the medical outpatient clinic. The prevalence of each major rheumatology disease group was determined and the prevalence of each disease was also determined based on total number of cases seen over three years. Percentage of each disease was calculated based on the total number of rheumatology cases. Ethical approval was obtained for this research work.

## RESULTS

There were 3124 patients seen at the medical outpatient department of the hospital during the studied period. Four

hundred and seventy two rheumatological cases comprising of 162 new cases and 310 follow-up patients were seen. The prevalence of rheumatological cases was 15.1%. The prevalence of new cases was 5.19% and the prevalence of follow-up cases was 9.92%. Females made up of 46.4%. The age range was 16-90 (SD  $\pm$ 12.5) years with a mean age of 52 years.

Newly diagnosed patients were younger (mean  $48.4 \pm 7.9$  years) than the follow up cases (mean  $54.6 \pm 9.2$  years).

Table 1 shows the clinical diagnoses of patients. Degenerative joint disease was the main diagnostic category in both the new and follow-up cases (45.8%). Soft tissue rheumatism was the second presentation in new patients while inflammatory arthritis (rheumatoid arthritis) was the second most encountered diagnosis in the follow-up cases.

Osteoarthritis was the commonest diagnosis among the elderly people (50 years and above) while younger age group (below 40 years) presented majorly with soft tissue rheumatism. Auto-immune disorder was predominantly seen in females while gouty arthritis constituted 87.5% of cases in men. The leading soft tissue rheumatism were non-specific low back pain (34.6%), shoulder pain syndrome (20.0%), trigger finger (26.7%), and achilles tendinitis (13.3%), while epicondylitis was the least seen soft tissue rheumatism (1.2%).

Tendinitis, fasciitis and trigger finger were commonly seen in females and fibromyalgia also was predominantly seen in females, while epicondylitis and bursitis were seen commonly in males.

Auto-immune disorders were uncommon; it constituted 4.9% of all cases. Systemic lupus erythematosus was the commonest (43.1%) while polymyositis was the least encountered auto-immune disorder (4.3%). Tables 1 and 2 show disease distributions.

The period prevalence of rheumatic diseases was 15%. Non-specific low back pain has the highest prevalence among the soft tissue rheumatism (1.79%), the prevalence was more in men than women, while polymyalgia, medial and lateral epicondylitis had the lowest prevalence (0.06%) Osteoarthritis had the highest articular disease prevalence (4.35%) with women showed higher prevalence than men. Infective arthritis and spondyloarthropathies had the

**Table 2.** Common rheumatic disorders in order of frequency (n= 472)

Osteoarthritis	136	28.8%
Non-specific low back pain	56	11.9%
Cervical spondylosis	42	8.9%
Lumber spondylosis	38	8.1%
Shoulder pain syndrome	36	7.6%
Gout	32	6.8%
Rheumatoid arthritis	21	4.4%
Trigger finger	20	4.2%
Hypermobility syndrome	12	2.5%
Achillis tendinitis	12	2.5%
Systemic lupus erythematosus	10	2.1%
Fibromyagia	10	2.1%
Plantar fasciitis	9	1.9%
Carpal tunnel syndrome	7	1.5%
Sjorgren's syndrome	6	1.3%
Bursitis	6	1.3%
Scleroderma	6	1.3%
Polymyalgia rheumatic	2	0.4%
Septic arthritis	2	0.4%
Reiter's syndrome	2	0.4%
Psoriatic arthritis	2	0.4%
Lateral epicondylitis	2	0.4%
Medial epicondylitis	2	0.4%
Polymyositis	1	0.2%

**Table 3.** Prevalence by category of rheumatology disorders

Major category	Total Number	Gross prevalence (%)	Prevalence By sex			
			Male number	Male prevalence (%)	Female number	Female prevalence (%)
Degenerative	216	6.91	109	3.49	107	3.42
Autoimmune	23	0.74	3	0.10	20	0.64
Inflammatory	21	0.67	7	0.22	14	0.45
Crystal induced	32	1.02	28	0.90	4	0.13
Soft tissue rheumatism	162	5.19	100	3.20	62	1.98
Spondyloarthropathies	4	0.13	3	0.10	1	0.03
Infective arthritis	2	0.06	1	0.03	1	0.03
Hypermobility	12	0.38	2	0.06	10	0.32

lowest prevalence among the articular disorders (0.06%). The prevalence of the auto-immune diseases was 0.74%. SLE had the highest prevalence of 0.32% while, polymyositis had the lowest prevalence of 0.03%. Table 3 shows the prevalence by disease categories, Table 4 shows soft tissue disorders prevalence, while Table 5 shows articular diseases prevalence.

## DISCUSSION

Studies are generally lacking on the prevalence of rheumatic diseases in African countries. The few African references mentioned in this discussion are from Lesotho, in South Africa, Tunisia and Cameroon. This study consisted

of a small number of patients restricted to a tertiary institution in the South West of Nigeria. This study however, cannot represent the true prevalence of each rheumatological disorder in the general community of the studied region. The prevalence in the community is likely to be higher than that obtained in this study, because this study was limited to the hospital environment.

The prevalence of rheumatology cases in this study was 15.1%. The prevalence of arthritis, in general, based on self-report of a physician diagnosis ranges from approximately 13.0% to 28.0% in the developed world (Perruccio et al., 2006 ; Wang and Badley, 2003; Helmick et al., 2008; CDSP)2006. In 2000-2001, data from 286 regions across Canada, revealed a prevalence of arthritis of 16.0% for adults 15 years and older (Canizares et al., 2008).

**Table 4.** Prevalence of soft tissue rheumatism in the study population

Disease	Total Number	Gross prevalence (%)	Prevalence By sex			
			Male number	Male prevalence (%)	Female number	Female prevalence (%)
Non-specific low back pain	56	1.79	8	0.26	48	1.54
Shoulder pain syndrome	36	1.15	16	0.51	20	0.64
Trigger finger	20	0.64	8	0.26	12	0.38
Achillis tendinitis	12	0.38	5	0.16	7	0.22
Fibromyalgia	10	0.32	10	0.32	0	0.00
Plantar fasciitis	9	0.29	6	0.19	3	0.10
Carpal tunnel syndrome	7	0.22	5	0.16	2	0.06
Bursitis	6	0.19	2	0.06	4	0.13
Polymyalgia rheumatic	2	0.06	22	0.06	0	0.00
Lateral epicondylitis	2	0.06	0	0.00	2	0.06
Medial epicondylitis	2	0.06	0	0.00	2	0.06

**Table 5.** Prevalence of articular diseases in the study population

Disease	Total Number	Gross prevalence (%)	Prevalence By sex			
			Male number	Male prevalence (%)	Female number	Female prevalence (%)
Degenerative						
• Osteoarthritis	136	4.35	48	1.54	88	2.82
• Cervical spondylosis	42	1.34	33	1.06	09	0.29
• Lumbar spondylosis	38	1.22	28	0.89	10	0.32
Autoimmune						
• SLE	10	0.32	2	0.06	8	0.26
• Scleroderma	6	0.19	0	0.00	6	0.19
• Polymyositis	1	0.03	0	0.00	1	0.03
• Sjorgren's syndrome	6	0.19	1	0.03	5	0.16
Inflammatory						
• Rheumatoid arthritis	21	0.67	7	0.22	14	0.45
Crystal induced						
• Gouty arthritis	32	1.02	28	0.90	4	0.13
Spondyloarthropathy						
• Reiter's	2	0.06	2	0.06	0	0.00
• Psoriatic arthritis	2	0.06	1	0.03	1	0.03
Infective						
• Septic arthritis	2	0.06	1	0.03	1	0.03

In the US, the best available estimate of arthritis among adults age 18 years and older was 21.6%, Hootman and Helmick (2006). However, using common terminology (2002/2003 JointCanada/US Survey of Health), the prevalence of self-reported health professional diagnosed arthritis was 16.9% in Canada and 18.7% in the US for adults aged 18 years and older (CDCP, 2005).

On a national level, comparative data from Canada and the US indicate that the higher prevalence in the US can be accounted for by higher rates of obesity (Badley and Ansari, 2010). Consistently, data show increasing prevalence with age and females are more likely than males to report doctor-diagnosed arthritis (CDCP, 2007). The prevalence in this study falls in the range of arthritis prevalence in the

developed World, despite hospital based prevalence. The prevalence of this study however was lower than that of joint Canada/US, and it is even possible that prevalence now will be higher than this considering the time of the study to the present time.

In this study, most commonly occurring disease group arranged in order of frequency (Table 1) are degenerative disease (45.8%), soft tissue rheumatism (34.3%), crystal induced arthropathy (6.8%), and auto-immune disorders (4.9%).

Degenerative disease had the highest prevalence (6.91%) and osteoarthritis was the leading with a prevalence of 4.36%. (Singwe-Ngandeu et al., 2007) found a prevalence of 20.5% for osteoarthritis of the limbs.

Rheumatology in West African Countries is well developed in the French speaking Countries than the English speaking Countries of which Nigeria belongs, this may account for the higher prevalence in the two West African Countries. Two Canadian studies were identified reporting the prevalence of OA in peer-reviewed literature. One study of OA and associated disorders in the BC Medical Services Plan between 1991/92 – 2000/01 found an overall prevalence of 10.8% in 2001 (Kopec et al., 2007). The other study of an Inuit sample from the North West Territories identified a physician-diagnosed OA prevalence at 14.7% in 1982 (Oen et al., 1986). The higher prevalence figure in Canada may be attributed to increase number of obese people, since obesity is a major risk factor for osteoarthritis.

The prevalence of rheumatoid arthritis in this study was 0.67%. A study from Canada examined rheumatic conditions in the North West Territories (Badley and DesMeules, 2003). The study reported physician-diagnosed RA of 0.6% from medical review of a sample of Inuits and through computerized data from the Manitoba Health Services Commission for out-of-province patients in 1982. The rheumatoid arthritis prevalence in the two Countries was closely related, though, it is possible that the prevalence in Canada would have increased from 1982 to 2013 when the present study was conducted.

In the US, the prevalence of RA, confirmed by the 1987 American College of Rheumatology (ACR) criteria, ranged from 2.03% to 2.72% in both sexes (Symmons et al., 2002), Population-based studies and clinical samples in European countries (Sweden (Simonsson et al., 1999), France (Saroux et al., 1999), indicated a prevalence of self-reported and/or physician-confirmed RA ranging between 0.33% and 0.92%. These studies have years of data collection from 1985 to 2004. Some of the studies used the American Rheumatology Association (ARA) criteria for the diagnosis of RA. Though, the present study is a hospital based study, the prevalence still falls within the range of the European Countries.

Gout was mainly seen among the crystal arthropathies. It has a prevalence of 1.02%. A population-based survey was identified from the World Wide Web that reported prevalence of gout. This survey was accessed from the National Research Bureau in New Zealand. The study indicated that 1.3% of adults 15 years and older have gout. Gout was more prevalent in males (2.4%) when compared to females (0.3%) (Ministry of Health, 2010). which is the same for this study.

Among the auto-immune conditions, systemic lupus erythematosus (SLE), scleroderma, Sjorgren's syndrome, and polymyositis were commonly encountered. SLE constituted 43.5% exclusively seen in women (80%). Polymyositis was the least seen auto-immune disorder in this study.

The prevalence of SLE in this study was 0.32%. In the NHANES III (1988-1994), the prevalence was 0.241% for self-reported physician-diagnosed SLE, 0.053% for self-reported and treated SLE (Ward, 2004). The overall

prevalence in 1991-2001 of physician-diagnosed SLE (definite and incomplete) in persons receiving inpatient/outpatient care in the Marshfield Epidemiological Study Area was 0.130% (Naleway et al., 2005). A study that included three different Indian groups who were sampled from the Patient Care Information System found physician-diagnosed SLE (according to the 1982 ARA criteria) of 0.092% (Boyer et al., 1991). Molokhia et al. (2001) in a UK study found a prevalence of 0.11% among the Black African and a prevalence of 0.18% among the Black Caribbean. Several literatures have documented higher prevalence of SLE among Blacks, and this study was also in keeping with earlier findings.

This study was able to find prevalence of 0.19% for scleroderma (SSc). In Quebec, using physician billing and hospitalization data bases, the prevalence of SSc in 2003 was estimated to be 0.044% (Bernatsky et al., 2009). A 2002 study of SSc in rheumatology outpatient practices in South western Ontario (Windsor, London, Sarnia, Woodstock) found a prevalence ranging from 0.007% to 0.028% (Thompson and Pope, 2002). However, a random sample from the general population in the state of South Carolina (The Carolina Health Survey) found self-reported physician-confirmed (according to the 1980 ARA criteria) prevalence of SSc ranging between 0.019% to 0.075% and scleroderma spectrum disorders ranging between 0.067% to 0.265% (Maricq et al., 1989). In the UK, the prevalence of physician-diagnosed scleroderma (from various medical sources) ranged from 0.003% to 0.009% (Allcock et al., 2004), from Australia (Roberts-Thomson et al 2006) and Europe (Greece, Italy) (Alamanos et al., 2005); (Airo et al., 2007) reported a prevalence of SSc that ranged from 0.007% to 0.035%. Most diagnoses were confirmed according to the 1980 ARA/ACR and/or 1988/2001 LeRoy and Medsger criteria. The scleroderma prevalence in this study was slightly higher than most of other studies possible because it is a referral hospital prevalence.

The prevalence of soft tissue rheumatism in this study was 5.19%. Several studies reported prevalence of soft tissue rheumatism which ranged between 1.9% and 3.4% (Pakistan, Bangladesh) (Farooqi and Gibson, 1998; Haq et al., 2005) with a high prevalence of 7.4% in Australia. The prevalence of this study generally falls in the range of other Countries.

Among the localized soft tissue rheumatism, non-specific low back pain was commonly seen (34.6%). The gross prevalence of low back pain was 1.79%. Female constituted 1.54%, while male was made up of 0.26%. In a systematic review of the global prevalence of low back pain by Hoy et al in comprising 54 Countries, they found a mean overall prevalence of low back pain, which was defined as all prevalence regardless of prevalence period of 31.0% Hoy et al., (2010). Consistent with earlier research results (Chen et al., 2007), we observed a higher prevalence of low back pain among females compared with males. Possible explanations for this difference include pain related to menstruation pregnancy, individual or societal influences resulting in sex differences in the likelihood of reporting

somatic symptoms, and the divergent growth patterns between the sexes during adolescence, which may influence pain in this period. Our data are consistent with a previous review showing that low back pain was less prevalent in countries with low-income and middle-income economies compared with countries with high-income economies Thelin et al., (2008). The lower prevalence of low back pain in developing countries has been speculated to be attributable to higher levels of exercise, shorter height, higher pain thresholds, and less access to industrial insurance compared with countries with high-income economies (Chen et al., 2007).

Fibromyalgia (6.2%) was the leading generalized soft tissue rheumatism seen and was seen predominantly in women. The fibromyalgia prevalence of this study was 0.32%. White et al in a Canadian population showed the prevalence of fibromyalgia to be 0.5 to 5% (McNally et al., 2006). In women, the rates were 10.5 % in Norway and 3.6 % in Turkey (Forseth and Gran 1992; Topbas et al., 2005). In elderly study in Africa, in Tunisia, the prevalence was 9.3% Guermazi et al., (2008). The global mean prevalence of fibromyalgia was 2.7 %, ranging from 0.4 % in Greece to 9.3 % in Tunisia (Andrianakos et al., 2003; Guermazi et al., 2008). The prevalence of fibromyalgia in this study was generally lower than in other studies. The reason could be due to missed diagnosis, because of paucity of Rheumatologists in the Country and second, because of tertiary hospital setting where this research was conducted. Such cases, most of the time would be seen by the general practitioners. Our data suggest that fibromyalgia prevalence varies among Countries; these differences may be due to a number of factors, including socioeconomic, ethnic, environmental, and cultural factors.

There are limitations in our data. Existing data tend to rely on self-report of physician-diagnosed arthritis. Prevalence varies depending on the classification criteria used, definition used to identify cases (e.g., population-based surveys or clinic samples); differences in the sample demographics (e.g., general adult population, age for inclusion, older adults only); and different years of data collection (e.g., point prevalence, period prevalence). These differences create a challenge when comparing the prevalence rates around the world for various arthritis conditions.

## CONCLUSION

In conclusion this study provides an estimate of the prevalence of rheumatic diseases in a tertiary institution with an established rheumatology clinic. It serves as a baseline prevalence research on which future researchers could build on. A community study will however be more appropriate to determine the actual prevalence of rheumatic diseases in the community, since this study was a hospital based study.

## Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of the paper

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