Original Research Article

Spectrum of Rheumatic Disease in Physical Medicine and Rehabilitation Department in a Tertiary Level Hospital in Bangladesh

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Abstract

***Background*:** An umbrella term encompassing diseases that damage the joints and/or connective tissue and cause chronic, frequently intermittent discomfort is rheumatism. Rheumatism is a general term that refers to at least 100 distinct diseases and disorders. Given the dearth of research on this subject, the study's goal was to investigate the range of rheumatic disease among patients presenting as outpatients in the Physical Medicine & Rehabilitation department of a tertiary level hospital. ***Objective*:** To evaluate the spectrum of rheumatic disease in a tertiary level hospital in Bangladesh. ***Materials and Methods*:** This cross-sectional study was carried out at the Physical Medicine and Rehabilitation department of the DMCH for six months. The study sought to enroll patients who had musculoskeletal problems or systemic symptoms that would indicate rheumatic illness. After meeting the requirements, patients were accepted. Each respondent provided written informed consent, and those who refused to engage in the study or undertake additional research were not included. By conducting a face-to-face interview with the respondents and utilizing a pre-tested semi-structured questionnaire, information about the respondents' socio-demographic characteristics, disease duration, clinical symptoms and signs, and investigations report was gathered. Data analysis was done in SPSS-16. ***Results*:** Mean age of respondents was 46.36±12.25 years (male= 50±11.68 years and female= 44.19±12.03 years [age range 21-70 years] with 35.7% male and 64.3% female. Around 54.17% of the cases presented with articular symptoms, 43.23% of the patients had degenerative and 10.94% had inflammatory joint diseases. Among the inflammatory arthritis, (38.09%) rheumatoid arthritis and (30.95%) Ankylosing spondylitis was most common whereas (28.92%) lumbar spondylosis and peripheral (28.31%) osteoarthrosis were predominating among non-inflammatory arthritis. Nonspecific back pain was the commonest (60.12%) of specific disorders included in soft tissue rheumatism, followed by (25.77%) adhesive capsulitis of shoulder. ***Conclusion*:** Articular disorders both non-inflammatory & Inflammatory, soft tissue rheumatism, disorder of bone and multi-system disorders; these four types of disorder were encountered in this tertiary care hospital.
Keywords: Articular disorders, Inflammatory, Rheumatic Diseasem, Back pain.

INTRODUCTION

Worldwide and in Bangladesh, rheumatic diseases (RDs) appeared to be the most frequent source of chronic health issues [1]. It has a prevalence of 11% to more than 50% and is the most common disease in the world [2]. The disease phenotypes are acquired via a variety of diverse combinations of genetic and environmental risk factors, and many of them are more common in adult females than males [3, 4]. Accelerated mortality and considerable long-term physical disability are results of rheumatic diseases and their numerous related comorbidities (46–54%) [5]. The incidence of

functional disability caused by rheumatic diseases is reported to be 24% in Bangladeshi rural and urban groups, notwithstanding the paucity of available data. However, the frequency of long-term impairment linked to rheumatic disorders among the general adult population of affluent countries ranges from 2.8 to 8.2% [1, 6]. Thus Rheumatic disorders place a heavy burden on families, society, and the healthcare system [7, 8]. Rheumatoid arthritis (RA), osteoarthritis (OA), autoimmune diseases like systemic lupus erythematosus (SLE), ankylosing spondylitis (AS), osteoporosis, back pain, gout, fibromyalgia, tendonitis, metabolic bone diseases like gout and Paget's disease, and more than 100 other conditions are all classified as rheumatic diseases [10]. Rheumatoid arthritis (RA) and osteoarthritis are the two most prevalent rheumatic illnesses (OA) [9, 10]. Despite the dearth of information, OA of the knees, nonspecific low back pain, lumbar spondylosis, fibromyalgia, and soft tissue rheumatism are reported as the most frequent rheumatic illnesses in Bangladesh [1]. All of these chronic disorders have a number of things in common, including the deterioration and inflammation of joints, the potential involvement of internal organs, which is linked to growing disability and may even be the cause of death. Their cause is still unclear, and there is no reliable way to stop them [11]. The integration of a patient's symptoms, physical examination findings, and the results of diagnostic tests is necessary to make a diagnosis of rheumatic disease. In order to treat rheumatic disorders effectively and improve prognoses, early diagnosis is crucial [13]. More research is required because there is currently insufficient information available to accurately describe the epidemiology of rheumatic diseases in our nation. For that reason this study tried to find out the spectrum of rheumatic diseases among Bangladeshi population.

OBJECTIVE
To evaluate the spectrum of rheumatic disease in a tertiary level hospital in Bangladesh.

MATERIALS AND METHODS
Study Design: It was a cross-sectional study.
Place of Study: Department of Physical Medicine and Rehabilitation (PMR) in Dhaka Medical College Hospital.
Study Period: From March 23, 2018 to September 9, 2018.
Study Population: Patients attending in outpatients department with either musculoskeletal complaints or systemic symptoms suspicious of a rheumatic disease.
Sampling Method: This study used convenient sampling.
Inclusion Criteria:
- Age: > 21 years and <70 years (as the prevalence of musculoskeletal complaints more at this age range).

- Sex: Both sex.
- Clinical symptoms-sign consistent with Rheumatic disease.

Exclusion Criteria:
- Severely ill patients.
- Not willing to participate in the study.
- Mentally challenged people.
- Subject who are unconscious.

Study Procedure
Before commencement of the study, formal ethical approval was taken from ERC of DMC. Selection of patients on the basis of inclusion and exclusion criteria Informed written consent were obtained from the patients. Face to face, interview was conducted by using a pre- tested semi-structured questionnaire containing socio-demographic parameters and relevant information regarding diagnosis of rheumatic disease. The data were also be collected from patient registry file and documents analysis. Diagnosis, clinical sign and investigation profile were collected from patient registry file. Total 384 patients were interviewed and investigated. The researcher himself conducted the interview and recorded the collected data. Following checking the data and removing all the inconsistency, all data were transferred into spreadsheet of statistical software. Final analysis was done by SPSS 16.

Data Processing and Analysis
All collected information were registered, documented and analyzed in the statistical program Statistical Package for Social Science (SPSS) version 16.0. The data (regarding clinical symptoms and sign, duration of disease were systematically described, summarized, and presented through descriptive statistics (frequency and percentage). Data were shown as mean, range or value and 95% confidence interval (95% CI) and frequency and percent. Chi square test was done for qualitative variable analysis. In addition, Student t-test was done for normally distributed quantitative variables to measure mean and standard deviation. To estimate the association chi- square test were considered. Test of significance was set as p value <.05.

RESULTS
In our study youngest patient was 21 years old and oldest patient was 68 years old with mean age of presentation of 46.36±12.25 years (male= 50±11.68 years and female= 44.19±12.03 years). Maximum incidence of rheumatic disease was found above 50 years of age (39.9%) followed by 5th decade (23.7%).
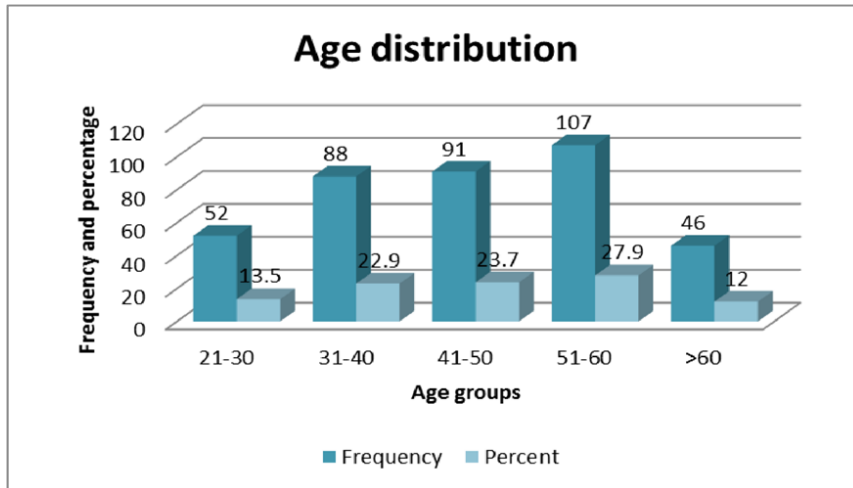
Figure 1: Distribution of patients according to different age groups (n=384)

This study consisted of 137 (35.7%) males and 247 (64.3%) females giving a male to female ratio of 1:1.80.
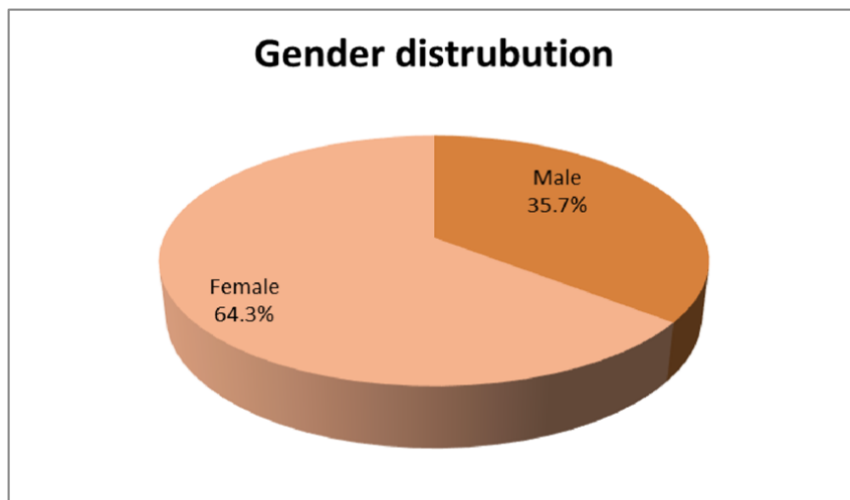

Figure 2: Gender distribution of patients (n=384)

Regarding economic status, low-income patients occupied the major part (43.5%) followed by middle class (36.5%) and higher class (20.1%).
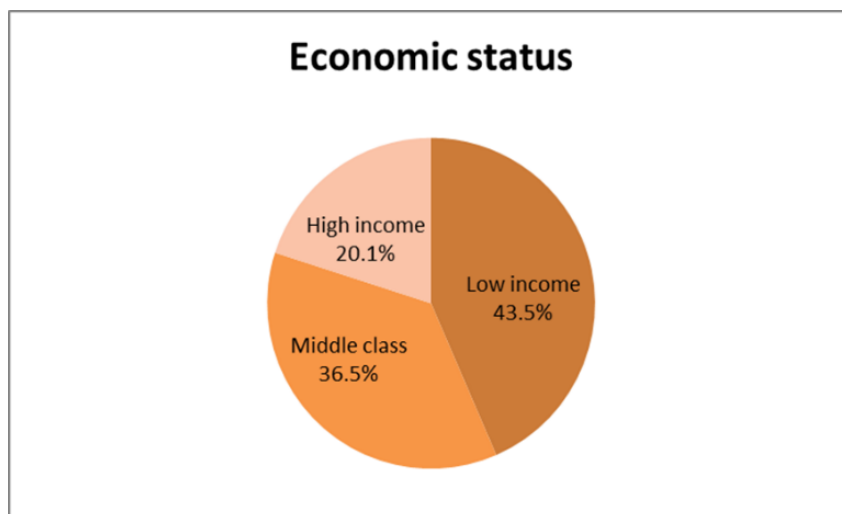

Figure 3: Distribution of patients according to economic status (n=384)

Table 1 shows that around 54.17% of the cases presented with articular symptoms, 43.23% of the patients had degenerative and 10.94% had inflammatory joint diseases. Among articular disorders, degenerative diseases were much more common than the inflammatory disorders.

Table 1: Major categories of rheumatic disorders of the patients (n=384)

Major categories	Frequency	Percent of total	Male (%)	Female (%)
Articular disorders	208	54.17	67 (32.21)	141 (67.79)
Non-inflammatory	166	43.23	52 (31.33)	114 (68.67)
Inflammatory	42	10.94	15 (35.71)	27 (64.29)
Soft tissue rheumatism	163	42.45	66 (40.49)	97 (59.51)
Disorder of bone	10	2.6	3 (30)	7 (70)
Multi-system disorders	3	0.78	1 (33.33)	2 (66.67)
			137	247

Lumber spondylosis was the commonest lesion (28.92%) followed by peripheral osteoarthrosis (28.31) and cervical spondylosis (24.70%). 17.47% cases were designated as cases of PLID because of the presence of features of lumbar root involvement (e.g. sciatica like distribution , positive Lasegue's sign and / or signs of neurological deficit) and absence of radiological evidence of spondylosis, tuberculosis, malignancy etc. MRI confirmation was obtained only in few cases (Table 2). The incidence of non-inflammatory articular disorders was significantly higher in females except for PLID (p=0.003).

Table 2: Distribution of various non-inflammatory articular disorders (n=166)

Name of diseases	Number	Percent	Male (%)	Female (%)	Chi square, p value
Lumbar spondylosis	48	28.92	13 (27.08)	35 (72.92)	16.007,
Peripheral osteoarthrosis	47	28.31	12 (25.53)	35 (74.47)	0.003
Cervical spondylosis	41	24.70	9 (21.95)	32 (78.05)	
Lumbago sciatica/ PLID	29	17.47	18 (62.07)	11 (37.93)	
Spondylolisthesis	1	0.60	0	1 (100)	
Total	**1666**	**100**	**52**	**114**	

Seronegative spondyloarthritis (SpA) group (all together) was the most common inflammatory arthritis observed in 4.68% of total cases followed by rheumatoid arthritis (RA) (4.16%). Ankylosing spondylitis (AS) was the commonest seronegative disease (30.95% of all inflammatory arthritis) followed by undifferentiated SpA (9.52%). Only a single case of reactive arthritis was evaluated (2.38%) (Table 3).

Table 3: Distribution of various inflammatory articular disorders (n=42)

Name of diseases	Number	Percent	Male (%)	Female (%)	Chi square, p-value
Rheumatoid arthritis	16	38.09	2 (12.5)	14 (87.5)	11.084,
Ankylosing spondylitis	13	30.95	7 (53.84)	6 (46.15)	0.135
uSpA	4	9.52	1 (25)	3 (75)	
Reactive arthritis	1	2.38	1 (100)	0	
Pyogenic	1	2.38	0	1 (100)	
Tuberculous	3	7.14	2 (66.67)	1 (33.33)	
Viral	2	4.76	1 (50)	1 (50)	
Gout	2	4.76	1 (50)	1 (50)	
Total	**42**	**100**	**15**	**27**	

Non-specific back pain was the commonest (60.12%) of specific disorders included in soft tissue rheumatism, followed by adhesive capsulitis of shoulder (25.77%), plantar fasciitis (3.68%), tendinitis/ tenosynovitis (3.68%), tennis elbow (2.45%), enthesitis (1.84%), complex regional pain syndrome (1.23%) and fibromyalgia (1.23%) (Table 4).

Table 4: Distribution of soft tissue rheumatism (n=163)

Name of diseases	Number	Percent	Male (%)	Female (%)	Chi square, p-value
Non-specific back pain	98	60.12	42 (42.86)	56 (57.14)	
Adhesive capsulitis	42	25.77	17 (45.48)	25 (59.52)	
Plantar fasciitis	6	3.68	1 (16.67)	5 (83.33)	
Tendinitis/ tenosynovitis	6	3.68	2 (33.33)	4 (66.67)	4.456,

Name of diseases	Number	Percent	Male (%)	Female (%)	Chi square, p-value
Tennis elbow	4	2.45	1 (25)	3 (75)	0.726
Enthesitis	3	1.84	2 (66.67)	1 (33.33)	
CRPS	2	1.23	1 (50)	1 (50)	
Fibromyalgia	2	1.23	0	2 (100)	
Total	**163**	**100**	**66**	**97**	

Disorders of bony skeleton and multi-system disorders, in general, are uncommon comprising 2.6% and 0.78% respectively. Osteoporosis was the commonest of the bony skeleton disorders (70%) and SLE among multisystem disorders (66.67%), both of whose were female predominant (Table 5).

Table 5: Incidence of disorders of bony skeleton and multi-system disorders

Name of diseases	Number	Percent	Male (%)	Female (%)	Chi square, p-value
Disorders of bony skeleton	10	2.6*	3 (30)	7 (70)	
Cervical rib syndrome	1	10	1 (100)	0	3.197,
Coccygodynia	1	10	0	1 (100)	0.362
Osteoporosis	7	70	2(28.57)	5 (71.43)	
Congenital anomalies	1	10	0	1 (100)	
Multi-system disorders	3	0.78*	1 (33.33)	2 (66.67)	
SLE	2	66.67	0	2 (100)	3.0,
Rheumatic fever	1	33.33	1 (100)	0	0.83
*percentage of total cases					

DISCUSSION

It is uncertain how common rheumatologic conditions are in underdeveloped nations. In order to launch a global initiative known as the community-oriented program for control of rheumatic illnesses, the World Health Organization (WHO) and International League of Associations for Rheumatology (ILAR) met jointly in Geneva (COPCORD) This program's goal was to provide information about the prevalence of musculoskel *et al.,* (MSK) problems in developing nations [11]. A 2006 study found that MSK diseases made up roughly 3.4% of the burden in emerging nations [12]. In our study, participants ranged in age from 21 to 68 years, with a mean age of presentation of 46.36 12.25 years (males = 50 11.68 years and females = 44.19 12.03 years). Females accounted for 64.3% of the study participants, with a female: male ratio of 1.8:1. In 2011, Bagher *et al.,* [13] published "Pattern of rheumatic disorders in two outpatient clinics in Iran: parallels with some dissimilar features" in the University Kebangsaan Malaysia Rheumatology Clinic. The mean ages of presentation were slightly lower in "The spectrum of rheumatic disorders observed in the Rheumatology Clinic, University Kebangsaan Malaysia" by Chin and Shukor 42 in 1988. When compared to men, women have larger levels of immunoglobulin and produce more antibodies in response to antigen stimulation [14]. Oestrogen and prolactin are pro-inflammatory hormones [15, 16] and women are more likely to be exposed to them than men, which may help to explain why there are more women than men overall. Although the exact cause of this gender disparity is unknown, studies have suggested that lower testosterone levels, higher prolactin levels during breastfeeding, and more severe symptoms could all be contributing factors [17].

Furthermore, the incidence was rising with age in Greece, per earlier data. This final observation was consistent with our findings because we had also noted a larger ratio of age-related relevance. Our research revealed that the majority of patients were over 50. This study, which is in line with previously published data, demonstrates that rheumatic disorders are more prevalent in this age range [18, 19]. The majority of rheumatic illness patients are elderly, and as the population ages, it is anticipated that there will be a rise in the burden of these diseases in the near future [20]. The most frequent illness groups in the current study are non-inflammatory articular disorders (43.23%), soft tissue rheumatism (42.45%), inflammatory arthritis (10.94%), disorder of the bone (2.6%), and connective tissue diseases (0.78%), in that order. These results contrasted with those of a community-based rheumatologic outpatient study conducted by Vanhoof *et al.,* in Belgium, which showed that 42% of all patients had inflammatory joint and spine diseases, 37% had soft tissue rheumatism, 36% had degenerative joint and spine diseases, and 17% had metabolic bone diseases [21]. Non-specific back pain was the most prevalent condition in the soft tissue rheumatism group, followed in decreasing order by adhesive capsulitis, plantar fasciitis, tendinitis/tenosynovitis, tennis elbow, enthesitis CRPS, and fibromyalgia. The most prevalent form of rheumatological illness, primarily affecting women, was fibromyalgia (1.23%). Fibromyalgia was shown to be 0.505% prevalent in a Canadian population, according to research by White *et al.,* in the Western Hemisphere [23]. According to a population-based survey, the prevalence of musculoskeletal discomfort was overall 26.3%. Knee osteoarthritis, generalized low back pain, lumbar spondylosis,

fibromyalgia, and soft tissue rheumatism were the most prevalent rheumatic conditions. 64 stages COPCORD in the Trung Liet Commune, Dong Da district, Hanoi City, Vietnam, 16 groups participated in a study that revealed a 14.9% prevalence of musculoskeletal discomfort. Knee discomfort, low back pain, and soft tissue problem were the three most prevalent musculoskeletal complaints [25]. Approximately 1% of people globally have RA. 66-68 Depending on the demographic, the prevalence of RA varies greatly [26]. Some studies found evidence of a decline in the prevalence of RA during the past few decades in Europe and America, particularly in females, with a shift in the peak age at start [28]. On the other hand, incidence increased in emerging nations, peaking in women who were capable of bearing children [29]. In our study, RA was the most prevalent inflammatory arthritis (38.09%) with a female: male ratio of 7:1, whereas Ahmed *et al.,* study's in Bangladesh found that the prevalence of RA was 27.7% with a female: male ratio of 2.5:1 and Hasan *et al.,* study's in Bangladesh also found that the prevalence of RA was in that country. RA was reported to be 3.98% in 2009, and the female: male ratio was 4.5:1.47. According to a study, the RA in Italy was 23.1%, much higher in Malaysia (47.1%), significantly lower in Egypt (36.7%), Nepal (21.17%), Iran (43.1%), and Congo (3.5%). Burkina Faso is the final country, at [30] the fact that individuals with arthritis were referred from the hospital's outskirts and other departments may account for the study's discrepancy. In addition to them, genetic vulnerability may also play a role in the high prevalence of rheumatoid arthritis. The most prevalent condition of bone and cartilage degeneration is peripheral osteoarthrosis. In general, the prevalence of osteoarthrosis of the knee, hip, and hand was 1:2.9 in both men and women. Results from a significant population-based study conducted in a developing nation on 1997 adult Pakistani patients were published. These patients were evenly dispersed throughout poor rural and poor urban groups as well as relatively rich metropolitan residents [30] Similar to a recent report [31], 45.83% of our patients had nonspecific low back pain, lumbar spondylosis, lumbago-sciatica/PLID, and lumbar spondylolisthesis as their primary causes of low back pain. In the current study, the percentages of patients with cervical spondylosis and all types of shoulder joint pain syndromes were 10.68% and 10.93%, respectively. Mahbub *et al.,* carried out a cross-sectional study on a randomly selected group of 98 male porters in Narayangonj city, Bangladesh, to determine the prevalence of cervical spondylosis and musculoskeletal symptoms among porters. It revealed that male porters had a significantly greater prevalence of cervical spondylosis (39.8%) [35]. Perhaps as a result of their physical activity, the cervical and shoulder joints are more frequently involved. The majority of young adults (3.39%) had ankylosing spondylitis.

CONCLUSION

In conclusion, it was observed that male rheumatic disease patients were diagnosed in their sixth decade of life while female patients presented earlier in their fifth decade. 1:1.80 male to female ratio. The majority of the patients come from low-income families. Articular inflammatory disease was identified in 43% of individuals. The percentage of soft tissue rheumatism was nearly identical to the previous one. Inflammatory disorders, bone disorders, and multisystem disorders were among the other diseases. Lumbar spondylosis and peripheral osteoarthrosis predominated among non- inflammatory articular disorders, whereas rheumatoid arthritis and ankylosing spondylitis predominated among inflammatory articular disorders. The limitation for this study were using convenient sampling methods leads to bias and single centers study or long-term follow up of the patents was beyond the scope. This study recommended middle aged male should be screened non-inflammatory cause in due cases and in case of female patients, rheumatic disease should be exclude first considering inflammatory arthritis. Soft tissue rheumatism are common in both male and female patients, therefore, proper counselling should be administered. Relatively rare disease like cervical rib syndrome and SLE could be considered whenever appropriate.

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