ORIGINAL ARTICLE

Study to Determine the Incidence of Rheumatic Diseases Among Rural Population of Pakistan

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ABSTRACT

Objective: Evaluate the extent, severity and treatment of patients with Musculoskeletal disorders & determine the prevalence of Osteoarthritis, pain in back, Fibro myalgia, gout, Rheumatoid arthritis& other Non-inflammatory and Inflammatory rheumatic diseases in rural areas of Pakistan.

Methods: This research was carried out in the rural communities near Sahiwal, which are considered to be a fairly representative sample of rural population. Data was collected and diagnosed using the guidelines of the American College of Rheumatology (ACR) using a personal questionnaire from the Community Rheumatic Disease Control Program (COPCORD).

Results: 400 adults (over 15 years of age) were involved during the 18 months of the study. A total of 70 patients developed musculoskeletal pain (M =28, F= 42). Women had a higher frequency of new issues than men (chi squared=23.16, p<0.001), and the married people in the study was 74.5 percent. By profession, 22.0% were housewives, 10.3% of workers, 17% were businessman, 18.0% of service providers, and 4.8% of farmers. The number of Rheumatic diseases has risen between middle-aged people. In the 15–24-year-old category, it was 9.8 percent. The measures were 29 percent and 26.1 percent, respectively, for 35-44 years old and 45-54 years old. 14.7 percent were those over the age of 65. The occurrence of rheumatic symptoms per year was substantially different among middle-aged, young and elderly people (p<0.05). Also prevalent among housewives was occupational rheumatic disease, with an annual incidence of 24.4 per 100 persons. The number of rheumatic disorders among workers was 10.0%, 4.3% for service providers and 8.6% for business man. The functional disabilities among patients are spine issues in 11.1%, Knee problems in 9.9%, shoulder 9.5%, Elbow in 6.1%, Neck issues in 8.9% and wrist and hand disability in 4.9 and 3.8% respectively. 14.1% of the males have rheumatic disorders and 20.8% among females which shows higher incidence among females.

Conclusions: Rheumatic disease is common in rural areas of Pakistan and affects nearly a quarter of adults. Fibromyalgia, Non-specific low back pain& knee Osteoarthritis are collective joint diseases. Occurrence calculations for the utmost common diagnosis were similar to other social studies via the COPCORD method.

Keywords: Rheumatic diseases, Epidemiology study, Pakistan and rural community.

INTRODUCTION

In response to increasing demographic issues and increased life expectancy, recent developments in the occurrence and effects of rheumatic disease should be addressed, such as increasing urban population growth, new work pressures, shifts in lifestyle and several other factors[1-2]. COPCORD is the program of World Health Organization (WHO) and International Rheumatic Associations (IRA). In1981, with the main objective of regulating rheumatic diseases through the prevention & treatment of pain and disability, WHO and ILAR launched the project[3-4]. For patients and their families, the poor quality of life of rheumatic disease induces chronic and incalculable psychosocial distress[5-6]. The US economy induces musculoskeletal disorders that surpass $20 billion annually. The occurrence of major rheumatic diseases has dramatically decreased. In Pakistan, rheumatic disease is an ignored health issue and there will be no monitoring system, mainly because of a lack of knowledge[7-8]. Infectious diseases were once the main cause of mortality and morbidity, but as different public health interventions were introduced at state and non-state levels, the prevalence of these diseases reduced dramatically[9].

MATERIALS & METHODS

To research the occurrence & frequency of musculoskeletal disorders in the rural population, the people of DistrictSahiwal and nearby rural areas were chosen. In terms of cultural features such as lifespan, age structure, gender distribution, income, community, religion, profession and social status, the area was chosen as a demonstration of the rural population of Pakistan. We questioned 400 people (M=198, F=202) who were 15 years and older. Data was gathered using an updated COPCORD questionnaire in this analysis. The questionnaire was translated into Urdu and there was cross cultural acceptance and confirmation. For the analysis, the probability sampling process was adopted.

RESULTS

Socio-demographic parameters: The mean test age was 32.50±15.30 years. There were a total of 400 people questioned. Among these, 198men and 202 were women. Women had a higher frequency of new issues than men (chi squared=23.16, p<0.001), and the married people in the study was 74.5 percent. By profession, 22.0% were housewives, 10.3% of workers, 17% were businessman, 18.0% of service providers, and 4.8% of farmers.

Table 1 shows the demographic features of the patients		
Background characteristics Number		Percentage
Age (years)		
Mean±SD 32.50±15.30, Range 15-60		
Sex		
Male	198	49.5%
Female	202	50.5%
Occupation		
Agriculture	19	4.8%
Workers	41	10.3%
Service	72	18.0%
Business	68	17.0%
House wife	88	22.0%
Student	70	17.5%
Weavers	9	2.3%
No work	20	5.0%
Others	13	3.3%
Marital status		
Married	298	74.5%
Single	49	12.3%
Widow	25	6.3%
Widower	15	3.8%
Separated	13	3.3%
Divorced	2	0.5%
Education		
Primary	71	17.8%
Secondary +	63	15.8%
Graduate +	12	3.0%
Read/sign	31	7.8%
Illiterate	223	55.8%
Economic status		
Upper	15	3.8%
Middle	122	30.5%
Lower	263	65.8%

The number of Rheumatic diseases has risen between middle-aged people. In the 15–24-year-old category, it was 9.8 percent. The measures were 29 percent and 26.1 percent, respectively, for 35-44 years old and 45-54 years old. 14.7 percent were those over the age of 65. The occurrence of rheumatic symptoms per year was substantially different among middle-aged, young and elderly people ($p<0.05$).

Also prevalent among housewives was occupational rheumatic disease, with an annual incidence of 24.4 per 100 persons. The number of rheumatic disorders among workers was 10.0%, 4.3% for service providers and 8.6% for business man.

The functional disabilities among patients are given in Table-4 which shows spine issues in 11.1%, Knee problems in 9.9%, shoulder 9.5%, Elbow in 6.1%, Neck issues in 8.9% and wrist and hand disability in 4.9 and 3.8% respectively.

The total incidence of Rhematic disorders among males and females are given in Table-IV. 14.1% of the males have rheumatic disorders and 20.8% among females which shows higher incidence among females.

Age in Year	Interviewed population			population Positive respondent		
	Male	Female	Total	Male	Female	Total
15-24	59 (29.5)	73 (36.5)	132 (33.0)	5 (8.4)	8 (11.0)	13 (9.8)
25-34	49 (24.5)	43 (21.5)	92 (23.0)	6 12.2)	9 (20.9)	15 (16.3)
35-44	29 (14.5)	33 (16.5)	62 (15.5)	5 (17.2)	13 (39.4)	18 (29.0)
45-54	25 (12.5)	21 (10.5)	46 (11.5)	6 (24.0)	6 (28.6)	12 (26.1)
55-65	17 (8.5)	17 (8.5)	34 (8.5)	3 (17.6)	4 (23.5)	7 (20.6)
65+	21 (10.5)	13 (6.5)	34 (8.5)	3 (14.3)	2 (15.4)	5 (14.7)
Total	200 (100.0)	200 (100.0)	400 (100.0)	28	42	70

Table 3				
Occupation	Interviewed population		Positive respondent	
	Number	Percent	Number	Percent
Agriculture	19	4.8%	4	5.7%
Workers	41	10.3%	7	10.0%
Service	72	18.0%	3	4.3%
Business	68	17.0%	6	8.6%
House wife	88	22.0%	41	58.6%
Student	70	17.5%	3	4.3%
Weavers	9	2.3%	3	4.3%
Others	20	5.0%	2	2.9%
No work	13	3.3%	1	1.4%
Total	400	100%	70	100%

Table 4 shows the Incidence of rheumatic complaints by site.				
Joint and region	Male	Female	Total	
	(n=198)	(n=202)	(n=400)	
	%	%	%	95 % CI
Spine	5.9	14.3	11.1	9.78-12.18
Knee	6.5	12.7	9.9	8.47-10.75
Shoulder	6.5	11.8	9.5	8.01-10.23
Neck	4.1	8.1	8.9	7.87-10.08
Elbow	4.2	8.2	6.1	5.24-7.08
Ankle	4.5	6.9	5.8	4.94-6.76
Hip	3.1	5.8	4.6	3.67-5.28
Wrist	3.3	6.5	4.9	4.08-5.76
Hand	2.7	4.9	3.8	2.82-4.27
Foot	2.9	4.4	3.9	2.92-4.59
Others	1.2	0.9	0.9	0.43-1.16

Table 5				
Sex	Population	Positive	Incidence	95% CI
	interviewed	respondent	rate (%)	
Male	198	28	14.1%	10.51-14.13
Female	202	42	20.8%	18.23-22.59
Total	400	70	17.5%	14.95-17.79

DISCUSSION

For most new cases of rheumatic disease, this study first reported a rural population in Pakistan within 18 months. The response rate was similar to that of other COPCORD studies. During this time, of the 400individuals, (28 men and 42 women) reported of arthritis. Efforts have been made to examine the relation between rheumatic incidence and socio-demographic factors such as life expectancy, age structure, distribution of gender, income, community, religion, jobs, and social status. They have also described common and uncommon rheumatic diseases[10-11]. The collection of data by professional interviewers was sufficient because they collected information from a huge population of medium complexity. It has been shown that the low-cost approach is ideal for research in developed countries[12]. In almost all rheumatic illnesses, female dominance has been shown. Differences in the number of

events between males and females were important for back pain and fibromyalgia. A common gesture in local culture is searching at home and at work, a finding that contradicts Farney's suggestion that a crouch should be performed on Pakistani villagers who are known to have no back pain. The occurrence of fibromyalgia was 4.32/100 individuals, where women suffered more than men, was another noticeable finding in one research in Pakistan[13]. In the United States, a rising incidence of fibromyalgia has also been identified. In Pakistan (2.01 percent), Norway, 5.8 percent annual prevalence in women aged 26-51 years, osteoarthritis was common. Arthritis in both trials of COPCORD was observed. The frequency of knee osteoarthritis was 1.42 per 100 years, with the incidence of both men and women being roughly the same. The prevalence of knee osteoarthritis in the COPCORD study was 5.1 percent in Indonesia, 3 percent in rural Philippines, 5.8 percent in rural India, and 3.7 percent in Pakistan[14-15].In Finland; 1439 per 100,000 people over the age of16, 22 per 100,000 adults, 60 per 100,000 patients over the age of18 in the United States women have arthritis. In one study in Mexico, the most common wound was the knee (12.3 percent),Ankles (6%) and shoulders (5.3 percent). Elevated obesity should not be expected in cities where hunger and poverty are common. Knee osteoarthritis may result from other physical factors, such as weight gain and the load that causes knee injury. The prevalence of rheumatoid arthritis per 100 years is 0.48 percent, with the vast majority of women being one. In developing nations, the occurrence of rheumatoid arthritis is attributed to a lack of demographic factors or causative factors, such as lack of knowledge of minor diseases, reduced survival of women with or without RA[16]. Under such RA criteria, studies were conducted in most developed countries. Fourteen studies were examined, with an occurrence ranging from 0.3 to 1.5 percent with an average rate of about 1 percent. WHO-ILAR-prevalence COPCORD's of rheumatic diseases in rural India was 0.68% and 0.2% in rural Philippines. 0.34 percent is almost similar to other COPCORD findings that are likely to support the argument that inflammatory arthritis in developed countries is not a common issue. The occurrence of arthritis of soft tissues was 5.3%. Both incidents of epicondylitis, tendinitis, bursitis, tendonitis, and facial pain syndrome were included. The more you are uneducated, the more likely it is that you have previously done it manually. In rural Philippines, the incidence of gout was 0.6 percent, and 0.12 percent of the rural Pakistani population suffered from gout, and northern Pakistan registered no cases[17-18]. No cases of gout were found in this report. In 99.5 percent of positive respondents, functional limitation was found in one or more usual daily activities. Chronic low back pain was important in our sample and existed more frequently in the illiterate population. 5.7 percent of farmers suffered from chronic back pain in terms of production operation, which was lower than for employees and businesspeople[19-20]. Health-related operational and quality of life (HRQOL) measures that are measured by disease occurrence and rheumatic disease are included in the definition of disease burden, and this category can be categorized as a major disease, as well as nervous system, heart or lung disease. The total financial burden for rheumatic disorders, including cardiovascular disease and cancer, is also higher than for other chronic diseases. For both direct costs (e.g., long-term osteoporosis treatment) and indirect costs, such as reduced efficiency in chronic patients, the effect of impairment due to musculoskeletal disorders is significant[21-22].

CONCLUSION

This research highlights the major burden in rural areas of rheumatic disease. Increased demand for recognition of the seriousness of the current situation and steps to avoid and eradicate problems in this regard. Morbidity, injury and unemployment are the main causes of mechanical and degenerative diseases. Future studies should concentrate on the detection of work-related and ergonomic chronic back pain risk factors. These studies should preferably involve larger samples. In order to minimize the occurrence of back pain, intervention trials should be planned to assess the effects of altering physical and environmental risk determinants.

REFERENCES

1. Guevara-Pacheco S, Feicán-Alvarado A, Sanín LH, Vintimilla-Ugalde J, Vintimilla-Moscoso F, Delgado-Pauta J, Lliguisaca-Segarra A, Dután-Erráez H, Guevara-Mosquera D, Ochoa-Robles V, Cardiel MH. Prevalence of musculoskeletal disorders and rheumatic diseases in Cuenca, Ecuador: a WHO-ILAR COPCORD study. Rheumatology international. 2016 Sep;36(9):1195-204.
2. Nájera DD, Santana N, Peláez-Ballestas I, González-Chávez SA, Quiñonez-Flores CM, Pacheco-Tena C. Prevalence of rheumatic diseases in Raramuri people in Chihuahua, Mexico: a community-based study. Clinical rheumatology. 2016 Jul;35(1):43-52.
3. Seoane-Mato D, Sánchez-Piedra C, Silva-Fernández L, Sivera F, Blanco FJ, Ruiz FP, Juan-Mas A, Pego-Reigosa JM, Narváez J, Martí NQ, Verdú RC. Prevalence of rheumatic diseases in adult population in Spain (EPISER 2016 study): Aims and methodology. ReumatologíaClínica (English Edition). 2019 Mar 1;15(2):90-6.
4. Misra DP, Agarwal V, Negi VS. Rheumatology in India: a Bird's eye view on organization, epidemiology, training programs and publications. Journal of Korean medical science. 2016 Jul;31(7):1013.
5. Ferucci ED. Understanding the Disproportionate Burden of Rheumatic Diseases in Indigenous North American Populations. Rheumatic Disease Clinics. 2020 Nov 1;46(4):651-60.
6. Gergianaki I, Fanouriakis A, Repa A, Tzanakakis M, Adamichou C, Pompieri A, Spirou G, Bertsias A, Kabouraki E, Tzanakis I, Chatzi L. Epidemiology and burden of systemic lupus erythematosus in a Southern European population: data from the community-based lupus registry of Crete, Greece. Annals of the rheumatic diseases. 2017 Dec 1;76(12):1992-2000.
7. Watkins DA, Johnson CO, Colquhoun SM, Karthikeyan G, Beaton A, Bukhman G, Forouzanfar MH, Longenecker CT, Mayosi BM, Mensah GA, Nascimento BR. Global, regional, and national burden of rheumatic heart disease, 1990–2015. New England Journal of Medicine. 2017 Aug 24;377(8):713-22.
8. Peláez-Ballestas I, Pons-Estel BA, Burgos-Vargas R. Epidemiology of rheumatic diseases in indigenous populations in Latin-Americans.
9. Peláez-Ballestas I, Alvarez-Nemegyei J, Loyola-Sánchez A, Escudero ML. Prevalence and factors associated with musculoskeletal disorders and rheumatic diseases in

indigenous Maya-Yucateco people: a cross-sectional community-based study. Clinical rheumatology. 2016 Jul;35(1):15-23.
10. Moradi-Lakeh M, Forouzanfar MH, Vollset SE, El Bcheraoui C, Daoud F, Afshin A, Charara R, Khalil I, Higashi H, Abd El Razek MM, Kiadaliri AA. Burden of musculoskeletal disorders in the Eastern Mediterranean Region, 1990–2013: findings from the Global Burden of Disease Study 2013. Annals of the rheumatic diseases. 2017 Aug 1;76(8):1365-73.
11. Le Zhang GH, Ye S, Wu B, Shen Y, Li T. Treatment adherence and disease burden of individuals with rheumatic diseases admitted as outpatients to a large rheumatology center in Shanghai, China. Patient preference and adherence. 2017;11:1591.
12. Hurwitz EL, Randhawa K, Torres P, Yu H, Verville L, Hartvigsen J, Côté P, Haldeman S. The Global Spine Care Initiative: a systematic review of individual and community-based burden of spinal disorders in rural populations in low- and middle-income communities. European Spine Journal. 2018 Sep 1;27(6):802-15.
13. Rahman MM, Islam AM, Rahman MM, Islam MR, Liza DY, Kibria MG. Estimation of Prevalence of Musculoskeletal Pain & Rheumatic Disorders in a Rural Community of Bangladesh. Medicine Today. 2020 Jan 1;32(1):33-6.
14. Pal CP, Singh P, Chaturvedi S, Pruthi KK, Vij A. Epidemiology of knee osteoarthritis in India and related factors. Indian journal of orthopaedics. 2016 Oct;50:518-22.
15. Guevara SV, Feicán EA, Peláez I, Valdiviezo WA, Montaleza MA, Molina GM, Ortega NR, Delgado JA, Chimbo LE, Hernandez MV, Sanin LH. Prevalence of rheumatic diseases and quality of life in the saraguro indigenous people, ecuador: a cross-sectional community-based study. JCR: Journal of Clinical Rheumatology. 2020 Oct 1;26(7S):S139-47.
16. Alvarez-Nemegyei J, Peláez-Ballestas I, Goñi M, Julián-Santiago F, García-García C, Quintana R, Silvestre AM, García-Olivera I, Mathern NA, Loyola-Sanchez A, Conti S. Prevalence of rheumatic regional pain syndromes in Latin-American indigenous groups: a census study based on COPCORD methodology and syndrome-specific diagnostic criteria. Clinical rheumatology. 2016 Jul;35(1):63-70.
17. Tikly M, McGill P. The challenge of practicing rheumatology in Africa. Nature Reviews Rheumatology. 2016 Nov;12(11):630-1.
18. Sohrabi B, Ranjbar A. Global burden of rheumatic heart disease. N Engl J Med. 2018 Jan 4;378:e2.
19. Akpabio A, Akintayo RO, Effiong U. Can telerheumatology improve rheumatic and musculoskeletal disease service delivery in sub-Saharan Africa?. Annals of the Rheumatic Diseases. 2020 Jul 28.
20. Widdifield J, Bernatsky S, Thorne JC, Bombardier C, Jaakkimainen RL, Wing L, Paterson JM, Ivers N, Butt D, Lyddiatt A, Hofstetter C. Wait times to rheumatology care for patients with rheumatic diseases: a data linkage study of primary care electronic medical records and administrative data. CMAJ open. 2016 Apr;4(2):E205.
21. Julián-Santiago F, García-García C, García-Olivera I, Goycochea-Robles MV, Pelaez-Ballestas I. Epidemiology of rheumatic diseases in Mixtec and Chontal indigenous communities in Mexico: a cross-sectional community-based study. Clinical rheumatology. 2016 Jul;35(1):35-42.
22. Granados Y, Rosillo C, Cedeño L, Martínez Y, Sánchez G, López G, Pérez F, Martínez D, Maestre G, Berbin S, Chacón R. Prevalence of musculoskeletal disorders and rheumatic disease in the Warao, Kari'ña, and Chaima indigenous populations of Monagas State, Venezuela. Clinical rheumatology. 2016 Jul;35(1):53-61.