

The burden of musculoskeletal pain, associated sociodemographic factors, and disability in Pakistan

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Abstract

Objective: The objective of this survey was to determine the burden of musculoskeletal (MSK) pain, its association with sociodemographic factors and disability in the semi-urban community of Nain-Sukh, Lahore.

Methods: The current article's data is taken from the COPCORD survey conducted in the community of Nain-Sukh. After formal IRB approval, data collection was done via interview by a trained team using validated Urdu translation of COPCORD core questionnaires. Participants of both genders, >16 years, were enrolled through a random walk and quota sampling. In phase 1, sociodemographic factors were recorded. In phase 2, the impact of MSK pain on functional disability was assessed by the Modified Health Assessment Questionnaire (MHAQ). The data was compiled and analyzed using software SPSS version 25. The Chi-square test was applied to determine association while generalized linear regression models to see the dependence of sociodemographic factors and MSK pain.

Results: Out of 4922 participants, 1425 (28.9%) had MSK pain, with a mean age of 35 ± 14 years, with female predominance. Illiteracy, marital status, and household work with moderate intensity were significantly associated with MSK pain. Based on the MHAQ score, the majority 769 (82.9%) had a mild disability. Odds of advancing age, illiteracy, and moderate intensity of work were statistically significant for MSK pain.

Conclusion: Every fourth subject in the surveyed population had MSK pain. Musculoskeletal pain was found to be significantly associated with female gender, advancing age, household work, illiteracy, married status, and moderate nature of work. More than two-thirds of the subjects with MSK pain had some degree of disability.

KEYWORDS

MSK pain, Sociodemographic factors, and disability

1 | INTRODUCTION

Musculoskeletal disorders are an array of multisystem conditions leading to impairment, limited mobility, and participation restriction.¹ It is one of the leading causes of disability which has a high impact on the social and economic productivity of any region due to loss of

yield, huge costs to the health system, and absenteeism.¹ According to the International Classification of Diseases, Musculoskeletal disorders embrace beyond 150 different differentials affecting nearly every part of our locomotor system. It is the most disabling disease affecting all age groups.² Its prevalence is on the rise with each passing year around the globe.²



In the early 80s, World Health Organization (WHO) and International League Against Rheumatism (ILAR) started a joint initiative the Community Oriented Programme for Control of Rheumatic Diseases (COPCORD) to generate epidemiological data on MSK disorders.³ Since then several COPCORD surveys have been conducted in the Asia Pacific region and beyond.³ In 2018, Pakistan became the awardee of the above-mentioned grant, and a household survey was conducted in a semi-urban community of Lahore Pakistan to generate data on the prevalence of inflammatory back and radiographic axial spondylarthritis.⁴ This article is secondary data that has been extracted from the parent study and earlier version was previously presented as a meeting abstract at the 2020 Asia-Pacific League of Association for Rheumatology virtual congress, held between 24 and 29th October 2020.⁵

According to WHO statistics, MSK disorders are one of the leading causes of disability in four of the six WHO regions with the second rank in the Eastern Mediterranean Region and third in the African region. It accounts for 16% of all years lived with disability and according to estimates the global prevalence of musculoskeletal conditions according to age and diagnosis ranges between 20% and 33%.¹

Considering its burden worldwide, in Latin America, musculoskeletal disorders account for 23%–45%, 26.8% in South India, 17% in Mexico, and 50% in Peru.⁶ Furthermore, the prevalence of musculoskeletal pain was found to range from 7% to 14% in India, 36.19% in Indonesia, and 41.9% to 54.13% in Iran, according to COPCORD data.^{7–9} The point prevalence has been found to be 26% among the population of Bangladesh.¹⁰ The burden in Kuwait was found to be 39%.¹¹ The reported prevalence of MSK from the COPCORD study conducted in Argentina showed a figure of 53.7%.¹² Data on its exact burden is scarce in low- and middle-income countries like Pakistan. The last COPCORD survey conducted in the north of Pakistan by Farooqi A was conducted more than two decades ago.¹³ The point prevalence of MSK pain in that survey was 14.7%.¹³ The recent COPCORD study, done to determine the prevalence of inflammatory back pain and radiographic axial SpA, has now been able to generate data on MSK burden and associated sociodemographic factors and disability among the Pakistani population.⁴

There are many factors that can influence the MSK pain in people living in low to middle-income countries, but the sociodemographic factors are most pertinent. In the majority of the COPCORD surveys, females are consistently found to be the more affected segment.^{7–12} Moreover, other factors influencing are education, marital status, occupation, nature of work, and income.^{7–12} MSK pain affects almost people of any age, particularly people of the working-age group. The statistics show that it can cost a huge economic burden on the society and country as young people suffering from MSK symptoms will show absenteeism or take early retirement from work.

The recently launched National health card scheme in Pakistan does not even consider most of MSK disorders like Rheumatoid Arthritis and Ankylosing spondylitis to be included in diseases requiring inpatient or outpatient care. So, there is no coverage for biologics and for that matter conventional Disease Modifying Anti-Rheumatic

drugs (DMARDs). There is an unmet need to sensitize stakeholders about the impact of disability due to these disorders and associated sociodemographic factors through data generated by community-based surveys. The objective of current research is to determine the association of different sociodemographic factors and disability with MSK pain among the Pakistani population.

2 | METHODOLOGY

The data has been extracted from the parent COPCORD study on the prevalence of inflammatory back and radiographic axial spondylarthritis in a semi-urban community of Lahore.⁴ This household survey was conducted by the Department of Rheumatology, Fatima Memorial Hospital (FMH) Lahore, Pakistan from November 2018 to April 2019.

2.1 | Study population

This household survey was conducted in a semi-urban community of Nain-Sukh, situated on the outskirts of Lahore using a non-probability data collection technique.

2.2 | Instruments

The data was collected through an Urdu translation of the COPCORD Core Questionnaire (CCQ) for Phase 1 and 2 which was validated through backward translation into English by another rheumatologist not part of the core COPCORD investigator team. The pre-test of the Urdu version of CCQ Phase 1 and Phase 2 was done to assess the feasibility and reliability in 50 subjects of Nain-Sukh.⁴ To determine the reliability, Cronbach's alpha was calculated and the score was 0.87.⁴

2.3 | Data collection

Data was collected in the community by a team of clinical assistants, physiotherapists, and rheumatology fellows using a non-probability data collection technique.

The training of the team was done by the Principal Investigator before the start of data collection. The Principal Investigator (PI) and his team members visited the locality several times to take on board all stakeholders including religious leaders, elected council members, and family physicians working in the Primary Health Care (PHC) center of Nain Sukh. The locality was informed about the merits of the survey through leaflet distribution, banner displays, and public announcements through the loudspeakers of the local mosques and in the Friday congregation.

The data collection, using the phase 1 and 2 COPCORD questionnaires was done concurrently. The data collection teams started

the data collection by random walk and quota sampling technique by keeping the PHC as a base camp. Door-to-door data collection via interview was done by eight teams comprising clinical assistants and physiotherapists. Each team was given a quota of 600 questionnaires. The residents who were absent at the time of data collection were marked and revisited at a different time of the day to reduce the non-response rate. In the phase 1 questionnaire, the household of 16 years and above were asked the question pertaining to socio-demographic factors and history of the body or joint aches and pains pain in the last 7 days or prior. The respondents having musculoskeletal pain in the last 7 days or prior were interviewed for the phase 2 CCQ using purposive sampling.

Subjects were asked to point to areas of pain, swelling, stiffness, and/or limitation, on a drawing of a mannequin, which they experienced in the last 7 days or prior. The subjects rated their pain on a Likert scale. Data on their health seeking behaviors were also recorded. The impact of musculoskeletal (MSK) pain on functional disability was assessed by the Modified Health Assessment Questionnaire (MHAQ), administered via interview.

2.4 | Definitions

Nature of work was categorized on subjective assessment of participants rather than any stringent criteria as per COPCORD phase -2 questionnaire. Mild- moderate and severe disability was defined based on the cutoff values of 0 to 1 were considered as mild disability, 1.1 to 2 as moderate disability, and 2.1 to 3 as very severe disability.¹⁴

2.5 | Data analysis

These subjects were later included in the total count of 4922 subjects surveyed. At the end of the household survey, the data from the completed questionnaires was analyzed using SPSS software version 25. Proportions were calculated for all qualitative variables and all quantitative variables were presented as mean and standard deviation (SD). One-way ANOVA was applied for comparisons of means among different groups. For comparison of categorical variables between different sub-groups of diagnosis, a chi-square test was applied. The level of significance was set at 95% (p -value $\leq .05$). For calculating the relative risk (RR) Pearson's chi-square test was applied. Prevalence figures were represented with a 95% confidence interval calculated by Wilson score.

2.6 | Ethics

The formal IRB approval (IRB#10-2018-IRB-517-M) was taken from Fatima Memorial College of Medicine and Dentistry. Patients were enrolled in the survey after an informed consent and confidentiality of subjects was kept as per GCP guidelines.

Any subject while evaluation was found to have any illness or disease was either referred to a primary health care center or in case of the suspected rheumatic disease was referred for evaluation by a rheumatology team comprising fellows and consultant rheumatologist at the base camp established at Nain Sukh primary health care center.

3 | RESULTS

3.1 | Sociodemographic data

A total of 4299 subjects were interviewed in phase 1. The mean age of the participants was 3 ± 14.47 SD years. Most of the interviewed households were females 2770 (56%).

3.2 | Burden of MSK pain

There were 1425 (28.9%) subjects who had a history of MSK pain ever and 1407 (28.6%) reported having MSK pain in the last 7 days.

3.3 | Sociodemographic factors associated with MSK pain

Of all the respondents with MSK pain, the majority belonged to the age group of 26–35 years ($p = .000$) (Table 1). Out of a total of 1425 with MSK pain ever majority were females 71%. When data was stratified on the basis of family size there was no significant difference in the proportion of patients with or without MSK pain. Majority of the participants with MSK pain were illiterate ($p = .000$) (Table 1). Considering the occupation, MSK pain was significantly associated with housework and fieldwork ($p = .000$) (Table 1). Among the households, the nature of work of moderate intensity was found to be significantly associated with MSK pain ($p = .000$) (Table 1). Of all, those who had MSK pain majority were married ($p = .000$) (Table 1) with a monthly income of more than rupees 15000 ($p = .27$) (Table 1).

Generalized linear regression models were applied to observe the dependence of MSK pain on various socio-economic and demographic factors. The significant value of the likelihood ratio chi-square test indicated that the model is a good fit using gender, age group, type of family, literacy, occupation, marital status, nature of work, and a monthly income as the independent risk factors for MSK pain (Table 2).

Gender was found as an independent risk factor for MSK pain (Table 2). The negative coefficient shows that the chances of MSK pain were 51% higher in females. The age group and MSK pain shared a positive association (Table 2). The odds of MSK pain were higher for increased age (Table 2). Occupation, type of family, marital status, and monthly income were the statistically insignificant risk factor for MSK pain (Table 2). MSK pain was negatively



TABLE 1 Relationship of sociodemographic variable with MSK pain.

Variable	MSK pain yes n (%)	MSK pain no n (%)	p-Value
	1425 (29)	3497 (71)	
Gender			
Male	409 (28.7)	1744 (49.9)	.000*
Female	1016 (71.3)	1753 (50.1)	
Age in years			
<25	217 (15)	1320 (38)	.000*
26–35	404 (28.4)	987 (28.2)	
36–45	378 (26.5)	626 (17.9)	
46–55	245 (17.2)	275 (7.9)	
56 and older	181 (12.7)	289 (8.3)	
Type of family			
Single	786 (54)	1863 (53)	.358
Joint	657 (46.1)	1634 (47)	
Literacy status			
Read only	139 (9.8)	245 (7)	.000*
Read and write only	531 (37)	1908 (55)	
Illiterate	755 (53)	1344 (38)	
Occupation			
Student	18 (1.3)	305 (8.7)	.000*
Farm work	37 (2.6)	111 (3.2)	
Fieldwork	179 (12.6)	759 (21.7)	
Shop business	107 (7.5)	441 (12.6)	
Household work	957 (67.2)	1569 (44.9)	
Housemaid	21 (1.5)	38 (1.1)	
Professional	12 (0.8)	66 (1.9)	
Retired	40 (2.8)	88 (2.5)	
Unemployed	54 (3.8)	120 (3.4)	
Nature of work			
Light	371 (26)	1100 (32)	.000*
Moderate	682 (48)	1996 (57)	
Moderate to heavy	42 (2.9)	49 (1.4)	
Heavy	330 (23)	352 (10.1)	
Marital status			
Married	1225 (86)	2486 (71)	.000*
Single	97 (6.8)	906 (25.9)	
Widowed	90 (6.3)	94 (2.7)	
Divorced	9 (0.6)	7 (0.2)	
Separated	4 (0.3)	4 (0.1)	
Monthly income per month			
<15 000 Rs (USD 112)	598 (42)	1408 (40.3)	.27
>15 000 Rs (USD 112)	827 (58)	2089 (60)	

*Statistically significant result.

associated with literacy level (Table 2). The chances for the MSK were 18.2% higher in illiterate participants and participants with low literacy (Table 2). The nature of the work was the statistically significant factor for MSK pain (Table 2). The odds for MSK pain were higher among participants whose nature of the work was moderate (Table 2). For the effect of MSK pain on different domains of quality of life see Table 3.

3.4 | Sociodemographic factors associated with disability

Data on disability was available in 958 subjects based on HAQ-DI Score, 20 (2.1%) had severe and 143 (14.9%) had moderate disability while 795 (83%) had a mild disability (Figure 1). The mean HAQDI score was 0.70 ± 0.48 . Of all the subjects on which HAQ DI was available, 38.5% had a score ≥ 0.8 . For comparison of relevant sociodemographic factors and frequency of subjects in different categories of HAQ-DI (Table 4). More women experienced moderate and severe disability due to MSK pain 131 (18.4) versus 32 (13). The frequency distribution of disability categories in different age groups is shown in Figure 2. There were 154/899 (17.2) ($p = .117$) who had stopped their work due to MSK pain or disability and 97/888 (10.9) had changed their job due to MSK pain ($p = .101$). Moreover, there were 440/894 (49.4) who felt depressed due to MSK pain.

4 | DISCUSSION

There is a lack of data on the epidemiology of rheumatic diseases from our part of the world. The last study from Pakistan was published more than two decades back.¹³ The burden of MSK disorders has been found to be 1.29 times higher in females as compared to males in WHO global burden study.¹

In our study, the point prevalence of MSK pain was 28.6% pain, and historical pain in 28.9% of the surveyed population, with female preponderance. This might be because our surveyed population was also female predominant. The same has been the case in most of the COPCORD surveys around the world.^{8–13} Moreover, the figures from Latin America, account for 23%–53.7%.⁶ Our results are comparable to the figures of South Asia as the environment and socio-economic conditions are somewhat similar.³

Females in our survey were twice as likely to have MSK pain than their counterparts. In a survey from Bangladesh, the point prevalence of MSK pain in urban slum in women versus men was 27.5 versus 22.6% which is lower in both genders than in our survey 36.7 versus 19.0% respectively, p value .000.¹⁰

The results of the current study indicated that the majority of the participants with MSK pain were young with the highest OR in age ≤ 25 years, 2.62 95% CI (1.96–3.47) with the mean age of subjects with MSK pain 40.26 ± 14.1 years, while the mean age of our surveyed

TABLE 2 Generalized linear model for the dependence of MSK pain.

				CI 95%	
Variable	B	p-Value	OR	Lower	Upper
Gender					
Male	−0.715	.000*	0.489	0.373	0.642
Age in years					
<25 year	0.961	.000*	2.615	1.967	3.477
26–35	0.367	.005*	1.444	1.118	1.863
36–45	0.007	.958	1.007	0.779	1.301
46–55	−0.383	.007*	0.682	0.516	0.901
56 and older	0		1		
Type of family					
Single	0.031	.651	1.032	0.901	1.181
Literacy					
Read only	−0.200	.111	0.818	0.640	1.047
Read and write only	0.255	.001*	1.290	1.113	1.496
Illiterate	0		1		
Occupation					
Student	0.488	.139	1.629	0.854	3.110
Farm work	0.196	.476	1.216	0.710	2.083
Fieldwork	0.161	.445	1.174	0.777	1.773
Shop business	0.054	.808	1.056	0.683	1.632
Housework	−0.290	.187	0.749	0.487	1.151
Housemaid	−0.196	.575	0.822	0.415	1.628
Professional	0.317	.398	1.374	0.658	2.867
Retired	−0.305	.264	0.737	0.431	1.260
Unemployed	0		1		
Nature of work					
Light	0.963	.000*	2.620	1.624	4.228
Moderate	1.104	.000*	3.016	1.877	4.845
Moderate to heavy	0.094	.706	1.099	0.673	1.793
Heavy	0		1		
Marital status					
Married	0.218	.769	1.244	0.291	5.322
Single	0.863	.252	2.370	0.542	10.355
Widowed	0.195	.796	1.215	0.277	5.337
Divorced	−0.449	.621	0.638	0.108	3.789
Separated	0		1		
Monthly income per month					
<15 000 PKR (USD 112)	0.046	.515	1.047	0.912	1.201

*Statistically significant results.

TABLE 3 Effect of MSK pain on different domains of quality of life.

Quality of life variables	None n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	p-Value
Marital relationship n=892	725 (81.3)	119 (13.3)	42 (4.7)	6 (0.7)	.169
Financial relationship n=892	720 (80.7)	121 (13.6)	40 (4.5)	11 (1.2)	.156
Ability to do work	189 (21.4)	360 (40.7)	288 (32.5)	48 (5.4)	.520



population was 35.3 ± 14.5 years. A recent cross-sectional survey from Bangladesh on the prevalence of musculoskeletal conditions and related disabilities in adults showed a mean age of 40.5 ± 14.7 years.¹⁵ The frequency of MSK pain was higher in Females in our survey which

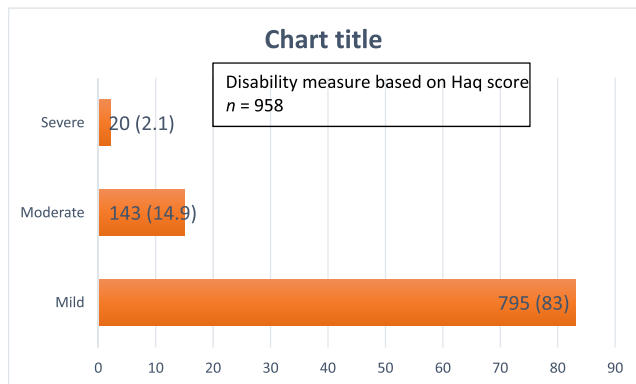


FIGURE 1 Frequency distribution of HAQ score-based disability among the surveyed population.

might be because of repetitive work with poor ergonomics and less opportunity to relax and exercise.¹⁶ Moreover, females in our culture might have very poor health-seeking behavior. Additionally, low literacy rate also be a contributing factor. More than half of the subjects affected were in the age range of 26–45 years which is considered the most active age group both in terms of physical work and childbearing.¹⁷ Hence, leading to a huge economic burden.

The result of the current study suggests that most of the people suffering from MSK pain were illiterate. The results are comparable with other COPCORD studies done in other regions. The study results from Northern India also suggested that MSK pain was found to be more in the population with no education or a very low level of education.⁷ The COPCORD data published in 2018 conducted in Indonesia and Iran suggested that the majority of the surveyed population with MSK pain had an education up to low middle.⁸ The results from the surveyed population from Argentina showed that 20.1% had an education up to primary school.¹² The reason for the increased burden of MSK pain in the developing world could be attributed to a low level of education which leads

Sociodemographic variable	Mild disability	Moderate disability	Severe disability	p-value
Female	581 (73.1)	114 (79.7)	17 (85.0)	.134
Male	214 (26.9)	29 (20.3)	3 (13)	
Literacy level				
Read only	79 (9.9)	13 (9.1)	(0.0)	.588
Read and write	300 (37.7)	52 (36.4)	07 (35.0)	
Illiterate	416 (52.3)	78 (54.5)	13 (65.0)	
Marital status				
Married	703 (88.4)	120 (83.9)	17 (85.0)	.003*
Single	48 (6.0)	03 (2.1)	02 (10)	
Widowed	37 (4.7)	16 (11.2)	00 (0.0)	
Divorcee	04 (0.5)	03 (2.1)	01 (5.0)	
Separated	03 (0.4)	01 (0.7)	00 (0.0)	
Occupation				
Student	7 (0.90)	0 (0.0)	0 (0.0)	.114
Farm work	22 (2.8)	3 (2.1)	0 (0.0)	
Desk job	2 (0.3)	0 (0.0)	0 (0.0)	
Field work	89 (11.2)	13 (9.1)	1 (5.0)	
Shop business	57 (7.2)	10 (7.2)	0 (0.0)	
Housework	556 (69.9)	102 (71.3)	14 (7.0)	
House maid	9 (1.1)	1 (0.7)	0 (0.0)	
Professional	9 (1.1)	0 (0.0)	0 (0.0)	
Retired	20 (2.5)	5 (3.5)	1 (5.0)	
Unemployed	24 (3.0)	9 (6.3)	4 (20)	
Monthly income per month				
<15000 PKR (USD 112)	341 (42.9)	65 (45.5)	12 (60.0)	.280
15000 PKR (USD 112)	454 (57.1)	78 (54.5)	8 (40.0)	

TABLE 4 Relationship between sociodemographic variable and HAQ-DI categories.

*Statistically significant results.

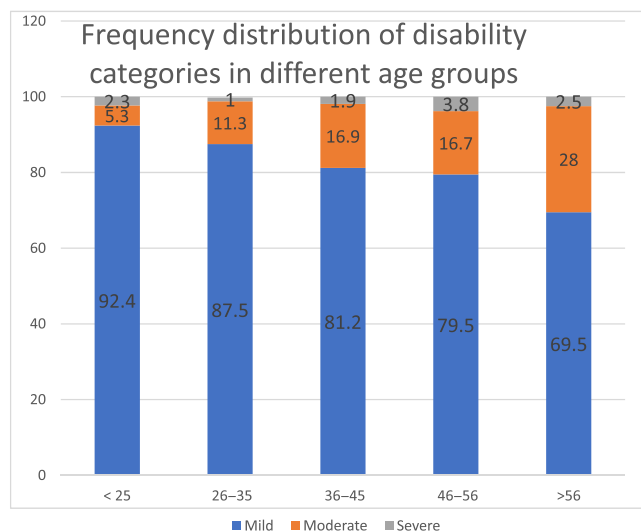


FIGURE 2 Frequency distribution of disability categories in different age groups.

to a lack of awareness about ergonomics, healthy diet, exercise, and health-seeking behavior.

The results of the current survey showed that the majority of the female respondents with a history of MSK were housewives and men were field workers and farmers with moderate intensity levels with poor socioeconomic status which is in line with the results of the COPCORD study from India.¹⁶ The enrolled population with MSK pain were female housewives of a semi-urban community with poor work ergonomics, living in crowded houses with poor exposure to the sun, and not involved in any healthy physical exercise. Moreover, due to religious and cultural issues females are generally dependent on their male households for accessing health care.

In our study, the participants who reported MSK pain majority had a mild degree of disability based on the HAQ-DI score while 17% had moderate to severe disability. The COPCORD study results done in Argentina suggested that 56.2% of the surveyed population with rheumatic diseases and undifferentiated musculoskeletal pain had a disability with HAQ-DI of >0.8 .¹² Using the same cut-off for our survey there were 38.5% who had significant disability. This highlights the fact that MSK disorders are a major cause of disability as already underpinned by several surveys including WHO's survey showing that worldwide prevalence of disability in subjects older than 50 is around 33.3%.¹⁸ In Bangladesh COPCORD survey results depicted disability of 24% in both rural and urban communities.¹⁰ The reported disability rates were very low among the Chinese population.¹⁹ While the statistics from Bhigwan India reported 11% to 37% moderate to severe disability based on HAQ scores due to soft tissue rheumatism to rheumatoid arthritis.²⁰ The Nigerian COPCORD results showed that 14% of the surveyed population had a high degree of disability which is in line with our finding of 17% reported having moderate to severe disability.²¹ However, the Ecuador population showed a prevalence of 9.5% of moderate to

severe disability with a lower mean HAQ-DI of 0.2 as compared to our figure of 0.70 ± 0.48 .²²

5 | CONCLUSION

MSK pain was found to be significantly higher in females more frequent young age group, household work, illiteracy, married status, and moderate to intense nature of work. Moderate to severe disability was found in one in every five persons suffering from MSK pain associated with advancing age.

AUTHOR CONTRIBUTIONS

Hina Ahmed and Muhammad Ahmed Saeed were involved in conceptualization, design, data acquisition, analysis, interpretation, drafting, critical reviewing, final approval of the manuscript and responsible for accuracy and integrity of data. Fatima Attique was involved data acquisition, analysis, intellectual input in drafting, final approval of the manuscript.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest to declare.

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REFERENCES

1. Liu S, Wang B, Fan S, Wang Y, Zhan Y, Ye D. Global burden of musculoskeletal disorders and attributable factors in 204 countries and territories: a secondary analysis of the global burden of disease 2019 study. *BMJ Open*. 2022;12(6):e062183.
2. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: a systematic analysis for the global burden of disease study 2019. *Lancet*. 2020;396(10267):2006-2017.
3. Chopra A. The COPCORD world of musculoskeletal pain and arthritis. *Rheumatologia*. 2013;52:1925-1928.
4. Saeed MA, Ahmed H, Faiq M, et al. Prevalence of inflammatory back pain and radiographic axial spondyloarthritis in a semiurban community of Lahore, Pakistan. *Int J Rheum Dis*. 2021;24:207-215.
5. Ahmed H, Saeed MA. The burden of musculoskeletal pain and associated sociodemographic factors, quality of life and disability: a COPCORD study from Lahore, Pakistan. *Int J Rheum Dis*. 2020;23(Suppl. 1):151-152.
6. Chopra A, The WHO. ILAR COPCORD Latin America: consistent with the world and setting a new perspective. *JCR. J Clin Rheumatol*. 2012;18(4):167-169.



7. Alok R, Agarwal GG. Prevalence of rheumatic musculoskeletal symptoms in rural and urban areas: a cross-sectional study in northern India. *Int J Rheum Dis*. 2017;20:1638-1647.
8. Andarini S, Arif AZ, Al Rasyid H, et al. Factors associated with health care seeking behavior for musculoskeletal pain in Indonesia: a cross-sectional study. *Int J Rheum Dis*. 2019;22:1297-1304.
9. Moghimi N, Davatchi F, Rahimi E, et al. WHO-ILAR COPCORD study (stage 1, urban study) in Sanandaj. *Iran Clin Rheumatol*. 2015;34:535-543.
10. Atiqul Haq S, Darmawan J, Nazrul Islam M, et al. Prevalence of rheumatic diseases and associated outcomes in rural and urban communities in Bangladesh: a COPCORD study. *J Rheumatol*. 2005;32:348-353.
11. Al-Awadhi AM, Olusi SO, Moussa M, Shehab D, Al-Zaid N, Al-Herz AAK. Musculoskeletal pain, disability and health-seeking behavior in adult Kuwaitis using a validated Arabic version of the WHO-ILAR COPCORD Core questionnaire. *Clin Exp Rheumatol*. 2004;22:177-183.
12. Quintana R, Silvestre AMR, Goñi M, et al. Prevalence of musculoskeletal disorders and rheumatic diseases in the indigenous Qom population of Rosario, Argentina. *Clin Rheumatol*. 2016;35:5-14.
13. Farooqi A, Gibson T. Prevalence of the major rheumatic disorders in the adult population of North Pakistan. *Br J Rheumatol*. 1998;37:491-495.
14. Bruce B, Fries JF. The Stanford health assessment questionnaire: dimensions and practical applications. *Health Qual Life Outcomes*. 2003;1:1-6.
15. Zahid-Al-Quadir A, Zaman MM, Ahmed S, et al. Prevalence of musculoskeletal conditions and related disabilities in Bangladeshi adults: a cross-sectional national survey. *BMC Rheumatology*. 2020;4(1):1-4.
16. Yasobant S, Mohanty S. Musculoskeletal disorders as a public health concern in india: a call for action. *Physiotherapy - J Indian Assoc Physiother*. 2018;12:46.
17. Sa H, Darmawan J, Islam MN, et al. Incidence of musculoskeletal pain and rheumatic disorders in a Bangladeshi rural community: a WHO-APLAR-COPCORD study. *Int J Rheum Dis*. 2008;11:216-223.
18. Hosseini AR, Bergen N, Kostanjsek N, Kowal P, Officer A, Chatterji S. Socio-demographic patterns of disability among older adult populations of low-income and middle-income countries: results from world health survey. *Int J Public Health*. 2016;61:337-345.
19. Dai SM, Han XH, Zhao DB, et al. Prevalence of rheumatic symptoms, rheumatoid arthritis, ankylosing spondylitis, and gout in Shanghai, China: a COPCORD study. *J Rheumatol*. 2003;30:2245-2251.
20. Chopra A. The WHO-ILAR COPCORD Bhigwan (India) model: foundation for a future COPCORD design and data repository. *Clin Rheumatol*. 2006;25(4):443-447.
21. Courage UU, Stephen DP, Lucius IC, et al. Prevalence of musculoskeletal diseases in a semiurban Nigerian community: results of a cross-sectional survey using COPCORD methodology. *Clin Rheumatol*. 2017;36:2509-2516.
22. Guevara-Pacheco SV, Feican-Alvarado A, Delgado-Pauta J, Lliguisaca-Segarra A, Pelaez-Ballesteros I. Prevalence of disability in patients with musculoskeletal pain and rheumatic diseases in a population from Cuenca, Ecuador. *J Clin Rheumatol*. 2017;23(6):324-329.

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