Musculoskeletal pain in the community

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ABSTRACT

Objectives: To estimate the prevalence of musculoskeletal (MSK) pain in Al-Qaseem province in central Saudi Arabia.

Methods: Over a period of 18 months extending from September 1993 through to the end of February 1995, a house-to-house survey was conducted in Al-Qaseem province and included 5,894 adults asking regarding musculoskeletal pain.

Results: We obtained a response from 5,823 (98.8%), 2,667 (45.8%) men, and 3,156 (54.2%) women. The mean age was 34.14 ± 15.16 years. Musculoskeletal pain was reported by 1,477 (25.4%), 762 (13.1%) men and 715 (12.3%) women.

Musculoskeletal pain was significantly correlated with age (r =0.454), married status (r=0.238), unemployment (r=0.122), lower educational attainment (r=0.347), frequent attendance at local doctor (r=0.703), consumption of medications for pain (r =0.551), and change in ability to work (r=0.492). We found no association with sex or body mass index.

Conclusion: Musculoskeletal pain, although common in the community, is less prevalent than reported from Western countries, but has similar socio-medical consequences.

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Musculoskeletal (MSK) pain is very common in both developed, and developing countries with estimates of prevalence ranging from 11-60%.[1-7] Musculoskeletal pain is the most prevalent cause of chronic pain in general.[2] These complaints impose a heavy burden on health and social resources. It is one of the most common reason for visits to primary care centres.[3,8] It is also an important cause of absence from work and early retirement.[9,10] Multitudes of factors have been implicated in influencing the prevalence, severity and outcome of MSK pain. Among these are: age, sex, environment, culture, ethnicity, and socio-economic status, body mass index (BMI) and psychology of the individuals.[11-15] This community study tries to estimate the prevalence of MSK pain and its association for the first time in the Kingdom of Saudi Arabia (KSA).

Methods. Al-Qaseem province is situated in the heart of the KSA. It combines rural and urban centers. The 1992 population census put the population at 660,000, with an estimated yearly growth of 5%. For our purposes, the province was divided into 3 strata based on population size: Large (>20,000 population), medium (50,000-20,000) and small (<5,000 inhabitants). Random samples were selected from each of the large and medium sized strata. The third strata comprising villages was sampled with a probability proportionate to size. The sampling unit was taken as the household, and a total of 1,000 household were selected for the house to house survey which took 18 months extending from September 1993 through to February 1995. This involved administering a questionnaire by trained nurses

and paramedical staff, to identify age, sex, musculoskeletal complaints, number of joints affected, progress of pain, presence of fatigue, stiffness, muscle pain or weakness, frequency of attendance at local doctor, and consumption of medications for pains. We also asked regarding occupation, marital status, housing type, and level of education attainment. Patients also had their height, weight, blood pressure measured and their body mass index (BMI) calculated. The data were analyzed using simple descriptive statistics, and correlation and odd ratios for association were calculated using statistical package for social sciences statistical package (SPSS Inc., Chicago, Illinois, United States of America).

Results. A total of 5,894 adults above age of 16 years old were surveyed, with a response rate of 98.8% (5,823) [2,667 (45.8%) males and 3,156 (54.2%) females]. Their mean age was 34.14 ± 15.16. One thousand, four hundred and seventy-seven (25.4%) individual admitted to having musculoskeletal pain during the past one year. They were 762 males (13.1%) and 715 (12.3%) females. **Table 1** shows relation of pain to sex and age group. It shows that most of the cases are in the age range of 26-56 years and that females outnumbered males in the younger age groups while the opposite is true in older age groups. Three hundred and twenty-five (5.6%) patients complained of morning stiffness of varying duration, 289 (4.9%) said they had limitation of movement of at least one joint in the last year, 398 (6.8%) reported pain and weakness in muscles. Pain progressed in 194 (13.1%) of those with pain. Back pain was reported in 1,081 (18.3%) of the whole sample. Past episodes of pain was reported in 479 (8.2%) of

individuals. Fatigue was reported in 407 (6.9%) patients and weight loss was reported in 62 (1.1%) individuals. In those with musculoskeletal pain, 688 (46.6%) were married males, 638 (43.2%) married females, 74 (5.0%) single males and 77 (5.2%) single females. However, most of those reported as single are younger, as seen in **Table 2**. Both **Tables 1 & 2** show musculoskeletal pain increasing with age especially over the age range 26-65 years. Among the different occupations, musculoskeletal pain was reported among the following (**Table 3**): 66 (1.2%) students, 617 (10.8%) housewives, 33 (0.6%) unskilled labors, 14 (0.2%) skilled workers, 115 (2%) professionals, 100 (1.8%) small business, 69 (1.2%) farmers, 183 (3.2%) unemployed, 89 (1.6%) teachers, 44 (0.8%) soldiers, and 24 (0.4%) servants. The highest percentages seen among housewives and the unemployed. Musculoskeletal pain was reported more by those having no education (illiterate 798, constituting 54% of those with pain) (**Table 4**). Urban dwellers had a higher prevalence of musculoskeletal pain, 70.4% versus 29.6% rural. Ability to work was reduced mildly in 25% and markedly in 2.9% of those with musculoskeletal pain. However, only 280 (18.9%) sought medical help. Five hundred and sixty (37.9%) received medications for their musculoskeletal pains. The number of joints affected with pain were one in 246 (16.7%), 2-4 joints in 812 (54.9%), and more than 4 joints in 153 (10.4%). Excessive activity was the most reported precipitating factor for pain in 795 (53.8%) followed by trauma in 97 (6.6%) and climate change in 95 patients (6.4%). Two hundred and seventy-two (18.4%) patients of those with musculoskeletal pain had headache, and 277 (18.7%) had abdominal pains. One hundred and eighty-seven (12.7%) of those with MSK pain were diabetics, 2 (0.1%) had hyperthyroidism and none with

Table 1 - Musculoskeletal pain, sex and age group (N=5823).

Age group (Years)	Sex						Total				Grand Total (%)	
	Male Musculoskeletal pain (%)			Female Musculoskeletal pain (%)			Musculoskeletal pain (%)					
	No		Yes		No		Yes		No		Yes		
16-25	777	(13.3)	72	(1.2)	1131	(19.4)	80	(1.4)	**1908**	**(32.8)**	**152**	**(2.6)**	**2060**	**(35.4)**
26-35	523	(9)	129	(2.2)	820	(14.1)	179	(3.1)	**1343**	**(23.1)**	**308**	**(5.3)**	**1651**	**(28.4)**
36-45	339	(5.8)	160	(2.7)	305	(5.2)	167	(2.9)	**644**	**(11.1)**	**327**	**(5.6)**	**971**	**(16.7)**
46-55	132	(2.3)	115	(2)	118	(2)	133	(2.3)	**250**	**(4.3)**	**248**	**(4.3)**	**498**	**(8.6)**
56-65	89	(1.5)	151	(2.6)	48	(0.8)	88	(1.5)	**137**	**(2.4)**	**239**	**(4.1)**	**376**	**(6.5)**
66-75	29	(0.5)	92	(1.6)	15	(0.3)	53	(0.9)	**44**	**(0.7)**	**145**	**(2.5)**	**189**	**(3.2)**
76-85	11	(0.2)	38	(0.7)	3	(0.05)	12	(0.2)	**14**	**(0.2)**	**50**	**(0.9)**	**64**	**(1.1)**
86-100	5	(0.1)	5	(0.1)	1	(0.02)	3	(0.05)	**6**	**(0.1)**	**8**	**(0.1)**	**14**	**(0.2)**
Total	**1905**	**(32.7)**	**762**	**(13.1)**	**2441**	**(41.9)**	**715**	**(12.3)**	**4346**	**(74.6)**	**1477**	**(25.4)**	**5823**	**(100)**

Table 2 - Musculoskeletal pain, marital status and age group (N=5823).

Age group (Years)	Marital status						Total				Grand Total (%)	
	Single Musculoskeletal pain (%)			Married Musculoskeletal pain (%)			Musculoskeletal pain (%)					
	No		Yes		No		Yes		No		Yes		
16-25	1329	(22.8)	94	(1.6)	579	(9.9)	58	(1.0)	1908 (32.8)	152 (2.6)		2060	(35.4)
26-35	138	(2.4)	20	(0.3)	1205	(20.7)	288	(4.9)	1343 (23.1)	308 (5.3)		1651	(28.4)
36-45	22	(0.4)	4	(0.07)	622	(10.7)	323	(5.5)	644 (11.1)	327 (5.6)		968	(16.6)
46-55	9	(0.2)	6	(0.1)	241	(4.1)	242	(4.1)	250 (4.3)	248 (4.3)		498	(8.6)
56-65	7	(0.1)	11	(0.2)	130	(2.2)	228	(3.9)	137 (2.4)	239 (4.1)		376	(6.5)
66-75	9	(0.2)	11	(0.2)	35	(0.6)	134	(2.3)	44 (0.7)	145 (2.5)		189	(3.2)
76-85	3	(0.05)	5	(0.1)	11	(0.2)	45	(0.8)	14 (0.2)	50 (0.9)		64	(1.1)
86-100	2	(0.03)	0	(0)	4	(0.07)	8	(0.1)	6 (0.1)	8 (0.1)		14	(0.2)
Total	**1518**	**(26.1)**	**152**	**(2.6)**	**2827**	**(48.5)**	**1326**	**(22.8)**	**4346 (74.6)**	**1477 (25.4)**		**5823**	**(100)**

Table 3 - Musculoskeletal pain and occupation (N=5712)*.

Occupation	Musculoskeletal pain (%)				Total (%)	
	No		Yes			
Student	1053	(18.4)	66	(1.2)	**1119**	**(19.6)**
Housewife	1457	(25.5)	617	(10.8)	**2074**	**(36.3)**
Unskilled labor	62	(1.1)	33	(0.6)	**95**	**(1.7)**
Skilled labor	48	(0.8)	14	(0.2)	**62**	**(1.0)**
Professional	213	(3.7)	115	(2)	**328**	**(5.7)**
Small business	146	(2.6)	100	(1.8)	**246**	**(4.4)**
Farmer	67	(1.2)	69	(1.2)	**136**	**(2.4)**
Unemployed	226	(4)	183	(3.2)	**409**	**(7.2)**
Teacher	328	(5.7)	89	(1.6)	**417**	**(7.3)**
Soldier	151	(2.6)	44	(0.8)	**195**	**(3.4)**
Servant	211	(3.7)	24	(0.4)	**235**	**(4.1)**
Others	288	(5)	108	(1.9)	**396**	**(6.9)**
Total	**4250**	**(74.4)**	**1462**	**(25.6)**	**5712**	**(100)**

*missing response to occupation in 111 cases (out of 5823)

Table 4 - Musculoskeletal pain relative to education level (N=5265)*.

Occupation	Musculoskeletal pain (%)				Total (%)	
	No		Yes			
Illiterate	916	(17.4)	798	(15.2)	**1714**	**(32.4)**
Elementary schooling	1015	(19.3)	182	(3.5)	**1197**	**(22.7)**
Secondary schooling	1189	(22.6)	144	(2.7)	**1333**	**(25.3)**
Higher education	653	(12.4)	145	(2.8)	**798**	**(15.2)**
Read and write only	172	(3.3)	51	(1)	**223**	**(4.2)**
Total	**3945**	**(74.9)**	**1320**	**(25.1)**	**5265**	**(100)**

*missing response to occupation in 558 cases (out of 5823)

hypothyroidism. One hundred and forty-seven (9.9%) said that they feel depressed.

Significant correlation was seen between MSK pain and age (r=0.454), with married status (r=0.238), fatigue (r=0.314), number of times seeking medical help (r=0.703), taking medications (r=0.551), morning stiffness (r=0.407), change in work ability (r=0.492). Body mass index showed no correlation with MSK pain. No correlation was seen with sex. Being married was a factor in MSK pain [Odds ratio (OR) 4.7202 (95% confidence interval (CI), 3.93-5.65) and when adjusted

for age it dropped to 1.76 (95% CI, 1.43-2.17), and when further adjusted to age and sex yield OR of 1.748 (95%, CI 1.418-2.155). Musculoskeletal pain was positively correlated with lower level of education, being unemployed, systolic and diastolic hypertension, weight and height but not BMI **(Table 5)**. There was no association with sex even after adjusting for age [OR 1.0204 (95% CI, 0.89-1.16)], nor were there any association with BMI even after adjusting for age and sex [Crude OR 1.001 (95% CI, 0.992-1.0028), adjusted OR 0.999 (95% CI, 0.9984-1.0012)]. When males only

Table 5 - Correlates of musculoskeletal pain.

Variables	Correlation factor with musculoskeletal pain
Age	0.454**
Housing	0.068**
Occupation	0.073**
Family History	0.076**
Stiffness	0.407**
Past pain	0.435**
Fatigue	0.314**
Change in workability	0.492**
Number of visits to the Doctor	0.703**
Use of medication	0.551**
Weight	0.128**
Height	0.045**
Illiterate	0.347**
Elementary school	-0.123**
Secondary school	-0.192**
Higher education	-0.067**
Body mass index	0.019
Student	-0.223**
Housewife	0.072**
Unskilled	0.027*
Skilled	-0.007
Professional	0.054**
Small business	0.073**
Farmer	0.090**
Unemployed	0.122**
Teacher	-0.027*
Soldier	-0.013
Servant	-0.073**
Married	0.238**
Systolic hypertension	0.209**
Diastolic hypertension	0.155**

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

were considered, BMI was apparently associated with MSK pain [Crude OR 1.3795 (95% CI, 1.225-1.553), however, this association was lost when controlled for age OR 0.9800 (95% CI, 0.8559-1.2222)].

Discussion. This study shows self-reported MSK pain to be common. Our estimated prevalence of 25.4% lies within the lower range of values reported by other studies from both developed and developing countries.[1-7] In Norway, Hagen KB et al[2] surveyed 20,000 persons, in a cross-sectional study in 2 counties with a response rate of 59%, and concluded that musculoskeletal pain was reported by 57% of the respondents. In Thailand, the estimated prevalence of MSK pain in a sample of 2,463 was 36.2%.[5] A similar figure was arrived at in Cuba (30.3%).[6] However, in India, the reported prevalence of MSK pain among 4,092 adults of 18.2% is lower than our reported prevalence.[16] Nearer to our area, a study in Oman found back pain to be more prevalent in females (42%) than males (25%).[17] The lower figures in our study may be due to the fact that the population we surveyed was generally younger than those reported from the West.[2-7] Another reason is the difference in methodology between our study and the others. Our

study was carried out through a house-to-house survey while most of the others were carried out utilizing postal questionnaires or phone questionnaires. Yet, another reason for the difference is an actual difference in occurrence of MSK pain in regions of the world, which was emphasized by 2 Swedish studies in 2 regions of Sweden.[1,18] In addition to this, differences in the occurrence of MSK pain has been demonstrated among ethnically different groups of the same country.[15] The positive significant correlation with age, past history of pain, lower state of education, type of housing, unemployment, repeated visits to medical facilities and consumption of pain medications is in line with previous studies. However, we could not find a relationship with female sex which has been found by some of the previous studies.[1,2,17] This lack of association with female sex has been reported by others.[3] In some of those studies, the association with female sex was due to high reporting of generalized pain rather than regional pain by females. In a conservative society like ours, women are reluctant to admit to symptoms that may entail physical examination and thus, may have masked an association of pain with female sex. We, however, found an increased occurrence of symptoms among housewives **(Table 3)**. This high prevalence among housewives is due to the fact that most of the females in this conservative community are housewives (2,063 out of 3,156). The association with being married for both males and females is interesting, since it persists even after adjusting for age. This association was seen by others.[2] The strong correlation with age, change in work ability, increased consultation to doctors and use of medication underscore previously reported findings and implies the heavy burden MSK pain imposes on medical and social services.

In conclusion, this study found that although MSK pain is somewhat less common in this community than reported from some parts of the world, it has similar associated factors and similar socio-medical consequences.

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Related Abstract
Source: Saudi MedBase

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Search Word: Musculoskeletal

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Title: Clinical spectrum of skeletal abnormalities and mitral valve prolapse and their clinical implication

Source: Annals of Saudi Medicine 1996; 3: 266-268

Abstract

Fifty-six patients were diagnosed to have mitral valve prolapsed (MVP) syndrome by auscultatory criteria, confirmed by cross-sectional echocardiography. Complete physical examination and x-ray of the bony thorax revealed bony deformities which were subdivided into 4 main groups according to the predominant deformity. Shallow chest with pectus excavatum, straight back, kyphoscoliosis and elliptical chest in marfanoid patients were reported in the cases studied. It is concluded that musculoskeletal abnormalities have to be considered as nonmuscultatory features of mvp. Therefore, any patient with musculoskeletal deformity has to be screened for MVP by cross-sectional echocardiography to prevent life-threatening complications.