How common is back pain in Al-Qaseem region

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ABSTRACT

Objectives: The aim of this study was to estimate the prevalence of back pain in the adult population of Al-Qaseem Central Province, Kingdom of Saudi Arabia and to find associated features and factors.

Methods: A house-to-house survey covering 1,000 household in the towns and villages of Al-Qaseem province was carried out over a period of 18 months extending from September 1993 until the end of February 1995. A total of 5,894 adults, aged 16 years and above, were questioned by trained staff regarding back pain, and the demographic data in addition to general, medical and social history.

Results: A response was obtained in 5,743 (97.4%). Their mean age was 34.14 ± 15.16 (range 16-99). Back pain was reported by 1,081 (18.8%), wherein 499 (8.8%) were men, and 574 (10%) were women. Back pain was more prevalent in married (23.3%) individuals than unmarried (6.4%). Adjusted odds ratio (OR) for back pain in married individuals was 1.88 (95% confidence intervals [CI] 1.49-2.37). Back pain was strongly correlated with age (correlation coefficient = 0.378 P < 0.01). It also showed significant correlation with weight and height, depression, family history of back pain, change in work ability, frequency of attendance at local doctor, use of medication and lower education level. The association with body mass index became evident only after comparing the heaviest 20th percentile to the lightest (OR 1.335 [95% CI, 1.279-1.402]). Certain occupational status (unemployed, farmers, professional workers and housewives) were associated with back pain.

Conclusion: Back pain was relatively common in this largely unindustrialized community although its prevalence is lower than reported from some western countries.

Saudi Med J 2003; Vol. 24 (2): 170-173

Back pain is a very common problem. It is estimated that 70-85% of the population of the United States of America (USA) is affected by back pain at one point in their lifetime, with an annual prevalence of 15-45% and a point prevalence of 30%.[1-2] Recent reviews also quoted prevalence rates of 13-49%.[3,4] Higher values for the prevalence of back pain were reported from Britain in 2 community surveys 10 years apart and showing increasing prevalence of back pain with passage of time (36.4% rising to 49.1%).[5] Its health, social and economic burden is heavy. In the USA, back pain is the most common cause of activity limitation in people younger than 45 years, the 2nd most frequent reason for visits to the physician and the 5th ranking cause of hospital admission.[6-7] In the United Kingdom, back pain is the largest single cause of absence from work in 1988-1989 and is responsible for approximately 12.5% of all sick days.[8] Most of the studies carried out on back pain come from industrialized countries. Previous studies on back pain in the Kingdom of Saudi Arabia (KSA) were carried out at the primary care facilities and looked at the association of low back pain with obesity.[9] That case control study utilizing patients attending primary care clinics in Riyadh, KSA found back pain to be more

common in obese individuals.[9] No previous attempts were made to estimate the prevalence of back pain in the Saudi community. In this study, we carried out a community survey in Al-Qaseem province of KSA, to ascertain the prevalence of back pain and associated factors.

Methods. The study was carried out in Al-Qaseem, Central Provence of KSA as part of a province-wide survey of rheumatic conditions over a period of 18 months from September 1993 until the end of February 1995. Al-Qaseem province has a population of 660,000 based on the 1992 census with an expected yearly population growth of 5%. The sampling unit in this study was defined as a household. Based on statistical considerations, a total of 688 households were determined to be included in our sample; however, to overcome possible design effect in using sampling techniques other than simple random sampling, the households were increased to include 1,000 household each harboring 7-9 individuals. A 2-stage stratified cluster sampling technique was adopted. The Al-Qaseem province was divided into 3 strata according to the population density as follows: large (population more than 20,000), medium (population between 5,000 and 20,000) and small (population <5,000). A random sample was selected from each of the 2 large population centers (Buraidah and Onizah towns), and a random sample of 2 towns from the medium size population, while the 3rd stratum comprising the villages, 5 villages were selected with probability proportionate to size. Each village was treated as a cluster and the number of household in each cluster or village was determined. The urban-rural population ratio was assumed to be 60:40. Therefore, 600 households were interviewed in the large and medium sized population centers and 400 households in the rural population centers. In each selected village, the number of households was selected using the systematic random sampling method. Cities and large towns were divided into blocks of houses defined by the streets and a sample of households was selected in each block using the systematic random sampling technique. The questionnaire was designed to inquire regarding the symptoms of rheumatic complaints including back pain, sex, age, marital status, level of education, family history, occupation, precipitating factors (trauma, excessive activities, infections, travel, climate, emotional stress, food, others), complaint of feeling depressed ("feeling sad or down"), visits to local doctor, consumption of medications for complaints, gastrointestinal, genitourinary symptoms and changes in ability to work. Height and weight were recorded and body mass index (BMI) was calculated (weight in kg divided by height in square meters). Trained nurses and paramedical staff administered the questionnaires personally through a house-to-house survey. During the first 3 months, a pilot inquiry was carried out to test the validity of the whole process including the questionnaire. During this initial period, 60 households (20 in each large, medium and small population centers) were visited and the households were interviewed. After this initial pilot inquiry, the whole study was carried out to completion over the following 15 months. The data was analyzed using the simple descriptive statistics, correlations and calculation of odds ratio (OR) utilizing the Statistical Package of Social Sciences for windows, version 9, p value < 0.05 was taken as significant.

Results. A total of 5,894 adults (2,697 men and 3,197 women) aged 16 years and above were surveyed. The response to questions regarding back pain obtained in 5,743 (2,653 men and 3,090 women giving a response rate of 97.4%). Their mean age was 34.14 ± SD 15.16 (range 16-99). Most of the samples were young as depicted in **Figure 1.** Most of the adults surveyed were married, (4,097 [71.3%]) and the majority of married individuals were women (2,284 [55.7%]). Back pain was reported by 1081 (18.8%) individuals, wherein 499 (8.8%) were men and 574 (10.0%) were women. **Table 1** shows the relationship between back pain, marital status and sex. It shows that back pain is more common in married people (23.3%), and within this group, it was more common in men (25%) than women (22%). The higher percentage of back pain in married men relative to married women is mostly a function of age, since married men were older than married women. This was clarified further later in this section when we controlled for age. Back pain was reported in 6.4% of unmarried individuals comprising 4.8% men and 8.2% women. However, these figures among married and unmarried individuals are very much influenced by age, since married individuals are older than singles (singles average age 22.2 ± 10.2 years, married average age is 38.9 ± 14.2 years). This is clarified further by calculating the OR for the association between back pain and married status which yielded a crude OR of 4.44 (95% confidence interval [CI], 3.59–5.48) which when controlled for age, OR becomes 1.88 (95% CI, 1.49–2.37). This is further illustrated when we calculated Pearson correlation coefficient (r) between backache and being married which is 0.197 (p<0.0001). Backache correlation with age is stronger (r=0.378, p<0.0001). Backache also showed significant correlation with weight in kg (r = 0.109), height (r = 0.039), depression (r = 0.053), family history of backache (r = 0.107), change in workability (r = 0.482), number of attendances at local doctor (r = 0.623), seeking specialist help (r=0.334), and using medications (r = 0.509). All of the previous correlations were significant at p<0.05. There was no correlation with genitourinary or gastrointestinal problems, nor there were any correlations with incremental rise in BMI. However, when BMI was split into 20th percentiles, there were correlations when the heaviest 20th percentile was compared to the lightest (r = 0.155). This relationship with BMI was explored further by calculating the OR which yielded a crude OR of 1.0007 (95% CI, 0.999-1.0021) for incremental rise in BMI and an OR of 1.335 (95% CI, 1.270-1.402) when
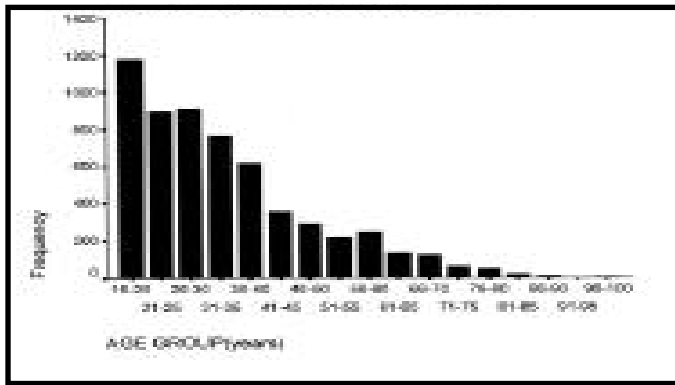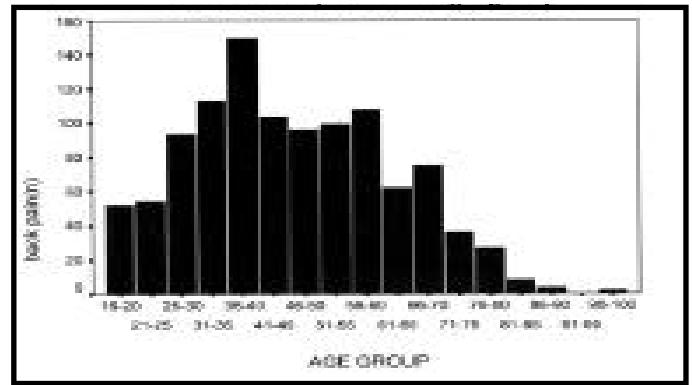
Figure 1 - Frequency of age groups.

Figure 2 - Back pain and age group.

Table 1 - Relationship between back pain, marital status and sex (N=5,743).

Marital status	Individual with back pain		Individual with no back pain		Total	
	n	(%)	n	(%)	n	(%)
Single						
Male	40	(4.8)	800	(95.2)	**840**	**(100)**
Female	66	(8.2)	740	(91.8)	**806**	**(100)**
Total	**106**	**(6.4)**	**1540**	**(93.6)**	**1646**	**(100)**
Married						
Male	454	(25)	1359	(75)	**1813**	**(100)**
Female	502	(22)	1782	(78)	**2284**	**(100)**
Total	**956**	**(23.3)**	**3141**	**(76.7)**	**4097**	**(100)**

Table 3 - Correlation between back pain and level of education.

Level of education	Correlation coefficient with back pain
Illiterate	0.332*
Elementary education	-124*
Secondary education	-189*
Higher education	-0.62*
Can read and write	0.005
*correlation is significant at the 0.01 level	

Table 2 - Correlation between back pain, marital status and sex.

Occupation	Total individuals within the category	Individuals with back pain		Pearson correlation coefficient
		n	(%)	
Student	1120	42	(3.8)	- 0.188*
Housewife	2084	488	(23.4)	0.093*
Unskilled	95	17	(17.9)	- 0.002
Skilled	62	10	(16.1)	- 0.007
Professional	332	81	(24.4)	0.037*
Small business	250	55	(22)	0.019
Farmers	143	54	(37.8)	0.079*
Unemployed	414	140	(33.8)	0.109*
Teacher	417	63	(15.1)	- 0.025
Soldier	196	37	(18.9)	0.001
Servants	234	12	(5.1)	- 0.071*
396 individuals did not inidcate their occupation *correlation is significant at 0.01 level				

comparing the heaviest 20th percentile to the lightest. Female sex was also associated with back pain but only after controlling for age (crude OR 0.9708 [95% CI, 0.850-1.108], OR adjusted for age = 1.426 [95% CI, 1.229-1.656]). These calculations help to explain the apparent higher percentage of back pain seen among men in **Table 1**, which is much influenced by men being older and so after adjustment for age, the association is actually with female sex. The relationship between back pain and occupation is illustrated in **Table 2** This table shows that back pain was the most prevalent in the unemployed, farmers, professional workers and housewives, with a significant correlation as measured by Pearson correlation coefficient. A negative significant correlation was seen in students and housemaids. **Table 3** shows back pain to be significantly correlated with lower education status (illiterate, r = 0.332, p<0.01), and negatively associated with higher education levels. The majority of individuals said that back pain was precipitated by excessive activity (56.9%).

Discussion. This community survey has shown that back pain is common among the adult population (18.8%). This prevalence is towards the lower margin of range of prevalence (13-49%) given by recent reviews of the subject.[3,4] Higher figures were reported from Britain in 2 community surveys 10 years apart (36.4% rising to 49.1%).[5] The prevalence increases with age above 30 years reaching maximum in ages 40-50 and then declines (as illustrated by **Figure 2**). This pattern with age has been reported.[10] The higher prevalence among females has been reported by some while others showed no predilection to females.[1,11,12] Incremental rise in BMI was not associated with back pain, however, when the highest 20th percentile was compared to the lowest, the relationship became clear. Overweight has been thought to be associated with back pain, however, epidemiological studies showed both positive and negative relationship with back pain.[9,13,14] The association between height and back pain in our study is in agreement with the previous studies[12,15] The association between back pain and previous history of back problems has also been seen in most previous studies.[1,12] The association in this study with a wide range of occupations both sedentary and manual is against the popular notion that back pain was associated more with sitting jobs. This question was addressed in a recent critical review of 35 studies on the subject showing no clear association with sitting-at-work jobs.[16] Kingdom of Saudi Arabia, particularly in Al-Qaseem province, although having mixed urban and rural population, is still the most non-industrialized part of KSA. This may be a factor in the reduced prevalence rate of back pain in this community. Other factors may be the lack of readily available compensation scheme for those with back pain in this region. Despite that, the study showed that back pain sufferers utilized the health services more by paying more frequent visits to their doctors, consuming medications for back pain and influencing their workability.

In conclusion, although back pain in this mostly non-industrialized part of the world, is less common than that reported from industrialized countries, it still carried a heavy socio-economic and medical impact. Tackling some of the predisposing and associated factors should be attempted to lower its prevalence even further.

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