Musculoskeletal pain, disability and health-seeking behavior in adult Kuwaitis using a validated Arabic version of the WHO-ILAR COPCORD Core Questionnaire

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Abstract

Objective

The WHO-ILAR Community Oriented Program for Control of Rheumatic Diseases (COPCORD) primarily aims to estimate the burden of musculoskeletal symptoms/disorders. We investigated data on musculoskeletal pain, disability and health-seeking behavior in the first community-based COPCORD study in Kuwait.

Methods

The validated Arabic version of the WHO-ILAR COPCORD Core Questionnaire was used in 2,500 randomly selected Kuwaiti households. The target population comprised Kuwaiti nationals aged 15 years and older. Twenty-four trained field workers completed the survey in 8 weeks. Those subjects reporting musculoskeletal pain were identified (Phase 1), and were asked to complete a self-evaluation questionnaire (Phase 2) prior to rheumatological examination (Phase 3). Phase 2 included questions on the site and severity of pain, traumatic events, functional disability, and treatment. Patients marked their pain sites on a mannequin during their interviews. "Sufferers" were defined as those with musculoskeletal pain and no history of trauma.

Results

A total of 7,670 adults were interviewed (response rate 88%), of whom 2,057 had musculoskeletal pain not related to trauma. Knees, back, and shoulders were the common sites of pain. Most of the sufferers reported the severity of pain as being moderate to severe. Functional disability was reported in 39.1% of the sufferers. The age-sex population adjusted prevalence rate for musculoskeletal pain was 35.7% in females and 20.2% in males. The most common sources for advice on treatment were physicians in hospitals (68.8%) and general practitioners (30.4%). 82% had prescriptions for their medications, while 19.4% had self-prescribed tablets.

Conclusion

Musculoskeletal pain is a major health problem among Kuwaitis and deserves intense government attention.

Key words

Musculoskeletal pain, COPCORD, Kuwait.

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Introduction

The Bone and Joint Decade 2000 – 2010 has been established to increase awareness of the scale and impact of musculoskeletal disorders on the individual, the health care system and society. It represents a multi-disciplinary initiative involving professional bodies, patient care groups, research organizations and the community (1).

The Community Oriented Program for the Control of Rheumatic Disease (COPCORD) is a global initiative of the World Health Organization (WHO) and the International League Against Rheumatism (ILAR) (2). The program consists of three stages. In stage I, epidemiological data on rheumatic diseases are collected. In stage II, the primary health care professionals are trained in the management of the most common rheumatic diseases. In stage III, improved health care is attained. Stage I optimizes the use of the local skilled staff and the available resources in a three phase collection of data on rheumatic diseases (3).

A number of countries have participated and used the WHO-ILAR COPCORD Core Questionnaire (CCQ) to determine the prevalence rates of rheumatic diseases in their communities (4-11). Recently, an Arabic version of the COPCORD instrument was validated for use in screening Arabic speaking populations for the detection of rheumatic diseases (12).

To the best of our knowledge, no studies have been conducted in Arabic speaking countries including Kuwait and other Gulf countries to determine the prevalence of musuloskeletal pain using this instrument. This report presents data on musculoskeletal pain, disability, and health-seeking behavior in Kuwaiti nationals using the validated Arabic version of the WHO-ILAR COPCORD Core Questionnaire.

Subjects and methods

Kuwait is administratively divided into 5 governorates: the Capital, Hawali, Farwaniya, Jahra, and Ahmadi. Since Kuwait is a small country, there is not much climatic variation between these governorates. The epidemiological survey was carried out in all the 5 governorates.

Sampling

The objective of the sampling was to target Kuwaiti nationals aged 15 years and older. The focus was placed on Kuwaiti nationals since they constitute a homogenous population that includes all age groups. In contrast, non-Kuwaitis are mostly young working age adults. The civil registration information from the Directorate of Civil Information was used in the sampling process, from which 2,500 Kuwaiti households were randomly selected. The selection was proportionally allocated to the 5 governorates. The 1999 population estimate for Kuwait was 2,273,719, and of these 798,156 were Kuwaiti nationals. The average household size was 5.5 (3.5 members being 15 years of age or more). Table I shows the percentage of Kuwaiti households by governorates and the proportion of Kuwaiti households to be targeted. It

Table I. The 1999 distribution of Kuwaiti households and the number of targeted households by governorate.

Governorate	Number of Kuwaiti households	Percentage of Kuwaiti households	Targeted Kuwaiti households
Hawali	43,752	30.4	760
Capital	31,510	21.9	547
Farwaniya	28,137	19.6	490
Ahmadi	26,964	18.7	468
Jahra	13,490	9.4	235
Total	143,853	100.0	2500

Source: Directory of Civil Information Authority, Kuwait 1999.

was proposed that 2,500 households would be adequate to provide a 95% confidence interval (5% type I error) for estimated proportions.

Privacy and confidentiality of data were maintained, and approval from the Medical Research Ethics Committee of Kuwait University was obtained. An informed consent form was signed by each subject before participation. In addition to the consent of the subjects who were under the age of 18 years, the guardians' co-signatures were obtained.

Administration of the questionnaire

Twenty-four field workers were trained in questionnaire administration. They were divided into 12 teams, each team consisting of a male (who interviewed male respondents) and a female (who interviewed female respondents). Each field worker was also trained to measure and record the respondent's weight and height. Three teams were allocated to each of Hawali and Capital governorates since they were the largest, while the other governorates had two teams each. A supervisor was allocated to each governorate to ensure the accuracy of the data collected.

The Phase 1 questionnaire collected basic demographic data with questions on age, gender, marital status, physical activity, and the nature of the respondent's work/employment. Respondents who answered 'Yes' to the presence of pain within the last 7 days or in the past were requested to answer the detailed validated Arabic version of the CCQ (Phase 2). This included questions on the site of pain (with an adjacent box to tick if positive), marking on a mannequin for the pain location, presence of traumatic events and their nature, and the severity of pain, which was graded as mild, moderate, severe, or very severe and measured using the 10-cm visual analog scale (VAS) that has anchors of 0 for no pain and 10 for very severe pain. They were also required to complete the sections of the questionnaire regarding functional disability, difficulty in performing specific tasks, and treatment.

The respondent was considered a "sufferer" when he or she reported pain in the bones, joints or muscles currently (within the last 7 days) or in the past with no history of trauma. The responder to the questionnaire was considered a "non-sufferer" when he or she reported no pain in the bones, joints or muscle in the last 7 days or in the past. Those who answered "Yes" to the question on pain in the last 7 days were not requested to answer the question on pain in the past.

In the Functional Disability section, sufferers who only reported "currently limited" in the kind or amount of activities they could perform were classified as disabled and asked to complete the "Difficulty Performing Specificic Tasks" section. These tasks included dressing, getting in and out of bed, lifting a full cup to the mouth, walking on a level surface, combing the hair, climbing up and down stairs, washing and drying the body, picking something up from floor, turning faucets on/off, getting in and out of a motor vehicle and squatting.

Clinical identification of cases (Phase 3)

Sufferers were contacted and given appointment within 7 days of the interview to see trained and qualified rheumatologists who were blinded to the CCQ results, at either the Al-Amiri or Mubarak Al-Kabeer teaching hospitals, where they were clinically examined. Diagnoses of rheumatic diseases were based as far as possible on the American College of Rheumatology (ACR) criteria (13,14). Further confirmatory laboratory investigations were carried out when the clinical findings were not adequate to make a definitive diagnosis. Other diseases that did not meet the ACR criteria were classified as non-specific musculoskeletal pain.

Data analysis

Data were coded and analyzed using the Statistical Package for Social Sciences (SPSS). The cut-off level of significance set at $\alpha = 0.05$, as a type I error threshold. The prevalence rate and 95% confidence interval (CI) were calculated. Prevalence rates were adjusted to the 1999 Kuwait population by age and sex using the direct standardization method. The independent t-test was used to evaluate the significance of the difference between the means of two quantitative variables, and the chi-square test was used to assess the significance of the difference between two proportions. The multivariate logistic regression model was used to calculate the adjusted odds ratio for the factors associated with musculoskeletal pain.

Results

The response rate was 88%, and out of the 7,670 participants who answered the COPCORD Core questionnaire 2511 complained of musculoskeletal pain; in 454/2,511 (18.1%) the pain was related to trauma. Of these trauma victims, motor vehicle accidents were reported by 89 (20.3%), falls by 126 (28.7%), strain by 58 (13.2%), fractures by 15 (3.4%), and other trauma by 151 (34.4%).

Therefore, 2,057 were considered "sufferers", yielding a prevalence of musculoskeletal pain of 26.8% (95% CI: 25.8 – 27.8). The age- and sex-adjusted prevalence rate was 35.7% for females and 20.2% for males. Table II shows that in the sufferer group there were 761 males and 1,266 females, yielding a male:female ratio of 1:1.7. The mean age (± standard deviation, SD) of the sufferers was 42.5 years (± 15.9) and was significantly higher than that of the non-sufferers 31.1 (±12.8) years, $p < 0.001$. Sixty-nine percent of the sufferers were married and 28.2% were unemployed. The body mass index (BMI) was significantly higher ($p < 0.001$) in the sufferers (29.0 ± 6.3 kg/m^2) compared to the non-sufferers (25.7 ± 4.8 kg/m^2). In addition, there were a significantly lower number of single subjects and physical inactivity in the sufferers compared to non-sufferers, $p < 0.001$.

Group I (current musculoskeletal pain) consisted of 80.7% (1,660/2,057) of the sufferers. The highest prevalence rates were knee pain 66.3%, back pain 43.8%, shoulder pain 37.8% and ankle pain 26.3%. Group II (pain in the past) was composed of 397 cases (19.3%). The highest prevalence rates were for knee pain 60.7%, back pain 33%,

Table II. Demographic and anthropometric characteristics of the Kuwaiti nationals suffering or not suffering from musculoskeletal pain as determined using the Arabic COPCORD-CCQ.

	Sufferers n = 2057 n (%)	Non-sufferers n = 5159 n (%)	p-value†
Gender			< 0.001*
Male	761 (37.0)	2995 (58.1)	
Female	1266 (63.0)	2164 (41.9)	
Marital status			< 0.001*
Single	380 (18.5)	2187 (42.5)	
Married	1411 (68.6)	2798 (54.4)	
Widowed	218 (10.6)	70 (1.4)	
Divorced	46 (2.2)	93 (1.8)	
Age (years)			< 0.001*
15-19	141 (6.9)	1098 (21.3)	
20-34	569 (27.7)	2222 (43.2)	
35-49	641 (31.3)	1383 (26.9)	
50+	700 (34.1)	446 (8.7)	
Mean ± SD	42.5±15.9	31.1 ±12.8	< 0.001**
Body mass index			< 0.001*
≤ 25 (normal)	545 (26.7)	2499 (48.7)	
> 25-30 (overweight)	672 (32.9)	1804 (35.1)	
> 30-40 (obese)	732 (35.8)	779 (15.2)	
> 40 (super obese)	94 4.6)	52 (1.0)	
Mean ± SD	29.0 ± 6.3	25.7 ± 4.8	< 0.001**
Current occupation			< 0.001*
Employed	693 (35.2)	2394 (47.5)	
Unemployed	554 (28.2)	2007 (39.8)	
Retired	291 (52.5)	378 (18.8)	
Student	218 (39.4)	1547 (77.1)	
Others‡	45 (8.1)	82 (4.1)	
Housewife	720 (36.6)	634 (12.6)	
Physical activity			< 0.001*
None	1357 (67.4)	3064 (60.4)	
Daily	232 (11.5)	768 (15.1)	
Every 2 days	98 (4.9)	377 (7.4)	
Every 3 days	91 (4.5)	352 (6.9)	
Every week	234 (11.6)	513 (10.1)	

Th numbers do not add up to the total for these variables due to missing numbers.
† p-value between sufferers and non-sufferers; * chi-square test; ** Student's t-test.
SD = Standard deviation
‡Others include recent graduates, businessmen, disabled persons, and non-employed persons.

shoulder pain 31.2% and hip region pain 23.2% (Table III). The population age-sex standardized rates of musculoskeletal pain within the last 7 days and in the past are also shown in Table III. The severity of pain was mostly reported to be between moderate to severe in those who had pain within the last 7 days or who had it in the past. These corresponded to the 10 cm VAS mean values of 6.4 ± 1.9 cm and 6.2 ± 1.9 cm, respectively.

The Arabic version of the COPCORD uses a mannequin to indicate the sites of pain. The percentage of painful sites marked by the sufferers on the mannequin's knee (66.1%), lower back (35.6%), shoulder (34.4%), ankle (26.9%), hand (26.9%), wrist (26.4%), and neck (25.3%) were the common painful sites. Women reported a significantly higher prevalence of pain at all sites than the men, except for the elbow and upper back.

Functional disability was reported as 'currently limited'in 39.1%, 'not limited now, but limited in the past'in 5.2% and 'never limited'in 55.7%. The most commonly affected activities were squatting (84.6%) followed by bending down to pick up objects from the floor (75%), walking outside on flat ground (71.4%), getting in and out of bed (63%), washing and drying the body (53.2%), getting in and out of a car (52.6%), turning water taps on/off (46.2%), dressing (41.2%), and lifting a full cup/glass to the mouth (20.5%).

The most common sources of recommendations for treatment were hospital physicians (68.8%) and general practitioners (30.4%). Other sources were rheumatologists (11.3%), physiotherapists (8.6%), self-medication (8.1%), pharmacists (3.8%), acupuncturists (1.6%), faith healers (1.2%), and others (8%). Eighty-two percent had prescriptions for their medications, while 19.4% had self-prescribed tablets. The other forms of treatment included injections (34.9%), physiotherapy (34.2%) and surgery (11.9%). Fifty-six percent of the sufferers reported their extent of adaptation to the problem as 'not so well', 31.8% 'rather well', 6.8% 'not at all well', and 5% 'very well'.

Factors associated with musculoskeletal pain were female sex, advancing age, marriage, non-working status, physical inactivity, and increasing BMI (Table IV). There was statistically significant association between lower limb pain and BMI, $p < 0.001$.

Examination

Only 238 out of the 2,057 sufferers responded to appointments and reported for clinical examinations, and all of these subjects except one had rheumatic conditions. There were 155 females and 82 males, yielding a male: female ratio of 1: 1.9. The mean age (±SD) for women was 44.4 (±15) years compared to 47.5 (±17) years for men. Table V shows the distribution (percentage) of rheumatic diseases in the examined patients. Soft tissue rheumatism (n = 130) was the most common rheumatic condition identified and the most common types were regional low back pain 37% (n = 48), peri-shoulder arthritis 15% (n = 20), neck pain 12% (n = 16), and fibromyalgia 7.7% (n= 10). Seventy-six cases of osteoarthritis (OA) were identified; more than half of these had knee OA (n=66), 8 had OAof the spine, one had OAof the hip and one had gen-

Table III. Screening questionnaire results: sites and severity of musculoskeletal (MSK) pain "within the last 7 days" and "in the past".

	MSK pain			Age-sex standardized rates (%) for MSK pain			
				Males		Females	
	Within the last 7 days N = 1660 n (%)	In the past N = 397 n (%)	p-value†	Within the last 7 days	In the past	Within the last 7 days	In the past
Location of pain							
Knees	1100 (66.3)	241 (60.7)	< 0.05*	53.3	42.7	62.8	64.0
Spine	726 (43.8)	131 (33.0)	< 0.001*	42.2	32.7	44.6	35.1
Shoulders	627 (37.8)	124 (31.2)	< 0.05*	25.9	26.9	36.6	31.3
Ankles	437 (26.3)	66 (16.6)	< 0.001*	17.9	9.8	25.6	19.3
Neck	431 (26.0)	84 (21.2)	0.055*	18.7	12.2	25.4	25.6
Hips	421 (25.4)	92 (23.2)	0.4*	15.2	11.8	25.0	30.2
Hands	386 (23.3)	72 (18.1)	< 0.05*	12.2	13.2	24.2	20.3
Wrists	336 (20.3)	60 (15.1)	< 0.05*	12.5	6.3	20.5	17.7
Toes	316 (23.0)	49 (12.3)	< 0.01*	11.1	5.8	17.9	14.2
Others†	224 (13.5)	69 (17.4)	0.056*	11.3	11.7	15.6	22.6
Intensity of pain			0.35**				
Mild	103 (6.3)	27 (6.9)		12.6	10.2	4.1	7.3
Moderate	691 (42.1)	179 (45.3)		52.8	46.0	41.4	48.5
Severe	661 (40.3)	155 (39.2)		27.4	34.4	43.6	35.8
Very severe	187 (11.4)	34 (8.6)		7.3	8.9	10.9	8.5
VAS (10 cm)							
Mean ± SD (cm)	6.4 ± 1.92	6.2 ± 1.85	0.06***				

The numbers do not add up to the total for the variables due to missing numbers.
VAS = Visual analogue scale.
† p-value between "within the last 7 days" and "in the past"; * normal Z-test; ** chi-squre test; *** Student's t-test; SD: Standard deviation.
†Others include bones, muscles, legs, elbows, thighs, forearms, arms, upper back, and buttocks

Table IV. Adjusted odds ratio for factors associated with musculoskeletal pain in Kuwait (n = 2,057).

	OR†	95% CI	p-value
Sex			
Male	1.0	-	
Female	1.9	1.7 – 2.2	< 0.001
Age (years)			
< 20	1.0	-	
20 – 34	1.6	1.2 – 2.2	0.002
35 – 49	2.1	1.5 – 2.9	< 0.001
≥ 50	4.4	3.0 – 6.4	< 0.001
Marital status			
Single	1.0	-	
Married	1.4	1.2 – 1.7	0.001
Work status			
Yes	1.0	-	
No	1.3	1.1 – 1.6	0.006
Physical activity			
Daily	1.0	-	
None	0.9	0.7 – 1.1	
Every 3 days	1.0	0.7 – 1.3	
Every 2 days	0.9	0.6 – 1.2	
Every week	1.8	1.1 – 1.9	0.003
BMI			
≤ 25 (normal)	1.0	-	
> 25 – 30 (overweight)	1.1	0.9 – 1.4	
> 30 – 40 (obese)	2.4	2.0 – 2.8	< 0.001
> 40 (super obese	4.2	2.7 – 6.8	< 0.001

† Adjusted odds ratio (OR) based on the logistic regression model; CI: Confidence interval; BMI: Body mass index.

eralized OA. Rheumatoid arthritis (RA) was diagnosed in 3 cases (1.3%) and gout in 2 cases (0.8%).

Discussion

The present study is the first prevalence study to be carried out in the Arabic speaking world using the validated Arabic version of the WHO-ILAR COPCORD CCQ. The health burden of musculoskeletal pain among Kuwaitis was similar to those reported for other countries where the same research instrument was used (3-11). Our study identified the following factors to be associated with musculoskeletal pain: female sex, marriage, advancing age, non-working status, physical inactivity, and obesity. This finding is in agreement with previous studies (15-19).

Trauma-related musculoskeletal pain is preventable and needs to be targeted aggressively, and this is an important component of the ongoing health education program (COPCORD stage III) (8). In our study, falls and road traffic car accidents were the commonest

Table V. Distribution (percentage) of rheumatic diseases in the examined patients.

	No. of cases identified (%)
Soft tissue rheumatism	130 (54.9)
Osteoarthritis	76 (32.1)
Patello-femoral syndrome	14 (5.9)
Rheumatoid arthritis	3 (1.3)
Gout	2 (0.8)
Palindromic rheumatism	2 (0.8)
Ankylosing spondylitis	1 (0.4)
Sarcoidosis	1 (0.4)
Psoriatic arthritis	1 (0.4)
Others	7 (3.0)
Total	237 (100.0)

sources of trauma. Therefore, simple measures to prevent accidents on the road, in the workplace and in the home are recommended through teaching sessions, health education pamphlets and exploiting the popular local folklore and drama.

Knee and low back pain were the most frequent types of musculoskeletal pain in the present survey, consistent with the Indonesian and Canadian studies (5, 20). Most elderly, married Kuwaiti women spend most of their time at home without engaging in any outdoor exercise. This may lead to an increase in body weight, which predisposes them to knee OA and low back pain (LBP).

It was interesting to find that the location of pain in the knee and the back was correlated with the type of disability. The highest frequency of disability was in the action of squatting, which was correlated with the highest prevalence rate of knee pain. Disability in flexing the back to pick up objects from the floor correlated with the high prevalence of back pain.

Self-reported functional disability was high in this study (39.1%) compared with 21% in India (8), 7.4% in Cuba (21), 2.8% in rural areas and 0.9% in urban areas in Indonesia (5), and only 1.8% in the Philippines (22). Cultural differences could explain this difference in self-reported disability. We propose using more objective clinical measures and assessment in future studies to verify this difference.

The most common treatment received for musculoskeletal pain was prescribed tablets. This correlated very well with our finding for the question "Who prescribed the treatment", which was "Physicians in hospital". This is because health services in Kuwait are free of charge for Kuwaiti nationals and patients have easy access to hospitals. There is a network of primary care health centers (polyclinics), supported by a number of secondary care referral general hospitals geographically distributed all over the country. Tertiary health care specialized centers receive referrals from secondary care levels. These tertiary centers include an integrated set-up for rheumatic diseases that consists of clinics, and physiotherapy and occupational therapy departments in addition to laboratories. Therefore, teaching and training general practitioners working in these polyclinics about rheumatological conditions is recommended to alleviate the heavy burden of the high referral rate to hospitals.

Our clinical findings correlated well with the sites of pain reported by the sufferers using the Arabic version of COPCORD-CCQ. Knee OA, LBP and peri-shoulder arthritis were the commonest rheumatic diagnoses in our series.

In this study, the accuracy of the estimated proportions of medical diagnosis was affected by the response rate of the population. Only 11.6% (238/ 2,057) of the sufferers reported for the examination phase. Most of these were middle aged or elderly people. The reasons for such a low response rate could have been: (i) the younger population who reported musculoskeletal pain in the screening questionnaire but did not have current functional limitations, did not find it necessary to respond to the invitation to visit the hospital for clinical examination; (ii) the unfavorable attitude of Kuwaitis towards research; and (iii) some people found it inconvenient to report for the clinical examination during working hours since they would need to request permission to absent themselves from their workplace. It would have been better for respondents to be seen in the evenings at polyclinics near their residences, but this was not possible because of the small number of rheumatologists in Kuwait.

Despite these limitations, this study demonstrates that musculoskeletal pain is common among Kuwaiti nationals. That this complaint frequently causes disability indicates that overall it is not trivial problem. The cost to the community and to health care services makes musculoskeletal pain impossible to ignore, as so frequently happens in the allocation of resources in developing countries.

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