

Assessment of chronic pain prevalence and impact on quality of life in the general population and visitors of a pain clinic in Makkah region, Saudi Arabia, 2022–2023

Bayan Hashim Alsharif

Preventive Medicine Department, King Abdullah Medical City Makkah, Saudi Arabia



Zainab Bu Hamad

Al Qara PHC Alahssa, Saudi Arabia



Corresponding author: zainab.b.hamad@gmail.com

Abuallah Ahmed Khafagy

Department of Community Medicine and Pilgrims Healthcare, College of Medicine, Umm Al Qura University, Makkah, Saudi Arabia



Abulrahman Tawfeeg

Abudawood King Abdulaziz University, Jeddah, Saudi Arabia



Rizq Allah Abdullah B Alzahrani

Faculty of Medicine, Al Baha University, Al Baha, Saudi Arabia



Abduljawad Hassan A Alghamdi

Faculty of Medicine, Al Baha University, Al Baha, Saudi Arabia



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ABSTRACT

Introduction. Chronic pain is a frequent, complicated, stressful health condition that significantly affects society and people. Chronic pain also is believed to be one of the most important causes of suffering and infirmity worldwide. It can impact various aspects of the person and cause emotional, social, and functional capabilities. Assessing Health-related quality of life is a significant outcome in studies concerning chronic pain patients. It is a different way to evaluate patients' perceptions of their pain experience and its effect on their lives.

Aim. The aim of this study is to establish the prevalence of chronic pain among the general population in the Makkah region, Saudi Arabia.

Material and methods. An online cross-sectional study design using a structured self-administered questionnaire was distributed electronically in Arabic through social media.

Results. A total of 610 participants completed the survey. Females represented 63.3% of participants, while male participants represented 36.4%. Most participants were Saudi (98.9%), and 72.3% had bachelor's degrees or Diplomas. Single participants were almost equal to married ones (53.1 % and 46.2%, respectively), and most were nonsmokers.

Conclusions. chronic pain from patients' perspectives has physical, psychological, and social functioning and well-being effects.

Introduction

Chronic pain is a multidimensional health problem defined by the International Association for the Study of Pain (IASP) as pain persisting for more than six months, although being much more related to peripheral and central nervous system sensitization than to whole duration time [1].

Chronic pain is a frequent, complicated, stressful health condition affecting society and persons [2]. The frequent cause of chronic pain is the presence of an injury or a particular disease condition; however, chronic pain should be considered a distinct condition, not only an associated symptom of other disorders. Thus, Chronic pain has its particular categorization and characterization [3].

Chronic pain might be an intense, persistent, and incapacitating disorder, considerably reducing individuals' healthy lifestyles and decreasing their quality of life [4]. This condition is believed to be one of the most important causes of misery and infirmity worldwide [5]. Chronic pain can impact different facets of the individual and cause emotional, behavioral, and functional infirmities. Previous studies indicate that undesirable outcomes like depressive disorders [6], anxiety, and feelings of confusion are correlated with prolonged periods of chronic pain, such as movement incapacity, job incapacity [7], heightened health care expenses [8], death, and suicide [9]. In Europe, of five people having chronic pain conditions, one employee loses his career because of this sustained health condition, and one-third of the persons experienced chronic pain conditions and their consequences during their work hours, either partially or totally [10]. Therefore, pain is considered a defense mechanism. The Joint Commission on Accreditation of Healthcare Organizations describes the pain as a familiar experience with unfavorable physical and emotional consequences when it cannot be managed [11]. Hence, pain experience involves mental, social, emotional, and physical characteristics; on the other hand, quality and life have a broad perspective that covers all these aspects [12].

Health-related quality of life describes the effect of well-being on individuals' capability to achieve and contribute to meaningful actions inside the family, work, and society [13]. Assessing the quality of life is an essential effect in

investigations of patients suffering from the problem of chronic pain. It is a different approach to evaluating patients' points of view on their pain experience and its effect on their lives [14].

There are available data about the consequence of chronic pain on the quality of life in the Arab world; thus, this study aims to assess the incidence of chronic pain among the general population in Makkah region, Saudi Arabia, and investigate the intensity of chronic pain and evaluate the quality of life for those patients who are suffering from the chronic pain.

Methods

Study design

A cross-sectional study in which we enrolled participants through the year 2022 from the Makkah region, Saudi Arabia.

Settings

Well designed, structured self-administered questionnaire for assessing the quality of life was used. Data was collected through an online google form and distributed electronically in Arabic through WhatsApp and telegram.

Inclusion and exclusion criteria

The study included participants of both sexes, participants were asking if they are 18 years and above, and patients with chronic diseases who agreed to participate in this study. Exclusion criteria included individuals younger than 18 and those who refused to participate. In first section, participants were asked how long they had been experiencing pain (if more than 3 months it considered as chronic pain). Numerical Rating Scale (NRS) were used for measuring pain intensity and is well validated. It is scored from 0–10 (0 meaning no pain and 10 meaning the worst pain imaginable).

Data collection and sample size

After excluding incomplete data, a total of 610 participants were included in the study; By using the Raosoft sample size calculator website [15], a total of 377 was calculated as the minimum sample size sufficient to detect the prevalence of chronic pain in Makkah at 95% confidence level and 5% estimation error.

Materials

PROMIS® Scale v1.2–Global Health and RAND 36-Item Health Survey 1.0 questionnaire items were used [16]. The questionnaire had two sections. The first one investigated the demographic characteristics of participants (age, education, smoking conditions, and marital status). The second section investigated chronic medical illness and chronic pain status. Responses were recorded using a bimodal approach.

Outcome Assessment

We used a structured questionnaire to assess the quality of life in two steps. First, preceded numeric values are recorded. Then, each item is scored so that a high score describes a more favorable health state. In addition, each item is scored on a 0 to 100 range so that the most minor and greatest possible scores are 0 and 100, respectively. In step two, items in the same scale are averaged together to create the eight-scale score. Items left blank (missing data) should be considered when calculating the scale scores.

Data analysis

Statistical Package for Social Sciences (SPSS) software version 22.0 for data entry and analysis was used. Descriptive statistics were described for categorical variables as frequencies and percentages. In contrast, continuous variables were expressed as Mean (Standard deviation) for normally distributed variables and Median (Interquartile range) for non-normal variables. In addition, crude and adjusted Odds ratios and 95% Confidence Intervals were reported, and p-values of < 0.05 were considered statistically significant.

Ethical approval

This study was approved by King Abdullah medical city Institutional Research Board (IRB number: 22-1013). Survey responses were collected anonymously. No identifying information was collected from participants, no private information, and

all responses were confidentiality maintained; at the beginning of the survey, participants consent was obtained after explaining the study's objective.

Results

This section presented the data of the participant sample with its statistical analysis results of 610 participants, with 63.3% females and 36.4% males completed the questionnaire. The prevalence of chronic pain is 47.5% (.475), with a 95% level of confidence and confidence interval [.436,.515].

This study included four sections: socio-demographic factors and their relationship with chronic pain, outcomes of RAND 36-item survey of self-reported chronic pain and its frequency, results of RAND 36-item survey of severe pain, and accessibility to chronic pain doctors or chronic pain clinics over the past six months.

The socio-demographic was investigated through gender, nationality, education, marital status, and smoker and nonsmoker factors. From a gender perspective, more than half of female responder participants were found to be with chronic pain ($n = 210, 54.1\%$), while male positive cases were only one-third ($n = 80, 36\%$); this result was statistically significant around ($p = <.001$). 50% of the participants responded having chronic pain from both categories, Saudi and nonsaudi. From the education level point of view, two-thirds of doctors experience chronic pain while only half of master's and bachelor's holders suffer from chronic pain; unlike doctorate, two-thirds of high school and lower educated people have no chronic pain. Although there is no statistical significance ($p = .313$), Almost half of the married and single people reported chronic pain ($n = 140, 49.6\%, 45.4\%$), respectively. Smokers and non-smokers were almost equally complaining of chronic pain ($n = 40, 48.2\%, 47.2\%$), respectively (**Table 1**).

The first part of this work asked the participant whether they have chronic pain and are categorized based on socio-demographic factors, as explained above. In the second and third parts of this study, the RAND 36-item survey was assessed. Initially, the survey was conducted for individuals with self-reported chronic pain. After that, the outcomes of severe chronic pain were

Table 1. Distribution of socio-demographic factors and their relationship with chronic pain among the population in Saudi Arabia, 2022.

Variable	Chronic pain			Chi-square	p-value
	Yes N (%)	No			
Gender				18.524	<.001*
Female	388 (63.3)	210(54.1)	178(45.9)		
Male	222 (36.4)	80(36)	142(64)		
Nationality				.262	.609
Saudi	603 (98.9)	286(47.4)	317(52.6)		
Non-Saudi	7 (1.1)	4(57.1)	3(42.9)		
Education				6.709	.082
High School or lower	124 (20.3)	49(39.5)	75(60.5)		
Bachelor/Diploma	441 (72.3)	214(48.5)	227(51.5)		
Master	27 (4.4)	15(55.6)	12(44.4)		
Doctorate	18 (3)	12(66.7)	6(33.3)		
Marital Status				2.322	.313
Married	282 (46.2)	140(49.6)	142(50.4)		
Single	324 (53.1)	147(45.4)	177(54.6)		
Widow	4 (0.7)	3(75)	1(25)		
Smoker				.755	.685
Yes	83 (13.6)	40(48.2)	43(51.8)		
No	519 (85.1)	245(47.2)	274(52.8)		

The p-value was obtained from the chi-square test.

* p<.05

analyzed distinctly. The results of binary logistic regression of survey data are summarized in **table 2** and **table 3**, respectively.

The answers to 36 questions are scaled out of 100, and a higher score indicates better health. Then the questions are divided into six factors: the weight of each element is calculated by the mean of its questions score. Finally, the coefficient of the logistic regression model is calculated for each factor. The relationship between energy/fatigue factor and chronic pain is inverse based on the odds ratio (OR). In other words, more energetic behavior indicates less chronic pain –

like the relationship between social functioning and general health – however, physical functioning and role limitation due to emotional problems are directly related to chronic pain.

For the severe chronic pain group, social functioning, physical functioning, and general health factors have an inverse relationship concerning reported chronic pain, while energy/fatigue and role limitation due to emotional problems are directly related to reported chronic pain, as indicated by OR value in **table 3**.

The accessibility to chronic pain doctors or chronic pain clinics over the past six months is

Table 2. The results of binary logistic regression analysis of self-reported chronic pain with scores of different outcome factors from the RAND 36-Item Health survey.

Variable	Coefficient	Standard error	Statistics (p-value)	OR [95%CI]
Energy/fatigue	-.023	.006	13.584 (<.001)*	.978 [.966-.989]
Social Functioning	-.022	.005	21.616 (<.001)*	.979 [.970-.988]
Physical Functioning	.006	.003	4.199 (.040)*	1.006 [1.000-1.012]
General Health	-.033	.008	19.284 (<.001)*	.968 [.953-.982]
Role limitations due to emotional problems	.003	.003	.350 (.554)	1.002 [.997-1.007]

* p<.05

Table 3. Results of binary logistic regression analysis of severe pain with scores of different outcome factors from RAND 36-Item Health survey.

Variable	Coefficient	Standard error	Statistics (p-value)	OR [95%CI]
Energy/fatigue	.004	.016	.051 (.821)	1.004 [.973-1.036]
Social Functioning	.064	.016	16.087 (<.001)*	.938 [.909-.968]
Physical Functioning	-.007	.009	.711 (.399)	.993 [.976-1.010]
General Health	-.043	.021	4.380 (.036)*	.957 [.919-.997]
Role limitations due to emotional problems	.010	.007	1.692 (.193)	1.010 [.995-1.024]

* $p < .05$

reported by 290 participants. Slightly over 37% of the participants discussed their chronic pain with their doctors and sought help. Thirty-eight point three percent have visited chronic pain specialists. However, only 26.9 have taken treatment for chronic pain, like neuroleptics and depression medications, in the last six months. Around 10% have conducted direct therapy like botox or anesthesia injection to relieve pain.

Discussion

Our study involved 610 participants with chronic pain; females represented 63.3% of participants with more affection by chronic pain than males; this was by a previous study done in Brazil [1], in which (56.6%) of participants were female and reported having pain or being under the pharmacological treatment of pain. Also, Pain crises frequency and duration were significantly higher among females, who reported further interference of pain in self-care, work, sexual life, and sleep interruption.

Another study [17] was done to associate factors of chronic pain in nurses, which showed that 67% of participants with chronic pain were females. Also, a recent study [18] in England showed that 67.1% of participants were females.

Most of our participants had Bachelor's degrees or diplomas; this was to the previous study done in Saudi Arabia [19], which found that 77.89% of participants were university students. Also, a study done in the USA [20] showed that the most affected group with chronic pain graduated from college or higher. The mental and physical stresses may explain this in this group.

In contrast to our study, the study done on Iranian nurses [17] found that participants with

a bachelor's degree were the minor group affected by chronic pain; another study done in Canada [21] showed that the high-education group of participants was the least affected by chronic pain.

In our study, marital status did not affect chronic pain status. In contrast, in the USA, 63.5% of females with chronic pain were married [20], and the same was reported in Iran [17], 66.5% of chronic pain participants were married.

Our study reported that the odds of reporting chronic pain were significantly lower with higher scores in energy, social functioning, and general health factors. The odds of reporting chronic pain were significantly higher, with a lower score at the physical functioning factor.

This was by a study done in Croatia [22], which stated that the participants with sharper pain had significant emotional limitations, lower energy, poorer psychological health and social functioning, and poorer general health.

The social life of chronic pain patients was affected, as they had to give up their social lives and became socially isolated either because of the restricted physical activity [18] associated with chronic pain or due to depression resulting from the pain.

Chronic pain may affect the patient's sleep, which causes tiredness in the daytime and low energy. Constant feelings of fatigue had an unfavorable impact on the general health status.

Conclusion

We assessed the burden of chronic pain from patients' perspectives in multiple physical, psychological, and social functioning and well-being domains. Chronic pain significantly affects social functioning and general health factors. Chronic

pain also seemed to impact negatively patients' energy, although this did not reach statistical significance. In addition, chronic pain affects females and highly educated individuals more.

Limitations

This study has many limitations as it was an online survey, the response rate could be low, and there was a lack of communication between the participants and researchers which may limit the ability to explain some questions.

Also, the study was done in the Makkah region; the results cannot be generalized to the whole kingdom of Saudi Arabia.

Recommendations

More studies about chronic pain and its effects on quality of life should be done in other regions of Saudi Arabia and other Arab countries, as there is a lack of information and studies available on this issue; this will be necessary to manipulate this problem and improve the quality of life.

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Conflict of interest statement

The authors declare no conflict of interest.

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