Original Articles

Relationship of Back and Neck Pain With Quality of Life in the Croatian General Population

Zeljko Pedisic, PhD,[a,b] Shelly Pranic, MBiol,[c] and Danijel Jurakic, PhD[d]

Abstract

Objective: The purpose of this study was to determine the prevalence of back pain and neck pain and their relationship with the quality of life in the Croatian general population.

Methods: This was a cross-sectional study using home-based face-to-face interviews of 1030 participants (51.6% females) 15 years or older. Back and neck pain frequencies were assessed using single items and quality of life using the Short Form Survey and Satisfaction with Life Scale. Analysis of covariance was conducted, where back pain or neck pain frequency was used as the categorical predictor; physical component summary or mental component summary, as the dependent variable; and age, body mass index, and physical activity level, as covariates.

Results: The prevalence of back pain was 66.3% (95% confidence interval [CI], 62.3%-70.3%) and 62.9% (95% CI, 58.7%-67.2%) in females and males, respectively. The prevalence of neck pain was 58.0% (95% CI, 53.8%-62.2%) for females and 53.6 (95% CI, 49.2%-58.0%) for males. Differences between men and women were not significant ($P > .05$). Adjusted mean values for physical component summary and mental component summary were substantially lower in participants who reported back or neck pain often/almost always compared with those without pain. Differences ranged from 8.11 to 11.86 points (95% CI, 5.54-13.99) and from 9.61 to 10.99 points (95% CI, 7.35-13.45) in females and males, respectively.

Conclusions: The findings of this study showed that back and neck pain are highly prevalent and negatively related to quality of life in the Croatian general population. These data might raise the awareness of local government health authorities and lead to improvements in health care service for people with back and neck pain. (J Manipulative Physiol Ther 2013;36:267-275)

Key Indexing Terms: *Low Back Pain; Neck Pain; Chronic Pain; Quality of Life; Personal Satisfaction*

Back and neck pain are growing public health problems. As many as 80% of adults experience back pain in their lifetime according to the World Health Organization.[1] The lifetime prevalence of neck pain for adults across different countries has been reported to range from 14.2% to 71.0%, with a 48.5% mean.[2] Evidence suggests that the prevalence of back and neck

pain is high even in children and adolescents.[2,3] Consequences of these conditions include economic burden,[4-6] disability,[7,8] occupational absenteeism,[9,10] and diminished work capacity.[6,11] Moreover, in studies examining pain in various regions of the spine, the overall prevalence rates are highest for low back pain followed by neck pain and mid back pain.[8,12,13] It has also been observed that women are more likely to experience back and neck pain.[2,12-16]

Several studies have described the relationship of either back or neck pain with health-related quality of life (HRQoL). Most of them were conducted on different general adult populations[15,17-20] or patients with chronic back pain[21-25] and fewer on other populations such as schoolchildren[26] and elderly.[27] Despite of the valuable data from several studies, evidence on the relationship of back or neck pain with HRQoL in general population is still scarce, whereas methodological differences of the studies preclude drawing final conclusions. Furthermore, somewhat less attention has been given to the relationship between back or neck pain and life satisfaction. It has been studied in a working population[28] and in people with whiplash-associated disorders,[29,30] but, to the best of our knowledge,

[a] Researcher, Institute of Sport Science, Karl-Franzens-University of Graz, Graz, Austria.
[b] Researcher/Lecturer, Faculty of Kinesiology, University of Zagreb, Zagreb, Croatia.
[c] Researcher/Lecturer, School of Medicine, University of Split, Split, Croatia.
[d] Researcher/Lecturer, Faculty of Kinesiology, University of Zagreb, Zagreb, Croatia.

Submit requests for reprints to: Zeljko Pedisic, PhD, Researcher/Lecturer, Horvacanski zavoj 15, HR-10000 Zagreb, Croatia (e-mail: *zeljko.pedisic@kif.hr*).

http://dx.doi.org/10.1016/j.jmpt.2013.05.012

evidence collected from representative samples of the general population is still lacking.

Little is known about the quality-of-life outcomes of back and neck pain in Croatia. Braš et al[31] investigated HRQoL in Croatian war veterans with posttraumatic stress disorder and low back pain, and Jajić et al[32] described the relationship between spinal pain and HRQoL in patients with ankylosing spondylitis and psoriatic arthritis. However, no recent studies have examined the prevalence of back/neck pain or its relationship with the quality of life in the Croatian general population. Insight into these data might raise the awareness of local and regional government health authorities and lead to improvements in health care service for people with back and neck pain. Furthermore, it might motivate administrative bodies in primary care to initiate systematic monitoring of body posture and other factors, which may lead to the incidence of back and neck pain, especially nowadays when simple and affordable screening methods are available.[33,34] Besides, it might help patients, physicians, and allied health professionals better understand possible nonclinical benefits of back or neck pain treatment.

Therefore, the purpose of this study was to determine the prevalence of back and neck pain and examine the relationship of these conditions with HRQoL and life satisfaction in the Croatian general population.

Methods

Subjects

A cross-sectional study was conducted in November 2007 on a stratified random sample of 1076 Croatian inhabitants 15 years or older. Participants were interviewed face to face in their households. Unfortunately, no exact data on the response rate are available for the current study. Nevertheless, the survey company in charge of the sample selection and data collection indicated that the common response rate in similar household surveys that they regularly conduct in Croatia is approximately 35%. Sample stratification was performed by settlement size and geographical region using data from the Croatian 2001 census. At first, we randomly selected households. In each selected household, interviewers performed the random selection of 1 resident. The only eligibility criterion was that the selected resident is 15 years or older. A detailed description of the sample design can be found elsewhere.[35] Adult subjects gave written informed consent before being interviewed. Written consent was obtained from a parent or guardian after adolescent assent. To assure the anonymity of participants, upon completion of the interview, each questionnaire was sealed in an envelope with a barcode as the unique identifier. The identity of the participants was kept confidential and remained unknown to the researchers. The study protocol was approved by the Institutional Review Board at the Faculty of Kinesiology, University of Zagreb. All participants consented to participate in this study.

Table 1. *Sample characteristics*

Variable/category	$\bar{x} \pm$ s/% [a]	
	Females	Males
Age (y)	39.31 ± 14.97	38.99 ± 14.76
Size of settlement [b]		
<2000	36.7	40.6
2001-10 000	14.3	15.5
10 001-100 000	19.8	19.7
>100 000	29.2	24.1
Level of education		
Primary school	15.4	9.8
Secondary school	61.2	65.4
Undergraduate degree	12.7	12.6
Graduate degree	10.4	11.0
Postgraduate degree	0.4	1.2
Household income per capita (€)	362.37 ± 253.72	363.12 ± 216.38
BMI (kg/m²)	24.00 ± 4.22	26.23 ± 3.63
<16.0	0.4	0.0
16.0-18.5	4.2	0.4
18.5-25	62.2	40.7
25-30	23.0	44.3
> 30	10.3	14.6

BMI, body mass index.
[a] Mean ± SD (for quantitative variables)/percentages (for categories).
[b] Number of inhabitants.

Because of incomplete data, 4.3% of the subjects were subsequently excluded from the study. The final sample consisted of 1030 subjects (51.6% females; mean age, 39.16 ± 14.86 years). The study sample is considered representative for the population of Croatian citizens 15 years or older. According to the Croatian 2011 census, there are somewhat more than 3.6 million Croatian inhabitants of the aforementioned age. General characteristics of the sample are presented in Table 1.

Power analysis indicated that our sample size was large enough to detect significant differences at $P < .05$ using the analysis of covariance (ANCOVA) with an acceptable power of 0.77, if the true effect size in the population was at least small (F ≥ 0.10), according to Cohen.[36]

Measures

Frequency of back and neck pain was assessed using 2 separate questions ("How often have you recently experienced back pain?" and "How often have you recently experienced neck pain?") with 5 possible answers: never, seldom, sometimes, often, and always. One-month test-retest reliability of the questions was satisfactory (intraclass correlation coefficient, 0.53 for back pain and 0.49 for neck pain).

Health-related quality of life was assessed using the Short-Form Health Survey (SF-36).[37] The questionnaire consists of 36 items that measure 8 dimensions of HRQoL: physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health. The aforementioned dimensions form 2 summary measures: physical component summary score