CERVICAL SPINE

PREVALENCE OF CERVICAL PAIN IN ADULTS IN THE CITY OF ARACAJU, SERGIPE, BRAZIL

PREVALÊNCIA DE DOR CERVICAL EM ADULTOS DA CIDADE DE ARACAJU, SERGIPE, BRASIL

PREVALENCIA DE DOLOR CERVICAL EN ADULTOS DE LA CIUDAD DE ARACAJU, SERGIPE, BRASIL

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ABSTRACT

Objective: To estimate the current and last 12-month prevalence of cervical pain (CP) in adults in Aracaju, Sergipe, Brazil. Method: Cross-sectional study with 242 adults aged between 18 and 59 living in urban areas. Sociodemographic data, one-time and 12-month CD prevalence, pain intensity assessed using the Numerical Pain Scale, and functional limitation using the Neck Disability Index were evaluated. Results: The prevalence of punctual CD at the interview was 27.7%, while 66.1% had felt pain in the last 12 months. Of the people who felt punctual CP at the time of the interview, the mean pain intensity was 6±4.76, and 82% had a functional disability (mild, moderate, or severe). Conclusion: The prevalence of punctual CD in the last 12 months was high among adults, pain intensity was moderate, and functional disability was mild. Our results demonstrate that the prevalence of cervical pain in adults is high and can influence several aspects of a person's life. ***Level of Evidence IV; Observational, Randomized and Cross-Sectional Study.***

Keywords: Prevalence; Neck Pain; Pain; Health Promotion.

RESUMO

*Objetivo: Estimar a prevalência da dor cervical (DC) atual e nos últimos 12 meses em adultos, na cidade de Aracaju, Sergipe, Brasil. Método: Estudo transversal com 242 adultos entre 18 e 59 anos residentes na área urbana. Foram avaliados os dados sociodemográficos, prevalência da DC pontual e em 12 meses, intensidade da dor avaliada por meio da Escala Numérica da Dor e a limitação funcional pelo Neck Disability Index. Resultados: A prevalência de DC pontual no momento da entrevista foi de 27,7%, enquanto 66,1% sentiram dor nos últimos 12 meses. Das pessoas que sentiam DC pontual no momento da entrevista, a média de intensidade da dor foi 6±4,76 e 82% apresentavam incapacidade funcional (leve, moderada ou forte). Conclusão: A prevalência de DC pontual e nos últimos 12 meses foi alta entre os adultos, a intensidade de dor foi moderada e incapacidade funcional leve. Nossos resultados demonstram que a prevalência de dor cervical em adultos é alta e pode influenciar diversos aspectos na vida da pessoa. **Nível de Evidência IV; Estudo Observacional, Aleatório e Transversal.***

Descritores: Prevalência; Cervicalgia; Dor; Promoção da Saúde.

RESUMEN

*Objetivo: Estimar la prevalencia del dolor cervical (DC) actual y en los últimos 12 meses en adultos, en la ciudad de Aracaju, Sergipe, Brasil. Método: Estudio transversal con 242 adultos entre 18 y 59 años residentes en zona urbana. Se evaluaron datos sociodemográficos, prevalencia puntual y de 12 meses de DC, intensidad del dolor evaluada mediante la Escala Numérica de Dolor y limitación funcional mediante el "Neck Disability Index". Resultados: La prevalencia de DC puntual al momento de la entrevista fue del 27,7%, mientras que el 66,1% había sentido dolor en los últimos 12 meses. De las personas que sintieron parálisis cerebral ocasional en el momento de la entrevista, la intensidad media del dolor fue de 6±4,76 y el 82% tenía discapacidad funcional (leve, moderada o grave). Conclusión: La prevalencia de DC específica y en los últimos 12 meses fue alta entre los adultos, la intensidad del dolor fue moderada y la discapacidad funcional fue leve. Nuestros resultados demuestran que la prevalencia del dolor cervical en adultos es alta y puede influir en varios aspectos de la vida de una persona. **Nivel de Evidencia IV; Estudio Observacional, Aleatorizado y Transversal.***

Descriptores: Prevalencia; Dolor de Cuello; Dolor; Promoción de la Salud.

INTRODUCTION

Cervical pain (CP) is any pain located in the anatomical region of the neck with or without irradiation to the head, trunk, and upper limbs. It presents with variations in intensity, crisis duration, symptomatology, and intervals between pain episodes throughout life.[1-4] CP can generally last less than seven days, less than three months, more than a quarter, or recur within a year. The anatomical region of pain can be defined in different ways, and, for this study, it was understood as any pain located in the anatomical region of the neck, with or without irradiation to the head, trunk, and limbs.[2-11]

According to a study of retirement pensions from 2005 to 2007, back pain was the leading cause of disability and sick pay in Brazil. In Sergipe, the incidence rate of disability pensions per 100,000 taxpayers was 21.73 in 2007. Of all the disability pensions for back pain granted in Brazil, around 57.2% are idiopathic.[12]

In 2010, the Global Burden of Disease Study (GBD) studied the impact of 291 diseases worldwide and ranked CP 21st overall and 4th in disability.[13] In the GBD carried out in 2015, musculoskeletal disorders occupied three of the 25 main causes of disability worldwide, with low back pain and CP being the most frequent, leading the ranking in adolescents and adults.[14] In Brazil, CP was one of the main causes of leave due to disability between 1990 and 2016.[15-23]

The first review that estimated the global prevalence of CP calculated a rate of 4.9%, with a higher prevalence in women (5.8%) than in men (4.0%), higher in the 40 to 45 age group in North American and European countries and with lower rates in South and Southeast Asia.[2] Another study analyzed estimates of CP and showed an average prevalence rate in the general population of 23.1%, an average point prevalence of 14.4%, and a 1-year prevalence of 25.8%.[6] In addition, these studies assume that the aging of the population can lead to a substantial increase in the prevalence of CP in several countries.[2,6] However, the study did not include Brazil in the data analysis.

It is, therefore, essential to carry out further research to investigate the prevalence of CP and analyze possible associated factors and limitations. These and other future investigations into CP may help to control and impact CP,[10] in the Northeast and Brazil. This study aims to estimate the prevalence of CP, pain levels, and the presence of functional disability in adults in the city of Aracaju, Sergipe, Brazil.

METHOD

This observational, randomized, cross-sectional study was approved by the Research Ethics Committee of the University of São Paulo Medical School under opinion number 3.491.143. By the Resolution of the National Health Council (196/96), the participants were informed about the procedures used and could leave the research anytime without suffering harm. They were also assured of the confidentiality of the data, and those who agreed to participate spontaneously signed the Free and Informed Consent Form.

The sample consisted of adults of both sexes aged between 18 and 59, recruited through visits to the data collection sites and who lived in the urban area of the city of Aracaju, Sergipe, Brazil.

WinPepi software (PEPI-for-Windows) was used to calculate the sample size, considering a 95% confidence interval, with an estimated proportion of 50% of the population and a sampling error of 10%. The reference for the size of the population was the last census carried out in Aracaju in 2010, which estimated the number of adults aged between 18 and 59 at 342,317 people and estimated the general prevalence of CP in adults (21.9%; 0.4% to 86.8%), which was reproduced by an important systematic review.[15] Thus, the sample size required was 255 participants.

The evaluation began with applying a questionnaire using the Google Forms online platform, with mandatory and conditional questions to ensure eligibility criteria. The questionnaires were sent via a messaging application platform (WhatsApp), email, and social networks. The selected participants answered sociodemographic questions such as gender, age, marital status, education, and economic class.

The CP Prevalence Questionnaire was used to assess the prevalence of CP, in which the participant was initially asked the following questions: Are you in pain right now? Have you had cervical pain in the last 12 months? Likewise, the frequency and duration of pain were also investigated during the interview. In addition, the survey featured an illustrative image, highlighting the cervical region to make it easier to identify where the pain was. For study and better understanding, the location of CP was defined as any pain located in the anatomical region of the neck with or without irradiation to the head, trunk, and limbs.[12]

As for pain assessment, those who were in pain during the interview completed the Numerical Pain Scale (NPS)[24] and the Neck Disability Index (NDI).[25] Pain intensity was assessed using the NPS, which consists of 11 points, ranging from 0 to 10, with 0 being the absence of pain and 10 being the worst pain described by the individual. This scale is widely used in research and aims to quantify pain intensity subjectively.

The participants were asked about the functional limitations caused by the presence of CP. To verify this more specifically in their daily lives, they were assessed using the Neck Disability Index (NDI).[25] This is a self-administered instrument used in clinical practice and research. The NDI was developed to modify the Oswestry Low Back Pain Disability Index and has become a standard instrument for measuring self-rated disability due to cervical pain. It has a high level of reliability and validity. Each of the ten items is scored from 0 to 5. The maximum score is, therefore, 50. The score obtained can be multiplied by 2 to produce a percentage score. If the result is between 0 - 4 = no disability; 5 - 14 = mild disability; 15 - 24 = moderate disability; 25 - 34 = severe disability; above 34 = complete disability.[25]

The data was analyzed using Microsoft Office Family 365 - Excel to assemble and process the data and SPSS statistical software to analyze and compile the data. Statistical tests were carried out to identify the association (chi-square test, the null hypothesis is that there is no association between the variables), correlation (Pearson's correlation), and equality of means (Student's t-test - null hypothesis is that there is no equality between the means of the groups of variables) between the groups of variables, considering the rejection of the null hypothesis for a p-value of less than 0.05.

Pearson's correlation is an interval classification that varies between -1 and 1 and is ordered between strong ($0.8 < r < 1$), weak ($0.1 < r < 0.5$), moderate ($0.5 < r < 0.8$), and perfectly linear ($r = 1$), whether positive or negative. The confidence intervals used in the cross-tabulations between the variables with significant associations, i.e., p-values less than 0.05, rejected the null hypothesis that there is no equality in the means of the groups of variables.

RESULTS

The total study sample was 242 adults, mostly female (57.4%) and aged between 28 and 38 (32.6%). (Table 1)

The prevalence of occasional CP was 27.7%, and in the last 12 months, 66.1%. When analyzing only people with occasional CP, 82% had some level of disability (mild, moderate, and severe) and a pain intensity of 6±4.76. (Table 2)

The association between the variables showed that the sociodemographic variables were significant relative to the variables related to CP. (Table 3)

DISCUSSION

The prevalence and disability burden of CP in Brazil have not yet been well defined despite its probable impact on the economy and the health of the Brazilian population.[22-23] In this sense, the present study showed a prevalence of 27.7% of occasional cervical pain during the interview and 66.1% of pain in the last 12 months. As a result, this study contributes data for further research and includes strategies for public health policies for people with symptoms of CP in the city of Aracaju, Sergipe, Brazil.

Table 1. Sociodemographic profile of the participants (n=242).

Variables	N = 242	%
Sex		
Male	103	42.6
Female	139	57.4
Age		
18 to 28 years old	74	30.6
29 to 38 years old	79	32.6
39 to 48 years old	44	18.2
49 years or older	45	18.6
Marital status		
Married	95	39.3
Divorced	15	6.2
Widowed	3	1.2
Single	129	53.3
Race/color		
White	58	24
Brown	131	54.1
Black	35	14.5
Yellow	9	3.7
Education		
1 to 8 years	12	5
9 to 11 years	86	35.6
12 years or older	144	59.4
Occupation/Position*		
Class B	21	8.7
Class C	74	30.6
Class D	121	50
E-Class	26	10.7

Caption: *The economy class was classified based on the Brazilian Economic Classification Criteria, established by the Brazilian Association of Research Companies.

Table 2. Prevalence of cervical pain, level of functional disability, and pain intensity.

Prevalence of cervical pain	N = 242	%
Specific pain	67	27.7
Last 12 months	156	66.1
Functional disability	**N = 67**	**%**
Strong	4	5
Moderate	18	27
Lightweight	33	50
None	12	18
Pain intensity	N =67	
Pain	**6 ± 4.76**	

Table 3. Associations between the variables of individuals with occasional cervical pain (n=67).

Variables	p-value < 0.05)
Cervical pain at interview and income	0.0060*
Cervical pain at the time of the interview and schooling	0.0310*
Cervical pain at the time of interview and time of current pain crisis	0.0000*
Cervical pain at the time of the interview and frequency of pain	0.0010*
Pain intensity and time of current pain crisis	0.0000*
Pain intensity and frequency	0.0110*
Level of disability and length of current pain crisis	0.0000*
Level of disability and pain in the last 12 months	0.0000*
Level of disability and frequency of pain	0.0000*

Statistical test: Chi-square test. *5% significance level.

A systematic review sought to determine the prevalence of CP in the world population and found that for 1-year prevalence, the Scandinavian countries reported a higher prevalence of CP than other countries in Europe and Asia[24] with a prevalence of 27.7%, which is higher than that reported in studies from southern Brazil (24%), Spain and Greece (20.4%).[25-26] However, these findings are lower than those found in China (48.7%)[27] and Sri Lanka (56.9%).[28]

Among the few studies carried out in Brazil on the adult population in general, without categorizing by specific groups or pathologies, a study carried out by Genebra et al.[29] in the urban area of Bauru, a city located in the central-western region of the state of São Paulo found a prevalence of CP in adults of 20.3%, revealing a high prevalence of CP and the notable association with widowed and separated people. However, in the present study, the results show the opposite about marital status and educational level, i.e., it proved to be more prevalent in single people 53.3% and married 39.3%, with complete high school education 29.8% and complete higher education 24.4%, respectively. As for low income, the studies agreed with the association of CP.[23]

Goode et al.[30] conducted a telephone survey in North Carolina and found that the estimated prevalence of chronic CP among non-institutionalized individuals is 2.2%. Most were women (56%) and non-Hispanic whites (81%). In the present study, the individuals with chronic CP were adults with a mean age of 33±11.62 years, which differs from the findings of Goode et al., who showed that the highest frequency was among middle-aged people (mean age of 48.9 years). Deligne et al[23] are therefore concerned about the possible accelerated process of population aging in Brazil, with a higher prevalence of CP in middle-aged and elderly people. Whether aging predicts CP is unknown, and the need for prevention initiatives throughout life is highlighted. The results of the present study resulted in a small sample population, as it was carried out in only one Brazilian state, and the authors mention possible results that differ strongly from the worldwide prevalence trend.[30]

Differences in prevalence estimates can be the result of several factors. Fejer, Kyvik, and Hartvigsen[24] carried out a systematic review to determine the prevalence of CP in the world population and to identify areas of methodological variation between the studies, highlighting that firstly, the wording of the questions and the use of different mannequins (illustrative models) can affect the results of the studies. In addition, the authors state that self-developed questionnaires are often used, which may explain some variations observed in prevalence estimates. Another important item identified, which may explain the discrepancy in prevalence, is the anatomical definition, which varies between studies (i.e., including or excluding the shoulder region).[24]

In the adult population, as previously mentioned, there are few epidemiological studies on the prevalence of CP; however, the main studies on this subject are aimed at special populations, such as athletes[31] with 48%, breastfeeding mothers[32] with 58%, spinal surgeons[33] with 74%, wheelchair users[34] with 56%, the elderly[35] with 20%, computer operators[36] with 67%, farmers[37] with 7%, nurses[38] with 57%, dental surgeons[39] with 66% and airline cabin crew[40] with 30%. Thus, considering the high prevalence rates found in specific populations in the scientific literature, together with the data from the present study, we believe that more research is needed to help understand the long-term course of CP and promote ways of preventing it in different occupations and audiences, taking into account age groups.

Regarding the presence of functional neck disability, 82% of the participants with punctual CP had some level of disability (mild, moderate, and severe). Studies have shown a prevalence of disability; for example, the study by Stephen, Brandt, and Olivier[41] identified a prevalence of neck disability of 93.9%, mainly mild. In the study by Ezzati et al,[42] the average disability was 32.79±5.8, representing severe disability. The main limitation of this study was the expected number of participants in the sample, with 13 missing from the calculation due to the COVID-19 pandemic at the end of data collection.

CONCLUSION

The prevalence of occasional and in the last 12 months CP was high among adults, pain intensity was moderate, and functional disability was mild. Our findings could provide information for public managers to make decisions to implement public policies for the population of Sergipe, Brazil.

ACKNOWLEDGMENTS

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