Back pain in adults living in quilombola territories of Bahia, Northeastern Brazil

Dor nas costas em adultos residentes em territórios quilombolas, Bahia

ABSTRACT

OBJECTIVE: To analyze the factors associated with back pain in adults who live in quilombola territories.

METHODS: A population-based survey was performed on quilombola communities of Vitória da Conquista, state of Bahia, Northeastern Brazil. The sample (n = 750) was established via a raffle of residences. Semi-structured interviews were conducted to investigate sociodemographics and employment characteristics, lifestyle, and health conditions. The outcome was analyzed as a dichotomous variable (Poisson regression).

RESULTS: The prevalence of back pain was of 39.3%. Age ≥ 30 years and being a smoker were associated with the outcome. The employment status was not related to back pain.

CONCLUSIONS: The survey identified a high prevalence of back pain in adults. It is suggested to support the restructuring of the local public service in order to outline programs and access to healthy practices, assistance, diagnosis, and treatment of spine problems.

DESCRIPTORS: Back Pain, epidemiology. Risk Factors. Rural Population. Health Surveys.
Back pain (BP) is a musculoskeletal disorder that affects the main regions of the spine (cervical, thoracic, and lumbar), and it is a public health problem. Approximately 70.0% to 85.0% of the world’s population is susceptible to acute or subacute clinical presentations of BP throughout life, with repercussions on the routine of affected individuals, including temporary or permanent work-related disability. In this manner, it becomes the main cause of absenteeism from work and social welfare and health costs.

BP is a multicausal phenomenon. Factors such as sociodemographic, occupational, and lifestyle characteristics are frequently associated with this disorder. The impairment of life quality is well described in literature. However, there is neither a single definition nor standard methods that could facilitate comparisons of results obtained in research.

Pain is felt in a peculiar manner, and its expression is related to subjective experience, involving sensory, cognitive, and sociocultural aspects. It interferes with how people understand, react, and communicate, with or without externalizing the pain process. Ethnic and behavioral characteristics also modulate individual manifestation of the painful sensation in the back.

Although most studies focus only on the lumbar region, this is not the case for the Pesquisa Nacional de Amostra de Domicílios (PNAD – National Residence Sample Survey) and other national surveys. The Delphi consensus performed in 2006, involving 28 specialists from 12 countries, supports the notion of incorporating more spine regions in the BP definition. In their final document, they consider low BP (lumbar pain) to be a synonym of BP, emphasizing the relevance of including lumbar, cervical, and thoracic pain as adopted by specific surveys. Based on this knowledge, a broader definition of BP was adopted, and it includes the entire structure of the spine.

Regarding living and working conditions at the countryside, the inequities are apparent when analyzing the social and health indicators. Of note is the predominance of risk factors for musculoskeletal disorders, related to specific agricultural activity. Similarly, in rural quilombola populations, the socioeconomic and racial asymmetries strongly influence the health...
inequalities. Regarding the quilombola population, there is a lack of epidemiological studies assessing health problems, including BP.

The term “quilombola” refers to remaining ethnic-racial quilombo groups, and their cultural and material heritage confer them a sense of being and belonging to quilombola national territories, according to the criteria of auto-attribution and presumption of black ancestry. In the scope of the health survey conducted in quilombola communities of Vitória da Conquista, BA, Northeastern Brazil, designated as “Projeto COMQUISTA”, which guided this present study, this web of sociocultural relations substantiated the hypotheses regarding social inequalities in health.

The present study aimed to analyze the factors associated with back pain in adults who live in quilombola territories.

METHODS

The epidemiological characteristics of quilombola communities was investigated in 2011 using a cross-sectional population-based study with five quilombola communities located in five districts of the Vitória da Conquista Municipality, Bahia. All five communities are certified by the Palmares Foundation for self-recognition of belonging to ancient quilombos.

The estimated universe sample consisted of 2,935 adults residing in selected quilombola areas. The sample plan included the following assumptions: a) randomly selection of one community per district; b) include only communities with at least 50 registered families; c) select via a raffle the residences to be visited; and d) invite all adults (≥ 18 years of age) living in a raffled residence to participate in the survey.

Of the raffled residences (422), 393 were included in the study (93.1%). In total, 797 individuals were interviewed, and 750 adults were chosen after excluding pregnant women (11) and secondary informants (36). The pregnant women were excluded because of transient muscular changes that occur in the spine region during pregnancy. Regarding the informants, the nature of the auto-referred event (BP) is of individual and subjective character; therefore, it is inappropriate to consider the description of a third party.

For the interviews, we used the semi-structured questionnaire called Inquérito Região Integrada do Distrito Federal (Integrated Region of the Federal District Survey) of the Pesquisa Nacional de Saúde (PNS – National Health Survey), tailored for the quilombola population. The questionnaire was formatted in two specific modules (individual and residence), and it allowed collecting demographic, socioeconomic, occupational, lifestyle, health status, and morbidity data.

For body mass index (BMI), the weight was checked with a portable electronic scale (Marte®, model LC200PP), with a maximum capacity of 200 kg and sensitivity of 50 g. The height was obtained using a portable stadiometer (CauMaq®, model EST-22), with a capacity of 300 mm to 2,000 mm. In the construction of the BMI variable, we considered the national standard values for the definition of normal and altered (overweight/obesity) indexes that interfere with the monitoring of BP.

The question asked to assess BP was: “Do you suffer from a chronic spine problem such as chronic pain in the back or neck, low BP, sciatica pain, or problems in the vertebrae or discs?”, with yes or no as answer options.

The following explanatory variables were considered in data analysis: a) occupational characteristic (employment status); b) individual characteristics (gender, age, marital status, education level, skin color, individual income); c) health status and lifestyle (practice of physical activity, BMI, and smoking).

The variable “employment status” consisted of eight optional answers divided into three categories: unemployed, permanent contract, and temporary contract.

The variable “skin color” was self-declared with the following options: white, black, brown, and other (indigenous, yellow). The definition of skin color followed the national standard, according to the conceptual parameters adopted by PNAD, relating it with the self-declared physical characteristics of the interviewees.

The variable “educational level” included: incomplete elementary schooling; complete elementary schooling; and basic and secondary schooling. The variable “income” referred to the existence of monthly individual income, with yes or no as answer options.

“Physical activity” was evaluated according to the following question: “How many days per week do you do a physical activity or practice a sport?”. Two categories were created: “yes”, for positive answers, regardless of the number of days per week, and “no” when the individual answered “never”. Thus, we can generally assess whether the interviewee performs a physical activity or not. The variable “smoking” was based on a single question about current smoking habits, with yes or no as answer options.

We consulted the local leaders to obtain their consent for this study. Data collection was performed between September and October 2011 and was preceded by mapping and sensitization of communities.

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With the assistance of a GPS and photographic records, we constructed a map to characterize the universe of residences. The data generated by GPS were edited with the identification of each point (waypoint: number and geographic coordinates) in specific spreadsheets, generating the spatial representation of the area and residences. This representation enabled the random raffle of residences in each community using the technique of an electronic random number generator, without repetition, with the assistance of the tool Random Integer Set Generator.4 For the suitability of the instrument, besides two pre-tests (33 interviews), a pilot study was performed within the quilombo community not selected for research (55 families), equivalent to 8.0% of the main sample. The researchers themselves applied a paper version of the questionnaire.

The interviews of the main study were conducted by 24 academics belonging to the health field, who were trained and supervised by the field coordinators (researchers). The questionnaires were adapted to be used on portable computers (HP pocket Rx5710) and to be transported and stored in the Questionnaire Development System program (QDS™; NOVA Research Company, version 2.6.1).

For reliability analysis, we re-interviewed 42 participants (4.5% of sample). We used the observed concordance and kappa statistics for the categorical variables and the Pearson correlation coefficient for continuous variables, obtaining satisfactory indexes and coefficients. Estimates were performed using EpiInfo, version 3.5.3, and R software, version 2.11.1.3

For general data analysis, we used the statistical software Stata 11.0. Initially, we performed descriptive analysis, estimating raw and relative frequencies according to the categories of the study variables. Univariable analysis was used to verify the presence of associations of BP with explanatory variable categories. The association between explanatory variables and the outcome (Prevalence ratio — PR) was calculated using the Poisson regression, with estimation of the robust variable.

The explanatory variables that were statistically significant (p ≤ 0.20) were selected for intermediate multivariable analysis in blocks: sociodemographic and employment; health status and lifestyle.

We opted a hierarchized entry of variables, considering the hypothesis test and the existence of two levels in the following order: on level 1, the sociodemographic and employment variables (gender, age, marital status, education level, skin color, individual income, and employment status); on level 2, the variables related to health status and lifestyle (BMI, smoking, and physical activity).

For the final model, we considered the variables with statistical significance (p ≤ 0.05) found on levels 1 and 2.

This research project was approved by the Research Ethics Committee of Faculdade São Francisco de Barreiras (CAAE 0118.0.066.000-10) and by the Committee of Universidade Federal de Minas Gerais (CAAE 0118.0.066.203-10).

RESULTS

The prevalence of BP was of 39.3%, without significant differences between men and women. Among the youngest age group surveyed (between 18 and 30 years), there was a lower prevalence of BP (26.1%). Most residents of the quilombo territories were married (63.7%). The highest prevalence of DC was found among individuals who were legally separated or widows (49.1%), and the lowest prevalence was found among single individuals (30.5%). Regarding education level, 67.3% of the interviewees had incomplete elementary schooling. The prevalence was higher among these interviewees than among those with a higher level of education (Table 1).

Most interviewees had brown skin color (44.6%). A higher prevalence of BP was observed among the group of individuals with white skin color than among those with black skin color.

The habit of smoking was reported by 19.7% of interviewees, and the prevalence of BP was greater among smokers than among nonsmokers (Table 2).

Among the interviewees, 24.1% practiced physical activities at least once a week. The prevalence of BP was lower (35.0%) in this group than in the group that did not practice physical activities (40.5%).

Regarding employment status, 40.0% of the workers had a temporary contract. The prevalence of BP (36.8%) was lower in this group than in the unemployed group and the group that had a permanent contract. However, the differences were not significant in univariable analyses (p > 0.20).

In intermediate multivariable analyses, we observed that in the level 1 (sociodemographic and employment), only age was associated with BP. Among variables of level 2 (state of health and lifestyle), BMI, smoking, and physical activity remained in the model.

In the final multivariable analysis, the BP outcome was explained by two factors: age and smoking. Regarding age groups, there was a linear and statistical relationship associated with BP (Table 3).
DISCUSSION

The prevalence of BP was 39.3%, which was lower than that registered in the Pelotas survey, RS, Southern Brazil (63.1%) and higher than that found in a national survey (13.5%). On the regional level, a lower prevalence was recorded in Salvador, BA, Northeastern Brazil (14.7%) and in Belo Horizonte, MG, Southeastern Brazil (7.3%). According to worldwide literature, the lowest prevalence was recorded in Japan and United States at 25.2% and 31.0%, respectively.

However, the interpretation of these comparisons requires caution because the inconsistencies on the manifestation and magnitude of PB prevalence may be due to the demographic size investigated and the type of question that led to the variable outcome in each study. Despite the investigators’ effort in standardizing a BP definition using the Delphi method, there are still weaknesses in terms of necessary consensus for proper data comparison.

We consistently observed a higher prevalence of BP and positive association in advanced age brackets. Spinal diseases are expected and are distributed according to the age bracket because of mechano-degenerative, metabolic, or systemic changes in the musculoskeletal system.

Among the residents of quilombo territories, there was a higher prevalence of BP among the smokers. The smoking effect is explained by the changes that nicotine causes in the tissue of invertebrate discs.

The practice of physical activity was not associated with BP. This finding is not consistent with those of previous studies. In general, there is a negative association between proper physical activity and BP.

Surprisingly, there was no association between BP and the employment status. We expected employed interviewees to be more vulnerable because of a higher chance of exposure to physical activities at work, characterized by anomalous posture and weight lifting. However, unemployment also favors exposure to risk factors for the musculoskeletal system.

The lack of association with employment can be attributed to rural livelihood. It is known that the living and health conditions of the rural groups are not exclusively structured according to job, and this can interfere with BP reports.

Skin color was not associated with BP in any analysis stage, although this characteristic is associated with the reports of worst life and health conditions. A similar result was previously observed by Almeida et al.

Gender and education level were not significantly associated with BP, confirming the results obtained in the Salvador population, city next to quilombo communities. However, our study did not have the strength to examine this attribute.

The differences in illness experiences can derive from racism and not necessarily from skin color of individuals. Accordingly, an association between perceived discrimination and BP has recently been shown; however, our study did not have the strength to examine this attribute.

Gender and education level were not significantly associated with BP, confirming the results obtained in the Salvador population, city next to quilombo communities. However, these results are not consistent. In Germany and China, there was an association between gender, education level, and BP.

In the group of legally separated persons or widows and unmarried couples, there was a higher prevalence...
of BP; however, marital status was not included in the final analyses. In general, single individuals are younger, and the latter is a protection factor for BP. A similar result to this study was found in an American survey and a Brazilian survey.

This study shows the general prevalence of BP in a predominantly rural, poor, less educated, underemployed, and socially unprotected population. Due to the cross-sectional approach, it was not possible to establish the cause and effect. However, the results reinforce the relation between individual factors (age), lifestyle habits (smoking), and BP.
The methodology used in the study was appropriate to achieve the objectives. A partial adaptation of the PNS questionnaire to quilombola reality ensured representativeness for comparisons in relation to the studied object. The following can be considered adequate: performance of pilot project, training of interviewees for data collection using portable computers, precedence by sensitization of local leaders, and mapping the territories for correct localization of residences. Reliability analysis showed the coherence of strategies used in this study.

The question that led to the outcome, formulated in present time, avoided the possibility of recall bias and, consequently, the underestimation of BP prevalence. Despite the use of medical terms in the structure of questions, interviewees did not seem to have interpretation problems because the reliability of answers (kappa index) was equal to 1, meaning 100% agreement in repeated interviews. However, the lack of a reference to BP periodicity is a limitation for proper comparisons.

A more detailed approach is required to clarify the absence of connection between the employment status and spinal manifestations of pain. Considering the homogeneity of the quilombola population in terms of general life conditions, it is probable that the work environment and lifestyle are more critical to the back pain experience.

The results of this study indicate the need of developing prevention strategies to control and reduce the prevalence of BP in investigated quilombola communities. Local seminars, which took place in 2014, disclosed the results to members of the Brazilian Unified Health System (SUS) and to members from social movements and from the university. We expect to strengthen the institutional debate to support restructuring of local public services in order to develop programs and access of quilombola adults to healthy practices, assistance, diagnosis, and treatment of spine problems.

ACKNOWLEDGMENTS

We thank all researchers of the COMQUISTA Project for participating in its elaboration and planning and supervision of data collection; Professor Mark Drew Guimarães (UFMG) for his skills and thoroughness during the coordination of this research; and Professor Orlando Silvio Caires Neves (IMS/CAT/UFBA) for his dedication towards managing DINTER and the COMQUISTA Project.

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This study was presented at the 1st Meeting on the health of the quilombola population of Vitória da Conquista, BA, in 2013. This study was supported by the Fundação de Amparo à Pesquisa do Estado da Bahia (Process 020/2010 PPSUS) and by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES – Decree 05/2009 – DINTER – Interinstitutional Doctorate, New Borders’ Action).

The authors declare no conflict of interest.