Pain assessment through the brief pain inventory in a low socio-economic level population*

Caracterização da dor através do inventário breve de dor em população de baixo nível socioeconômico

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ABSTRACT

BACKGROUND AND OBJECTIVES: Chronic pain affects thousands of people, changing their functionality and emotional status. The Brief Pain Inventory has not been used in populational studies and may be a relevant tool. This study aimed at characterizing chronic pain sensory aspects and their influence on daily life activities.
METHODS: This is a cross-sectional populational study carried out in a Family Health Unit (Salvador/BA/Brazil). Participated in the study 191 individuals aged 20 years or above, with pain for six months or longer. Brief Pain Inventory was used as evaluation tool because it has sensory aspects as predicting variables and reactive aspects as outcome variables. Chi-square test was used for proportional analysis and Spearman correlation test was used for intergroup comparisons.
RESULTS: Sample was made up of 86.4% females, single (48.7%), non white (49.7%), low education (46.6%) and low socio-economic level (100.0%). Most participants (46.8%) have reported pain for at least five years, with predominance of knees (46.1%) and lumbar spine (42.4%), being that 77.5% of the population made systematic use of some painkiller. There has been negative correlation between sensory and reactive variables: general activities (p<0.001; r=0.482), mood (p<0.001; r=0.396), walking ability (p<0.001; r=0.318) and working ability (p<0.001; r=0.389). There has been no correlation for the ability of enjoying life (p=0.403; r=0.061).
CONCLUSION: In a low socio-economic level population, chronic pain primarily affects knees and lumbar spine with negative interference on general activities, mood, walking and working ability.
Keywords: Chronic pain, Epidemiology, Population.

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RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor crônica afeta milhares de pessoas, mudando sua funcionalidade e estado emocional. O Inventário Breve de Dor não tem sido utilizado em estudos populacionais e pode representar uma ferramenta relevante. O objetivo deste estudo foi caracterizar aspectos sensoriais da dor crônica e sua influência nas atividades diárias.
MÉTODOS: Estudo transversal populacional realizado em Unidade de Saúde da Família (Salvador/BA/Brasil). Foram incluídos 191 indivíduos com idade entre 20 anos ou mais, com queixa de dor por um período igual ou superior a seis meses. O Inventário Breve de Dor foi utilizado como um instrumento de avaliação que tem os aspectos sensoriais como variáveis previsoras, e os aspectos reativos como variáveis de desfecho. Foi utilizado o teste qui-quadrado para análise proporcional e correlação de Spearman para a comparação intergrupo.
RESULTADOS: A amostra foi composta por 86,4% de mulheres, solteiros (48,7%), não brancos (49,7%), baixa escolaridade (46,6%) e baixo nível socioeconômico (100,0%). A maioria (46,8%) descreveu dor por período no mínimo de cinco anos, com predominância em joelhos (46,1%) e coluna lombar (42,4%). Setenta e sete e meio por cento da população faz uso sistemático de algum fármaco para dor. Encontrou-se correlação negativa entre as variáveis sensoriais com variáveis reativas: atividades gerais (p<0,001; r=0,482), humor (p<0,001; r=0,396), capacidade de caminhar (p<0,001; r=0,318) e capacidade de trabalho (p<0,001; r=0,389). Não houve correlação para a capacidade de apreciar a vida (p=0,403; r=0,061).
CONCLUSÃO: Em uma população de baixo nível socioeconômico, a dor crônica afeta especialmente os joelhos e a coluna lombar com interferência negativa nas atividades gerais, humor, capacidade de andar e trabalhar.
Descritores: Dor crônica, Epidemiologia, População.

INTRODUCTION

Pain is an issue that affects thousands of people worldwide, altering functionality and emotional state. This is one of the biggest health problems today, due to the extreme human suffering it generates[1]. According to the International Association for the Study of Pain in 1994[2], it could be defined as an unpleasant

sensory experience associated with actual or potential damage or described in such terms. Due to its subjective nature, various factors such as problems of cultural psychology, socioeconomic, and educational policy can influence pain symptoms and may alleviate or worsen it[3]. Against this background, many of the individuals affected by chronic pain, especially from low socioeconomic status, have under-diagnosis and under-reporting, and they believe to be normal to experience pain every day. The under-diagnosis causes several problems to health systems. In addition, low socioeconomic and educational levels have been discussed in the literature as factors predisposing to the development of chronic pain on the individual, relating as a risk factor[4]. Therefore, pain assessment in communities is very important for a valid notification issue[5].

Several instruments to assess the magnitude and impact of painful experience have been drawn up and are important for screening in healthcare facilities and for the monitoring of people with chronic pain undergoing different intervention tools[5,6]. The intensity, duration and frequency of pain can seriously impair quality of life or disable people for different activities of daily living[7]. When pain is persistent it can progress to a chronic state and ceases to represent a symptom to become morbidity[8]. Chronic pain reaches endemic levels in the general population and more specific information about the painful profile can help direct investments to control[9]. In Brazil, about 13.6 million individuals suffer due to pain conditions that are characterized as persistent[10]. In Salvador, approximately 41.4% of the population are carriers of chronic pain[11].

The Brief Pain Inventory (BPI) is a validated instrument in Portuguese (Brazil), with psychometric properties that ensure assess the intensity and location of the impact on quality of life, the pain itself and intervention[12]. It is a means for easy application and speed of execution that can be self applied or have the help of an interviewer[13]. This instrument was prepared in 1983[14] at the University of Wisconsin, USA, with the fundamental purpose of research. Initially developed to evaluate pain related to cancer, BPI was proving to be a suitable measure to assess pain caused by a wide range of clinical conditions is also validated for people with pain not due to cancer[15]. Reliability coefficients for BPI scales from non-cancer pain patient data will be comparable to coefficients reported in the literature for cancer patients, and sufficient for analysis (0.70 or higher)[14]. This instrument has not been applied in low socio economics status population, however, it is presented as a useful tool to detail aspects besides pain intensity, location and duration.

Numerous approaches have explored the fundamental dimensions of BPI. This instrument was designed to capture two dimensions of pain: severity and interference, which aimed to investigate two components: pain intensity more broadly, assessing their variability during the day and interference with vital life aspects of the individual[12]. The application of BPI in population-based studies can help meet clinical characteristics for the design of the painful cross profile studies and the monitoring of people with chronic pain who are undergoing interventions from different therapeutic modalities such as drugs, physical therapy, programs health education, acupuncture and other procedures[16].

This monitoring can help improve health systems and exact policies for its control.

The objective of this study was characterize sensory aspects of chronic pain and its influence on daily activities in a community with low socioeconomic status enrolled at a Family Health Unit in a Health District of the city of Salvador, Bahia, Brazil.

METHODS

This is a descriptive cross-sectional study, conducted at Family Health Unit (FHU) Zulmira Barros, Salvador, Bahia, Brazil. Municipal Health Salvador is administratively divided into 12 regions called health districts. The multidisciplinary team that operates this unit, which belongs to the area covered by the Sanitary District of Boca do Rio, serves the communities of low socioeconomic status RecantoFeliz and Paraiso Azul, located in the Costa Azul neighborhood. Comprises a population of 2,357 inhabitants, according to the Information System Basic Care in 2011. Patients in the community were selected from the clinical records of the office of the FHU.

Subjects with chronic pain recorded in this the FHU were included, aged 20 or older, with intervals of pain equal to or greater than six months and excluded individuals with cognitive inability to respond to the questions and pregnant women.

After applying the criteria for inclusion and exclusion, the population was lowered to 1,550 people. Considering a prevalence of 41.4% of chronic pain in Salvador[11], patients in that community were valued at 620 individuals. Calculating the sample from WINPEPI (freeware package of statistical calculation programs for epidemiologist), with a confidence interval (CI) of 95% and an acceptable difference (absolute accuracy of the estimate) of 7%, we proposed this study with 191 individuals.

For the classification of socioeconomic status was adopted Economic Classification Criterion of Brazil by the Brazilian Association of Population Studies, 2008, which is an instrument of economic segmentation that uses the household survey population characteristics to differentiate and classify it in A1, A2 and B1 (high), B2 and C1 (middle) and C2, D and E (low).

Regarding the distribution of smoking nonsmokers, former smokers and current smokers were used. As with alcoholism, daily consumption or presence of states of intoxication was classified as excessive consumption; random use of a weekly episode and no drunkenness, as moderate consumption; the others were classified as non-consumers.

The application of BPI staff for data collection, including the CHA (Community Health) of the area covered by the Family Health Unit study, was previously was formed to administer the questionnaire. Participants were interviewed and underwent application of the BPI. This instrument consists of nine issues through these one can measure, pain, places affected by pain, pain intensity (sensory dimension), medications and other treatments, improvement caused by medications and treatments and pain interference the individual's life (reactive dimension).

For the questionnaire, we obtained permission from the Department and Divisions (Symptom Research), located at The University of Texas - MD Anderson Cancer Center, for use of the

Brief Pain Inventory in a reduced form (Short Form), validated for the Portuguese (Brazilian), for use in scientific research in a "Non-funded academic research" and described as a study of the "Descriptive study or survey". All steps of the protocol for use of the inventory have been complied with and the Brief Pain Inventory PDF file was received via email.

The study shows how sensory aspects predictor variables, mean pain intensity in the last 24 hours and the worst pain experienced in the last 24 hours, as outcome variables and reactive aspects, general activity, mood, walking ability, work, relations with other people, sleep and ability to enjoy life. Categorical descriptive data are presented in frequency tables and the number of standard deviation/interrogative range. A Chi-square test for analysis of proportions and Spearman correlation for the comparison between domains (sensory and reactive) of BPI was used. Data were set out and analyzed using SPSS version 17.0 for Windows.

This study was approved by the Escola Bahiana de Medicina e Saúde Pública (EBMSP) (protocol number 079/2011 and authorized by the Municipal Health Department of the city of Salvador/Bahia (letter number 233/2011). All participants signed the Free and Informed Consent Term (FICT).

RESULTS

The sample consisted of 191 subjects, 165 (86.4%) were female, most consisting of single (48.7%), designated as non-white by self-report (49.7%), low education (46.6%) and low income (100.0%). The most consisted of nonsmokers (60.7%) and those who did not consumption of alcoholic (59.7%). Many of the individuals (46.8%) reported pain in the last five years (Table 1). The mean age was 46.2±13.8 years and the most of the sample was concentrated in the stratum 31-59 years. Overweight and obesity grade I prevailed among participants, present in 88 subjects (56%). For the characterization of pain through the BPI, the results were shown in the order identified in the inventory. The first item (Preliminary Screening), against questioning «In life, some people have pain from time to time (headache and toothache for exemple). You had today, these different pain?», 49.2% of the population was told that on the questionnaire felt headache and toothache.

In the graphical representation of the body map described in BPI, in order to identify the locations affected by pain, gave greater presence of knee pain (46.1%), back pain (42.4%) and headache (35.5%); and less involvement of the cervical region (17.7%), forearms (17.1%), hands (14.1%) and chest (4.7%). To verify the association of spinal pain with knee pain, it was found that 38 (19%) patients reported the presence of involvement of both regions simultaneously.

To characterize aspects of intensity and interference, tables 2 and 3 express respectively, the description of sensory and reactive variables. Much of the sample reported using pharmacological treatment as a better measure for pain relief and 77.5% of the population makes use of some pain medication, and within this population, 59.5% to 1 makes use of medication 26 4% to 2% and 14.2 drugs to 3. The most of individuals (46.1%) makes regular use

Table 1. Socio-demographic characterization of the sample, a population of low socioeconomic status is enrolled in a health facility, Salvador, Bahia, Brazil

Variables		n	%
Gender	Female	165	86.4
	Male	26	13.6
Age (years)	18 to 30	23	12.0
	31 to 60	144	75.4
	61 to 90	24	12.6
Marital state	Single	93	48.7
	Married	71	37.2
	Others	27	14.1
Skin color	Non white	178	93.2
	White	13	6.8
Smokers	No	115	60.5
	Yes	29	15.3
	Formersmokers	46	24.2
Consumption of alcoholic	Non-consumer	114	59.7
	Moderate	72	37.7
	Excessive	5	2.6
Time categorized pain	Lessthan 5 years	89	46.8
	Between 5 and 10 years	59	31.1
	Longerthan 10 years	42	22.1

Table 2. Characterization of the sensory (intensity) aspects of pain through the Brief Pain Inventory

Intensity (Last 24 hours)a	x~(IIQ)
Worst pain	8.0 (5.0-10.0)
Least pain	3.0 (2.0-5.0)
Average pain	6.0 (4.0-8.0)
Pain now	2.0 (0.0-0.5)

a = numerical scale of variation of 0-10, where 0 is no pain and 10 the worst possible pain.

Table 3. Characterization of the reactive (interference) aspects of pain through the Brief Pain Inventory

Interference (Last 24 hours)a	x~(IIQ)
General activity	7.0 (2.0-10.0)
Humor	7.0 (2.0-10.0)
Walkability	5.0 (0.0-9.0)
Workability	7.0 (0.0-10.0)
Relationships with other people	1.5 (0.0-8.0)
Sleep	5.0 (0.0-10.0)
Ability to appreciate life	0.0 (0.0-7.0)

a = mumerical scale of variation of 0-10, where 0 does not interfere and 10 is complete interference.

of analgesics, anti-inflammatories 30 (15.7%) and 27 (14 1%) of both drugs. Faced with this, the sample interviewed reported that the improvement caused by treatments or medications used provided complete relief in 68 individuals (35.8%), 14 subjects (7.4%) reported 50% relief and 17 (8.9%) got no relief against use of drugs or treatments.

Analyzing the correlation between sensory variables (mean pain felt in the last 24 hours and worst pain experienced in the last 24 hours) and reactive variables, there was moderate to significant weak correlations with the exception of variables felt worse pain and average pain interference with the ability to enjoy life (Table 4).

Table 4. Correlation between sensory and reactive variables using the Brief Pain Inventory in a low socioeconomic level population

	Intensity of the worst pain a		Intensity of the mean pain a	
	R	p	R	p value
Pain interference in general activity b	0.482	<0.001	0.261	<0.001
Pain interference in humor b	0.396	<0.001	0.205	0.004
Pain interference in walk ability b	0.318	<0.001	0.284	<0.001
Pain interference in work ability b	0.389	<0.001	0.283	<0.001
Pain interference in relationships with other people b	0.236	<0.001	0.285	<0.001
Pain interference in sleep b	0.239	<0.001	0.198	<0.001
Pain interference in ability to appreciate life b	0.061	0.403	0.168	0.021

a = scale of variation of 0-10, where 0 is no pain and 10 the worst possible pain.
b = scale of variation of 0-10, where 0 does not interfere and 10 is complete interference.

DISCUSSION

Chronic pain is widely recognized as a major public health problem with significant physical, psychological and relationship with major socioeconomic consequences. This study sought to characterize the pain profile through BPI in a community with low socioeconomic status, demonstrating that the instrument used is presented as a comprehensive tool for this population level and presented correlations between the different sensory and reactive in the presence of chronic pain issues.

As the Brief Questionnaire has never been applied at the population level, especially in populations with low socioeconomic status, we might suppose that this would not be an appropriate instrument to assess pain in this population level. However, the sample demonstrated ease of understanding and knowledge.

The demographic profile of people who suffer from chronic pain in this population is similar to that observed in population studies[17-19]. Women, unmarried, non-alcoholic, non-smokers, middle age, low education level defined by self-report are the most affected by chronic pain. High presence of class I obesity in our sample, which has also been confirmed by various studies showing that high body mass index is associated with chronic pain in population studies[19] was observed and can be relationed with local body affected.

Sites that had been more affected by sore were knees, back and head in the present sample. The lumbar region has been regarded

as the most affected place in several population bases studies[20,24]. However, also the presence of high levels of pain in the knees in the population of Salvador[22] have been observed and is believed to excess body weight have a relationship between mechanic low back pain and pain in the knees, and, in the case of a population with low socioeconomic status, the displacement and walk in a geographically disadvantaged housing conditions, irregular accesses, can contribute to the present in the sample studied complaint[18]. Headache is also often described as a pain that affects many people of the world population[23]. It is possible that high levels of physical and emotional stress can justify the most affected sites in populations of low socioeconomic status.

Although safe and effective, non-pharmacological therapies are not widely used by individuals with chronic pain. Much of the population is presented as treatments and measures to control pain exclusive use of pharmacological therapy, with high consumption of analgesics. One of the main reasons for using self-medication is the presence of chronic pain[24-25]. In countries like the United States and England, the major use of these drugs has largely concerned professionals and health managers, it is an indication that the population is increasingly suffering with chronic pain[26]. Likely that the indiscriminate use of analgesics and anti-inflammatory, associated with the belief that pain is a normal phenomenon, are the genesis of this disease. Public health measures involving education programs for the population is made to inform sufferers of chronic pain on the risks of chronic use of analgesics and mechanisms perpetuating the problem[25].

BPI has advantages over other instruments to be a feature of multidimensional evaluation that can assess the severity of pain at the time and in the past, affected sites and still the main reactive aspects that affect the quality of life of individuals. Through the impact on the general activity, mood, work, sleep, interpersonal relationships and ability to walk and enjoy life, this tool can encompass the main aspects involved with chronic pain[27]. The present study demonstrated that BPI can be successfully applied in population studies. Pain intensity in the population measure both the pain worse, lesser pain, average pain, and pain at the time of evaluation show consistent data confirming the ease of understanding of this population regarding the instrument used by a population of low education and socioeconomic, may enable strategies for reducing pain in this population, as has been stated in some studies[28].

In the present sample was observed that the most affected aspect was to perform general activities, followed by impacts on mood, ability to walk and work. Relationships and the ability to enjoy life aspects were the least affected, confirmed by the description of a general health rated as good by this population. Studies corroborate the results in these dimensions[39-32]. Less significant correlations were also observed between increased pain severity and relationship with other people, sleep quality, and especially the ability to enjoy life.

Regarding the interference of pain in labor, significant decline has been observed in the productive capacity of individuals suffering from chronic pain. The expressions of wear of structures of the muscular system and skeletal reach various professional categories and has stimulated systematic efforts to understand about lesions and related to work musculoskeletal disorders[33,34]. Complex social

phenomena are involved in the secondary in the presence of chronic diseases gains and generate high costs for all segments involved with the biopsychosocial status of individuals with chronic pain[35]. Humor can be understood as a standard or complex state of different behaviors, thoughts and bodily expressions that change according to life events and meanings attributed to these[36]. The pain impacts quality of life as well as in reducing work-related skills, as already described, mood and pleasure being able to cause emotional changes affecting individuals in the motivational and affective cognitive behavioral aspects influencing exaggeratedly the experience and intensity of pain[37]. A few studies have reported significant results compared to declines of some disorders or mood depending on the pain, usually are related cases of chronic pain.

The behavioral and cognitive characteristics in the sample can generate little influence on the negative perception of life due to the presence of chronic pain. This may confirm that the lives of individuals with chronic pain can be severely compromised in different measurable aspects such as the intensity of chronic pain, although it is an important marker for assessing the impacts on the quality of life of individuals, it is not enough to understand the multidimensional aspects that affect the quality of life of individuals suffering from chronic pain[38].

The present study has major limitations as the sample heterogeneity with respect to time of pain, the inherent problem of the instrument on the basis of recalling information and the lack of a comparison group without chronic pain. These limitations may have influenced the expression of the correlation coefficients. Being probably one of the first population-based studies that applied the BPI for describing chronic pain, this study demonstrated good ability to use that tool in population studies, with conditions to correlate sensory and reactive variables. Future population-based studies, even in a population of low socioeconomic and educational level, can benefit from the use of BPI as useful and appropriate to measure different dimensions related to chronic pain tool.

CONCLUSION

In summary, the present study it was observed that in a population of low socioeconomic status, chronic pain affects mainly the regions of the knee and the lumbar spine and increasing the intensity of chronic pain was negatively correlated to the performance of general activities impacted in mood, ability to walk and work. One can also conclude that BPI is presented as a multidimensional instrument for assessing chronic pain simple and easy to understand, which can be applied to population-based studies, whether involving individuals of low socioeconomic status.

ERRATUM

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The original article "Pain assessment through the brief pain inventory in a low socioeconomic level population, published in the July to September issue of Revista Dor was corrected by the author "Ana Shirley Maranhão Vieira". Where it says Ana Shirley Vieira Maranhão", please read "Ana Shirley Maranhão Vieira".

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