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Low back pain: biopsychosocial aspects of chronic and acute pain

Lombalgias: aspectos biopsicossociais da dor crônica e da dor aguda

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Abstract

Chronic low back pain is a highly prevalent pathology, which has unclear associations with psychosocial aspects. This study investigated differences between patients with chronic low back pain (*n* = 25) and acute low back pain (*n* = 20) and verified the effect of the variables assessed on the pain mean. The design was cross-sectional, and the instruments applied were: sociodemographic interviews, Brief Pain Inventory, Beck Depression Inventory II, Hamilton Anxiety Rating Scale, Personality Factor Battery, Social Support Scale and Pain Catastrophizing Scale. The chronic pain group had significantly higher means of pain intensity, anxiety and catastrophic thoughts. In the regression analysis, the factor Depression of the Personality Factor Battery and belonging to the chronic pain group were found as predictors of the mean pain in the sample studied. It is understood that psychological factors are associated with the pain condition and require further investigation.

Keywords: Catastrophizing; Chronic pain; Depression; Low back pain; Personality.

Resumo

A lombalgia crônica é uma patologia de alta prevalência, que apresenta associações não esclarecidas com aspectos psicossociais. O estudo investigou diferenças entre pacientes com dor lombar crônica (n = 25) e aguda (n = 20), bem como

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Article based on the master's dissertation of B.D. ALEXANDRE, entitled "*Aspectos biopsicossociais da dor: traços de personalidade, depressão, ansiedade, pensamentos catastróficos e apoio social na dor crônica e na dor aguda em pacientes com patologias da coluna vertebral*". Universidade Federal de Ciências da Saúde de Porto Alegre, 2019.

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verificou o efeito das variáveis avaliadas na média de dor. O delineamento foi transversal, e os instrumentos aplicados foram: entrevista sociodemográfica, Inventário Breve de Dor, Inventário Beck de Depressão II, Escala de Ansiedade de Hamilton, Bateria Fatorial de Personalidade, Escala de Apoio Social e Escala de Pensamentos Catastróficos sobre Dor. O grupo de dor crônica apresentou médias significativamente mais altas na intensidade da dor, na ansiedade e nos pensamentos catastróficos. Na análise de regressão, o fator Depressão da Bateria Fatorial de Personalidade e o fato de pertencer ao grupo de dor crônica foram encontrados como preditores da média de dor na amostra estudada. Entende-se que fatores psicológicos mostram-se associados ao quadro, sendo necessárias maiores investigações.

***Palavras-chave**: Catastrofização; Dor crônica; Depressão; Dor lombar; Personalidade.*

Chronic pain is a public health issue and is a high incidence pathology in the Brazilian population (Nascimento & Costa, 2015; Pinheiro et al., 2014), which causes physical disability, absenteeism at work and recurrent use of the health services (Malta et al., 2017; Meziat Filho & Silva, 2011). Low back pain, characterized by the complaint of persistent pain in the lumbar regions of the spine (Meziat Filho & Silva, 2011), is the most frequent type of chronic pain. The causes are different, and the absence of a defined etiological factor is common. Often the patient's complaint does not correspond to the medical findings. In addition, in the case of surgery, the feeling of pain remains high even after the treatment (Martins et al., 2017).

Chronic low back pain, therefore, is a complex condition, with evidence of a relationship between biopsychosocial factors at the onset, chronicity and disability of patients (Siqueira & Morete, 2014). From this perspective, psychological aspects of affective, cognitive and behavioral domains begin to be observed in the manifestations of pain.

A high prevalence of depressive and anxious symptoms in this population has been described in the literature (Amaral et al., 2010; Castro et al., 2011; Lerman et al., 2015). Furthermore, some relationships with other variables have already been investigated, as in the study by Lerman et al. (2015), which aimed to examine the longitudinal relationship between depression, anxiety, pain and disability in 238 women with chronic pain and found, in addition to the high prevalence of depressive and anxious symptoms, indications that both variables can worsen pain and disability. Regarding the prognosis, Fujii et al. (2018) highlighted that depressive symptomatology has shown to be an important contributor to the outcomes of patients with low back pain.

In addition to symptoms of mental disorders, personality characteristics are also identified as an important component of chronic conditions. Lattie et al. (2013) presented the already investigated high prevalence of personality disorders in chronic pain conditions, but also enhanced that, regardless of this diagnosis, personality traits which are not considered pathological can impair the prognosis of these patients, influencing the manifestation of pain and the response to treatment.

Neuroticism, according to the Big Five Theory, which seeks to understand, explain, and evaluate personality, represents the tendency to experience events negatively and a limited tolerance to aversive stimuli (Hutz et al., 1998), and appears to be the trait most evidently associated to chronic pain according to the literature (Burri et al., 2017; Kadimpati et al., 2015; Pallegama et al., 2017). According to Bucourt et al. (2017), higher levels of neuroticism indicate greater difficulty in dealing with pain and a tendency to seek more attention and care.

Sturgeon and Zautra (2016) have set the theory that neuroticism may be related to maladaptive cognitions. The main one associated with pain is catastrophizing. Catastrophic thoughts can lead to the intensification of perceived sensations (Hülsebusch et al., 2016; Perissinotti & Portnoi, 2016), being considered as precursors of pain-related fear and avoidance (Naylor et al., 2017). Data from a systematic review and meta-analysis by Schütze et al. (2018) reveal catastrophizing being associated with modulating processes of pain sensation. Patients who experience intense catastrophic thoughts may be more likely to avoid physical

activity in order to prevent pain severity, which could result in heightened perceptions of disability (Owens et al., 2016).

In addition to the psychological aspects, within a biopsychosocial perspective, one cannot think of the individuals being out of context, and it is important to understand their development based on family and social experiences, values and beliefs. These elements will interfere in the subjects' ways of evaluating and dealing with the illness processes, in the perception of suffering and in the dimension they give to the symptoms, in addition to the formation of the repertoire of behaviors and coping strategies (Loduca & Samuelian, 2009). Associations have already been investigated, as in Tripp et al. (2017), who found social support as a predictor of catastrophic thoughts in a sample of 214 patients evaluated in the pre and postoperative period of spinal surgery.

In short, there is a considerable need for clarification about the overlap of domains involved in pain experiences (Bucourt et al., 2017). Therefore, this study aimed to investigate the hypothesis that there are differences between patients diagnosed with chronic low back pain and patients with acute pain in relation to variables such as personality traits, degree of depression and anxiety symptoms, catastrophic thoughts and social support, as well as to verify whether there is an effect of the variables assessed on the patients' mean pain.

Method

Participants

The research followed a cross-sectional design of contrasting groups. The sample consisted of patients hospitalized in the neurosurgery unit of an emergency and trauma referral hospital of the Government Unified Health System. Adult patients aged between 18 and 59 years were included. They had complete elementary education a requirement for the application of the personality assessment instrument. Cancer patients and patients with a history of spinal trauma prior to the cause of hospitalization were excluded from the sample.

All patients who met the inclusion criteria in the period from June 2018 to May 2019 were offered to take part in the study. In total, 45 subjects participated, divided into two groups. Group 1 consisted of 25 patients diagnosed with chronic low back pain; Group 2 was made up of 20 patients with acute pain conditions resulting from traumatic spinal injuries.

Instruments

The following instruments were applied to all participants in the sample:

The Brief Pain Inventory (BPI): is a multidimensional scale that aims to measure the intensity of pain and its interference with the ability to walk, with daily activities, at work, with social activities, in connection with mood and sleep. The questionnaire assesses the pain perceived at the time of application, as well as the most intense and the least intense pain in the last 24 hours. In the Brazilian adaptation of the instrument, the internal consistency factor found for the pain intensity and interference dimensions by the Crombach's alpha was 0.91 and 0.87, respectively, demonstrating evidence of validity and reliability (Ferreira et al., 2011).

Sociodemographic interview: an interview developed by the researchers was used to collect the demographic data. To determine the socioeconomic level, the questionnaire for economic classification of the *Associação Brasileira de Empresas de Pesquisa* (Brazilian Association of Research Companies) (Associação Brasileira de Empresas de Pesquisa, 2016) was included.

Bateria Fatorial de Personalidade (BFP, Personality Factor Battery): the Personality Factor Battery is a psychological instrument developed in Brazil, to assess personality based on the Big Five Factors Model. It encompasses 126 items, answered on a 7-point Likert-type scale, covering the following dimensions: Neuroticism (N1 – Vulnerability; N2 – Emotional Instability; N3 – Passivity; N4 – Depression), Extraversion (E1 – Communication; E2 – Haughtiness; E3 – Dynamism; E4 - Social Interactions), Socialization (S1 - Kindness; S2 - Pro-sociability; S3 - Trust in people), Achievement (R1 - Competence; R2 - Consideration; R3 - Commitment), Openness to experiences (A1 - Openness to ideas; A2 – Liberalism; A3 – Search for novelties). The instrument's precision was calculated from Cronbach's Alpha for each of the factors: 0.89 for neuroticism; 0.84 for extraversion; 0.85 for socialization; 0.83 for realization and 0.74 for openness, with evidence of validity. The instrument would be applied to participants who have completed at least Elementary School (Nunes et al., 2008).

The Medical Outcomes Study (MOS): is an instrument developed to assess clinical outcomes in chronic disease conditions. The Social Support Scale has nineteen items, answered by a 5-point Likert-type scale. Five dimensions are evaluated: Affective, Emotional, Informational, Positive Interaction and Material Support, which internal consistency measures indicated Cronbach's Alpha coefficients of 0.81, 0.89, 0.89, 0.93 and 0.76, respectively, with evidence of reliability and validity of the instrument (Chor et al., 2001; Griep et al., 2005).

Beck Depression Inventory II (BDI-II): is a classic instrument for measuring the intensity of depression. The second version of the inventory, the BDI-II, is composed of 21 items, answered using a 4-point Likert-type scale, maintaining the purpose of measuring the intensity of depressive symptoms. The Brazilian adapted version showed evidence of validity and reliability, having found a high internal consistency of 0.88 by Cronbach's Alpha (Gorenstein et al., 2011).

Hamilton Anxiety Ranting Scale: assesses anxious mood and physical symptoms of anxiety through a 12-item questionnaire, answered by a 5-point Likert-type scale. This instrument is completed by the interviewer based on information obtained through observation and interaction with the patient. There is evidence of validity and reliability of the instrument, with the internal consistency of the Brazilian version having a Cronbach's Alpha value of 0.89 (Kummer et al., 2010; De Sousa et al., 2013).

Pain Catastrophizing Scale: the Brazilian version of the Pain Catastrophizing Scale (PCS) was adapted and validated by Sehn et al. (2012). The internal consistency found by Cronbach's Alpha was 0.91, and the study indicated the validity and reliability of the instrument. The Pain Catastrophizing Scale aim to discriminate the intensity of thoughts with catastrophic content, that is, an excessively negative orientation in the face of unpleasant events, in patients with chronic conditions. The questionnaire consists of 13 items, answered using a 5-point Likert scale. The factors cover the following domains: Hopelessness, Magnification and Rumination.

Procedures

Participants were recruited from the hospital admission records, seeking the diagnosis in the medical records of all patients who entered the unit from June 2018 to May 2019. After verifying the inclusion and exclusion criteria, all patients were invited to participate in the investigation. All those who accepted to participate entered the sample. The instruments were applied individually at the bedside, with the participants having the option of self-applying them or be filled in by the interviewer (a psychologist or a properly trained psychology student). The Brief Pain Inventory was always the first to be applied, seeking to standardize the treatment time for pain during hospitalization; the other questionnaires were applied in random order. The research was approved by the Research Ethics Committee of *Grupo Hospitalar Conceição* (CAEE 84329718.0.0000.5530). All participants signed the Free and Informed Consent Term, according to Resolution nº 466/12.

Results

The variables of all instruments were analyzed in terms of their means and standard deviations, using them for comparison between the two groups. Sociodemographic data were reviewed using the chi-square test. The scales analyses were performed using the Mann-Whitney test, except for the Personality Factorial Battery, which data were reviewed using the Student's T test, considering the normal distribution of the results. All analyses were performed using the SPSS®IBM® Program (version 25).

Regarding the sociodemographic variables, the groups were statistically homogeneous, except for the difference in the mean age, which was significant, with Group 1 having an average of 41.4 years and Group 2 an average of 34.6 years. In Group 1, the mean duration of low back pain was 6.34 years.

When asked about the performance of current or past psychiatric treatment, 40% of the patients participating in Group 1 answered it was positive, and depression (n = 5), bipolar disorder (n = 3), panic syndrome (n = 2) and chemical dependency (n = 1) were the self-reported diagnoses. In Group 2 the positive answer rate was 15%, and included depression (n = 1), bipolar disorder (n = 1) and hyperactivity (n = 1). Regarding psychological treatment, in Group 1, 40% are or have been already monitored by a psychologist; in Group 2, this percentage was 30%.

In the Brief Pain Inventory, there were significant differences between the groups in all classifications referring to Pain Intensity (worst pain, weakest pain, moment of pain, and average pain) and in the item Pain Interference with mood the means of Group 1 were always higher than those of Group 2, as shown in Table 1.

Table 1

Differences between means of the groups in the Brief Pain Inventory

Brief Pain Inventory	Group 1		Group 2		*p*-value
	M	*SD*	*M*	*SD*	
Pain intensity					
Worst pain	7.96	2.80	6.35	2.27	0.006*
Weaker pain	4.16	2.51	1.85	1.46	0.001*
Moment of pain	5.64	2.98	3.05	2.03	0.004*
Mean pain	7.08	2.13	4.4	1.75	0.000*
Pain improvement (%)	51.20	29.05	74.50	19.86	0.006*
Pain interference					
Humor	6.68	3.11	3.9	3.16	0.005*
Relationships	4.96	3.72	3.65	3.64	0.256
Sleep	6.80	3.05	6.20	2.82	0.355
Ability to appreciate life	6.92	3.90	5.90	3.99	0.239

Note: *Statistically significant differences.

Considering the classification of pain intensity, the majority of the Group 1 focused on severe pain, reported by 68% of participants, while only 8% reported mild pain and 24% moderate pain. On the other hand, in Group 2, the majority reported mild pain, representing 65% of the subjects, while 20% had moderate pain and 15% reported severe pain.

As shown in Table 2, on the Hamilton Anxiety Rating Scale, Group 1 had significantly higher means than Group 2. On the other hand, in the Beck Depression Inventory, no significant differences were found between the means of the groups. However, when analyzing the distribution of groups in relation to the categories of the scale results, it was observed that Group 1 included a greater number of subjects in the categories of moderate and severe depression symptoms, representing 48%, while group 2 had 25 % of participants in these rankings.

Table 2

Differences between means of the groups in the Hamilton Scale and on the Beck Depression Inventory

Anxiety and Depression	Group 1		Group 2		*p*-value
	M	*SD*	*M*	*SD*	
Hamilton	12.28	7.05	5.26	3.47	0.000*
Beck Depression Inventory	21.32	15.07	15.6	10.17	0.282

Note: *Statistically significant differences.

Regarding the Social Support Scale, no significant differences were found when the means in all their dimensions were analyzed, according to the data in Table 3. Both groups presented, among the factors, the highest mean in affective support.

Table 3

Differences between means of the groups in the Social Support Scale

Social Support Scale	Group 1		Group 2		*p*-valor
	M	*SD*	*M*	*SD*	
Affective Support	4.38	0.88	4.39	0.77	0.932
Emotional Support	3.72	1.19	3.82	0.93	0.854
Information Support	3.75	1.06	3.81	0.78	0.991
Positive Interaction	4.10	0.81	4.10	0.87	0.945
Material Support	4.10	0.91	4.03	1.09	0.953

As for the average scores on the Pain Catastrophizing Scale, there were statistically significant differences between the two groups. Group 1 had higher means in the three factors of the scale, shown in Table 4.

Table 4

Differences between means of the groups in the Pain Catastrophizing Scale

Pain Catastrophizing Scale	Group 1		Group 2		*p*-valor
	M	*SD*	*M*	*SD*	
Hopelessness	19.08	4.82	11.25	4.94	0.000*
Magnification	9.24	2.00	7.45	2.43	0.014*
Rumination	13.68	2.15	10.50	3.26	0.000*

Note: *Statistically significant differences.

In the Personality Factor Battery, the groups did not exhibit significant differences between the average scores of each factor, displayed in Table 5. The averages of the Neuroticism, Extraversion, Socialization and Accomplishment factors were classified as average in relation to the general population, according to the percentile in which they found themselves. In the Openness factor, Group 1 had a low score, and Group 2 had an average score in relation to the standardized sample of the instrument, but the difference between the means was not significant.

Table 5

Differences between means of the groups in the Personality Factor Battery

Personality Factor Battery	Group 1		Group 2		*p*-valor
	M	*SD*	*M*	*SD*	
Neuroticism	3.74	1.04	3.51	0.85	0.429
Extroversion	4.62	0.67	4.30	0.69	0.127
Socialization	5.40	0.54	5.11	0.90	0.186
Achievement	5.23	0.82	4.98	0.98	0.359
Opening	4.20	0.71	4.39	0.47	0.302

In order to understand which variables evaluated could predict the average pain variable, measured by one of the items of the Brief Pain Inventory, a simple regression analysis was performed. To that effect, we sought to identify the most suitable variables for submitting this analysis through the correlation calculation. Some level of correlation was detected between the BPI mean pain item and the factors N2 - Emotional Instability (ρ = 0.350), N4 - Depression (ρ = 0.335) and E1 - Communication (ρ = 0.395) of the BFP, the items rumination (ρ = 0.305) and hopelessness (ρ = 0.364) of the PCS, the Hamilton scale (ρ = 0.477) and the BDI (ρ = 0.399).

Based on the correlated variables, linear regression analyses were then performed to explain the pain. Simple models were built, depending on the sample size. Each of the variables was analyzed together with the "group" variable (belonging to one or another group), seeking to predict the dependent variable "average pain". In this analysis, only N4 and BDI continued to show a relevant contribution.

The model that proved to be the most significant to explain the mean pain was composed by the fact that it belongs to the chronic pain group and to the N4 - Depression scale of the BFP. The N4 scale concerns the patterns of negative interpretations that individuals present in relation to the events. High scores on this item express the feeling of inability to deal with the difficulties and a high level of hopelessness (Nunes et al., 2008). The model shows that belonging to the chronic pain group increases the mean pain by 2.35 points, and each point more in the N4 score increases the mean pain by 0.5 points. These two factors together explain 34.9% of the mean pain (F = 12.531, ρ < 0.001).

Discussion

According to the results obtained from the objective of the study, pain intensity was one of the variables that exhibited a significant difference between the groups. The chronic pain group revealed higher levels in all items of this factor, evaluated by the BPI. In addition, when the regression analysis was performed, the fact that the participant belonged to the chronic pain group was found to be one of the predictors of mean pain. Mean pain refers to one of the items in the questionnaire, chosen as a dependent variable because it encompasses the patients' perception about their pain most of the time during hospitalization. The results in relation to this variable showed a large effect, with d = 1.36, and a power of 0.99.

In the same perspective, Bucourt et al. (2017) demonstrated that patients with chronic pain have higher levels of pain when compared to patients with other diseases. As explanatory factors, relevant disparities between types of pain could be pointed out. Acute pain has more objective and concrete aspects, such as the location and appearance of the lesion, duration and relief obtained after pharmacological procedures. In physically detectable terms, pain carries neurovegetative changes, such as tachycardia, sweating, decreased oxygen saturation and increased blood pressure. Chronic pain, on the other hand, shows no association with these signs. The pain persists after the lesion has healed or is associated to persistent pathological processes. Thus, the discrepancy in the levels reported by each group may be associated to the biological mechanisms involved in the process in each of the conditions. Even so, it is known that the repercussion of chronic pain hampers activities, mood, self-esteem, personal relationships, work and leisure, which are considered important emotional and sociocultural components (Sallum et al., 2012).

Although no significant differences were detected between the groups in terms of the scores of the five personality factors assessed by the BFP, the Depression subfactor, belonging to the Neuroticism dimension, was another variable found as a predictor of mean pain. It is worth mentioning that this instrument assesses personality traits; therefore, the results discussed here do not refer to mood disorder symptoms. The Depression subfactor encompasses persistent feelings of incapacity in the face of difficulties, hopelessness and negative expectations about life and the future (Nunes et al., 2008). This finding is in line with the literature, which

points to higher rates of neuroticism in people who suffer from chronic pain (Bucourt et al., 2017; Pallegama et al., 2017; Sallum et al., 2012; Sehn et al., 2012; Sturgeon & Zautra, 2016).

In a systematic review on the influence of personality traits on chronic pain, Naylor et al. (2017) raised several hypotheses postulated in the literature about the role of neuroticism. This factor may be associated to chronic pain because it generates a greater response to stress. Being a moderator of the pain experience, it can cause an intensification of the sensation, causing the individual to experience greater suffering. Another proposition presented is that neuroticism represents a tendency towards greater attention to bodily symptoms, leading to hypervigilance and amplification of symptoms, thus resulting in greater fear, avoidance and disability. From this understanding, it can be inferred that patients with chronic pain have a predisposition to overestimate the sensations of discomfort, a tendency that may be associated to this personality characteristic, which would constitute a possible explanation for the higher levels of pain intensity.

Although both the fact of belonging to the chronic pain group and the personality trait of depression have been shown to be predictors of pain intensity. Differences between the groups were evidenced in relation to other variables. The differences identified in all dimensions in the assessment of catastrophic thoughts were significant, with a large sample effect (hopelessness with d = 1.60 and power of 0.99, rumination with d = 1.14 and power of 0. 96, magnification with d = 0.80 and power of 0.74). In the same connection, Owens et al. (2016), investigating psychological factors and pain modulating processes, found significant differences in the levels of pain catastrophizing between the chronic low back pain group and the control group. Suso-Ribera et al. (2016) demonstrated a positive correlation of catastrophizing, in addition to other dysfunctional beliefs, with symptoms of mental illness in a sample of 492 participants with chronic pain. Craner et al. (2017) verified the role of catastrophizing in a sample of 249 patients with chronic pain, finding it as a predictor of greater pain intensity perceived. Marshall et al. (2017) pointed out the mediating effect of catastrophizing on low back pain-related disability in a sample of 218 patients with chronic conditions. Therefore, the findings of this research are in line with what has been pointed out in the literature, and it can be said that the group with chronic pain is characterized by catastrophic thinking.

The relationship between the variables studied is quite complex. Banozic et al. (2018) found, in a sample of 1322 adults with chronic low back pain, neuroticism as a significant predictor of pain perception and catastrophizing, a similar point made by Semeru and Halim (2019) in their study with a sample of 52 patients. Kadimpati et al. (2015), when evaluating pain-related factors in 595 individuals with chronic conditions, identified a contribution of neuroticism to catastrophizing and anxiety. Catastrophic thoughts have also been related to prognosis (Krutko et al., 2018; Wertli et al., 2014), being an important element to be investigated in future longitudinal studies.

Another result to be highlighted refers to anxiety levels, which were significantly higher in the chronic pain group. The evaluation of this variable showed a large sample effect, with d = 1.26 and power 0.97. The depressive symptoms found, although they did not show a statistically significant difference also yielded higher results in the chronic pain group. With similar results, Araujo et al. (2018), when describing the profile of patients with low back pain in a sample of 1857 patients seen in primary care found a significant association between low back pain complaints and anxiety, but not depression.

Previous diagnosis of psychiatric disorder was reported by 40% of participants with chronic pain, while the rate in the acute pain group corresponded to 15%. The symptomatology assessed by the instruments pointed to some level of anxiety and depression in 60% of the subjects in the chronic pain group. Bener et al. (2013), when investigating the prevalence of low back pain and associated factors in a sample of 2180 participants, found significantly higher depression and anxiety scores in patients with low back pain compared to individuals without that diagnosis. Survey carried out by Pinheiro et al. (2014), with the objective of evaluating the prevalence of psychiatric comorbidities in a sample of 125 patients with chronic pain,

showed significant numbers, which reached 65% of anxiety disorders and 48% of depressive disorders. Similar prevalence rates were found by Amaral et al. (2010), Castro et al. (2011) and Garbi et al. (2014). The conclusions indicated that anxiety and depression, as disorders, are correlated and increase the likelihood that the patient will experience severe pain. However, it is not established whether these symptoms occur prior to the pain condition or may develop from the physical and emotional exhaustion caused by the pain, due to therapeutic difficulties. In the present study, it was identified that the patients who made up the sample had been suffering from chronic pain on average for 6.34 years, with most of them using medications to control pain without success, with recurrent visits to the health services. Thus, the lack of resolution and the lack of perspective are important stressors, which can generate or intensify this symptomatology. In this connection, Humo et al., (2019) emphasize that the understanding of the mechanisms underlying the development of chronic pain and psychiatric disorders is still limited. Therefore, these are aspects to be further investigated.

With regard to the assessment of social support, the scale scores did not show significant differences, with both groups showing similar results. This variable was included in the study with the aim of evaluating the support received in cases of chronic low back pain, considering the need for rehabilitation following hospitalization, as well as the recurrence of returns to the emergency room that actually take place in the institution studied. Considering the Brazilian reality, with factors such as low socioeconomic status, informal work, difficulty in accessing secondary-level health services, among others, the social support network is considered as an important component of the subject's well-being. Tripp et al. (2017) found social support as a predictor of catastrophic thoughts in a sample of 214 patients assessed in the pre and postoperative period of spinal surgery. Ferreira and Pereira (2016) and Freitas et al. (2017) found associations between social support and chronic pain outcomes; however, Ramond et al. (2011), in a systematic review on psychosocial risk factors for low back pain, found only three studies investigating social support, and none of them found this relationship. The discrepancies between the results may be related to the way the variable is investigated. The instrument used in this study assesses social support slanted more to family level, which restricts the measurement of the construct globally. Thus, it is a variable to be further investigated.

The main limitation of this research was the need to exclude patients without complete elementary education, a criterion for submission to the BFP. Hence, a significant part of the population served at the site remained out of the sample. Finally, the importance of following up investigations on this topic is emphasized and the assessment of a greater number of participants is required. It is understood that studies in this area are important due to the gaps that are still present and the importance of the search for more effective treatments for this disease that causes so much suffering.

Conclusion

Considering the objectives of this study, we highlight the finding regarding the personality trait depression, as well as the fact of belonging to the chronic pain group, which proved to be significant predictors of mean pain and explain 34.9% of its variability (d = 1.43), with the power for this result being 0.98, thus considering the sample satisfactory for assessment. In addition, significantly higher levels of pain intensity, anxiety and catastrophic thoughts are highlighted in the chronic pain group.

It is understood that the reassessment of these variables after surgery, when indicated for patients with chronic pain, could help to clarify these associations in subsequent studies, as it would elucidate a possible relationship between biopsychosocial aspects and the maintenance of pain conditions in such cases where no response occur after treatment.

Contributors

B. D. ALEXANDRE was responsible for the elaboration of the master's project, development of all stages of the research, data collection and article writing. A. J. SERAFINI, was responsible for designing the project, supervising and guiding all stages of the research and writing of the article.

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