Type of pain locus of control related to the level of dependence and depression in the elderly

Tipo de lócus de controle da dor relacionado ao nível de dependência e depressão em idosos

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ABSTRACT

BACKGROUND AND OBJECTIVES: The locus of control (LC) of pain is the perception of the individual about pain control. The investigation of the relationship between LC, dependence and depression in elderly patients is of great importance given the high prevalence of chronic diseases among this population. The objective of this study was to analyze the association between LC of pain in elderly patients and the level of dependence and prevalence of depression.

METHODS: Ninety-one elderly individuals, aged over 60 years, were selected from the Association of Retirees, Pensioners, and Elderly of Lavras and Region (AAPIL) and all participants underwent a comprehensive anamnesis to effectively describe and characterize the sample. The Health Locus of Control Multidimensional Scale was used to assess perception of pain, the Yesavage Geriatric Depression Scale was used to determine the prevalence of depression, and Katz Index to evaluate functional capacity. Chi-square test was used to analyze nominal variables with a 95% level of significance.

RESULTS: The majority of the elderly participants (83.5%) reported experiencing chronic pain, while 85.7% had no suspected depression. Internal control was the most prevalent type of LC among participants, and there was no significant relationship between LC of pain and depression.

CONCLUSION: Findings suggest that the type of LC of pain reported by the elderly participants in this study does not significantly interfere with the likelihood of depression. These results contribute to the understanding of the relationship between LC, dependence, and depression among senior patients and may inform interventions to improve their quality of life.

Keywords: Depression, Elderly, Pain.

RESUMO

JUSTIFICATIVA E OBJETIVOS: O lócus de controle (LC) da dor é a percepção do indivíduo sobre o controle da dor. A investigação da relação entre LC, dependência e depressão em idosos é de grande importância dada a alta prevalência de doenças crônicas nessa população. O objetivo deste estudo foi analisar a associação entre LC de dor em idosos, o grau de dependência e a prevalência de depressão.

MÉTODOS: Noventa e um indivíduos idosos com idade superior a 60 anos foram selecionados na Associação de Aposentados, Pensionistas e Idosos de Lavras e Região (AAPIL), e todos os participantes passaram por uma anamnese abrangente para descrever e caracterizar efetivamente a amostra. A Escala Multidimensional de Lócus de Controle da Saúde foi usada para avaliar a percepção de dor, a Escala de Depressão Geriátrica Yesavage para determinar a prevalência de depressão e o Índice de Katz para avaliar a capacidade funcional. O teste Qui-quadrado foi utilizado para analisar variáveis nominais com nível de significância de 95%.

RESULTADOS: A maioria dos idosos participantes (83,5%) relatou sentir dor crônica, enquanto 85,7% não tinham suspeita de depressão. O controle interno foi o tipo de LC mais prevalente entre os participantes, não havendo relação significativa entre LC de dor e depressão.

CONCLUSÃO: Os achados sugerem que o tipo de LC da dor relatado pelos idosos participantes deste estudo não interfere significativamente a probabilidade de depressão. Esses resultados contribuem para a compreensão da relação entre LC, dependência e depressão entre pacientes idosos e podem auxiliar em intervenções para melhorar sua qualidade de vida.

Descritores: Depressão, Dor, Idosos.

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HIGHLIGHTS

- Cross-sectional study that reflects the psychosocial profile associated with the locus of control of pain in elderly individuals.
- Presentation of relevant results regarding the global problem of high prevalence of chronic pain in the elderly
- Evidence that draws attention to the importance of a comprehensive assessment of elderly people.

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INTRODUCTION

Population aging is a reality in Brazil, with the elderly representing 11.3% of the population. This aging process is often accompanied by a high incidence of chronic and degenerative diseases, which can lead to chronic pain and high dependence[1]. Chronic pain is defined as pain associated with chronic disease processes that cause recurrent or continuous pain over periods of months or years, and it can significantly impact the quality of life (QoL) of the elderly[2]. Conditions such as physical and functional disability, dependence, depression, and social withdrawal, among others, are associated with chronic pain, and this pain can limit and direct the individual's decisions and behaviors. Moreover, depression is one of the most frequent disorders in elderly individuals, and in many cases, it goes undiagnosed and, consequently, not treated properly. Low self-efficacy and the presence of intense pain are contributing factors for the development of disability and depression[3,4].

Functional capacity, defined as the individual's ability to perform activities of daily living (ADL), such as bathing, transferring, dressing, taking prescribed drugs, and using public transport, is essential for independence and QoL[5]. Loss of functional capacity is associated with a predisposition to dependence and frailty. Dependence is defined as a need for help from another person to perform activities of daily life caused by the lack or loss of physical, psychological, or intellectual autonomy. It can occur at all ages, but its prevalence increases with age due to the onset and development of chronic diseases[5,6].

Psychosocial factors such as depression, excessive alcohol consumption, and smoking are related to the presence of chronic pain. Psychological factors, such as the perception of pain control and the inability to face it, are also associated with depression[5]. The locus of control (LC) was created to explain a person's perception of control over their life, behavior, expectations, and life events. The Multidimensional Health Locus of Control (MHCL) was formulated to observe the perception of health in two forms: A and B. To evaluate the perception of pain, form C was adapted, which classifies the individual's perception of who or what controls their pain[7]. The perception of pain control is based on personal experiences, and new experiences can influence it. Therefore, the LC of pain is essential to understand how perceptions, beliefs, and expectations are related to behaviors, attitudes, and adherence to treatment in the elderly population. Individuals who perceive pain externally (external LC) have greater functional disability, more psychological changes, more catastrophic ideas, and a greater decrease in their ADLs. On the other hand, those with an internal perception (internal LC) experience pain with lower intensity and frequency, have a higher threshold, are more focused on facing the problem and have fewer psychological changes[8].

Despite the LC being widely studied in Brazil, there are few studies that use the LC for health and pain. Therefore, it is of great importance to clarify which type of locus is most desired for elderly individuals, given the large number of chronic diseases and their possible consequences, such as dependence and depression. This information can guide physiotherapeutic clinical decisions, particularly regarding the type of treatment for each elderly individual. The aim of the present study was to analyze the relationship between the locus of pain control found in elderly patients and the level of dependence and the prevalence of depression.

METHODS

This observational cross-sectional study was conducted in accordance with the guidelines set forth by the Research Ethics Committee of the Lavras University Center (*Centro Universitário de Lavras* - CAAE; Opinion Number: 56275916.0.0000.5116). Aiming at a more accurate and complete presentation, the subdivision and description of the topics are based on the items of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist[9].

The investigation was carried out at the Association of Retirees, Pensioners and Elderly of Lavras and Region (*Associação dos Aposentados, Pensionistas e Idosos de Lavras e Região* - AAPIL), located in the city of Lavras, Brazil. The sample was of convenience, defined by equivalence in the use of individuals available as study participants. The final sample comprised 91 individuals of both genders, aged between 60 and 90 years, who did not exhibit cognitive impairments, as assessed by the Mini Mental State Examination (MMSE)[10].

Data collection was performed at a single time point, and four questionnaires were administered. The first questionnaire, developed by the researchers, aimed to gather information on general characteristics of the sample, including age, gender, location of chronic pain, time of pain evolution, and primary clinical diagnoses.

The second questionnaire was Form C of the Health Locus of Control Multidimensional Scale[8], which assesses an individual's perception of pain, consisting of 18 items divided into four subscales: internal LC, LC at random, LC in doctors and health professionals, and LC in other people. Participants rated their level of agreement with each statement, and scores were computed for each subscale, with higher scores indicating greater agreement.

Following this, the Yesavage Geriatric Depression Scale[11] was administered to assess suspected depression. The scale comprises 15 items, with each item having two answer options: YES or NO. Responses to items 2, 3, 4, 6, 8, 9, 10, 12, 14, and 15 were scored as zero for NO and 1 for YES, while responses to items 1, 5, 7, 11, and 13 were scored as 1 for NO and zero for YES. Scores were summed, with a total score greater than 5 points suggestive of suspected depression.

Finally, the Katz Index[11] was used to assess functional capacity in performing activities of daily living. Both instruments are reliable and validated for this population[11,12]. The reduced version of the index comprises 6 activities, namely, bathing, dressing, using the bathroom, transferring, having continence, and eating. Response options were zero for independence, 1 for partial dependence, and 3 for dependence.

Statistical analysis

All analysis was conducted by a statistician who received the coded data. Descriptive statistics were used to present the characteristics of the participants. The Chi-square test was performed to assess associations between LC and depression variables, with $p<0.05$ considered statistically significant.

RESULTS

The final sample consisted of 91 elderly people with a mean age of 70.4±6.61 years and a mean of 24.1±2.60 points on the MMSE. Most of the interviewees were female, had a married marital status, had not completed high school, had a monthly income of up to 2 times the minimum wage and used drugs (Table 1).

Table 1. Frequency distribution of the sample regarding gender, marital status, level of education, monthly income, and use of drugs (n=91)

Characteristics	n	%
Gender		
Female	65	71.4
Male	26	28.6
Marital status		
Single	10	11.0
Married	50	54.9
Divorced	09	9.9
Widow (er)	22	24.2
Schooling level		
Primary school complete	19	20.9
High school incomplete	37	40.6
High school complete	21	23.1
Graduated	14	15.4
Monthly income		
Up to 2 minimum wages	61	67.0
2 to 5 minimum wages	23	25.3
Over 5 minimum wages	07	7.7
Drug use		
Yes	85	93.4
No	6	6.6

Table 2. Frequency distribution of the sample regarding chronic pain location and pain evolution time (n=76)

Pain location	n	%
Lumbar spine	28	30.7
Knee	15	16.5
Shoulder	13	14.3
Cervical spine	05	5.5
Leg	05	5.5
Hip	04	4.4
Foot	03	3.3
Hand	02	2.2
Elbow	01	1.1
Pain evolution time (months)		
6 to 12	21	27.6
12 to 24	03	3.9
25 to 60	17	22.4
Over 60	35	46.1

The prevalence of chronic pain was 83.5% (n=76). The lumbar spine was the site with the highest occurrence of pain reported by the elderly (30.7%), followed by the knee, shoulder, cervical spine, leg, hip, foot, hand, and elbow. The highest percentage of pain evolution time was 5 years or more (46.1%) (Table 2).

Among all the elderly analyzed, 82.4% obtained the internal LC of pain as a result, followed by the random LC of pain (15.4%) and by the LC of pain in doctors and health professionals (2.2%). The vast majority, 85.7%, scored below 5 points on the Yesavage Geriatric Depression Scale, a result that does not indicate a suspected condition of depression. According to the Katz Index, all elderly individuals were independent.

Table 3 shows the results found in the correlation between the type of pain LC and suspected depression. The results were non-significant (p=0.615).

Table 3. Chi-square test to assess the relationship between pain locus of control and depression

Locus of control	Depression		p-value
	Yes	No	
Internal	13.30%	86.70%	0.615 (NS)
Random	21.40%	78.60%	
Doctors and health professionals	0%	100%	

NS = non-significant.

DISCUSSION

In this study, the majority of elderly people had chronic pain, had more internal beliefs about their health status (internal health locus of control), high levels of independence and absence of depressive symptoms, with no significant associations between the variables.

The prevalence of chronic pain in elderly individuals was found to be high at 83.5%[11]. Brazil is one of the countries most affected by this problem, as reported by a study[13]. In a recent systematic review, the prevalence of chronic pain in the elderly population from Brazil ranged from 29.66% to 76.20%, and the overall median prevalence was 47.32%[14]. Also the present study found a high prevalence of chronic pain among elderly when compared to an 1141 individuals sample Scandinavian study, with a prevalence of 38.5%[15]. It is important to highlight that the pain perception in the elderly is complex, with biopsychosocial factors associated[16].

This study also evaluated the locus of pain control in elderly individuals with chronic pain and found that the most frequent sites of pain were the spine and knee regions[5]. Pain characteristics associated with greater functional deficits and disability were intense pain, pain in the dorsal region, and pain in the lower limbs[2]. It was common for the elderly to report more than one site of pain, and the most frequent pain varied between the lower limbs, the joints and the lumbar region[15,17,18].

With regard to gender, there was a higher prevalence of chronic pain in females (71.4%) than in males (28.6%) in the population evaluated, which is consistent with findings from other studies[2,5,13]. One possible explanation for this gender difference is that women may perceive pain more seriously due to the multiple responsibilities and roles they assume[19,20]. A study[1] found a

prevalence of chronic pain lasting 2 to 5 years, while the present study found a prevalence of more than 5 years (46.1%)[2,11,19].

As for marital status, schooling level, and monthly income, the majority of the individuals were married (54.9%), had not completed high school (40.6%), and received up to 2 minimum wages (67%). Two studies[13,21] found similar results, where low income and low schooling levels were identified as risk factors for the development of chronic pain. However, these studies observed a lack of consensus regarding the influence of marital status on chronic pain, indicating a need for further studies.

In terms of LC, the present study found that the majority (82.4%) of elderly individuals with chronic pain had an internal LC, which is opposite to the findings of other studies[5,6]. The present study also found that elderly individuals were considered independent, which differs from other results[6]. The present study found that 85.7% of the individuals were not suspected of having depression, which is consistent with findings reported by another study[3]. Even though evaluating depression symptoms with just one questionnaire may be challenging, a study shows that both depression and pain might act as risk factors for each other[22]. In Brazil, most of the results of prevalence studies found low rates of depression in the elderly. In these people, more severe symptoms of depression were associated with worse health perception[23-25]. Some findings suggest negative effects on the prognosis of patients who externalize their health beliefs[26,27]. Therefore, considering that the population of the present study includes independent elderly people, without depressive symptoms and who are looking for a healthier lifestyle, it is justified that the majority have an internal LC, believing that they are most responsible for their health condition.

Furthermore, there was no statistically significant difference between LC and depression, indicating that the LC of pain does not interfere with the suspicion of depression in elderly individuals with chronic pain. Elderly individuals with an internal LC may be more likely to seek treatment for their chronic pain, leading to a lower occurrence of suspected depression[28]. Although depression is associated with the presence of chronic pain in the elderly[23], both pain and depression are multifactorial conditions, and can be influenced by individual variables according to the context.

As in any cross-sectional study, there is a limitation in the representativeness of the characteristics of just one moment in time. Despite the heterogeneity of the elderly population, in the context of health promotion, an epidemiological study like this is extremely important. Considering the large incidence of chronic diseases in elderly people, as well as their possible consequences, such as dependence and depression, it is of great importance to clarify which type of locus is better for the elderly. In practice, understanding this psychosocial profile could serve as a support for possible physiotherapeutic clinical decisions, mainly focused on the type of treatment to be performed on each elderly individual.

CONCLUSION

This study revealed a significant number of elderly individuals with chronic pain, particularly in the lumbar spine and knee. This research also showed that most of the participants believed in an internal LC, holding themselves responsible for their pain. However, there was no significant correlation between LC and depression. Given the high prevalence of chronic pain in the elderly population, more research is needed to investigate the impact of LC on the QoL of elderly individuals. The findings of this study suggest that understanding the role of LC in chronic pain management could lead to better treatments and interventions for this population.

AUTHORS' CONTRIBUTIONS

Isabela Leite da Paixão
Data Collection, Research, Methodology, Writing - Preparation of the original
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Writing - Review and Editing, Visualization
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Conceptualization, Project Management, Methodology, Writing - Preparation of the original, Writing - Review and Editing, Supervision

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