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STUDY ON FACTORS ASSOCIATED WITH CHRONIC PAIN IN ELDERLY PATIENTS

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ABSTRACT

Objectives: To identify factors associated with chronic pain among elderly patients.

Subjects and methods: A cross-sectional descriptive study was conducted on 240 patients aged 60 and older, diagnosed with chronic pain according to the International Association for the Study of Pain (IASP) criteria, and treated at Military Medical Hospital 103 from August 2025 to April 2026.

Results: The mean age of the study participants was 70.47 \pm 6.72 years. The mean pain intensity was 6.22 \pm 1.48/10 points, with most patients experiencing moderate pain (50.83%) or severe pain (44.58%). Factors associated with severe chronic pain included pain located in the trunk region (67.86%, p<0.05), neuropathic pain (55.03%, p<0.05), mixed pain (19.05%, p<0.05), and pain patterns characterized by dysesthesia (18.97%) and hyperalgesia (54.22%). Anxiety was positively correlated with pain intensity (p<0.05).

Conclusion: Factors associated with chronic pain in older adults include pain location in the trunk, pain type, pain patterns (dysesthesia and hyperalgesia), and anxiety disorder.

Keywords: Chronic pain; elderly patients; Visual Analog Scale (VAS).

1. INTRODUCTION

Chronic pain is one of the most prevalent and serious health issues among the elderly. The elderly aldults represents a unique demographic, frequently presenting with multiple comorbidities such as arthritis, osteoporosis, osteoarthritis, and spinal disorders [1]. Pain characteristics in the elderly differ significantly from those in younger individuals, as the aging process not only alters organ system functions but also affects the perception and processing of pain. Another critical factor to consider is the identification of determinants associated with chronic pain in elderly patients. Variables such as gender, living environment, physical activity levels, and comorbidities play a pivotal role in determining pain severity and the body's response to treatment. [2]. Assessment and management of chronic pain in the elderly pose significant challenges due to the complexity of comorbidities, functional decline, and influencing social factors. We conducted this study with the objective: To identify factors associated with the prevalence of chronic pain among elderly patients.

2. SUBJECTS AND METHODS

2.1. Subjects

- The study was conducted on elderly patients with chronic pain at the Neurology Clinic, the Specialist Neurology Clinic, and the Department of Neurology at Military Hospital 103. The study period spanned from August 2025 to April 2026.

- Inclusion Criteria:

All participants included in the study met the following criteria:

+ Aged 60 years or older.

+ Diagnosed with chronic pain according to the IASP criteria [3]:

++ Pain duration or recurrence of ≥ 3 months.

++ Impact on personal, social, or occupational functioning

++ Presence or absence of clear tissue damage.

++ May be accompanied by emotional distress, sleep disturbances, hyperalgesia, or allodynia

+ Voluntary consent to participate in the research.

- Exclusion Criteria:

+ Cognitive impairment or dementia.

+ Medical emergencies.

+ Recent surgery within the last 3 months.

+ Diagnosis of at least one endogenous psychiatric disorder.

2.2. Study methods

- Study design: A cross-sectional descriptive study.

- Study Procedures:

+ Step 1: Patients meeting all inclusion criteria and none of the exclusion criteria, who provided informed consent, were enrolled in the study.

+ Step 2: General characteristics, clinical pain features, associated factors, and pain intensity were assessed using clinical research records and the Visual Analogue Scale (VAS). Pain severity was categorized as severe (VAS: 7-10), moderate (VAS: 4-6), mild (VAS: 1-3), and no pain (VAS: 0).

+ Step 3: Data were recorded in standardized case report forms (CRFs).

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+ Step 4: Data entry and processing were performed using SPSS 22.0 software.

+ Step 5: Result analysis and report writing...

- Data Analysis: Data were processed and analyzed using SPSS 22.0 medical statistical software. Statistical methods included calculating percentages (%), means, and standard deviations. The χ2 test, Fisher Exact test and Pearson correlation test were used to analyze the relationships between variables. Statistical significance was defined as p < 0,05

- Ethical Considerations: The study was conducted following approval from the Biomedical Research Ethics Committee of Military Hospital 103, according to Decision No. 3470/HĐĐĐ, dated July 18, 2025.

3. RESULTS

3.1. Characteristics of Study Participants

Table 1. Baseline characteristics of the study participants (n=240)

Characteristics		Value n (%)
Age	X ± SD	70,47 ± 6,72 (60-92)
Sex	Male	108 (45,00)
	Female	132 (55,00)
Living area	Urban	139 (57,92)
	Rural	101 (42,08)
Previous occupation	Manual labor	80 (33,33)
	Office work	160 (66,67)
Pain intensity	Mild (1-3)	11 (4,58)
	Moderate (4-6)	122 (50,83)
	Severe (7-10)	107 (44,58)
	X ± SD	6,22 ± 1,48

The mean age of the geriatric participants in this study was 70.47 ± 6.72 years, with ages ranging from 60 to 92 years. There was a higher prevalence of female patients compared to males. Regarding residential areas, patients living in urban areas accounted for a higher proportion at 57.92%. Additionally, the majority of the participants (66.67%) belonged to the former intellectual labor group.

The average pain intensity according to the VAS scale in the elderly group was 6.22 ± 1.48. The majority of elderly patients were admitted with moderate (50.83%) and severe (44.58%) pain levels.

3.2. Analysis of the association between pain severity and various factors among elderly patients with chronic pain

Pain localized in the cervical spine, lumbar spine, and extremities accounted for the highest proportion. Trunk pain showed a statistically significant correlation with pain severity (with the majority of cases being severe). No statistically significant correlation was found between pain duration and pain severity (p > 0.05)(Table 2).

Table 2. Association between pain location, pain duration, and pain severity (n=240)

Characteristics	Pain intensity		Severe	p
	Mild	Moderate		
Site of pain				
Head and face	1 (1,32)	40 (52,63)	35 (46,05)	0,387
Cervical spine - Lumbar spine - Extremities	9 (4,05)	112 (50,45)	101 (45,50)	0,174
Trunk	2 (7,14)	7 (25,00)	19 (67,86)	0,043
Others	1 (3,45)	14 (48,28)	14 (48,28)	0,631
Time				
3 - <6 months	3 (7,89)	21 (55,26)	14 (36,84)	0,096
6 months - <1 year	0 (0,00)	25 (67,57)	12 (32,43)	
> 1 year	8 (4,85)	76 (46,06)	81 (49,09)	

Table 3. Association between pain types and pain severity (n=240)

Pain types	Pain intensity		Severe	p
	Mild	Moderate		
Nociceptive pain	0 (0,00)	6 (66,67)	3 (33,33)	0,724
Neuropathic pain	0 (0,00)	76 (44,97)	93 (55,03)	< 0,001
Psychogenic pain	1 (50,00)	1 (50,00)	0 (0,00)	0,027
Mixed pain	10 (15,87)	41 (65,08)	12 (19,05)	< 0,001

Among the different types of pain, neuropathic pain, psychogenic pain, and mixed pain showed a statistically significant association with pain severity (p<0,05).

Table 4. Association between pain patterns and pain severity (n=240)

Pain patterns	Pain intensity		Severe	p
	Mild	Moderate		
Dysesthesia	0 (0,00)	11 (52,38)	10 (47,62)	0,522
Analgesia	0 (0,00)	2 (50,00)	2 (50,00)	0,725
Allodynia	6 (10,34)	41 (70,69)	11 (18,97)	< 0,001
Hyperalgesia	5 (3,01)	71 (42,77)	90 (54,22)	< 0,001

Among the types of pain, allodynia and hyperalgesia showed a statistically significant correlation with pain severity (p<0,05).

Table 5. Association between mental health issues and pain severity (n=240)

Characteristics	Pain intensity		Severe	p
	Mild	Moderate		
Depression				
Mild	0 (0,00)	3 (50,00)	3 (50,00)	0,097
Moderate	0 (0,00)	1 (25,00)	3 (75,00)	
Severe	0 (0,00)	0 (0,00)	1 (100,0)	
Anxiety				
Mild	0 (0,00)	3 (33,33)	6 (66,67)	0,015
Moderate	0 (0,00)	0 (0,00)	3 (100,0)	
Excruciating	0 (0,00)	0 (0,00)	1 (100,0)	
Stress				
Mild	1 (12,50)	5 (62,50)	2 (25,00)	0,228
Moderate	2 (15,38)	7 (53,85)	4 (30,77)	
Severe	0 (0,00)	1 (33,33)	2 (66,67)	
Insomnia				
Mild	8 (4,12)	98 (50,52)	88 (45,36)	0,758
Moderate	1 (3,70)	16 (59,26)	10 (37,04)	

Among mental health issues, anxiety showed a statistically significant correlation with pain severity (p<0,05).

4. CONCLUSION

The study results recorded a mean age of 70,47 ± 6,72 years, with a relatively wide range from 60 to 92 years. This reflects the characteristic epidemiological nature of chronic pain syndrome, which is a common medical burden in the elderly. These findings are consistent with the research by Nguyen Trung Anh et al. (2021), indicating that chronic pain in the elderly also directly impacts quality of life and increases the prevalence of depression [1]. The female patients in the study accounted for 55.00%, significantly higher than the male proportion of 45.00%. This difference can be explained through several specific physiological and anatomical mechanisms. In comparison with large-scale international studies, research by Park et al. (2023) in South Korea also recorded a predominantly higher prevalence of chronic pain in females compared to males (24.5% vs. 11.8%) [4]. Similarly, the study by Higgins et al. (2023) in Nepal reaffirmed that chronic pain is closely associated with gender and advancing age [2].

The mean VAS pain score among the elderly participants in this study was 6,22 ± 1,48 Regarding classification, over 95% of patients were admitted with pain exceeding the mild threshold, with the moderate pain group accounting for the majority at 50.83% and the severe pain group at 44.58%. This characteristic reflects a very common reality in Vietnam: most elderly people only seek medical examination and treatment at hospitals once they have reached a stage of prolonged and serious chronic pain. They often tend to suffer in silence, resorting to traditional folk remedies or misusing over-the-counter analgesics at home. This result is also consistent with the study by Nguyen Duc Thuan et al. (2020), which reported a mean VAS pain score of 6,67 ± 1,70 [5].

Trunk pain showed a statistically significant correlation with pain severity, with the majority of cases recorded as severe. Pain in the trunk region (chest, abdomen, pelvis) often involves complex mechanisms. Visceral pain is typically diffuse, difficult to localize, and frequently accompanied by intense emotional responses. When visceral pain receptors are continuously stimulated by inflammation or mechanical factors, the pain sensation often becomes more intense and distressing than typical musculoskeletal pain [6]. Furthermore, the onset of trunk pain in the elderly is often associated with serious medical conditions or acute exacerbations of chronic diseases; therefore, most of these cases are documented at a severe level [7]

Pain duration did not show a statistically significant correlation with pain severity in this study (p>0,05). This confirms that once pain becomes chronic, its intensity no longer depends on its duration. Pain intensity in the chronic phase is primarily governed by central sensitization, where the central nervous system amplifies pain signals regardless of whether the initial peripheral stimulus has healed [7]. In the elderly, psychological endurance and the perception of pain as an "old age ailment" may also lead them to report pain levels that do not increase over time, despite the persistence of the symptoms [8].

Our results indicated that among the types of pain, neuropathic pain, psychogenic pain, and mixed pain showed a statistically significant association with pain severity (p<0,05), reflecting the complex pathophysiological characteristics of chronic pain. Specifically, neuropathic pain arises from direct lesions or diseases of the somatosensory nervous system (such as stroke, diabetes, or nerve root compression), with patients often describing sensations like "electric shocks," "stabbing," or "burning." These characteristics explain why neuropathic pain is closely linked to high VAS scores and is frequently refractory to conventional analgesics [5]. Mixed pain, which involves both nociceptive (tissue damage) and neuropathic components, is very common in patients with spinal pathologies. In conditions such as herniated discs or spinal stenosis, patients experience both local nociceptor stimulation and nerve compression. The involvement of multiple pain mechanisms acting simultaneously on the conduction system results in a higher overall pain intensity perceived by the patient. [5].

Among pain patterns, allodynia and hyperalgesia showed a statistically significant correlation with pain severity (p<0,05), this finding is entirely consistent with the diagnosis of organic neuropathic pain. Neuropathic pain is often accompanied by intense paroxysmal episodes, such as electric shocks, stabbing, or burning sensations, which typically result in high mean VAS scores. Similar results were reported in the study by Nguyen Duc Thuan et al. (2020) [5]. In the elderly, this correlation becomes even more pronounced due to age-related biological changes. The aging process impairs the descending pain inhibitory systems, allowing symptoms of allodynia and hyperalgesia to impact the patient's perception directly without mitigation, thereby pushing pain severity toward the severe threshold [9].

Among mental health issues, we recorded that anxiety showed a statistically significant correlation with pain

severity (p<0,05), suggesting that pain is not merely a sensory signal transmitted from the periphery but a multidimensional experience influenced by psychological factors. Negative emotional states directly impact the neural systems processing pain in the brain- altering the perception of pain intensity. A meta-analysis by Julianne Holt-Lunstad et al. (2010) confirmed that higher levels of anxiety are associated with higher pain (VAS) scores [10]. Anxiety and negative emotional states reduce the efficacy of descending inhibitory pathways from the brain to the spinal cord. Negative psychological states such as depression, anxiety, and stress also lower the pain threshold and impair natural pain-inhibiting pathways, causing pain signals transmitted to the brain to be stronger, leading patients to perceive the pain as more intense than the actual tissue damage [7]. Additionally, chronic anxiety acts as a continuous stressor, promoting central nervous system sensitization. This creates a state of hyperalgesia, where even a mild painful stimulus is processed by the brain as severe pain.

Study limitations: The study was conducted using a cross-sectional descriptive design, which precludes the determination of causal relationships between the factors and chronic pain severity. Furthermore, as the study sample was collected from a single hospital, the representativeness of the age groups remains limited.

5. CONCLUSIONS

Chronic pain in elderly patients is predominantly moderate to severe. Pain severity is associated with pain location, pain type, pain patterns (allodynia and hyperalgesia), as well as anxiety status. Therefore, pain assessment in the elderly should integrate clinical pain characteristics with psychological factors to support more effective pain management.

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