

# Pain in hospitalized elders with musculoskeletal dysfunction

## *Dor em idosos hospitalizados com comprometimento osteomuscular*

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### ABSTRACT

The aging process is commonly associated with high rates of musculoskeletal dysfunction that lead to high levels of dependence and pain. **Objective:** To analyze pain related aspects in hospitalized elderly patients with musculoskeletal abnormalities. **Method:** This is a quantitative, descriptive study performed with 108 elderly patients with musculoskeletal abnormalities admitted in a general medical unit of a hospital in Belo Horizonte, Minas Gerais, Brazil. **Results:** Fractures were the main cause of pain, followed by bone metastasis and degenerative diseases. High prevalence of acute pain, classified as strong or the worst pain imaginable, was observed in the fracture and bone metastasis group. The combination of pharmacologic measures, such as administration of analgesics, and non-pharmacologic measures, such as the application of dressings and bandage replacement, were the most pain relieving measures according to patients. Conversely, medical and nursing care were reported as worsening the pain, due to unplanned or inappropriate handling. **Conclusion:** Medical and nursing care must be individualized and planned in order to alleviate acute pain and increase comfort in hospitalized patients.

**Key words:** Pain; Acute Pain; Aged; Health of the Elderly; Inpatients.

### RESUMO

*O processo de envelhecimento está comumente relacionado à alta incidência de alterações osteomusculares, que levam a alto nível de dependência e são acompanhados por dor. Objetivo: analisar e descrever aspectos relacionados à dor em idosos internados em hospital de grande porte com alterações osteomusculares. Método: estudo descritivo, quantitativo, realizado com 108 pacientes com alterações osteomusculares, internados em unidade de clínica médica de hospital geral de grande porte de Belo Horizonte, Minas Gerais, Brasil. Resultados: as fraturas foram as principais causas de dor, seguidas pelas metástases ósseas e doenças degenerativas. Evidenciou-se alta prevalência de dor aguda, classificada como forte a pior dor imaginável, no grupo das fraturas e metástases ósseas. A combinação de medidas farmacológicas, como administração de analgésicos e não farmacológicas, como a aplicação de compressas e trocas de curativos, foi a que mais aliviou a dor dos idosos. A assistência médica e a assistência de enfermagem foram descritas como agravantes da dor pela manipulação indevida e não planejada. Conclusão: a atenção médica e os cuidados de enfermagem devem ser individualizados e planejados de modo a obter conforto e alívio da dor aguda nos pacientes hospitalizados.*

**Palavras-chave:** Dor; Dor Aguda; Idoso; Saúde do Idoso; Pacientes Internados.

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## INTRODUCTION

Aging, together with higher life expectancy, are some of the phenomena that have more significantly impacted the world population.<sup>1</sup> By the end of this century, worldwide life expectancy will have increased by 20 years. Longevity, along with falling birth rates, causes significant and progressive aging in the world population.<sup>2</sup>

Average life expectancy in Brazil, according to the Brazilian Institute for Geography and Statistics (IBGE)<sup>3</sup>, has increased by 3.3 years between 1980 and 2003; in 1998 it was 69.66 years and in 2008 it reached 72.86 years of age. The prevalence rate of chronic diseases increases with advancing age<sup>4</sup>. In 2009<sup>3</sup>, 9.3% of the individuals aged less than 14 years had chronic diseases, while 69.3% and 80.2% of elderly men and women, respectively, suffered from them. It is estimated that by 2020 these diseases will be the fourth leading cause of disability among the elderly.<sup>6</sup>

The increased incidence of disabling conditions results in loss of autonomy, which is in turn aggravated by complaints of pain.<sup>7</sup>

Pain may be a manifestation of severe disease and has significant functional and psychosocial consequences, such as changes in sleep and appetite, reduced movement, immobility, restrictions in activities of daily living, changes in mood, libido, and depression.<sup>8</sup>

The high prevalence of pain among the elderly can be associated with chronic and degenerative disorders, particularly musculoskeletal disorders such as arthritis and osteoporosis. Moreover, the increasing prevalence of cancer, a history of surgical interventions, pressure ulcers and cardiovascular diseases, all contribute to the increase in pain complaints in this age group.<sup>9</sup>

Complaints of pain are twice as common among individuals over the age 60 than among those aged less than 60.<sup>10</sup> Pain in the elderly population is a public health concern that needs to be properly evaluated and treated by health professionals in order to minimize morbidity and improve quality of life, especially in hospital environments.<sup>11</sup>

## OBJECTIVE

To analyze and describe issues related to pain in hospitalized elderly patients with musculoskeletal abnormalities.

## METHOD

This is an exploratory, descriptive study performed in the Internal Medicine sector of a large general care hospital in Belo Horizonte, Minas Gerais, Brazil.

There were 586 inpatients in the hospital's Internal Medicine sector. 189 (32.3%) were 60 years old or more, and thus considered elderly according to the World Health Organization (WHO) classification for developing countries.

The study included patients of both sexes admitted by the orthopedics service due to musculoskeletal conditions, with no perceivable cognitive impairment, and who reported pain. Based on the Mini-Mental Status Exam (MMSE) proposed by Folstein *et al.*<sup>12</sup> individuals with scores 24-30 were considered to have no cognitive deficit. Following these criteria, the study sample consisted of 108 (57.0%) patients.

The study was carried out after approval by the Ethics in Research Committee of the institution in which the study was carried out, under n<sup>o</sup> 253/08. All patients signed the Free and Informed Consent Form (ICF). Data were collected by a nurse and two nursing students. The CSN Resolution 196/96, which regulates all research with human beings, was complied with.

Data collection was carried out using charts to categorize the sample population as to sex, age and musculoskeletal affections. Patients were interviewed to assess pain characteristics. Pain intensity was verbally assessed using the Numeric Rating Scale<sup>13,14</sup> with the following intervals: 0 – absence of pain; 1 to 3 mild pain; 4 to 6 moderate pain; 7 to 9 severe pain; and 10, the worst pain imaginable.

Data collection was based on descriptive statistics.

## RESULTS

The elderly represented 32.3% of the total number of inpatients at the general surgery and internal medicine clinic. Their characteristics are shown in Table 1.

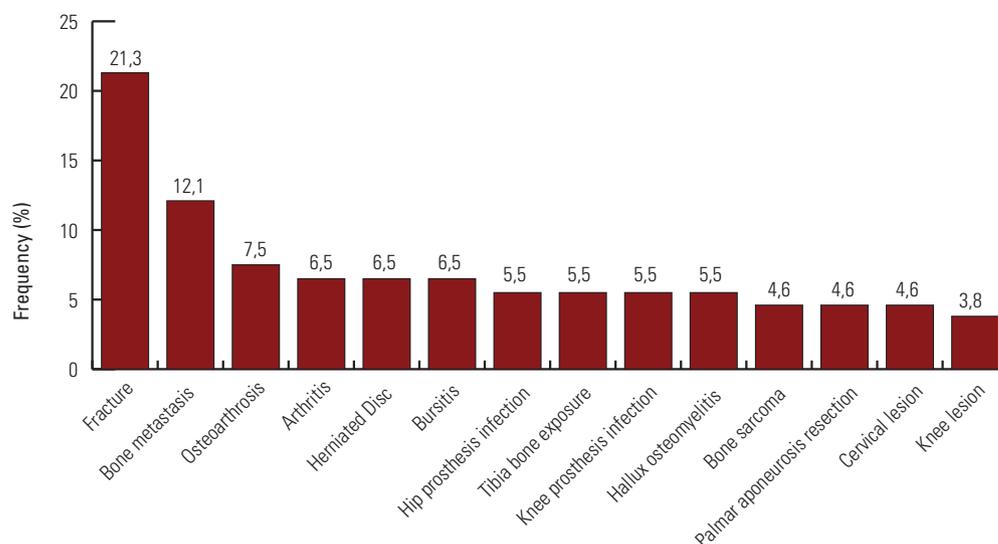
For the 52.8% female elderly patients, age ranged from 60 to 89 years, and 47% were in the 60 to 70 age group.

Causes of musculoskeletal affections in the elderly are detailed in Figure 1.

Among these, bone fractures were the largest occurrence (21.3%), and the second most common condition was bone metastasis (12.1%). Osteoarthritis was diagnosed in 7.5% of the patients.

**Table 1** - Distribuição de pacientes idosos, segundo faixa etária e sexo, internados em clínica médica, de hospital de grande porte de Belo Horizonte – MG, Brasil

Age group (years)	Male			Female			Total	
	n		%	n		%	n	%
60-70.	27	52.9	54.0	23	40.3	46.0	50	100/47.2
71-80.	11	21.6	44.0	14	24.6	56.0	25	100/25.9
81 +	13	25.5	39.4	20	35.1	60.6	33	100/26.9
Total (108)	51	100	47.2	57	100	52.8	108	100

**Figure 1** - Osteomuscular affections in a population of elderly patients hospitalized in the internal medicine clinic of a large hospital in Belo Horizonte – MG, Brazil.

Pain classifications by type, intensity, and characteristics are shown in Figure 2.

This study defines chronic pain as continuous pain for over three months<sup>7,8</sup>, observed in 36.1% of the study population. Pain was rated as severe or worst imaginable by 67.6% of the patients; 62.0% described it as stabbing pain and 23.1% as a shock. For the remaining patients (14.8%), pain was variously described as burning, stinging, pinching, or as cramps. Table 2 details the ways patients used to describe pain according to sex.

Factors related to pain aggravation, from the patients' point-of-view, are shown in Table 3.

Among the study patients, 21.3% mentioned transportation as a factor in pain aggravation. Moving in bed or moving to get out were the factors that most aggravated pain (57.4%) in elderly patients with musculoskeletal problems.

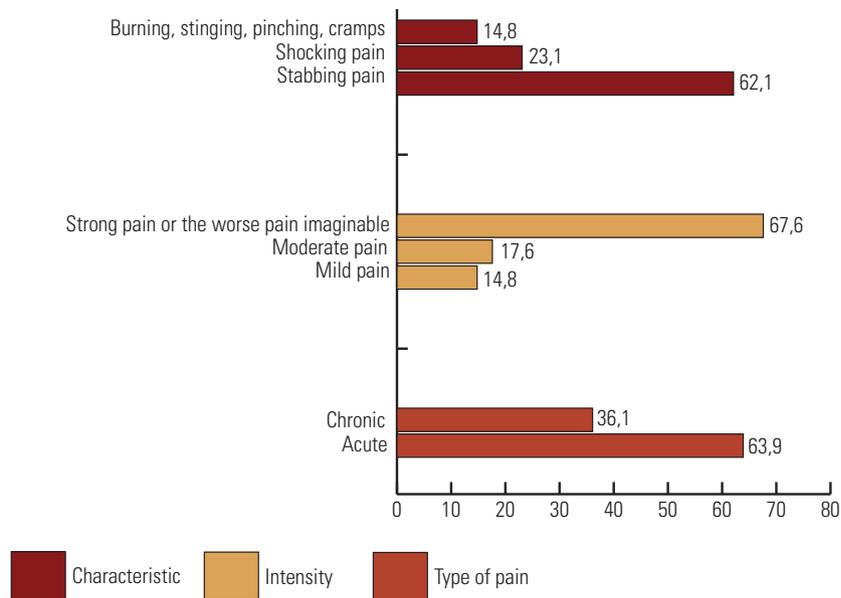
Factors promoting pain relief, according to patients, are shown in Table 4.

The most frequently mentioned factor in pain relief was painkiller use. Other factors relate to actions or procedures by the nursing staff, such as running dressings and heat packs.

## DISCUSSION

In Brazil, the elderly tend to use more health services and have higher hospitalization rates than those observed in other age groups.<sup>16</sup>

The percentage of elderly population among hospitalized patients in this study (32.3%) was similar to the findings by Brito<sup>6</sup> in public hospitals in São Paulo (31.8%) and by Motta<sup>17</sup> (31.8%) in the University Hospital Pedro Ernesto, in the State University of Rio de Janeiro in 2001. Despite being carried out in different times and contexts, these percentages for the elderly population remains practically unchanged.



**Figure 2** - Pain characteristics described by elderly patients hospitalized in the internal medicine clinic of a large hospital in Belo Horizonte – MG, Brazil.

**Table 2** - Strategies used by elderly patients to cope with pain, per sex, as informed by patients hospitalized in the internal medicine clinic of a large hospital in Belo Horizonte – MG, Brazil

Strategy	Male		Female		Total	
	n	%	n	%	n	%
Aggressiveness	35	68,6	18	31,6	53	49,1
Crying	-	-	19	33,3	19	17,6
Unrest	16	31,4	11	19,3	27	25,0
Others	-	-	9	15,8	9	8,3
Total	51	100,0	57	100,0	108	100,0

\*p-value < 0,001 (Teste Qui-Quadrado Via Simulação Monte Carlo).

**Table 3** - Factors that increase pain as described by elderly patients hospitalized in the internal medicine clinic of a large hospital in Belo Horizonte – MG, Brazil

Factors increasing pain	n	%
Handling in bed	39	36,1
Procedures and care	31	28,7
Transportation	23	21,3
Could not explain	15	13,9
Total	108	100,0

The majority of elderly patients (52.8%) were female, aged 60 to 89 years, with 47% within the 60 to 70 age range. Although men are more often hospitalized than women, because they use primary and secondary care health service less often, in the 80+ age

group there is a predominance of women due to longer life expectancy.<sup>17,18</sup> In this study, prevalence of female hospitalization was observed for the age groups below and over 80 years of age.

**Table 4** - Main factors that improve pain as described by elderly patients hospitalized in the internal medicine clinic of a large hospital in Belo Horizonte – MG, Brazil

Factors of pain improvement	n	%
Analgesic medication	37	34,3
Surgical procedures	31	28,7
Bandages	19	17,6
Heat packs	12	11,1
Could not explain	9	8,3
Total	108	100

The causes of musculoskeletal affections in the elderly are diverse<sup>10,14,19</sup>. Bone fractures were the most common, which may be related to aging of organs and systems, functional impairment, decreased bone metabolism, and loss of muscle mass.<sup>1</sup> Balance and gait depend on complex interactions between neural functions, bone, muscle, cardiovascular, and sensory functions, as well as the ability to adapt quickly to changes in posture and in the environment. Balance control undergoes changes with age, causing walking instability which, associated with the interaction of various environmental and individual factors, can result in falls, fractures<sup>20,4</sup> and loss of functional capacity.

Patients with advanced-stage cancer manifest multiple pains, 67% of which are caused by the disease and 25% result from its treatment.<sup>21</sup> The risk of developing cancer drastically increases with age and about 80.0% of elderly cancer patients experience substantial pain, caused mainly by bone metastasis.<sup>10,21</sup> The second major cause of accurate pain in this study was bone metastasis, followed by osteoarthritis. Degenerative joint diseases such as osteoarthritis or osteoarthritis are common forms of joint affections. Generally, after ages 30-35 years, 50% of people present degenerative joint diseases that lead to osteoarthritis; after the age of 50, these diseases affect almost the entire population.<sup>22</sup> Athropathies cause rest pain on palpation or on mobilization and may be associated with inflammation signs such as edema, heat, redness and excess synovial fluid. The chronic development of such inflammatory signs results in stiffness, loss of mobility, deformity, amyotrophy and pain.<sup>23</sup>

Although there is no cure for osteoarthritis, by defining a treatment protocol for each patient we can prevent or correct morphology issues, relieve symptoms, increase functional capacity, and fundamentally improve quality of life.<sup>20</sup>

In this study, chronic pain was defined as pain lasting more than three months<sup>7,8</sup> and was found in 36.1% of the study population. The high frequency of acute pain (63.9%) may be related to bone fractures and bone metastases. Pain in the elderly is most often characterized as constant, moderate to severe pain.<sup>24</sup> This study found that in 67.6% of cases, pain was described as severe or the worst pain imaginable, identified by the majority of patients as stabbing pain, followed by shocking, burning, heating, compressing pains, and cramps, which are manifestations of nociceptive or neuropathic pain. A recognition of the multidimensional nature of pain has led to considerable interest in attempts to understand how individual differences influence the ways in which information on pain is processed, including sex as a potential variable.<sup>11</sup> According to Andrade<sup>11</sup>, men and women deal differently with stress, and pain can certainly be regarded as a stressor. Men are prone<sup>25</sup> to using active strategies for coping with pain<sup>11</sup>, differently from women, who tend to use strategies centered on emotions and emotional support. Women also tend to blame themselves for pain. The results of this study confirm these data, for aggressiveness (66.0%) and restlessness (59.3%) were more frequent among men and crying (82.6%) among women. The subjective aspect of pain implies that the subjects' beliefs, as well as their coping strategies, can contribute in maintaining, in-

creasing or decreasing their perception of pain or the behaviors expressed when facing pain. Coping differences between men and women with regards to pain must be analyzed with caution.<sup>11</sup>

During hospitalization, patients are exposed to several situations and factors that may influence how pain is perceived to worsen or improve. It is common for elders with musculoskeletal conditions to undergo procedures that require them to move and cause or aggravate their pain. Bed handling, an important part of the care for preventing pressure ulcers, circulatory issues, among others, were mentioned by a large number of patients (36.1%) as a pain aggravation factor. Procedures such as aspersion baths, examination or treatments in other sectors force patients to move, even when a wheel chair or stretcher is used, causing or aggravating pain. In this study moving in and from bed were the factors that most exacerbated pain (57.4%). Carrying out medical or nursing procedures may aggravate the pain because they require passive or active patient movement, boosting painful stimuli. It is therefore important that the professionals involved in these procedures become aware of therapeutic resources to minimize physical pain, such as massage, relaxation techniques and even touch therapy. Those gentle care technologies have a reduced use in hospital care, despite the advances in this field of knowledge. Organization, care planning and resources from different modalities are essential to minimize pain during health care.

The most often quoted factor for pain relief was use of analgesic medications. It is important to highlight that, although non-pharmacological interventions promoting patient comfort and safety should be recorded as primordial initiatives for reducing pain stimuli in the hospital environment, these are still rarely referred to by the health care team. It is possible that the first intervention measure taken in the care of elderly people in pain is prescribing painkillers instead of other non-pharmacological therapeutic resources.

These findings reinforce the need to combine treatment modalities (pharmacological and non-pharmacological) to achieve a synergistic effect. However, further studies are needed to determine the most effective actions in the management of persistent pain in old adults.

## CONCLUSIONS

The analysis of aspects related to pain in elderly patients with musculoskeletal conditions added to the knowledge about pain management in the in-hos-

pital setting. The elderly patients reported that a combination of pharmacological measures, such as use of analgesics, and non-pharmacological measures, such as applying bandages and dressing replacement, were the measures that most relieved pain. Conversely, medical and nursing care can cause pain to worsen and should be planned and individualized.

Extensive and thorough pain assessment among elderly patients is essential so as to understand where it originates, its magnitude and in order to implement treatment measures that address the needs of this specific population.

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