

# Pain, Medications, and Sleep Problems Among Residents in Long-Term Care Institutions

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**Key words:** residents; long-term care; pain; interRAI.

**Summary.** *Introduction.* An important goal of long-term care institutions is the maintenance of the best possible quality of life. Pain identification and management is a very important aspect of quality of life.

*The aim* of this study was to investigate the prevalence of pain, the number of used medications, and sleep problems among residents in long-term care institutions.

*Methods.* The study was performed in 8 long-term care institutions for the elderly in Kaunas region, Lithuania. Every third resident was included in the study. In total, 252 residents were examined. Pain was assessed according to the Pain Scale and the Long-Term Care Facility Resident Assessment Instrument (interRAI) Questionnaire. The number of used medications was identified from prescription sheets. Sleep problems were assessed by the Long-Term Care Facility interRAI Questionnaire.

*Results.* Of all studied residents, 44.8% reported pain: mild pain was reported by 24.2%, moderate by 18.7%, and severe by 2.0% of the residents. No pain was reported by 48.1% of women and 67.0% of men. Half of the residents (50.8%) aged 85 and more did not report pain. Residents aged 85 and more reported pain as acceptable and required no treatment or changes in current pain management. Intermittent pain was reported by 75.2% of the residents. Nearly half of all the studied residents (43.3%) who suffered from pain used 4 or more different medications. Of those who reported pain, 64.6% had sleep problems.

*Conclusions.* About half of the residents in long-term care institutions suffered from pain of different intensity. Women and residents aged 75 and older reported daily pain problems more frequently. Residents who reported pain had severe polypharmacy and sleep problems.

## Introduction

An important goal of long-term care institutions is the maintenance of the best possible quality of life. Regular assessment of pain should be one of the indicators of care quality. Effective pain recognition and control objectively evaluated according to nursing outcomes is the evidence of high-quality care. The value of nursing outcome assessment increases when important and nursing-related outcome indicators are applied (1).

The definition of pain, which is commonly used, is that "pain refers to any type of physical pain or discomfort of the body. Pain may be localized to one area, or be more generalized. It may be acute or chronic, continuous or intermittent (comes and goes), or occur at rest with movement. The pain experience is very subjective; pain is whatever the resident says it is" (2).

The prevalence of pain increases with age (3–5) although pain is weakly identified and documented

in long-term care institutions. The prevalence of pain in older adults is estimated to range from 25% to 50% (5, 6); however, the prevalence of pain in patients living in nursing homes is reported to vary from 27% to 84% (7, 8). Pain is increased among patients in nursing homes because of the presence of comorbidities and decreased functional abilities (6, 9).

To obtain a more complete picture of the prevalence of pain in patients living in nursing homes, in a Norwegian study, the data were collected from all patients regardless of their cognitive functioning (10). Stereotypes of supposing that there is nothing to do for persons with dementia and that they do not feel any pain are still of great vitality (11).

In long-term care institutions, another common problem, which also could be associated with chronic pain, is sleep disorders. Changes in sleep have been thought to reflect normal developmental processes, which can be further compromised by sleep

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disturbances, secondary to medical or psychiatric diseases (e.g., chronic pain), a primary sleep disorder that can itself be age-related, or some combination of any of these factors (12).

Older people residing in nursing homes are recognized as frail and vulnerable with respect to prescription of medications. Pain is usually relieved by using a number of medications.

Nurses' knowledge about the management of pain in this population can make a significant difference in promoting functional activity and quality of life (13).

The aim of this study was to investigate the prevalence of pain, the number of used medications, and sleep problems among residents in long-term care institutions.

## Methods

**Study Design and Population.** The study was performed in eight stationary long-term care institutions for the elderly in Kaunas region. Parish and social care homes for adults with disabilities were excluded. Every third resident was included in the study. In total, 252 residents were examined. The study was conducted in 2009. The residents were questioned and observed by the researcher and staff.

**Assessment of Pain.** The Minimum Data Set (MDS) Pain Scale was used. The scale uses 2 items (pain frequency and pain intensity) to create a score from 0 (no pain) to 3 (severe pain) (Fig. 1) (14). Cronbach alpha for MDS Pain Scale was 0.88 in our study.

The following items from the pain symptoms (J6) in the Long-Term Care Facility (LTCF) InterRAI Questionnaire (version 09) were used: frequency (J6a), consistency of pain (J6c), and pain control (J6e).

**Pain frequency** was categorized into three categories: no pain, present but not in the previous

3 days, and present daily in the previous 3 days.

**Pain consistency** was assessed as follows: no pain, intermittent pain, and constant pain.

**Pain control** (adequacy of current therapeutic regimen to control pain) was assessed according to the descriptions stated below:

No issue of pain.

Pain intensity is acceptable to a person; no treatment regimen or change in regimen is required.

Controlled when therapeutic regimen was followed, but not always followed as ordered.

Therapeutic regimen was followed, but pain control was inadequate.

**The Number of Used Medications.** Polypragmasy was characterized as no polypragmasy (0–1 medications), minor (2–3 medications), moderate (4–5 medications), and severe ( $\geq 6$  medications). The use of analgesics was identified from prescription sheets.

**Sleep Problems.** The InterRAI LTCF questionnaire was used for data collection in the study. For sleep problems, items J3o (difficulty falling asleep or staying asleep; waking up too early; restlessness; restless sleep) and J3p (too much sleep; excessive amount of sleep, which interferes with person's normal functioning) were used. Sleep problems were examined in two groups: no sleep problems and reported sleep problems.

The study protocol was approved by the Kaunas Regional Bioethics Committee (No. BE-2-34 and No. P1-104/2008).

The analysis was carried out with the SPSS version 15.0 (15). The statistical analyses were carried out with the use of the descriptive statistics,  $\chi^2$  test, and  $z$  criteria. The difference was considered as statistically significant when  $P < 0.05$ .

## Results

More women than men suffered from pain (Fig. 2). No pain was reported by 48.1% of women and 67.0%

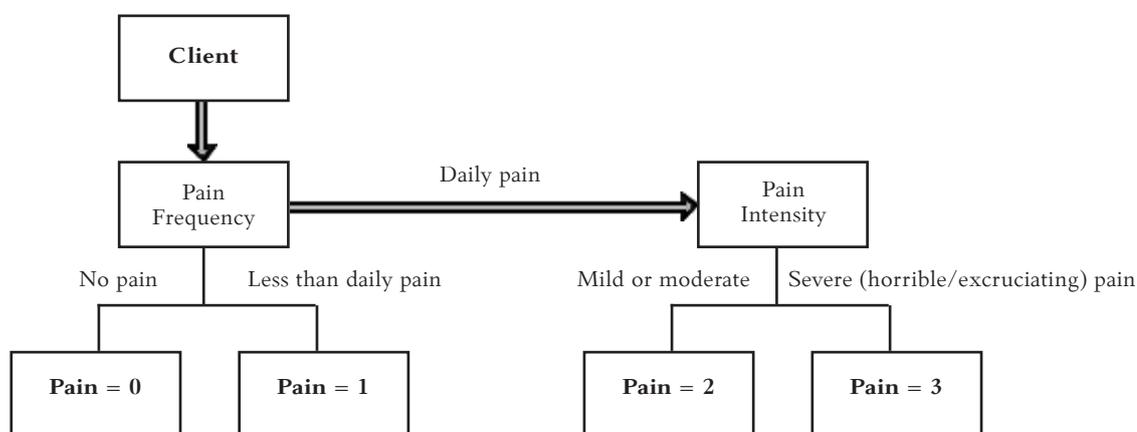


Fig. 1. Pain assessment by the Minimum Data Set Pain Scale

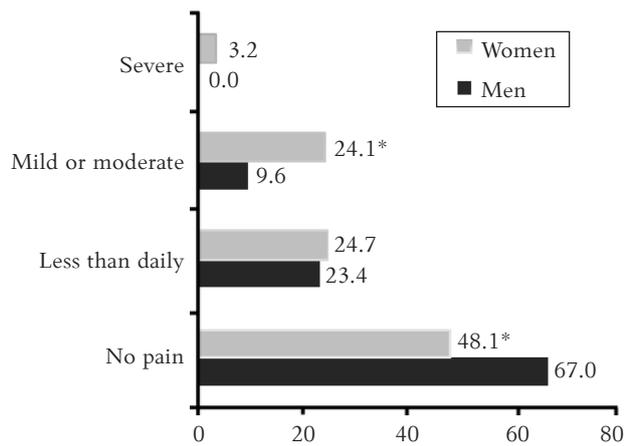


Fig. 2. Comparison of pain assessed by the Minimum Data Set Pain Scale in men and women

$P=0.004$ ,  $\chi^2=13.5$ ,  $df=3$ . \* $P<0.05$ , compared with men.

of men, and the difference between the genders was significant ( $P=0.004$ ).

Pain was reported by 44.8 % of all the residents. From these, 24.2% reported mild pain, 18.7% moderate pain, and 2.0% severe pain. No pain was reported by 55.2% of the residents.

Intermittent pain was reported by 75.2% of the residents (Table 1). Constant pain and inadequately

controlled pain were reported more often by women than men. Women more often than men complained that therapeutic regimen was followed, but pain control was inadequate. Residents aged 85 and more reported pain as more acceptable and required no treatment or changes in current pain management.

Reported pain frequency was analyzed by gender and age group (Table 2). Half of the residents (50.8%) aged 85 and more did not report pain. More women than men and residents 75 years and more suffered from pain daily in the previous 3 days. The difference between genders was significant ( $P=0.003$ ). There were also significant differences in the frequency of pain between different age groups ( $P=0.019$ ).

Residents who suffered from pain used more medications and had sleep problems more frequently compared with residents who reported no pain (Table 3). In fact, 22.1% of the residents who suffered from pain used 6 and more medications (severe polypragmasy). The difference was significant between those who reported pain and used more medications compared with those who reported no pain and used fewer medications ( $P=0.001$ ). Most of those (64.6%) who reported pain had sleep problems. The difference was significant between

Table 1. Distribution of Residents Suffering From Pain by Consistency and Control of Pain

Pain	Residents Suffering From Pain, n=113
Consistency of pain	
Intermittent	85 (75.2)
Constant	28 (24.8)
Pain control	
Pain was acceptable	28 (24.8)
Controlled adequately by therapeutic regimen	42 (37.2)
Controlled when regimen was followed, but it was not always followed	11 (9.7)
Regimen was followed, but pain control was inadequate	32 (28.3)

Values are number (percentage).

Table 2. Distribution of Residents by Pain Frequency in Different Gender and Age Groups

Frequency of Pain	Gender		Age Group, Years			
	Male	Female	≤64	65–74	75–84	≥85
No pain	63 (67.0)	76 (48.1)	35 (74.5)	31 (63.3)	42 (44.2)	31 (50.8)
No pain in the previous 3 days	20 (21.3)	32 (20.3)	8 (17.0)	10 (20.4)	19(20.0)	15 (24.6)
Daily in the previous 3 days	11 (11.7)	50 (31.6)	4 (8.5)	8 (16.3)	34 (35.8)	15 (24.6)
	$P=0.003$ , $\chi^2=14.0$ , $df=2$		$P=0.019$ , $\chi^2=19.8$ , $df=6$			

Values are number (percentage).

Table 3. Distribution of Residents by Pain, Number of Medications Used, and Sleep Problems

Pain	Sleep Problems		The Number of Medications (Polypragmasy)			
	No Problems	Reported	0–1 (No)	2–3 (Minor)	4–5 (Moderate)	≥6 (Severe)
No pain, n=139	74 (53.2)	65 (46.8)	63 (45.3)	49 (35.3)	20 (14.4)	7 (5.0)
Reported, n=113	40 (35.4)*	73 (64.6)*	17 (15.0)	47 (41.6)	24 (21.2)	25 (22.1)
	$P=0.005$ , $\chi^2=7.9$ , $df=1$		$P=0.001$ , $\chi^2=34.7$ , $df=3$			

Values are number (percentage). \* $P<0.05$ , compared with residents with no pain reported.

those who reported pain and sleep problems and those who reported no pain and no sleep problems ( $P=0.005$ ). Only 8.8% of the residents who suffered from pain used analgesics.

### Discussion

In Lithuanian health care institutions, pain must be assessed using the Visual Analogue Scale (VAS), the Faces Expression Pain Scale, and the Numeric Pain Scale (16), but unfortunately, pain in long-term care institutions is not routinely assessed using these scales. More knowledge about pain in Lithuanian nursing homes can contribute to the improvement of the quality of care and the quality of life of residents.

In Minnesota long-term care institutions, pain was assessed by the same pain scale as used in the present study. They reported similar results as in our study: 47.5% had no pain; 26.7% had mild pain, 21.9% had moderate pain, and 4.0% of the residents had severe pain (17). When the same MDS Pain Scale was used in Italy, the Netherlands, and Finland, 32.2%, 43.0%, and 57.1% of responders, respectively, reported pain (18). The prevalence of chronic pain was 72.8% among nursing home residents in Vilnius (19).

Sometimes pain is not identified due to residents' fear of procedures, dependence of medications, and acceptance of pain as part of normal aging. Under-reporting of pain is common because the elderly learn to expect chronic pain and accept it as part of growing older (20). In our study, 24.8% of the residents reported pain intensity as acceptable.

Pharmacological treatment of pain in elderly population is often inadequate both in quantity and quality (21). In our study, only 37.2% of the residents reported adequately controlled pain by therapeutic regimen and 28.3% of the residents reported

inadequately controlled pain. Pain management is even worse in patients with dementia because of difficulties in communication and detection, and the fear of inducing side effects and polypharmacy (22).

Staff members are seldom trained in pain management, and in some settings, there is a very rapid turnover. Efforts have been made to improve the knowledge base of persons who take care of patients in pain, but the problem persists.

The impact of pain (especially chronic pain) on older adults can be significant. Unrelieved pain can have significant functional, cognitive, emotional, and societal effects on the elderly (23, 24). In future studies, pain associations with domains such as cognitive function, depression, activities of daily living, and societal effects should be assessed.

Pain recognition and treatment is needed for the best quality of life of nursing home residents. Introduction of standardized pain assessments at regular times and interdisciplinary discussion of the assessment results and treatment effects may help establish better care.

### Conclusions

About half of the residents in long-term care institutions suffered from pain of different intensity. Women and residents aged 75 and older reported pain problems daily more frequently. Residents who reported pain had severe polypharmacy and sleep problems. Pain and pain control is a great problem among residents in long-term care institutions and is not documented appropriately. The findings suggest that pain has an important impact on the well-being of elderly residents.

### Statement of Conflict of Interest

The authors state no conflict of interest.

## Gyventojų skausmo, medikamentų, miego sutrikimų vertinimas ilgalaikės globos institucijose

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**Raktažodžiai:** gyventojai, ilgalaikė priežiūra, skausmas, interRAI.

**Santrauka. Įvadas.** Kuo geresnės gyvenimo kokybės užtikrinimas – vienas svarbiausių tikslų ilgalaikės globos institucijose. Skausmo identifikavimas ir valdymas yra vienas iš svarbių aspektų užtikrinant gyvenimo kokybę.

**Tyrimo tikslas** – įvertinti gyventojų skausmo paplitimą, vartojamų medikamentų skaičių ir miego sutrikimus ilgalaikės globos institucijose.

**Medžiaga ir metodai.** Tyrimas buvo atliktas aštuoniuose Kauno apskrities ilgalaikės globos institucijose. Iš sąrašų buvo atrinktas kas trečias gyventojas, tyrime dalyvavo 252 gyventojai. Skausmas buvo vertintas pagal Skausmo klausimyno ir interRAI (ilgalaikės priežiūros institucijos) klausimyno parametrus. Vartojamų

medikamentų skaičius buvo vertinamas remiantis paskyrimų dokumentacija. Miego sutrikimai buvo vertinami pagal interRAI klausimyno parametrus.

**Rezultatai.** Nustatyta, kad skausmą kentė 44,8 proc. gyventojų, iš jų 24,2 proc. – silpną, 18,7 proc. – vidutinį, 2,0 proc. – labai stiprų/nepakeliamą. Skausmo nepatyrė 48,1 proc. moterų ir 67,0 proc. vyrų. Daugiau kaip pusė vyresnių nei 85 metų gyventojų (50,8 proc.) atsakė, kad nepatyrė skausmo. Vyresniems nei 85 metų gyventojams skausmo intensyvumas buvo priimtinas ir gydymo arba jo korekcijos neprireikė. Protarpinį skausmą kentė 75,2 proc. gyventojų. Nustatyta, kad 43,3 proc. gyventojų, kurie kentė skausmą, vartojo keturis medikamentus ir daugiau; 64,6 proc. gyventojų, kurie kentė skausmą, turėjo miego problemų.

**Išvados.** Beveik pusė gyventojų ilgalaikės globos institucijose kentė įvairaus intensyvumo skausmą. Moterys bei vyresni nei 75 metų gyventojai dažniau kentė skausmą. Gyventojai, kurie kentė skausmą, dažniau vartojo daugiau nei keturis medikamentus bei turėjo miego sutrikimų.

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