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## Sociodemographic factors and sleep disorders in the person with palliative situation

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### Abstract

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**Problem Statement:** In palliative care, sleep disorders (SD) are common, with studies showing a prevalence of 49% (Trajkovic-Vidakovic et al., 2012), being the most frequent and relevant the insomnia.

**Research Questions:** What is the prevalence of sleep disorders of the person with palliative situation? What are the sociodemographic factors that interfere with sleep disorders of the person with palliative situation?

**Purpose of the Study:** (a) determine the prevalence of sleep disorders and (b) relate the influence of several sociodemographic factors in sleep disorders of the person with palliative situation.

**Research Methods:** This study is analytic, correlational and cross-sectional and the non-probabilistic convenience sampling was constituted with 83 palliative patients. Data collection was performed through a self-administered questionnaire (sociodemographic characterization and SD - Oviedo Sleep Questionnaire-OSQ). The OSQ allows to diagnose SD, insomnia and hypersomnia, according to the DSM-IV and ICD-10 criteria. The research protocol was approved by the Ethics Committee.

**Findings:** The prevalence of SD was 48,1%. We also found that 47,0% of palliative patients reported subjective satisfaction of sleep; 42,0% insomnia and 47,0% hypersomnia.

Among the sociodemographic variables, only gender was related to SD. Men were the most prevalent in SD (61,5%) and they showed 2,6 times more probability to report SD than women (OR=3,69; IC95% [1,061-6,374]).

**Conclusions:** Gender was the only variable found that interfered with the quality of sleep in the person with palliative situation. The results point to the need to investigate more this subject, so that we can draw up strategies that allow ensuring the quality of sleep in people with palliative situation, as a contribution to a better care.

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**Keywords:** Palliative care; sleep disorders; insomnia; symptom assessment; Sleep Disturbance Scale

### 1. Problem Statement

Sleep is described as a primary physical need of the human being for a good health and a healthy life, in which there is a physical restoration that protects the person from the natural wear of the awake



hours. It is important and beneficial to the body, to the memory, for the production of antibodies and for the body energy renewal, including the brain (Hugel et al, 2004; (American Academy of Sleep Medicine, 2005; Renom-Guiteras et al, 2014).

The need for sleep is transversal to all individuals. However, the important thing is not the number of hours of sleep, but the sleep quality. In short, sleep has a reparative function and it is fundamental in maintaining physical and cognitive health.

Sleep disorders are a major public health problem. Its prevalence is high in the general population and they are associated with medical, psychological and social disorders, with severe consequences for the individual and for society.

Sleep disorders occur in about 10% to 15% of the population and they are frequently associated with stress, diseases, aging and medication (Palesh et al, 2010; Renom-Guiteras et al, 2014).

In palliative care, sleep disorders are common, with a prevalence that can range from 30% to 50%, being insomnia the most frequent and relevant (Palesh et al, 2010, Seow et al., 2011; Trajkovic-Vidakovic, de Graeff, Voest & Teunissen, 2012; Renom-Guiteras et al, 2014).

The prevalence of sleep disorders in patients in palliative care is difficult to determine, due to several reasons (Mystakidou et al, 2007). One of the causes for variability in the prevalence of insomnia found in various community studies, besides different methods, samples and ages, is due to the fact that the diagnostic criteria most used (DSM-IV, ICSID e CID-10) do not establish single quantitative criteria for the diagnosis of insomnia and a significant percentage of the population with sleep disorders do not fit these classifications. This translates into increased difficulties when trying to compare the prevalence in different regions. However, most studies define insomnia based on DSM-IV criteria, which has not changed with the revision of 2000 (American Academy of Sleep Medicine, 2005).

There are several sleep disorders that may affect any individual and the patient in palliative care is very predisposed to get some of these disorders, namely insomnia, hypersomnia among others (Palesh et al, 2010, Seow et al., 2011; Renom-Guiteras et al, 2014).

Insomnia is characterized by an anomaly in sleep quality or quantity associated with one of these symptoms: difficulty in initiating or maintaining sleep and difficulty in returning to sleep after waking up early. In addition, it is characterized by the difficulty in sleeping three nights a week, being present in the last three months (Renom-Guiteras et al, 2014).

The individual's concern in relation to the malaise due to the inability to sleep may contribute to a vicious cycle, the more he tries to sleep, the greater the frustration and malaise and the less capable he feels to return to sleep (Khemlani, 2008; Renom-Guiteras et al, 2014).

Hypersomnia is an excessive somnolence, though a sleep period of at least seven hours, followed by recurrent sleep periods during the same day, the existence of nine hours sleep that was not restful or the difficulty to stay awake after a sudden awakening. Thus, the individual tends to take naps during the day, often for one hour or more, being not restful, or improving wakefulness (Khemlani, 2008).

Hypersomnia can cause significant malaise and dysfunction at work and social relationships. Excessive somnolence is a symptom often undervalued or not evaluated by health professionals for being associated with terminal disease, but it has to be approached as potentially treatable. In advanced

stages it may not be easy to distinguish somnolence from alterations in consciousness. (Khemlani, 2008).

Daytime somnolence can have multiple causes, including insomnia, inversion of sleep-wake cycle, metabolic diseases, and medicines such as opioids, antidepressants and anticonvulsants (Palesh et al, 2010, Seow et al., 2011; Renom-Guiteras et al, 2014).

The sleep pattern is not uniform. It is a sequence of distinct phases that follow cyclically in a predictable way and that are repeated four or five times overnight. A typical cycle is constituted by stages/phases 1, 2, 3 and 4 of Non-REM sleep (“Non-Rapid Eye Movements”), which can be denominated as a slow wave sleep, orthodox sleep, synchronized or slow, followed for a period of REM sleep (“Rapid Eye Movements”), which is also known as fast sleep, paradoxical or desynchronized. Each patient has fully individual sleep cycles and each cycle differs unmistakably from the others (American Academy of Sleep Medicine, 2005; Khemlani, 2008).

The responsible for the appearance of sleep is our biological clock or circadian rhythm. The circadian rhythm controls the sequence of sleep/wake and it is in tune with the cycles of the sun, the moon and the seasons. As the concept informs, it is a biological rhythm that completes after approximately 24 hours (American Academy of Sleep Medicine, 2005).

The duration and the sleep patterns show a significant number of changes during human ontogeny, being currently documented that the cyclic structure and the percentage distribution of the different sleep stages vary with the age. They reach their maximum values in early childhood and after puberty begins a slight decline in the values of these parameters that extend into old age (American Academy of Sleep Medicine, 2005).

The literature documents a variety of factors such as the medical, environmental iatrogenic, psychological and emotional can influence the quality of sleep in patients in palliative care. Factors associated with the most commonly cited insomnia are pain and psychological symptoms. Uncontrolled pain and its treatment have been associated with insomnia, as well as concerns, hopelessness, post-traumatic experience, anxiety and depression (Mystakidou et al, 2007).

Other factors that can influence insomnia in people with cancer are age, performance status and certain pharmacological treatments (Mystakidou et al, 2007). The female sex and non-caucasian race, as well as excessive consumption of coffee and/or alcohol or certain physical problems, such as chronic kidney disease, can also increase the risk of insomnia. Empirical evidence suggests that biological factors, namely cytokines, genetic and metabolic disorders, can contribute to the disruption of the sleep cycle (Mystakidou et al, 2007; Renom-Guiteras et al, 2014).

Environmental factors associated with hospitalization, for example overnight interruptions by the nursing team, noise from the infirmary or even to have a room for individual use, can influence patients' sleep quality during the hospitalization (Khemlani, 2008; Renom-Guiteras et al, 2014).

Sleep disorders are strongly correlated with patient's satisfaction and quality of life. They translate into the patients as discomfort and suffering, with physical and psychological consequences, such as increased fatigue, intolerance to pain, irritability and depression (Mystakidou et al., 2007, Palesh et al, 2010 Seow et al, 2011; Trajkovic-Vidakovic, of Graeff, Voest & Teunissen, 2012; Renom-Guiteras et

al, 2014). However, patients tend not to report insomnia and its clinical evaluation is often suboptimal (Renom-Guiteras et al, 2014).

Research Questions: What is the prevalence of sleep disorders in patients with palliative situation? Which sociodemographic factors interfere with sleep disorders of the patients with palliative situation?

Purpose of the Study: We aim to: (a) determine the prevalence of sleep disorders and (b) relate the influence of several sociodemographic factors in sleep disorders of palliative patients.

## 2. Research Methods

This analytic, correlational and cross-sectional study included patients with the need of palliative care.

For the selection of the participants, we used the non-probabilistic convenience sampling technique, being the sample constituted with 83 elements from the district of Viseu and outside it (Guarda, Coimbra, Aveiro, Lisboa, Vila Real, Bragança, Castelo Branco, Setúbal and Porto).

We defined as inclusion criteria for this study to be conscious and oriented, without neurological disorders and with palliative care criteria. We excluded the patients what, at the time of data collection, presented significant symptomatic uncontrolled and neurological or cognitive deterioration that stop them to understand and answer the questions of the data collection instrument.

Data collection was performed through a self-administered questionnaire incorporating:

- sociodemographic characterization, which allow gathering information about the age, gender, civil status, area of residence, district, education, profession, household income and religious practice;
- clinical characterization, which aims to collect information about the type of institution, the motif and the length of the hospitalization, previous hospitalizations and associated diseases;
- characterization of the sleep patterns, whose information is obtained by the Oviedo Sleep Questionnaire. This instrument allows diagnosing sleep disorders, insomnia and hypersomnia, according to the DSM-IV and ICD-10 criteria (Bobes et al., 1998). This questionnaire has 15 items, of which 13 can be grouped into three diagnostic categorical scales: (1) the satisfaction of the sleep (one item), (2) hypersomnia (three items) and (3) insomnia (a dimensional scale of nine items that also allows information about the severity of insomnia, when present). These items are arranged in a Likert scale, wherein the first item (sleep satisfaction) ranges from one to seven and the others (about the frequency, time and percentages) vary from one to five. In each scale, the score has a range between nine and forty-five (forty-five corresponds to a greater severity). The remaining two items allow collecting information about parasomnias, organic disorders and type/frequency of use of sleep adjuvants.

Through the study of internal consistency we obtained Cronbach's alpha values that can be classified as very good, because they range between 0,888 and 0,905 with a global alpha of 0,899. The split-half coefficient revealed for the first half a Cronbach's alpha value of 0,888 and for the second a slightly

weaker value of 0,799. If we consider the subscale, in respect of insomnias we obtain values between 0,881 and 0,901 and the hypersomnias values between 0,686 and 0,918.

In data processing and analysis, we used SPSS, version 20.0 for Microsoft Windows®. The qualitative variables were described by frequencies and percentages and the continuous variables through measures of central tendency (mean) and dispersion measures (standard deviation). To compare proportions, the independence chi-square. Para comparação de proporções o teste de independência do Qui-quadrado. The magnitude of association between factors and insufficient sleep was calculated using gross odds ratios (OR and confidence intervals at 95% (CI95%),

The research protocol was approved by the Ethics Committee and informed consent was obtained from all participants.

### 3. Findings

The age of the sample ranged between a minimum of 38 years and a maximum of 93 years old, with a mean of  $70,95 \pm 12,77$ . In relation to gender and civil status, 50,6% were female; 50,6% had no partner (single, divorced or widower). In terms of education, 45,8% had an education up to the “4th year” and 47,6% attended between the “4-9 years” at school. Regarding the area of residence, most of the participants lived in rural areas (65,1%) and 75,9% did not reside in the district of Viseu. Relatively the professional activity, it was found that 54,2% did not exercise any and 75,9% had an income below “one minimum wage”. As for the religious convictions, 84,0% referred to practice some religion.

**Table 1.** Sociodemographic characteristics

	Male (n= 41; 49,4 %)		Female (n=42; 50,6%)		Total (n= 83; 100%)	
	n	%	n	%	n	%
<b>Age</b>						
$\bar{X} \pm$ Std. deviation	68,8 $\pm$ 12,6)		73,1 $\pm$ 12,7		70,9 $\pm$ 12,8	
<b>Age group</b>						
≤ 64	17	41,5	1	23,8	27	32,5
65-78	12	29,3	14	33,3	26	31,3
≥ 79	12	29,3	18	42,9	3	36,2
<b>Civil status</b>						
Single/widower/divorced	20	48,8	22	52,4	42	50,6
Married / Civil union	21	51,2	2	47,6	41	49,4
<b>Area of residence</b>						
Rural	25	61,0	29	69,0	54	65,1
Urban	16	39,0	13	31,0	29	34,9
<b>District</b>						
Outside Viseu district	33	8,5	3	71,4	63	75,9
Viseu district	8	19,5	12	28,6	2	24,1
<b>Education level</b>						
≤ 4 years	19	46,3	19	45,2	38	45,8
5° a 9° years	17	41,5	2	47,6	37	44,6

≥ 10° years	5	12,2	3	7,1	8	9,6
<b>Professional activity</b>						
Active	28	68,3	1	23,8	38	45,8
Not active	13	31,7	32	76,2	45	54,2
<b>Monthly household income</b>						
One minimum wage	30	73,2	33	78,6	63	75,9
≥ 2 minimum wages	11	26,8	9	21,4	2	24,1
<b>Religious practice</b>						
Yes	37	9,2	41	97,6	78	94,0
No	4	9,8	1	2,4	5	6,0

The clinical variables in study are the institution, the motif and the length of the hospitalization, the occurrence of previous hospitalizations, the existence of associated diseases, the year of the start of the disease, the presence of symptoms and sleep disorder.

We observed that the majority of the sample was admitted in the Local Health Unit (33,7%) and in the Unit of Integrated Continuous Care (25,3%). In relation to the motif of the hospitalization, we found the same trend in both genders, male (73,2%) and female (61,9%), where the diagnosis was presented, mostly as oncological, in other words, cancer.

Regarding the length of the hospitalization, the values revealed a balance within the different presented categories - 36,5% of the sample with hospitalization times lower or equal to two weeks; 33,3% with hospitalization times equal or upper than seven weeks, and the remaining 30,2% with hospitalization times between three to six weeks.

In relation to previous hospitalizations, most of the answers (63,9%) indicated the existence of previous episodes. We found that 75,4% of the sample indicated to have had more than one previous hospitalization.

We found a high comorbidity with 53,7% of the male sample(pop) and 57,1% of the female population that constitute the sample.

Relatively to the assessment of sleep, and the data presented in Table 2 for each of the changes of that scale sleep, we found that the mean Subjective Satisfaction of the Sleep of the sample was  $4,23 \pm 1,32$ , ranging between 1 to 7 .

Insomnia recorded a mean of  $22,44 \pm 8,99$  with values ranging between 9 to 45.

The minimum and maximum values of hypersomnia ranged from 3 to 15, with a mean of  $6,94 \pm 3,63$ .

The mean obtained by the participants in sleep disorders was  $33,52 \pm 10,88$  with values varying between 17 and 61.

The prevalence of sleep disorders was 48,1%. We also found that 47% of patients in palliative care reported subjective satisfaction of the sleep; 42,0% with insomnia and 47,0% with hypersomnia.

**Table 2.** Characterization of the dimensions Subjective Satisfaction of the Sleep, Insomnia, Hypersomnia and Sleep Disorders

	N	%	Minimum	Maximum	Median	$\bar{X}$	Std. deviation
Subjective Satisfaction of the Sleep	83	47,0	1	7	4	4,23	1,32
Insomnia	81	42,0	9	45	23	22,44	8,99
Hypersomnia	83	47,0	3	15	6	6,94	3,63
Sleep Disorders	81	48,1	17	61	32	33,52	10,88

By the analysis of Table 3, we found that, among the sociodemographic variables, only gender is related to sleep disorders. Men were the most prevalent in sleep disorders (61,5%), having 2,6 times more likely to report sleep disorders than women (OR=3,69; IC 95% [1,061 a 6,374]).

**Table 3.** Sleep disorders and sociodemographic characteristics

	Without Sleep Disorders (n= 42; 51,9 %)		With Sleep Disorders (n=39; 48,1%)		95% Confidence Interval	Odds Ratio
	n	%	n	%		
<b>Gender</b>						
Male	16	40,0	24	60,0	1,061 – 6,374	2,6
Female	26	63,4	15	36,6		
<b>Age group</b>						
≤ 70	18	51,4	17	48,6	0,427 – 2,483	1,03
70	24	52,2	22	47,8		
<b>Civil status</b>						
Single/widower/divorced	20	48,8	21	51,2	0,536 – 3,074	1,28
Married / Civil union	22	55,0	18	45,0		
<b>Area of residence</b>						
Rural	28	52,8	25	47,2	0,357 – 2,232	0,89
Urban	14	50,0	14	50,0		
<b>District</b>						
Outside Viseu district	30	49,2	31	50,8	0,556 – 4,323	1,55
Viseu district	12	60,0	8	40,0		
<b>Education level</b>						
≤ 4 years	19	51,4	18	48,9	0,402 – 2,312	0,964
> 4 years	23	52,3	21	47,7		
<b>Professional activity</b>						
Active	20	52,6	18	47,4	0,394 – 2,258	0,94
Not active	22	51,2	21	48,8		
<b>Monthly household income</b>						
One minimum wage	27	43,5	35	56,5	0,156 – 1,297	0,45
≥ 2 minimum wages	12	63,2	7	36,8		
<b>Religious practice</b>						
Yes	40	52,6	36	47,4	0,095 – 3,797	0,60
No	2	40,0	3	60,0		

#### 4. Conclusions

This study aimed to, besides evaluate sleep disorders, relate the influence of several sociodemographic factors in sleep disorders of palliative patients. Sleep disorders in palliative care are experienced by patients in diverse ways and intensities and it can occur in different periods, in particular, in the diagnosis of disease, during and after treatment and in the terminal phase. The incidence of this disorder is significant, with values that can range between 30% to 50%, compared to 15% in the general population (Palesh et al, 2010, Seow et al., 2011; Trajkovic-Vidakovic, de Graeff, Voest & Teunissen, 2012; Renom-Guiteras et al, 2014).

In this study, the results are consistent with national and international researches, confirming the high prevalence of sleep disorders in patients with palliative situation. Gender was the only variable that interfered with the quality of sleep in palliative patients.

It is recognized by the scientific community that sleep disorders can affect patients significantly in different domains: physical, psychological, cognitive and social. As such, more attention should be given to this symptom in order to improve palliative patients' care, since they interfere with patients' quality of life.

The results point to the need to investigate more about this subject, so that strategies can be delineated that allow ensuring the quality of sleep in palliative patients, as a contribution to a better care.

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