

Sleep quality of elders living in long-term care institutions

QUALIDADE DO SONO DE IDOSOS RESIDENTES EM INSTITUIÇÃO DE LONGA PERMANÊNCIA

CALIDAD DEL SUEÑO DE ANCIANOS RESIDENTES EN INSTITUCIONES DE LARGA PERMANENCIA

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ABSTRACT

This study was aimed at evaluating sleep quality and identifying sleep related problems among elderly people living in long-term care institutions in the city of São Paulo, Brazil. Subjects were 38 cognitively preserved elders living in these institutions for at least a year. Data collection was performed using the following instruments: Identification Form, Katz Index and Pittsburgh Sleep Quality Index (PSQI). Results showed that 81.6% of the studied elders reported their sleep quality was good or very good. Nevertheless, there was an elevated frequency of sleep related problems such as: getting up to go to the bathroom (63.2%); getting up in the middle of the night or very early in the morning (50%); feeling too hot (23.7%); feeling pain (21.1%). These findings show an evident contradiction between elders' perception of their sleep quality and the actual elevated number of identified sleep problems.

KEY WORDS

Sleep.
Aged.
Homes for the Aged.
Nursing.

RESUMO

Este estudo teve como objetivo avaliar a qualidade do sono de idosos residentes em quatro instituições de longa permanência para idosos (ILPI) de uma cidade do interior do estado de São Paulo e identificar problemas relacionados ao sono. Participaram 38 idosos, cujas funções cognitivas estavam preservadas e que residiam nas ILPI há pelo menos um ano. Foram empregues os instrumentos Ficha de Identificação, Índice de Katz e Índice de Qualidade do Sono de Pittsburgh (PSQI), todos preenchidos pela pesquisadora. Os resultados mostraram que 81,6% dos idosos referiam qualidade do sono boa ou muito boa; entretanto, os seguintes problemas relacionados ao sono destacaram-se por sua elevada frequência: levantar-se para ir ao banheiro (63,2%); acordar no meio da noite ou muito cedo pela manhã (50%); sentir muito calor (23,7%); sentir dores (21,1%). Evidencia-se uma contradição entre a percepção da qualidade do sono e o elevado número de problemas identificados.

DESCRIPTORIOS

Sono.
Idoso.
Instituição de Longa Permanência para Idosos.
Enfermagem.

RESUMEN

Este estudio tuvo como objetivo evaluar la calidad del sueño de ancianos residentes en cuatro instituciones de larga permanencia para ancianos (ILPI, siglas en portugués) de una ciudad del interior del estado de San Pablo, Brasil, e identificar problemas relacionados con el sueño. Participaron 38 anciano, cuyas funciones cognitivas estaban preservadas y que habían residido en las ILPI por lo menos por un año. Fueron empleados los instrumentos Ficha de Identificación, Índice de Katz e Índice de Calidad del Sueño de Pittsburgh (PSQI), todos completados por la investigadora. Los resultados demostraron que el 81,6% de los ancianos referían calidad de sueño buena o muy buena, mientras que los siguientes problemas relacionados al sueño se destacaron por su elevada frecuencia: levantarse para ir al baño (63,2%), despertar en medio de la noche o por la mañana demasiado temprano (50%), sentir mucho calor (23,7%), sentir dolores (21,1%). Se evidencia una contradicción entre la percepción de la calidad del sueño y la elevada cantidad de problemas identificados.

DESCRIPTORIOS

Sueño.
Anciano.
Hogares para Ancianos.
Enfermería.

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INTRODUCTION

Population aging across the world is a new phenomenon to which even developed countries are still trying to adapt. What was once a mark of a small number of countries is now a growing experience around the world.

Estimates are that the Brazilian population with more than 60 years in 2006 is 17.6 million people. One of the marking characteristics of the aging population in Brazil is poverty. Retirements and pensions consist of their main source of income, but their low values are insufficient to provide all the needs of the elderly living in the community, especially when they are affected by chronic diseases that compromise their independence. Public investment in support programs for the elderly and their caregivers are also insufficient. The sum of these factors makes institutionalization an alternative almost inevitable to those with financial burdens and dealing with a process of disease or dependency, as it is for those who are unable to maintain their subsistence needs in the community, if living alone or with family members who cannot offer them the adequate care or support⁽¹⁾.

Moving from home to a long-term home for the aged (LTHFA) is always a great challenge for the elderly, as they face with a change to their lifestyle that is often radical.

Among the many consequences of entering an institution, the elderly face a decline to their quality of sleep which is mostly due to the environment and routines of the LTHFA. Institutionalization appears to increase the tendency to specific changes that occur to sleep due to aging, increasing changes in quantity and quality, with a negative impact on quality of health⁽²⁾.

The changes in sleep associated to the aging process, such as increased latency, reduced efficiency, more interruptions, early awakening, reduced deep sleep stages and disorders of the sleep/wake circadian rhythm, may be more frequent or more severe among those living in a LTHFA⁽³⁾. Sleep disorders are more common and more severe among the elderly living in a LTHFA compared to those living in the community. One of the main changes observed is sleep fragmentation, with frequent nocturnal awakenings, which may cause excessive sleepiness during the day. Clinical and psychiatric conditions related to poor quality of sleep are also prevalent at LTHFA and help increase the frequency of complaints in this regard. Various medications may worsen sleep problems, including hypnotic medications, especially when trying to withdrawal after a long period of use⁽²⁾.

The permanence in environments that offer low stimuli during the day and the reduced information to indicate the time or contrasts between day and night may cause the individuals to present irregular sleep/wake cycle patterns and a reduced sleep quality, or worsen existing disorders. These characteristics of the environment are usually strong

in the LTHFA, known for their tedious routines that encourage inactivity during the day, while at night is usually disturbed by the residents who have behavioral disorders, by lights that are inconveniently left on by nursing workers, and by the various noises associated to those events⁽³⁾.

Poor sleep quality and sleep disorders have a particular relevance among the elderly, because in addition to its high frequency, they may cause harms to their daily life and health. Attention deficits, reduced response speed, harms to the memory, concentration and performance may all be caused by poor sleep. Especially among the elderly, these signs may be interpreted as cognitive loss or dementia. The reduction in response speed is particularly important, as it may affect the ability to drive and increase the risk of falls. Furthermore, it should be emphasized there is an association between poor sleep quality and reduced survivorship. Among the elderly, mortality due to common causes (cardiovascular disease, stroke and cancer, for example) is about twice as often in people with sleep disorders than among those with good quality sleep. Another problem related to poor quality sleep is maintaining a good family and social relationship, the increase in pain, the tendency to a poor evaluation of their own health, the reduced capacity to perform daily activities and the increase in the utilization of health services⁽²⁾.

However, it appears that health professionals still do not pay close attention to the investigation on sleep regardless the age group. Regarding the elderly, health professionals frequently do not consider the implications of poor sleep quality on the everyday life and even the health of the elderly, neglecting its potential of harming their quality of life.

It is expected that this study will contribute with the LTHFA, using the acquired knowledge to guide educational actions directed to the nursing team, with a view to minimize sleep problems and promote better quality sleep for the institutionalized elderly.

OBJECTIVES

The objectives of this study are to evaluate the quality of sleep of the elderly living in LTHFA of a city in the state of São Paulo; to identify, among the institutionalized elderly, the prevalence of sleep-related problems; and verify the association between the quality of sleep and gender, age group, marital status, education level, number of individuals sharing the dorm, locomotion, time of residence at the LTHFA and level of dependence for activities of daily living.

METHOD

Type of study: descriptive, cross-sectional study, using a quantitative approach.

Among the many consequences of entering an institution, the elderly face a decline to their quality of sleep which is mostly due to the environment and routines of the LTHFA.

Place of study: performed in four LTHFA located in a city in the state of São Paulo. At the time of data collection (June 2007), it was estimated that 16,662 people (15.4% of the total population) aged 60 years of more lived in the city, 105 of which lived in the existing LTHFA.

Ethical aspects: this study complies with the ethics regarding research with human beings, and was approved by the Research Ethics Committee at Faculdades Integradas Teresa D'Ávila (FATEA) under number 24/2006.

Sample: participants met all the inclusion criteria, and none of the previously established exclusion criteria. The inclusion criteria were: 60 years of age or more, living at the LTHFA for at least one year, capable of giving coherent answers to the instruments and volunteering to participate by signing (or providing their finger print for identification) the Free and Informed Consent Form. The exclusion criteria were: visual insensibility to light; cognitive disorder identified by the Mini mental state examination (MMSE). Among the 105 elderly residents, 38 (36.2% of the total) participated in the study. The other 67 were excluded because their score on the MMSE suggested cognitive deficit according to the adopted criteria: score of 19 for illiterate, 23 for those with up to eight years of education and 26 for those with more than eight years of education.

Data collection instruments

1. Identification form: used to characterize the population in terms of data regarding sociodemographic information (gender, age, marital status, religion, education level, occupation before retirement, number of children), housing (date of admission to the LTHFA, reason for the institutionalization, number of co-habitants in the dorm) and health (capacity of locomotion, present and previous diseases); created for this study and evaluated by judges.

2. Katz index: used to evaluate the aged individuals' performance in activities of daily living (ADL); in this study, the results of the evaluation using the Katz Index (degree of dependence) were grouped into three categories: independence (Katz level A); moderate dependence (Katz levels B and C); severe dependence (Katz levels D to G)⁽⁴⁾.

3. Pittsburgh Sleep Quality Index (PSQI): used to evaluate sleep quality. It consists of seven components (sleep quality, latency, duration, efficiency, night sleep disorders, use of sleep medication and daytime sleepiness), each scored from zero to three, which sum results in a global score that may range from zero to 21. Higher scores indicate sleep of lowest quality and scores above five suggest poor quality sleep. Other issues, not considered on the final score, complement the sleep pattern evaluation: time of going to bed and waking up, the habit of napping or taking a siesta⁽⁵⁾.

Data collection: after being approved by the involved LTHFA, data collection was performed by one of the researchers, who selected the aged individuals and registered

the answers to the instruments, on the date and place of their preference. As an exception, the Katz Index was administered differently, as it was filled in by observing the elderly and then complemented by information from the caregivers.

Data analysis: descriptive statistics was used to characterize the population and the sleep quality. Specific tests were used to compare and correlate the variables (Chi-Square or Fisher's exact test to compare categorical variables between groups; Mann-Whitney test to compare numerical variables between two groups and Kruskal-Wallis test for three or more groups). The level of significance adopted for the statistical tests was 5% ($p < 0.05$). The PSQI was submitted to an internal consistency test by means of Cronbach's alpha coefficient. The Statistics Service at the institution collaborated with the data treatment.

RESULTS

Characterization of the sample

The studied population (38 aged individuals) was characterized by the prevalence of women (60.5%), individuals aged between 60 and 69 years (57.9%), single (39.5%) and individuals with complete fundamental education (42.1%). The mean age was 70.5 (± 8.1) years and the median was 67.2 years. Most aged individuals reported being catholic (94.7%); 44.7% did not have children and 31.5% lived with family members before the institutionalization. Their occupation before institutionalization ranged considerably, with a prevalence of occupations without specific qualification (65.7%).

The main reasons reported for the institutionalization were loneliness (28.9%) and financial factors (26.3%). Fifty percent of seniors had one to five years of institutionalization, the average was 6.3 (± 4.8) years, median of 5.5 years.

As for the occupation of the dormitory at the institution, 55.3% shared it with one to four people, with an average of 3.4 (± 2.6) aged individuals per bedroom, and a median of 3.0.

Most of the elderly (89.5%) walked without assistance of others. The diseases most frequently described in the medical records were hypertension (15.8%) and heart disease (10.5%). Of the records, 28.9% did not refer to any disease.

According to the Katz Index, 39.5% of the elderly were independent, 39.4% had moderate dependence and the remaining 21.1%, severe dependence.

Evaluation of sleep quality and its components

Regarding the characteristics of sleep, 52.6% of the aged individuals would go to bed between 9pm and 10pm and 34.2% between 10:30pm and 11pm. Fifty percent went to sleep between 9pm and 10:30pm and 36.8% between

10:35pm and 00h10am. The time of awakening was between 5am and 6am for 57.9% of the elderly and between 6:30am and 7am for 28.9%. The occurrence of naps after lunch was

reported by 36.8%, with an average duration of 25.4 min (\pm 11.2 min) and a median of 30 minutes. Further details of the sleep characteristics of the elderly are shown in Table 1.

Table 1 - Characteristics of sleep of 38 aged individuals from the Long Term Homes for the Elderly in a city in the state of Sao Paulo - Guaratinguetá - 2007

Variables	mean	sd*(\pm)	Median	Minimum	Maximum
Time going to bed	9:32pm	104min	22h	16h	24h
Sleep latency	26min	35min	15min	0 min	120min
Sleep onset	9:57pm	99min	10:17pm	5:10pm	0:10am
Duration of sleep	436min	79min	420min	270min	660min
Time of awakening	6:01am	53min	6am	4am	8am
Sleep efficiency	87%	12%	87%	59,3%	100%

* sd = standard deviation

The global score of PSQI in the elderly ranged from 2 to 14, averaging 6.3 (\pm 2.8), with a median of 6.0. Most of the elderly (63.2%) obtained scores above five, indicative of overall poor sleep quality.

The PSQI internal consistency proved to be low (Cronbach's alpha = 0.438) for this population. Because of

this result we chose to analyze each component separately, depending on the study variables.

Table 2 summarizes the results for each component. It is observed that, except for **nocturnal sleep disorders** and **sleep latency**, the average score of most of the components was equal to or less than 1.0, indicating a good evaluation.

Table 2 - Scores obtained in the components of the Pittsburgh Sleep Quality Index (PSQI) by 38 aged residents of the Long-Term Home for the Elderly in a city in the state of São Paulo - Guaratinguetá - 2007

Components of the PSQI	mean	sd*(\pm)	Median	Minimum	Maximum
Sleep quality	1.0	0.8	1.0	0.0	3.0
Sleep latency	1.3	1.0	1.0	0.0	3.0
Duration of nocturnal sleep	0.7	0.7	0.9	0.0	3.0
Sleep efficiency	0.7	0.9	0.0	0.0	3.0
Nocturnal sleep disorders	1.4	0.6	1.0	0.0	3.0
Sleep medication	0.4	1.0	0.0	0.0	3.0
Sleepiness and daytime disorders	0.9	0.7	1.0	0.0	2.0

By assessing the component **Sleep quality**, it was observed that 81.6% of the elderly rated it as very good or good. As for **Sleep latency**, 65.8% reported falling asleep in less than 30 minutes; however, 31.6% took more than 30 minutes three times a week or more. The **Duration of sleep** was more than seven hours a night for 47.4% of participants, and six to seven hours to 42.1%. The efficiency of sleep, according to 57.9% of the elderly, was above 85%.

Regarding **Nocturnal sleep disorders**, i.e. the **problems** identified in relation to sleep, the highlights were those that occurred frequently (three or more times per week): getting up to go to the bathroom (63.2%), waking up in the middle of the night or too early in the morning (50.0%), feeling too hot (23.7%), feeling pain (21.0%), coughing or loud snoring (10.5%), having bad dreams or nightmares (10.5%).

As for the **Use of sleep medication**, prescribed by the doctor or not, 13.2% of the aged individuals reported that they used these drugs three times a week or more.

The occurrence of **Daytime sleepiness and disorders** was denied by 94.7% of the elderly; it stands out, however,

that 34.2% reported high or moderate discomfort or lack of enthusiasm for daily activities.

Sleep quality as a function of sociodemographic characteristics and the degree of dependence for ADL

A significant difference ($p < 0.05$) was observed in the **Sleep quality** component among age groups, with the highest score for those aged 70-79 years (1.6 ± 1.0 , median 1.5) compared to those 60-69 years (0.9 ± 0.7 , median 1.0) and 80 years and over (0.3 ± 0.5 , median 0.0). No significant difference was found between age groups for the other components.

Comparing the genders, there was significant difference ($p < 0.05$) in scores of **Sleep quality**, showing a worse rating for men (1.3 ± 0.7 , median 1.0) compared to women (0.8 ± 0.9 , median 1.0).

It was evinced there is a tendency ($0.05 < p < 0.10$) for poor assessment of the **Sleep quality** among older adults with less than five years of institutionalization (1.3 ± 0.9 , median 1.0) when compared to those with between five

and nine years (0.8 ± 0.4 , median 1.0) and those with more than ten years of institutionalization (0.7 ± 1.2 , median 0.0).

The comparison of PSQI components among the elderly classified according to the degree of dependence showed a tendency ($0.05 < p < 0.10$) for poor **Sleep efficiency** for those with severe dependence (1.4 ± 1.2 , median 1.0) when compared to independent (0.5 ± 0.9 , median 0.0) and moderately dependent (0.5 ± 0.6 , median 0.0).

There was no significant difference in the PSQI components for the following variables: marital status, education, number of elderly who shared the dormitory, and locomotion.

DISCUSSION OF RESULTS

Characteristics of the sample

The characteristics of the 38 aged individuals correspond to those of the Brazilian institutionalized population, i.e. predominantly female and single people. These characteristics, as well as the fact that, in general, those people do not have the support from their children, help to explain the causes of institutionalization of the elderly. The low educational level of most aged individuals points to the precarious living conditions and working for much of their life, and reflects the difficult accessibility to schools until the mid-twentieth century, especially for women of low income families⁽¹⁾. The predominance of unskilled manual activities restricts the opportunities for a dignified life and is an important risk factor for institutionalization, associated with lower financial income, especially when added to other risk factors linked to gender and marital status⁽¹⁾.

As for the profile of morbidity, it should be noticed that 28.9% of the records did not state any disease; hence it may be assumed that they would not have been properly reported. The difficulty of keeping regular medical services in the LTHFA probably contributed to this fact. Brazilian population studies have shown that 85% of the elderly have some type of chronic disease and, within that percentage, 10% have at least five diseases concomitantly⁽⁶⁾.

The high number of aged individuals with some degree of impairment to their independence for ADL (60.5%) is in line with the findings of another study⁽⁷⁾, which observed a significant percentage of elderly people with difficulties to perform ADLs and an increased degree of dependence after institutionalization. These findings corroborate the assertion that institutionalization is associated with cognitive and physical dependence⁽⁷⁾.

Evaluation of sleep quality and its components

Most (63.1%) of 38 elderly individuals studied presented poor quality of sleep, according to the score obtained in the PSQI. This finding is consistent with a previous study⁽⁸⁾ with institutionalized elderly, in which 73% among 48 elderly had scores indicative of poor sleep quality on PSQI. It should be emphasized that due to the low consistency of the instru-

ment in this study, this result was treated with caution, preferring to consider the evaluation of each component of PSQI, separately, to the detriment of the overall result.

It is noteworthy that 81.6% of the aged individuals reported that their sleep quality was good or very good. One may suggest that these elderly people did not realize how harmful the disturbances considered *normal* at aging, such as early awakening, the sleep disruptions and feeling pain, were to the quality of their sleep. Or, still, that in fact these events, treated as disorders according to the sleep patterns of young adults, would be well tolerated as one grows older. It may also be argued that there is a difference between sleep quality perceived by the elderly and the view that professionals have in this regard, which perhaps is not advocated in the literature.

It is observed that **sleep latency** did not convey a poor quality sleep, for most elderly, considering that 65.8% reported taking less than 30 minutes to fall asleep. In another study with institutionalized elderly about the prevalence of insomnia and associated factors, 70.3% of the aged individuals had no complaints about sleep latency⁽⁹⁾.

Also the **duration of sleep** (more than seven hours for 47.4%) and **sleep efficiency** (above 85% for 57.9%) indicated good quality sleep for approximately 50% of the elderly. This points at the importance of further investigations towards the understanding of the factors that discriminate against institutionalized elderly on the quality of sleep, which was not reached in this study. An interesting direction would be a more detailed evaluation of the objective health conditions of the elderly and their subjective perception of it. Thus, a comparative study of the subjective characteristics of sleep among 30 healthy elderly community residents and 30 young adults found that both groups reported good sleep quality, without significant differences between them. The authors attributed these findings to the good health of the elderly individuals evaluated⁽¹⁰⁾.

Among the **problems related to nocturnal sleep**, there is the need to **get up to go to the bathroom**, reported by 63.2% of the elderly. Another author showed similar results⁽⁸⁾ with 71% of seniors reporting the complaint of nocturia. This should be seen as an important disorder that, if not treated properly, may have costly consequences for the individual and society, among them the greater susceptibility to falls and reduced quality of nighttime sleep because of the need to wake up at night to go to the bathroom⁽¹¹⁾.

It should also be noticed that the complaint about **waking up at night or too early in the morning** was reported by 50% of the elderly. The fragmented sleep and early awakening are characteristic changes in sleep patterns observed among the elderly, who may have consequences such as reducing the total time slept and complaints of non-restorative sleep. It is noteworthy that disruptions of nocturnal sleep in LTHFA, are due in part to the care activities performed by the nursing personnel or caregivers, distributed over 24 hours and that often occur during the night. The elderly can have their sleep disrupted by the entry of these professionals in

the dorms to provide care to themselves or to their roommates. These activities are often accompanied by lights being turned on and people talking loud, and are performed at times that are convenient for the routines of the service, without worrying about the possibility of fragmenting the sleep of people under their care, as well as the potentially adverse effects that result from that fragmentation⁽⁹⁾.

The fact of **feeling very hot**, pointed out as problems by 23.7% of the elderly, suggests that the room temperature can be an important determinant of the quality and quantity of sleep. In environments of high temperature, periods of sleep are characterized by increased waking and changes in sleep architecture⁽⁹⁾. This factor was reported as disturbing the sleep in a study performed with institutionalized elderly in Italy, a country of milder climate than Brazil, where complaints were presented by 6% of the elderly⁽⁸⁾.

The sleep of 21.1% of the elderly has been troubled by **pain** three times a week or more, and 71.1% reported this fact once or twice a week. In this case, it is believed that the investigation of the origin of pain and its appropriate treatment could have reduced the frequency of this complaint. In a similar study⁽⁸⁾, pain complaints were reported by 33% of the elderly. Pain is a recognized factor of nocturnal sleep disorder, generally more prevalent in the elderly, and associated to reflexes in performance during wakefulness⁽¹²⁾.

That fact of **coughing or snoring very loud** was mentioned by 10.5% of the elderly, a percentage that cannot be neglected, since this type of complaint refers to the possibility of sleep apnea. This is a major sleep-related breathing disorder, and is highly prevalent in the elderly. Recent investigations have shown a growing association between sleep apnea and the occurrence of cardiovascular disorders, strokes, loss of cognitive functions and memory, and dementia⁽¹³⁾. Therefore, this complaint should, in all cases, have its cause investigated because of the risk that it involves.

Complaints regarding the occurrence of **bad dreams or nightmares** were frequent for 10.5% of the elderly. Another study found a prevalence of 12.3% in adults older than 18 years, with a similar proportion in all age groups, including for those over 65⁽¹⁴⁾. There is a shortage of studies on the prevalence of parasomnias in the elderly.

The use of **sleep medication** three times a week or more was reported by 13.2% of the elderly, representing a significant percentage, given the risks inherent to using those drugs. In the elderly, the use of this type of medication can hinder cognition and psychomotor aspects, such as gait. There are recommendations for short, individualized treatment, associated with sleep hygiene techniques. The prescription of these drugs must be precise, short-term, taking into account its benefits and side effects, the etiology of this sleep disorder and, in essence, the patient's age⁽⁹⁾.

Excessive daytime sleepiness was denied by most of the elderly (94.7%). However, 34.2% indicated moderate or high indisposition for everyday activities, which could be due to a poor sleep quality. In the elderly, daytime sleepiness and indisposition are often related to factors such as inactivity and imposed inflexible routines, and its frequency lies within a range of 10% to 30%⁽¹⁵⁾. The low prevalence reported by the elderly in this study could be due to the difficulty of perceiving their own sleepiness as indisposition, as it is masked by inactivity and the lack of stimuli in the environment that would demand their attention.

It is observed that the occurrence of naps, which may be associated with daytime sleepiness, was reported by 36.8% of the elderly, with an average of around 25.4 minutes for naps. These numbers seem low in LTHFA marked by the physical and mental inactivity of its residents, stressing that the elderly may underestimate the length of the nap. The literature shows that short naps can benefit or impair sleep at night, and long naps (more than an hour in length) tend to be harmful, in association with longer periods of latency and more frequent awakenings⁽¹⁶⁾.

There was a tendency for worse sleep quality assessment among aged individuals with less than five years of institutionalization, compared to those institutionalized for five to nine years or for more than ten years.

Sleep quality as a function of sociodemographic characteristics and the degree of dependence for ADL

The elderly who are aged 70-79 years received the worst rating of **sleep quality** compared to the others, giving rise to some considerations concerning the absence of a linear association between chronological aging and the worsening of sleep quality. In literature, a multicenter study suggests an association between poor sleep quality and poor health, rather than with chronological age. One of those studies, performed with elderly community residents, showed that only 12% denied having difficulties to sleep, and that complaints were associated with increased the frequency of somatic diseases, depressive symptoms and poor perceived health⁽¹⁷⁾.

Significant differences were found for **sleep quality** between genders, with worse ratings among men, which disagrees with most of the literature on the subject. The largest number of complaints about sleep has traditionally been observed among women^(14,17). A study with 177 institutionalized aged individuals found a risk about four times greater than non-restorative sleep complaints for women than for men⁽¹⁸⁾. A more thorough assessment of possible differences between men and women of this study, considering variables such as age, length of institutionalization and others did not find any characteristic that would explain this finding.

There was a tendency for worse sleep quality assessment among aged individuals with less than five years of institutionalization, compared to those institutionalized for five to nine years or for more than ten years. This finding may be related to the impact of institutionalization, and consequently to changes to the lifestyle and sleep of that

individual. Aged people are particularly susceptible to the disruption of life routines, leading to consequences usually deleterious on their biological rhythms, especially the sleep/wake cycle. A study with institutionalized elderly showed that living for less than a year at the institution represented a risk two and a half times higher to complain of non-restorative sleep⁽¹⁸⁾. The present study did not include elderly individuals with less than one year in the institution, but the fact is that there are no studies that accompany the duration of the impact of institutionalization on sleep, thus permitting to speculate that it could extend beyond the first year, as suggested by these findings.

Elderly patients with severe dependence tended to have worse **sleep efficiency** compared to others. In a multicenter study⁽¹⁷⁾, complaints about sleep were shown to be related not only to the presence of diseases but also to the presence of disabilities, which could, indirectly, indicate a high degree of dependence. Moreover, dependence is often associated with physical and mental inactivity during the daytime, even among the elderly living in the community, and most evidently among the institutionalized. Inactivity, on the other hand, can lead to fragmentation, i.e., reduced sleep efficiency⁽¹⁵⁾. Another factor to consider is that some of the dependent elderly require receiving care from others during the night, which implies they would be woken up in order to receive such care. This factor was not investigated in this study, but it is known that in LTHFA and hospitals, hygiene care and the administration of medications, for example, are often performed during the night, without any concern regarding the fragmentation of sleep that such activities may cause, but with the completion of a pre-defined, rigid routine⁽⁹⁾.

The results of the present study and the analysis of the literature show that intrinsic and extrinsic factors act together in determining the quality of sleep of the elderly, with evidence that extrinsic factors play a key role in the sleep quality of institutionalized elderly^(2,3-9). Moreover, it is by changing these factors that the nurse finds the most concrete possibilities for action and greater responsibilities. The literature shows that interventions aimed at improving the quality of sleep of residents in LTHFA should encompass multiple behavioral and environmental aspects, such as reduced time spent in bed; offering regular physical activity or recreation, or even increased opportunities for social interaction, opportunities of exposure to sunlight in outdoor activities, and reviewing routines of the nursing staff at night, trying to provide care such as hygiene and diaper changing, skin care and changing positions when the aged individual is awake^(2,3-9).

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CONCLUSION

The results obtained from the evaluation of sleep quality in 38 institutionalized elderly subjects showed that 63.2% of the elderly had scores indicative of poor sleep quality on the Pittsburgh Sleep Quality Index (PSQI), however, when asked about their sleep quality, 81.6% reported it was good or very good; 65.8% took less than 30 minutes to fall asleep, 47.4% slept more than seven hours a night, and 57.9% had sleep efficiency higher than 85%. Among the identified sleep-related problems, the following stood out because of their high frequency: getting up to go to the bathroom (63.2%), waking up at night or too early (50%) feeling very hot (23.7%), feeling pain (21.1%). The elderly aged 70-79 years had the worst rating of sleep quality compared to the other age groups, and men had worse ratings than women; there was a tendency for the elderly with less than five years institutionalization having worse sleep quality ratings than those living for more than five years in the LTHFA; and a tendency for worse sleep efficiency for aged individuals with higher degrees of dependence compared to those who were independent or with a moderate degree of dependence.

FINAL CONSIDERATIONS

It is believed that this study has brought important information about sleep quality among elderly people living in LTHFA permitting to portray these characteristics with data from Brazilian institutions

The contradiction between the PSQI score, consistent with poor sleep quality, and the responses of the elderly, who reported good sleep quality, brings questions that could not be answered. For example, the elderly who report good quality sleep is actually satisfied or have they *gotten used to* a sleep that is unsatisfactory but they believe it is *normal* for their age? Or does the PSQI reflect only the sleep patterns of young adults, and for the elderly, it changes what is actually normal? Those questions deserve an answer, with a deepening of the investigations.

Moreover, further studies should be developed with institutionalized elderly to evaluate the impact of interventions on quality of sleep. Nurses play an active role in designing interventions, which must rely on institutional support, and that can be accomplished by programming physical or recreational physical activities during the day and, at night, care should be individualized so as to reduce unnecessary activities that may interrupt sleep. The sleep quality of elderly people should be compared before and after the development of this program.

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