ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 12, Issue, 01, pp. 53565-53569, January, 2022
https://doi.org/10.37118/ijdr.23820.01.2022

RESEARCH ARTICLE OPEN ACCESS

SLEEP QUALITY IN ELDERLY PEOPLE TREATED IN A MILITARY HEALTH UNIT

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ARTICLE INFO

Article History:
Received 11th October, 2021
Received in revised form
16th November, 2021
Accepted 22nd December, 2021
Published online 30th January, 2022

Key Words:
Daytime Sleepiness, Elderly,
Epworth Sleepiness Scale,
Mini Sleep Questionnaire,
Pittisburg Sleep Quality Index,
Sleep quality.

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ABSTRACT

Introduction: There is a complex interaction of sleep between organic, physiological and emotional factors. In the elderly, there is usually a greater difficulty in sleeping, generating concern about the quality of sleep. **Objective:** Determine sleep quality, investigate correlations with medications, chronic diseases, physical activity and body mass index (BMI), and the existence of daytime sleepiness in elderly people aged 60 years and older, treated in a Military Hospital Unit. **Methods**: The instruments used for 86 elderly were: the Pittisburg Sleep Quality Index (PSQI), Mini Sleep Questionnaire (MSQ) and Epworth Sleepiness Scale (ESS). **Results**: In the analysis of the final score of the Pittsburg Scale, the result on sleep quality identified that 36% as good, 35% as poor, 29% with sleep disorders. In the MSQ, it was found that 48% of the elderly have severe sleep quality problems, 12% moderate problems, 19% mild problems and 22% have good sleep quality. On both scales, poor quality and possible sleep disorders are very significant. In the final score of the Daytime Sleepiness scale, the result showed that 73% have normal sleepiness, 23% have excessive sleepiness and 3% have severe sleepiness. **Conclusions**: The elderly surveyed presented problems with possible sleep disorders correlated with the use of psychotropic and sleep inducers, in addition to a reasonable frequency of excessive daytime sleepiness and severe sleepiness, significantly influencing sleep quality.

Citation: ***Ana Suzana Pereira de Medeiros Delgado, Wania Cristina de Souza, Vaneila Ferreira Martins, Vania Moraes Ferreira.*** "Sleep quality in elderly people treated in a military health unit*", International Journal of Development Research*, 12, (01), 53565-53569.

INTRODUCTION

Sleep is an interaction between organic, physiological and emotional factors, according to each individual, from the cultural, social and environmental aspects. Aging brings changes in the sleep patterns of the elderly (quantity and quality), directly influencing their waking state. It is a brain phenomenon in which is certainly fundamental to survival human species (Akberzie and Kataria, 2021). Defining sleep, therefore, remains a difficult task, as it is configured in an extremely complex. Its existence promotes behavioral and physiological changes that occur jointly and in association with electrical brain activities. Even in the face of many classifications, it currently requires a complete brain integration (Duraccio *et al*., 2021; Feinsilver, 2021; Parmar *et al*., 2021). For a great waking state, for example, it takes about 1/3 of the day committed to the practice of sleep, which will be oscillating in two stages: rapid eye movements (REM) and non-fast eye movements (NREM). REM, is active sleep associated with the occurrence of dreams and NREM is considered restorative of organic functions (Feinsilver, 2021). In the elderly, several aspects contribute to the change in sleep pattern such as physical and emotional discomfort, environmental factors, difficulty in starting and maintaining sleep, in addition to daytime fatigue and drowsiness with increased naps.

All this symptomatology contributes to physiological changes in old age such as clinical diseases and psychiatric comorbidities (Akberzie and Kataria, 2021). Considering the need to sleep and the intention to improve sleep, many of the elderly make use of therapeutic resources in a way that is often uncontrolled (Feinsilver, 2021). The Institute of Medicine of the United States of America (USA) estimates that 50 to 70 million Adult Americans suffer from some sleep disorder that contributes to several other health problems, in which they generate fatal damage, such as cardiovascular diseases, diabetes, obesity, cancer, accidents and lower longevity (Luyster *et al*., 2012). Before the global pandemic affected by COVID-19 (*Coronavirus Disease-2019*), the elderly population was the age group that grew the most worldwide, as it was increasing more and more, changing the world demographic data and generating socioeconomic impact in all sectors, mainly related to health, especially the high prevalence of chronic-degenerative diseases associated with aging (ONU, 2020). The quality of sleep in old age is a daily complaint in outpatient care. Due to the various complaints, the interest arose to investigate the quality of sleep of such elderly people who had a seemingly healthy routine, with frequent social activities, family life, recurrent medical guidance, but who complained assiduously about their sleep. Thus, the research was implemented in elderly people from 60 years of age who attended weekly activities in a Geriatrics Unit of a Military hospital, aiming to

investigate the quality of sleep and the existence of daytime sleepiness among the elderly; as well as checking if there was a relationship between the use of psychotropic drugs, sleep-inducing medications, chronic diseases, physical activity practice and BMI with sleep quality.

METHODOLOGY

This is a population-based quantitative method study in 86 elderly patients treated at the Geriatrics and Gerontology unit of a Military hospital. The research was approved by the Ethics Committee of the Faculty of Medicine of University of Brasilia, Brazil, with the registration number 3,239,827, issued on April 2, 2019 and reviewed in 2021. The participants were informed about the objectives and characteristics of the study and those who agreed, signed a Free and Informed Consent Form (FICF), so that their participations were voluntary and without any burden. As inclusion criteria, we considered patients who were 60 years of age or older, of both sexes, of any socioeconomic class and who were regulars of the weekly and or group activities of geriatrics, in such a way that they had some kind of follow-up of some team professional.

The elderly with cognitive deficit suggestive of dementia, those who were not literate and those who could not sign the FICF for any reason were excluded from the sample. A socio-family profile form and validated questionnaires were applied in Brazil that tracked general aspects of sleep and its quality: Pittisburg Sleep Quality Index (PSQI), Mini Sleep Questionnaire (MSQ) and Epworth Sleepiness Scale (ESS). All self-applicable. The socio-family profile form was constructed by the researcher, with summary data on the researched, such as personal data, medications in use, sleep alteration, health treatments.

The Pittsburgh scale or Pittsburg Sleep Quality Index – PSQI assesses the quality and disturbances of sleep during the period of the last month. It was developed by Buysse *et al*. (1989), in Brazil, its validation was already carried out by Bertolazi *et al*. (2011). The Mini Sleep Questionnaire (MSQ) is an instrument to measure sleep problems, standardized and used in Brazil, created by Zomer (1985). The Epworth Sleepiness Scale (ESS) is a valid and reliable instrument for the evaluation of daytime sleepiness, being equivalent to its original version when applied to individuals who speak Portuguese from Brazil, validated by Bertolazi *et al*. (2009). All instruments portray the self-perception of the population studied. Data collection procedures occurred in two moments: the approach and the invitation to the elderly, explaining the research and the instruments, the importance of reading and signing the Informed Consent. The second moment was the participation of the elderly responding to the instruments, which are self-applicable, but with the presence of the researcher. The responsible researcher, when perceiving any significant risk or damage to the research participant, whether or not provided for in the TCLE, undertook to communicate the fact immediately to the CEP/CONEP System, and to evaluate, on an emergency basis, the need to adjust or suspend the study, according to RES 466/12 item V.3. The sample unit of the research was designed by the number of elderlies who attended the groups during the week, 161 of which were elderly, a statistic provided by the health unit. After the necessary calculations were performed, the sample size was estimated at 86 sample units. This research allows a limit on the sampling error of 7.4% and a confidence level under the estimated parameter of 95%. To analyze the variables, the R programming language program was used as a bibliographic reference, in which it is considered a free and open software.

RESULTS

Within the socio-demographic survey, Table 1 shows an overview of the population investigated. The age group of the surveyed started at 60 years of age traveling until the last days of life.

Table 1. Socio-demographic characteristics of the elderly population treated in a Geriatrics Unit of a military hospital

Variable	N (total)	% (total)	Variable	N (total)	% (total)
Sex			Age range		
• Male	36	42	• 60-72	36	42
• Female	50	58	• 73-84	38	44
			• 85-104	12	14
Marital status			Family composition		
• Married	64	75	• Single	07	07
• Widower	16	19	• In couple	66	62
• Single	03	04	• Children	23	21
• Others	02	02	• Others	11	10
Education			Medicines/pathologies		
• Incomplete primary education	07	08	• Antihypertensives	80	67
• Complete primary education	02	02	• Diabetes	29	25
• Incomplete high school	05	06	• Psychotropic	27	23
• Complete high school	28	33	• Diuretics	14	12
• Incomplete graduation	10	12	• Cholesterol	42	36
• Complete graduation	24	28	• Cardiopathies	28	24
• Postgraduate studies	09	11	• Others	57	49

Source: Brasília-DF, 2019

The vast majority had median height, 84% measured between 1.50m and 1.74m. As well as the largest weight range identified was from 62 to 86 kg, 70% of the population studied. Regarding physical activity, 65% deny sedentary lifestyle, i.e., they are engaged in some physical activity. Of the interviewees, 27% said they were walking, 17% bodybuilding and 10% stretching. About taking advantage of the services of caregivers of the elderly, the vast majority (89%) replied that it does not use. Suggesting that a large portion of the participants in this study enjoy autonomy and independence in their daily lives, having no difficulty with activities of daily living. Relating pathologies and drug treatments that exist in their lives, it was answered that: 67% take antihypertensive drugs, 49% others (other medications for various pathologies), 36% refer to medicines for cholesterol reduction, 25% related to diabetes, 24% related to heart diseases, 23% to psychotropic drugs, 12% to diuretics. It is important to note that the elderly usually use more than one drug during the day, treating various pathologies at the same time with various medications. When asked about the weekly difficulty in sleeping, the elderly answered in 51% that at least once a week they had difficulty sleeping and that at some point in the last week they did not manage in up to 30 minutes. In total 52% claim to wake up 3 times or more at night. Finally, the vast majority, 82% of respondents wake up at least once in the night. The data suggested that 80% raise at least once to go to the bathroom, 55% who coughed or snored at least once a month. Of the interviewees, 61% answered not to use medicine to help them during bedtime, and more than half of the elderly

complained of lack of spirit to perform activities. In the last month, the elderly classified the quality of their sleep as very good (17%), good (57%), bad (20%), very bad (6%). That is, 74% rated the quality of their sleep at least as good, indicating a good sleep for their survival, but the results do not mirror this self-perception. In the general analysis of the Pittsburg Scale, together with the scores according to the author, the result on the sleep quality of the elderly was that 36% evaluate how good, 35% as poor quality, 29% with sleep disorders (Figure 1).

In the analysis of the MSQ questionnaire resulting in the score of the total score that resulted in 48% of the elderly have severe problems in the quality of their sleep, 12% have moderate problems, 19% mild problems and 22% have a good quality of sleep, according to the instrument (Figure 2). Fragile correlations were identified between BMI, practice and physical activity and chronic diseases, but the use of psychotropic and sleep inducers showed a moderate correlation with the sleep quality of the elderly studied.

Figure 1. Final PSQI score identifying sleep quality among the elderly attended at a Military Health Unit (Brasília, DF, Brazil, 2019)

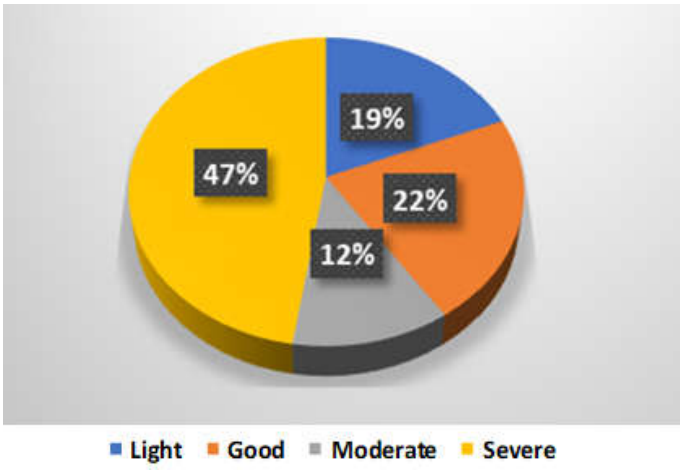

Figure 2. Final MSQ score identifying sleep quality among the elderly attended at a Military Health Unit (Brasília-DF, Brazil, 2019)

Finally, on the Epworth Sleepiness Scale (ESS), the situations associated with sleepiness were classified, presenting 73% of the elderly with normal daytime sleepiness, 23% with excessive daytime sleepiness and 3% had severe daytime sleepiness (Figure 3).

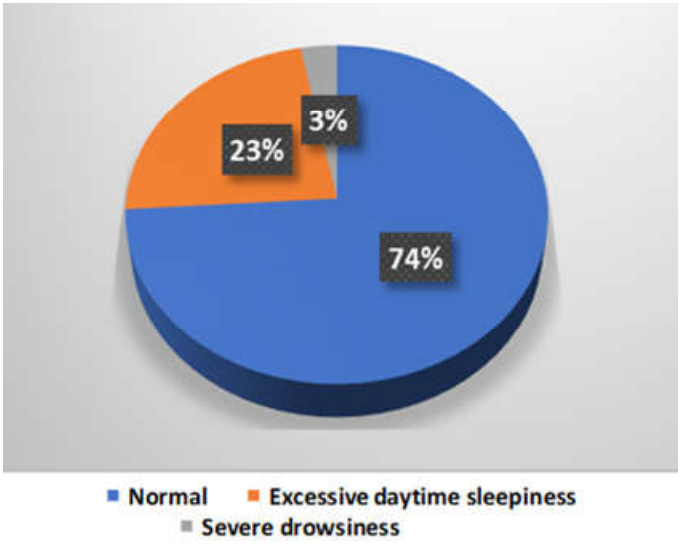

Figure 3. Final ESE score identifying the level of daytime sleepiness among the elderly attended at a Military Health Unit (Brasília-DF, Brazil, 2019)

DISCUSSION

The world population, despite its particularities, had been experiencing the same concern about its aging and increased longevity, that is the number of the elderly and the years lived had been increasing very significantly. With the recent Covid-19 pandemic, which has spread rapidly across all continents, it is not yet known how it will affect aging in the world. According to Policy Brief: The impact of COVID-19 on older persons, more than 95% of fatal cases due to COVID-19 in Europe were of people aged 60 years or older, while in China, this percentage for that same age was approximately 80%. In the US, 80% of deaths occurred among adults 65 years and older. In Brazil, in mid-May, 69.2% of deaths were of people over 60 years of age (ONU, 2020). According to Barros (2020), 43.5% of adults and the elderly reported onset of sleep problems during the pandemic. A study conducted in Israel that related loneliness at the time of COVID-19 with sleep problems and found that the subjective quality of sleep of those with more concerns related to COVID-19 or less resilience is more susceptible to feeling lonely (Grossman, 2021). However, the data here observed, obtained before the current panorama referring to the pandemic, showed that in relation to the sleep quality of the elderly surveyed, it was observed that in epidemiological studies in Brazil, the elderly are between the ages of 60 and 76 years, the same predominant range also among the elderly surveyed. The predominant sex of the elderly population is female, and according to the answered form, of the 86 elderly, 50 (58%) are women and 36 (42%) are men, 75% claim that his marital status is married and 19% as widowers. These data converge with the profile of Elderly Brazilians according to the latest IBGE Census from 2010 and related research (IBGE apud Melo *et al*., 2016). The level of education of the surveyed is among high school (33%), when it comes to schooling in the Brazilian scope, the elderly still have a very low level of education, where 61% have only elementary school (IBGE apud Melo *et al*., 2016), diverging with the level of education of the surveyed. About family composition, the vast majority 93% share their home with family members. Being a great indicator, since social isolation in the elderly can cause poor sleep quality and increased daytime sleepiness, causing deficits in the health of the elderly (Costa *et al*., 2011). In the analysis of the final score of the Pittsburg Scale and in the MSQ questionnaire, these data significantly report a fragile and compromised sleep quality, as well as with the appearance of some sleep disorder, worrying data, but which are consistent with several studies related to the quality of sleep in the elderly.

There is a consensus in the quality of sleep in this population, especially in relation to its poor quality and negative consequences, inevitable to the aging process. According to Moreno *et al* (2019), half of the elderly over 65 years of age living at home and 70% of the institutionalized elderly have changes in the quality and quantity of sleep. Although age is not an independent predictor for future sleep disorders, it is known that there is poor quality and sleep-related disorders that are inevitable in the aging process (Akberzie *et al*., 2021). Epidemiological studies indicate that 40% of the elderly who are over 65 years of age are dissatisfied or suffer from sleep problems[16]. Among these problems, sleep disorders cause increased occurrence of tiredness, fatigue, memory failures, difficulty in attention and concentration, chronic non-communicable diseases and use of illicit substances (Machado *et al*., 2018). Considering these information, the poor quality of sleep and possible sleep disorders are very significant in the present research, despite being in agreement with epidemiological studies, it generates great concern to identify that more than half of those studied do not have a good sleep, because it is known that sleep changes in the elderly may have several consequences. Even though studies show that there is a change in sleep characteristics throughout life, aging brings about changes in the architecture and sleep pattern such as its fragmentation, decreased time and greater naps (Akberzie and Kataria, 2021). It is known that the poor quality of sleep of the elderly should not necessarily be bad, but the elderly can have a better quality of sleep, which consequently preserves their physiological and mental functions (Moreno *et al*., 2019).

According to the data of the surveyed, it was not indicated that poor sleep quality is closely related to the absence of physical activity, since 65% of the population is committed to some physical activity. Correlating with BMI, although 70% of the studied population was overweight at the moment, there was no significant indication regarding their sleep quality. However, it is known that sleep shortening is a predisposing factor for the onset of obesity, modifying the endocrine pattern, where the reduction in bedtime may be related to increased BMI in different populations. Sleep deprivation has an important effect on metabolic parameters, with the occurrence of obesity as one of the consequences (Bayon *et al*., 2014; Duraccio *et al*., 2021). Regarding the use of psychotropic drugs, the majority of this population stated that they did not use sleep-inducing or psychotropic drugs to assist at bedtime, but showed a moderate correlation with the results on sleep quality and the prevalence of excessive sleepiness. In a research conducted by Monteiro and Ceolim (2014), 88.8% of the elderly who used home remedies continuously were found, also demonstrated results in relation to the poor quality of sleep in the elderly, but it is clarified that the practice of physical activity in a normal way throughout life, may influence the sleep and health of the elderly. The prevalence of sleep disorder in the general population is quite varied is between 10% and 48% and has been associated with chronic non-communicable diseases (Morais *et al*., 2017). The prevalence of chronic diseases, there was no significant correlation with their sleep quality. According to this research, such changes result that individuals exposed to less than 6 hours of sleep per day have an increased risk of 55% for the development of obesity, 28% for diabetes mellitus, 10% for hypercholesterolemia and 21% for systemic arterial hypertension. Outcomes in morbidity and mortality are increased by 48% in the amount of coronary artery disease, 15% in the amount of stroke and 12% in all-cause mortality (Cappuccio and Miller, 2017). Difficulty with sleep can also be intensified due to the use of diuretics, other medications, comorbidities and acquired and chronic diseases. Most studies on sleep in the elderly did not take into account comorbidities that can affect sleep quality, such as: medications, prostate enlargement and use of diuretics, depression and cognitive decline. They may all be associated with sleep disorders or poor quality than sleep (Camargos *et al*., 2010). A study on sleep repair function found that one third of the elderly have reduced function due to biopsychosocial factors (Lopes *et al*., 2020).

Considering that sleep is part of a 24-hour cycle, along with wakefulness, it is always important to investigate how such population are at the opposite time to sleep. Excessive daytime sleepiness becomes an important point to be investigated as it is not part of normal ageing (Marde *et al*., 2011). In the final score of the Daytime Sleepiness scale, the result showed that about 1/4 of the interviewees presented the profile of people who may suffer from daytime sleepiness in which it may compromise daytime functional performance. With increased awakenings at night, increases daytime sleepiness and increased frequency of naps. Studies show that other signs and symptoms are associated with drowsiness, such as dizziness and vertigo, which decrease functional performance, significantly increasing the risk of falls (Costa da Silva *et al*., 2018). Therefore, in view of the various demands related to sleep and its quality for a better health of the elderly, important issues such as lifestyle habits, use of medications, chronic diseases, importance of restorative sleep, body composition, physical activity, among other factors. The results provided important data, as there are only very few studies on sleep in the profile of the elderly selected here. The elderly surveyed brought significant sleep quality problems related to poor quality, as well as sleep disturbances.

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