

Sleep Disturbances in Nursing Home Residents: Links to Quality of Life and Daily Functioning

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Abstract: The current study sought to determine the association of sleep with HRQOL and physical function among older nursing home residents. Participants were 37 older adults attending or residing in a semi-urban nursing-home facility in Galicia, Spain (70.3% cognitively normal, 29.7% cognitively impaired, aged 84.1 ± 8.0 , 81.1% women) who completed the Pittsburgh Sleep Quality Index (PSQI), the 5-level EuroQol-5D, a measure of HRQOL, and the International Classification of Functioning, Disability and Health (ICF) Core Sets for Sleep, a measure of physical functional. After adjustment for age, poor (PSQI score ≤ 14) and/or worse sleep quality (continuous PSQI score) was associated with several indices of lower HRQOL, including greater immobility ($b = 0.19$, $p = 0.012$) difficulty completing self-care ($b = 0.23$, $p < 0.001$) and daily activities ($b = 0.18$, $p = 0.004$), more severe anxiety/depression ($b = 0.10$, $p = 0.042$), and a lower overall health index ($b = 0.06$, $p = 0.001$). Further, poor/worse sleep quality was associated with several indices of functional impairment, including greater difficulty maintaining body position ($b = 0.32$, $p = 0.004$), walking ($b = 0.17$, $p = 0.001$), and moving around ($b = 0.45$, $p = 0.009$).

Keywords: Ageing; “Sleep disorders”; “Quality of life” and “Functioning”

1. Introduction

Sleep problems often are associated with difficulties in their daily lives. Several studies have examined associations of poor sleep with health and quality of life (QOL) in the general population of adults, and how sleep might affect health outcomes, including emotional distress, and risk of falls [1,2]. The prevalence of sleep disorders increases with age, and poor sleep is one of the most frequent complaints among older adults [3,4].

However, very few studies have examined the association of sleep with quality of life and physical function among elderly nursing home residents [5,6]. Of those that have, most were conducted in geographical areas outside of Spain with vastly different social cultures, and consequently, may have less generalizability to either the urban or rural environments of Spain [5,7].

Therefore, the primary objective of the current study was to examine the association of subjectively measured sleep disturbance with QOL and physical function among older adults attending or residing in a nursing home facility in Spain, and identify environmental factors that may affect subjectively measured sleep in this population.

2. Material and Methods

A cross-sectional study design was employed. The Autonomous Ethics Committee of Research in Galicia approved the protocol (code: 2017/106).

2.1. Participants and Settings

Participants were nursing home patrons and residents with and without self-report sleep problems or diagnosis of insomnia and/or hypersomnia or drowsiness.

2.2. Procedure

The investigation used several evaluation instruments. Wearables devices were used for the measurement of biomedical parameters of the users, specifically the MiBand2 activity wristbands of the Xiaomi brand [8]. The data collection is automated to through a data capture system that connects directly to the devices and obtains all the information of the wristband without the need to access the manufacturer's application.

3. Results

In the study, 37 people participated. The participants were between 65 and 104 years old and were mostly women (~ 81.1%). More than two thirds of the sample that is a light cognitive (70.3%), 59.5% reported having difficulty sleeping, and 81.1% take medication to sleep.

After adjustment for age, poorer sleep quality (greater PSQI score) was associated with several indices of lower health status, including greater immobility ($b = 0.19$, $p = 0.012$) difficulty completing self-care ($b = 0.23$, $p < 0.001$) and usual activities ($b = 0.18$, $p = 0.004$), more severe anxiety/depression ($b = 0.10$, $p = 0.046$), and a lower overall health index ($b = -0.06$, $p = 0.001$). Further, poorer sleep quality was associated with several indices of functional impairment, including greater difficulty maintaining body position ($b = 0.32$, $p = 0.004$), walking ($b = 0.17$, $p = 0.001$), and moving around ($b = 0.45$, $p = 0.009$).

4. Discussion and Conclusions

The main objective of the current study was to examine the associations of sleep with life quality and daily physical functioning among older nursing home residents in Spain. Our findings revealed that a large proportion of residents suffered from sleep disturbances, which affected their quality of life and daily functioning [9,10].

Among older nursing home residents/patrons in Spain, poorer sleep quality is associated with lower indices of health status and physical function. Longitudinal studies and sleep interventions are necessary to improve health and physical function in this population.

Author Contributions: P.C.-M. and B.G. conceived and designed the experiment; P.C.-M. performed the experiment; B.G. and N.C. analyzed the data; P.C.-M., B.G. and N.C. wrote the paper.

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References

1. Cipriani G; Lucetti C; Danti S; Nuti A. Sleep disturbances and dementia. *Psychogeriatrics* **2015**; *15*, 65–74, doi:10.1111/psyg.12069
2. Wennberg AM; Canham SL; Smith MT; Spira AP. Optimizing sleep in older adults: Treating insomnia. *Maturitas* **2013**, *76*, 247–52, doi:10.1016/j.maturitas.2013.05.007

3. Ynnesdal Haugen LS; Haugland V; Envy A; Borg M, Ekeland TJ,; Anderssen N. Not talking about illness at meeting places in Norwegian community mental health care: A discourse analysis of silence concerning illness-talk. *Health* **2018**, 1–20, doi:10.1177/1363459318785712
4. Crowley K. Sleep and sleep disorders in older adults. *Neuropsychol Rev* **2011**, 21, 41–53, doi: 10.1007/s11065-010-9154-6
5. Abellán A; Ayala A; Pérez J; Pujol R. Un perfil de las personas mayores en España, *Indicadores estadísticos básicos. Inf Envejec en red nº 17* **2018**, 34. Available online: <http://envejecimiento.csic.es/documentos/documentos/enred-indicadoresbasicos18.pdf> (accessed on 16 November 2016)
6. Centro de Investigaciones sociológicas. 2018. Informe envejecimiento en red. Available online: <http://envejecimiento.csic.es/documentos/documentos/enred-estadisticasresidencias2017.pdf> (accessed on 16 November 2016)
7. Fetveit A. Late-life insomnia: A review, *Geriatr Gerontol Int.* **2009**, 9, 220–34. doi:10.1111/j.1447-0594.2009.00537.x
8. Puri A; Kim B; Nguyen O; Stolee P; Tung J; Lee J. User Acceptance of Wrist-Worn Activity Trackers Among Community-Dwelling Older Adults: Mixed Method Study *JMIR mHealth uHealth* **2017**, 5, e173, doi:10.2196/mhealth.8211
9. Perlick D; Pollak CP; Perlick D. Problems and Institutionalization of the Sleep Elderly Institutionalization. *J Geriatr Psychiatry Neurol.* **1991**;4, 204–210, doi:10.1177/089198879100400405
10. Fuller JM; Wong KK, Hoyos C; Krass I; Saini B. Dispensing good sleep health behaviours not pills - a cluster-randomized controlled trial to test the feasibility and efficacy of pharmacist-provided brief behavioural treatment for insomnia. *J Sleep Res.* **2016**, 25, 104–15.



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