NANDA taxonomy and insomnia evaluation scale in older people: A cross-sectional study

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Abstract

Objective: To identify the prevalence of indicators of the nursing diagnosis "insomnia" in older people through the Insomnia Severity Index (ISI) scale.

Materials and method: Cross-sectional epidemiological study involving older individuals from a community center. Data analysis was conducted between July and August 2021 using the R program. Univariate analysis was adopted for sociodemographic characterization. The χ^2 test (Pearson's chi-square) was employed to assess the association between the sociodemographic variables, nursing diagnosis indicators, and the ISI.

Results: A total of 90 older people (mean age = 76.8 years, SD = 7.2 years) with at least 1 defining characteristic were included in this study. There was a higher prevalence of the diagnostic indicators "insufficient physical endurance" (75.6%; 95% CI: 65-83%) and "average daily physical activity is less than recommended for age and gender" (71.1%; 95% CI: 61-79%). In contrast, the diagnostic indicators "increased accidents" (6.7%; 95% CI: 3-13%) and "lifestyle incongruent with normal circadian rhythms" (2.2%; 95% CI: 92-99%) had a lower prevalence. A significant association was found between ISI, the defining characteristics (p = 0.009; < 0.001; 0.005; 0.002; 0.022; < 0.001; 0.004; < 0.001), and the related factors (p = 0.007; 0.004; < 0.001; 0.006; 0.049) of nursing diagnosis.

Conclusions: The prevailing indicators of insomnia in community-dwelling older individuals were demonstrated in our sample and their association with a validated clinical assessment survey was established. These findings may contribute to nurses' diagnostic accuracy and their ability to conduct effective diagnostic screening in older populations.

Descriptors: Sleep Quality; Senior Centers; Geriatric Assessment; Sleep Wake Disorders; Cross-Sectional Studies (source: DeCS, BIREME).

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Taxonomía NANDA y escala de evaluación del insomnio en personas mayores: un estudio transversal

Resumen

Objetivo: identificar la prevalencia de los indicadores del diagnóstico de enfermería "insomnio" en ancianos mediante el índice de severidad del insomnio (ISI).

Materiales y método: estudio epidemiológico transversal con ancianos de un centro comunitario. El análisis de los datos se realizó entre julio y agosto de 2021 utilizando el programa R. Se empleó el análisis univariado para la caracterización sociodemográfica. Se utilizó la prueba χ^2 (chi cuadrado de Pearson) para evaluar la asociación entre las variables sociodemográficas, los indicadores de diagnóstico de enfermería y el ISI.

Resultados: 90 ancianos (media = 76,8 años, DT = 7,2 años) con al menos una característica definitoria fueron incluidos en esta investigación. Se observó una mayor prevalencia de los indicadores de diagnóstico "resistencia física insuficiente" (75,6 %; IC 95 %: 65-83 %) y "actividad física diaria promedio inferior a la recomendada para la edad y el sexo" (71,1 %; IC 95 %: 61-79 %). Los indicadores diagnósticos "aumento de accidentes" (6,7 %; IC 95 %: 3-13 %) y "estilo de vida incoherente con ritmos circadianos normales" (2,2 %; IC 95 %: 92 % - 99 %) reportaron una prevalencia más baja. Se encontró una asociación significativa entre los ISI, las características definitorias (p = 0,009; < 0,001; 0,005; 0,002; 0,022; < 0,001; 0,004; < 0,001) y los factores relacionados (p = 0,007; 0,004; < 0,001; 0,006; 0,049) del diagnóstico de enfermería.

Conclusiones: los indicadores prevalentes de insomnio en ancianos que viven en comunidades fueron evidenciados en nuestra muestra, estableciendo además su asociación con una encuesta de evaluación clínica validada. Estos resultados pueden contribuir a una mayor precisión en los diagnósticos de enfermería y a fortalecer la capacidad de realizar un cribado diagnóstico asertivo en la población anciana.

Descriptores: Calidad del Sueño; Centros para Personas Mayores; Evaluación Geriátrica; Trastornos del Sueño-Vigilia; Estudios Transversales (fuente: DeCS, BIREME).

Taxonomia NANDA e escala de avaliação da insônia em idosos: um estudo transversal

Resumo

Objetivo: identificar a prevalência dos indicadores do diagnóstico de enfermagem "insônia" em idosos por meio do índice de gravidade da insônia (IGI).

Materiais e método: estudo epidemiológico do tipo transversal com idosos frequentadores de um centro de convivência. A análise dos dados foi realizada entre julho e agosto de 2021 no programa R. Para a caracterização sociodemográfica, foi adotada a análise univariada. Foi aplicado o teste χ^2 (qui-quadrado de Pearson) para

avaliar a associação entre as variáveis sociodemográficas, os índices do diagnóstico de enfermagem e o IGI.

Resultados: 90 participantes foram incluídos (média = 76,8 anos, DP = 7,2 anos) e apresentaram ao menos 1 característica definidora. Houve maior prevalência dos índices diagnósticos "resistência física insuficiente" (75,6%; IC 95%: 65-83%) e "média de atividade física diária inferior à recomendada para idade e sexo" (71,1%; IC 95%: 61-79%). Em contrapartida, os índices diagnósticos "Aumento de acidentes" (6,7%; IC 95%: 3-13%) e "Estilo de vida incoerente com ritmos circadianos normais" (2,2%; IC 95%: 92-99%) obtiveram menor prevalência. Houve associação significativa entre a IGI, as características definidoras (p = 0,009; < 0,001; 0,005; 0,002; 0,022; < 0,001; 0,004; < 0,001) e os fatores relacionados (p = 0,007; 0,004; < 0,001; 0,006; 0,049) do diagnóstico de enfermagem.

Conclusões: foram evidenciados os indicadores prevalentes de insônia em idosos não institucionalizados em nossa amostra, e sua associação foi feita com instrumento de avaliação clínica validado. Tais resultados poderão contribuir para maior acurácia nos diagnósticos de enfermagem e fortalecer a capacidade de triagem diagnóstica assertiva na população idosa.

Descritores: Qualidade do Sono; Centros Comunitários para Idosos; Avaliação Geriátrica; Transtornos do Sono-Vigília; Estudos Transversais (fonte: DeCS, BIREME).

Introduction

The aging process is a "normative" phenomenon covering universal physiological changes over the years that can instigate changes in sleep patterns potentially leading to modifications in both the quantity and quality of sleep. This issue impacts more than half of the adult population aged 65 and older (1).

Age-related modifications within the sleep architecture are distinguished by advanced sleep timing, decreased duration of nocturnal sleep, decreased slow-wave sleep (non-REM sleep), increased frequency of daytime naps, frequent nocturnal awakenings with extended periods of wakefulness, and a higher level of sleep fragmentation (2, 3). With the progression of normal aging, the circadian system and homeostatic mechanisms exhibit a reduced robustness, resulting in variations in the secretion pattern of sleep-related hormones (4).

Insomnia is one of the most common sleep disorders in the older population (5). Some risk factors for sleep disturbances, such as insomnia, are multifactorial, including psychosocial issues, loss of family members, divorce, and domestic violence. Additionally, psychiatric comorbidities, such as anxiety disorders, can increase the risk of insomnia (6). Others, such as polypharmacy involving medications linked to decreased cognitive function, psychiatric disorders, and falls, contribute to sleep challenges in older adults (7). Combined, these risk factors increase the occurrence of geriatric sleep syndromes (8).

Sleep in the older population is negatively affected by the increase in symptoms prevalent at this age. Adverse effects of insomnia include decreased daytime functioning, impaired mood, and development of delirium (9), in addition to waking up tired in the morning, inability to concentrate, excessive daytime naps, excessive daytime sleepiness, a reduced vulnerability to sleep pressure, and an inferior quality of life (10).

Other common problems in older people, such as dementia and depression, are associated with sleep disorders (11). Dementia is one of the highly prevalent psychiatric disorders in the older population and leads to high-level anxiety, which impairs sleep quality (12, 13) while also having a bidirectional relationship with Alzheimer's disease (14).

Thus, nursing care is vital to diagnose health problems and risk states, including those related to sleep and circadian processes. The nursing diagnosis (ND) is a significant component of disciplinary knowledge and essential for professional practice. ND includes indicators such as related factors (RFs) and defining characteristics (DCs), which are individually identified and allow strengthening nursing practice in a scientific manner. Therefore, the NANDA nursing diagnostic system (NANDA International taxonomy) defines insomnia as the "inability to initiate or maintain sleep, which impairs functioning" (p. 274) (15).

Clinical findings such as insufficient physical activity are related to insomnia. Practicing physical activity is beneficial in treating insomnia and well-being and improving sleep quality and sleep latency (16). Thereby, it is essential not only to control the findings of insomnia, since prevalence is a highly relevant indicator in public health, but also to prevent such findings and, consequently, improve the health of the older population (17).

Identifying the prevalent pattern of a clinical diagnosis in older individuals can serve as a scope for age-accurate conceptual reviews, leading to an objective assessment and diagnostic confirmation by nurses (18). Therefore, it is part of the nurse's scientific and practical skills to identify and prevent disturbances in sleep patterns. In this sense, nurses can identify clinical findings of insomnia and prescribe non-pharmacological care to be applied at home to promote uninterrupted sleep (19).

In the Brazilian context, the identification of NDs can be adopted by nurses not only in a hospital environment but also in community centers. The Renascer Program, the scenario in which this study occurred, is a community center for older adults whose goal is to enhance their quality of life by promoting interaction among older adults through cultural activities and health promotion. This program has an interdisciplinarity approach, promoting socialization through various multidisciplinary activities and consultations (20).

With this in mind, this study aimed to identify the prevalence of indicators of the ND "insomnia" in older people through the Insomnia Severity Index (ISI) scale.

Materials and method

Type of research

This is a cross-sectional epidemiological investigation conducted in the city of Rio de Janeiro, in southeastern Brazil. With an estimated population of 6.2 million inhabitants in 2022, of which 19.3% are classified as older persons, this city demonstrates a demographic density of 5,174 inhabitants per square kilometer. Moreover, the human development index is 0.799, and 94.4% of the town has sanitary sewage. For its part, Rio de Janeiro state has around 16 million inhabitants, according to the 2022 Census by the Brazilian Institute of Geography and Statistics (21).

Scenario

This research was conducted at an interdisciplinary program for the Health Promotion and Quality of Life for older adults, based on the premises of the Federal University Hospital, Rio de Janeiro. This Program was established in October 1995 with a multi-professional health team serving the older adult community with healthcare, public health, and social activities (22).

Sampling

People aged 60 or over, registered in the aforementioned program, with access to a telephone, who obtained the minimum score required on the Word Recall Test and the Instrumental Activities of Daily Living Scale (IADL) (23) were included. Individuals that were institutionalized, presented hearing impairment, had a cognitive impairment that made the interview impossible during data collection, or with cognitive impairment evidenced in consultations previously held at the community center were excluded from the sample.

As there is no reference standard for this study, we worked with consecutive naturalistic sampling, which is used in diagnostic accuracy studies when there is no perfect reference standard. Under this type of sampling, all individuals are included as they are identified, and an assessment of diagnostic indicators and ND is conducted. The sampling process is recommended for accuracy studies (15, 24).

Forty-one out of the 234 older people attending the interdisciplinary program were excluded due to hearing or cognitive impairment. Thus, 193 older people were recruited. Data collection occurred between February and May 2021 through phone interviews of 50-90 minutes with all 193 participants. Only one of them preferred to divide the interview into two moments, although all participants were offered this option during the first call. The study was explained, and the informed consent form read at the beginning of the calls. The call and verbal consent were recorded using a free application and stored in a Google Drive® virtual folder for data analysis and proof of voluntary participation, accessed only by the main researcher.

After the phone calls and completion of data collection, the following result were obtained: 32 individuals refused to participate, 9 were identified as having hearing or cognitive impairment after evaluation by the researcher, 59 did not answer the phone calls, and 3 had passed away, resulting in a sample of 90 participants.

From the beginning to the end of the study, the research team made 271 calls among effective participants, those who did not answer, those who did not want to participate, and family members who took messages at different times of the day, except on holidays, in order to recruit as many participants as possible.

Instruments

The authors produced a semi-structured form containing socio-demographic questions and questions related to the DC and RF of ND insomnia. Secondly, the ISI was adopted to investigate the difficulty initiating and maintaining sleep (nocturnal and waking up too early in the morning), the satisfaction with the current sleep pattern, and interference with daytime functioning. This tool also measures the perception of insomnia, evaluating symptoms, consequences, and degree of worry due to sleep difficulties (25).

The ISI was submitted for content, construct, criterion, and convergent validation for the Brazilian version. Cronbach's alpha coefficient demonstrated high internal consistency (0.865), while the diagnostic validity of the ISI was measured using receiver operating characteristic (ROC) curves in addition to accuracy tests. Thus, psychometric properties of the ISI proved reliable and valid for a representative Brazilian sample (26).

The ISI consists of seven items evaluated through a Likert-type scale. The cut-off points are the absence of significant insomnia (0-7), the lower limit for insomnia (8-14), moderate clinical insomnia (15-21), and severe clinical insomnia (22-28), where a score of 28 suggests severe insomnia (26).

Statistical analysis

The univariate analysis was adopted for sociodemographic characterization. Proportion in percentage was used with a 95% confidence interval (CI). A descriptive analysis of the data was carried out (age, gender, education, marital status, number of children and cohabitants, and occupation), and univariate analysis was performed to identify the prevalence of DCs and RFs of ND insomnia (00095).

Pearson's chi-squared test (χ^2) was adopted to verify the association between two categorical variables and, thus, assess the independence between sociodemographic variables and DCs or RFs. The same was calculated between ISI and DCs and ISI and RFs. The tests were applied considering a significance level of 0.05 ($p < 0.05$). Variables with a significance level of $p > 0.05$ were removed from the model.

For the analysis, the ISI was categorized as follows (26):

- No clinically significant insomnia: score from 0 to 7, which includes the first ISI score.
- Presence of insomnia: scores ranging from 8 to 28, which include the other 3 ISI scores, classified as follows: 8 to 14 = subthreshold insomnia; 15 to 21 = clinical insomnia (moderate severity); 22 to 28 = clinical insomnia (severe).

Bivariate analysis used non-parametric statistical methods for associations between two qualitative variables. In addition to the χ^2 test, Fisher's exact test was adopted for greater accuracy (27). A table of posterior probabilities was generated to determine the presence of insomnia, using the inference as the outcome variable in the Poisson random regression model. Prevalence ratios were estimated, and variables with a significance level of $p > 0.05$ were removed.

Ethical aspects

The research was authorized by the Coordinator of the Interdisciplinary Program and obtained approval from the Research and Ethics Committee at the Universidade Federal do Estado do Rio de Janeiro (UNIRIO), under consolidated opinion number 4.453.726. The study followed the bioethical norms of Resolution number 466/2012 (28) and 510/2016 (29) of the Brazilian National Health Council.

The informed consent form was implemented, and there was no need for an assent form, as no individuals who were legally incapable, physically, or cognitively, were recruited. The phone call made to participants was recorded, containing the invitation, reading the mentioned form, and the interview.

Results

Sociodemographic profile

Participants were aged 63 to 92 (mean age = 76.8 years, SD = 7.2 years), 1.1% of them were illiterate and 33.3% had complete/incomplete primary education. Regarding marital status, 2.2% were separated, 3.3% divorced, 25.6% single, and 48.9% were widowed. As for the number of children, 61.1% had 1 to 3 children and 7.8% from 4 to 5.

Regarding housing, 38.9% lived with 1 person, 16.7% with 2 people, 3.3% with 3 people, and 2.2% with 4 people. No participant lived with more than 4 people. Among participants, 22.2% were retirees, 3.3% still worked informally, and 8.9% were homemakers and had no income. In the sample, ten individuals were retirees and pensioners, and one was both retired and engaged in informal work (Table 1).

Table 1. Sociodemographic characterization. Rio de Janeiro, Brazil, 2021

Variables	*n* (%)	95% CI
Age		
60-79	60 (66.7)	(56-75%)
≥ 80	30 (33.3)	(24-43%)
Gender		
Female	81 (90)	(82-94%)
Male	9 (10)	(5-17%)
Educational level		
Until high school	63 (70)	(59-78%)
Until doctoral degree	27 (30)	(21-40%)
Marital status		
Widowed, divorced	72 (80)	(70-86%)
Married	18 (20)	(13-29%)
Children		
Yes	62 (68.9)	(58-77%)
No	28 (31.1)	(22-41%)
Cohabitants		
Live with someone	55 (61.1)	(50-70%)
Live alone	35 (38.9)	(29-49%)
Occupation		
Retired	70 (77.8)	(68-85%)
Not retired	20 (22.2)	(14-31%)

Note: *n* = sample; 95% CI = 95% confidence interval.
Source: research data.

Prevalence of diagnostic indicators

All (100%) participants had at least 1 DC. There was a higher prevalence of the indicator insufficient physical endurance (75.6%; 95% CI: 65-83%), while increased accidents (6.7%; 95% CI: 3-13%) had a lower prevalence (Table 2).

Table 2. Prevalence of the defining characteristics of the nursing diagnosis insomnia (00095). Rio de Janeiro, Brazil, 2021

Defining characteristics	*n* (%)	95% CI
Insufficient physical endurance	68 (75.6)	(65-83%)
Impaired health status	59 (65.6)	(55-74%)
Expresses forgetfulness	57 (63.3)	(53-72%)
Increased absenteeism	45 (50)	(39-60%)
Expresses dissatisfaction with quality of life	43 (47.8)	(37-57%)
Altered mood	40 (44.4)	(34-54%)
Expresses dissatisfaction with sleep	37 (41.1)	(31-51%)
Nonrestorative sleep-wake cycle	35 (38.9)	(29-49%)
Early awakening	29 (32.2)	(23-42%)
Altered attention	27 (30)	(21-40%)
Altered affect	22 (24.4)	(16-34%)
Expresses need for frequent naps during the day	21 (23.3)	(15-33%)
Increased accidents	6 (6.7)	(3-13%)

Note: *n* = sample; 95% CI = 95% confidence interval.
Source: research data.

The RFs average daily physical activity is less than recommended for age and gender had the highest prevalence (71.1%; 95% CI: 61-79%), while the RF lifestyle incongruent with normal circadian rhythms had a lower prevalence (2.2%; 95% CI: 92-99%) (Table 3).

Associations between ISI and diagnostic indicators

The analysis between ISI and DCs indicated a significant association between the DCs altered affect ($p = 0.009$) and altered attention ($p = < 0.001$), altered mood ($p = 0.005$), early awakening ($p = 0.002$), expresses dissatisfaction with quality of life ($p = 0.022$), expresses dissatisfaction with sleep ($p = < 0.001$), expresses need for frequent naps during the day ($p = 0.004$), and nonrestorative sleep-wake cycle ($p = < 0.001$). The most prevalent DC in the insomnia group, according to the ISI, was expresses dissatisfaction with sleep (79.4%), while within the absence of insomnia group was expresses dissatisfaction with quality of life (37.5%) (Table 4).

There was an association between six RFs and the ISI, which was categorized. Anxiety was the most prevalent RF in both participants with insomnia (79.4%) and participants without insomnia (48.2%) groups (Table 5).

Table 3. Prevalence of related factors of the nursing diagnosis insomnia (00095). Rio de Janeiro, Brazil, 2021

Related factors	*n* (%)	95% CI
Average daily physical activity is less than recommended for age and gender	64 (71.1)	(61-79%)
Environmental disturbances	55 (61.1)	(50-70%)
Anxiety	54 (60)	(49-69%)
Depressive symptoms	48 (53.3)	(43-63%)
Fear	36 (40)	(30-50%)
Stressors	34 (37.8)	(28-48%)
Use of interactive electronic devices	32 (35.6)	(26-45%)
Discomfort	31 (34.4)	(25-44%)
Caregiver role strain	25 (27.8)	(19-37%)
Frequent naps during the day	21 (23.3)	(15-33%)
Obesity	19 (21.1)	(13-30%)
Consumption of sugar-sweetened beverages	12 (13.3)	(7-21%)
Dysfunctional sleep beliefs	12 (13.3)	(7-21%)
Low psychological resilience	4 (4.4)	(1-10%)
Caffeine consumption	3 (3.3)	(1-9%)
Inadequate sleep hygiene	3 (3.3)	(1-9%)
Lifestyle incongruent with normal circadian rhythms	2 (2.2)	(92-99%)

Note: *n* = sample; 95% CI = 95% confidence interval.
Source: research data.

Table 4. Association between the ISI and defining characteristics of the nursing diagnosis insomnia (00095). Rio de Janeiro, Brazil, 2021

Defining characteristics	*n* (%)	ISI scale		*p*-value[1]
		Absence of insomnia (*n* = 56)	Presence of insomnia (*n* = 34)	
Altered affect	22 (24.4)	8 (14.3%)	14 (41.2%)	0.009
Altered attention	27 (30)	9 (16.1%)	18 (52.9%)	< 0.001
Altered mood	40 (44.4)	18 (32.1%)	22 (64.7%)	0.005
Early awakening	29 (32.2)	11 (19.6%)	18 (52.9%)	0.002
Expresses dissatisfaction with quality of life	43 (47.8)	21 (37.5%)	22 (64.7%)	0.022
Expresses dissatisfaction with sleep	37 (41.1)	10 (17.9%)	27 (79.4%)	< 0.001
Expresses need for frequent naps during the day	21 (23.3)	7 (12.5%)	14 (41.2%)	0.004
Nonrestorative sleep-wake cycle	35 (38.9)	12 (21.4%)	23 (67.6%)	< 0.001

Note: *n* = sample; [1]Pearson's chi-squared test.
Source: research data.

Table 5. Association between the ISI and related factors of the nursing diagnosis insomnia (00095). Rio de Janeiro, Brazil, 2021

Related Factors	*n* (%)	ISI scale		*p*-value[1]
		Absence of insomnia (*n* = 56)	Presence of insomnia (*n* = 34)	
Anxiety	54 (60)	27 (48.2%)	27 (79.4%)	0.007
Frequent naps during the day	21 (23.3)	7 (12.5%)	14 (41.2%)	0.004
Dysfunctional sleep beliefs	12 (13.3)	1 (1.8%)	11 (32.4%)	< 0.001[2]
Stressors	34 (37.8)	12 (21.4%)	22 (64.7%)	< 0.001
Depressive symptoms	48 (53.3)	23 (41.1%)	25 (73.5%)	0.006
Caregiver role strain	25 (27.8)	11 (19.6%)	14 (41.2%)	0.049

Note: *n* = sample; [1]Pearson's chi-squared test; [2]Fisher's exact test.
Source: study data.

Discussion

This study identified the highest and lowest prevalence of the DCs and RFs of the ND insomnia in community-dwelling older adults who attended a Brazilian community center. This study examined the association between indicators of ND insomnia and ISI, a widely recognized scale for assessing this sleep disorder. In the future, the present study will represent an original contribution to exploring the connection between ISI and the diagnostic components of insomnia, highlighting its significance in identifying clinical findings associated with such ND.

The sociodemographic analysis conducted displays a predominance of female participants, corroborating previous studies where male individuals participated less in health-seeking behavior (30). The predominance of women in the sample may be linked to participants' educational levels, as this group has historically encountered the imposition of patriarchy concerning domestic responsibilities and children-rearing, which has resulted in social oppression (31). These societal pressures may have impeded their educational advancement.

A low percentage of participants lived without a partner, which in this study represents the separated, divorced, single, and widowed persons. This result may be related to the greater longevity of the female gender (32), who, consequently, become widows after the death of their spouse.

The predominant age group in this study was the so-called young older individuals (33, 34). This may be due to physical and cognitive impairment in more advanced older people, which limits access to social programs for seniors (35).

After analyzing proportions in the present study, we identified a higher proportion of older people with children. This finding reflects the first fall in fertility in the 20th century until the 1940s and an accelerated fall after the 1960s (36). On the other hand, it was found that the study participants typically lived with other people, whether relatives or acquaintances. This data is at odds with the 2020 Brazilian Census, which shows three residents per household in some states of Brazil (37).

The sample of this study was predominantly retired. The group of "non-retired" included pensioners, those who still worked informally, and "do-it-yourselfers," i.e., those who had no income. This data

corroborates the findings by Fundação Perseu Abramo (FPA), which established that 30.7 million (14.7%) of the Brazilian population is retired living with a pension. It is estimated that 64% of the older adults are retired and 17% work (38). In 2021, there was a decrease in income in 47.1% of older individuals' households, generating greater inequality and more significant social vulnerability among this population. (39). This data corroborates the reports of participants who used to work informally to supplement their income and support their relatives.

The most prevalent diagnostic indicators of ND insomnia were insufficient physical endurance and average daily physical activity is less than recommended for age and gender. Such indicators may harm participation in social activities (40), thus triggering disruptions in sleep patterns (41) and impairing performance when exercising (42). In this sense, physical activity has been found to be beneficial for sleep and is associated with increased total sleep time, efficiency, decreased sleep latency, and better sleep quality (43). Both indicators mentioned above are related to the physical part, and this finding corroborates the study by Endeshaw and Yoo (44), in which exercise can be positive in reducing the likelihood of developing insomnia. The DC with the lowest prevalence—i.e., increased accidents—has its conceptual definition as an increase in falls and other damages, inside and outside the home, which can cause physical damage and temporary or permanent disability (40).

The ISI obtained a greater amount of evidence of associations in χ^2 tests, totaling 8 DCs and 6 RFs. In analyzing the ISI, the question "How satisfied or dissatisfied are you with your current sleep pattern?" is related to the DC expresses dissatisfaction with quality of life. On the other hand, altered attention, altered mood, and average daily physical activity is less than recommended for age and gender can be represented by the question: To what extent do you consider your sleep problem to interfere with your daily functioning (e.g., daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, etc.)?

The ISI topic "Difficulty staying asleep" seems to be representative of the DC non-restorative sleep-wake cycle and the RF lifestyle incongruent with normal circadian rhythms; the latter conceptually evaluated as dysregulation in the manifestation of the intrinsic 24-hour rhythmicity that interacts with environmental and behavioral cycles to promote sleep at night, causing the undesirable or irregular period of sleep and wakefulness (45). Thus, a relationship between the ISI and the diagnostic indicators of ND insomnia is understood. For analogy with the present study, it should also be noted that no scientific articles or theses were found comparing this ND to the ISI.

Also, in this analysis, the question "How worried/distressed are you about your current sleep problem?" on the ISI may be related to the RF stressors. The RF frequent naps during the day may be related to the ISI questions "Difficulty falling asleep" and "Difficulty staying asleep." The RF dysfunctional sleep beliefs may be like the "How satisfied/dissatisfied are you with your current sleep pattern?" on the ISI. Thus, ND insomnia is representative of this instrument.

In addition, insomnia is related to stress factors, which can be considered the cause, as corroborated by the RF shown. We understand that using scales can be essential in confirming NDs. The relationship between depressive symptoms and sleep disorders in older people, with a greater risk of declining sleep quality in older women, is evidenced in the literature (46). Due to the high rate of women (90%) in the present study, it was impossible to compare with other studies that showed differences between genders. However, after the association tests, we concluded that the ISI topics "Difficulty falling asleep," "Difficulty staying asleep," and "Problem waking up too early"

can help in identifying the RF depressive symptoms. Although the RF low psychological resilience showed low prevalence and is not associated with ISI, insomnia is a psychological disorder that can cause mood changes and consequent impairment in daily activities. Thus, it is suggested that professionals pay attention to signs such as difficulty adapting to stressful events, which can alter the older person's sleep pattern.

The aging of the population demands a comprehensive public health response, utilizing social determinants of health approaches in order to reduce risks, achieve well-being, and increase life expectancy with quality (47). In this context, sleep is not merely a period of rest but an essential moment in the array of necessary and vital day-to-day activities. Therefore, a reduction in sleep—whether induced or not—can be harmful, leading to mood problems and increasing the risk of comorbidities such as obesity, diabetes, heart disease, infections, and deficits in concentration, rapid response, and memory (48).

People aged 65 years and older are at greater risk of experiencing insomnia and negative changes in cognitive function, in addition to being the largest chronic consumers of sleeping pills (49). In addition to pharmacological treatments, which occasionally alter the sleep latency pattern and cause memory disorders, older individuals can benefit from behavioral therapies, such as psychotherapy (50). Therefore, the importance of identifying signs of cognitive impairment through validated instruments and clinical nursing assessment is justified, aiming to assist in indicating various therapies. Actions such as emergency psychosocial and mental health services to reduce the consequences of insomnia in older persons can be beneficial, where adequate social support can be carried out remotely or in person (51).

Nursing research should prioritize supporting the appropriate use of nursing taxonomies targeted at the older population, with a keen eye on the physiological changes characteristic of this age group. Evidence-based clinical practice in nursing contributes to the dissemination of health knowledge (52). Hence, stimulating understanding of the complex changes in the health-disease process in older populations, particularly those presenting signs and symptoms of sleep disorders, must be a priority.

The nursing process, which involves implementing assessment instruments, is an efficient method that may promote comprehensive actions towards individuals and aid in a holistic understanding of the health-disease process. Health evaluations solidify the role of nursing as a science, empower individuals to take an active role in their health (53), and serve as a tool for accurately identifying NDs.

Thus, this study contributed to gerontological practice by highlighting clinical findings (DCs and RFs) focusing on the problem (insomnia) in older people living in a community setting. The proper identification of DCs—seen as the manifestation of a ND—and RFs—understood as the etiological factors of a disease, as defined by NANDA—are essential for individualized and client-centered care.

Conclusions

Our findings confirm the importance of nursing diagnosis, compared to validated clinical assessment surveys, and emphasize the positive impact of combining both to enhance the diagnostic accuracy of insomnia in older adults. Sleep disturbance in the older population is a multifactorial problem, as evidenced by the diagnostic indicators of insomnia. This study may contribute to the identification of clinical signs and human responses that deserve considerable attention by nurses when carrying out diagnostic clinical reasoning to infer insomnia in older individuals.

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