INSOMNIA AND RELATED FACTORS AMONG THE ELDERLY LIVED IN TAN VINH COMMUNE, LUONG SON DISTRICT, HOA BINH PROVINCE, 2024

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ABSTRACT

Objective: This study aims to assess the prevalence of insomnia and its associated factors among the elderly in Tan Vinh, Luong Son District, Hoa Binh Province, in 2024.

Subject Methods: A cross-sectional design was conducted in 255 elderly lives in Tan Vinh, Luong Son District, Hoa Binh Province from March to August 2024. Insomnia Severity Index was used to collect the data.

Results: 77.3% of participants reported insomnia; among them, 11.6% were classified as severe insomnia. Individuals who were unmarried, divorced, or widowed were found to be 2.9 times more likely to experience insomnia compared to married participants. Additionally, those who consumed stimulants late in the evening faced a staggering 12.1-fold increased risk of insomnia. Furthermore, elderly individuals who napped for more than 30 minutes had a 3.9 times higher likelihood of insomnia compared to those who napped for less than 30 minutes.

Conclusion: The study indicated a high prevalence of insomnia among participants that highlight the needs for interventions to improve sleep quality among participants.

Keywords: Insomnia, elderly, Hoa Binh, ISI.

1. INTRODUCTION

Insomnia is defined as dissatisfaction with the quality or quantity of sleep, often associated with difficulty initiating, maintaining sleep, or waking up too early [1]. This condition is quite common in the elderly, causing many consequences such as increased risk of falls, depression, anxiety, cognitive decline, and death [2]. In Vietnam, the elderly population has increased from 7.45 million in 2009 to 11.41 million in 2019 and continues to increase rapidly [3]. A recent study showed that poor sleep quality in the elderly was 47.7%, due to the elderly not being able to sleep for 30 minutes and waking up in the middle of the night or waking up too early [4]. Factors such as napping habits, high blood pressure, and gender affect the sleep quality of the elderly [4][5]. In Hoa Binh province, not many studies were conducted to explore the sleep quality among elderly. As such, this study was conducted to assess the insomnia prevanlence and identify related factors among elderly living in Tan Vinh district, Hoa Binh province.

2. METHODS

2.1. Study design: A cross-sectional study was conducted

2.2. Settings: Tan Vinh district, Hoa Binh province from April to August 2024.

2.3. Participants: Participants were elderly (aged ≥ 60) living in Tan Vinh district, Hoa Binh province, Particpants were excluded if they were disable that can not read and understand or answer the questionnaire.

2.4. Sample size and sampling method

Using the formula for calculating sample size in absolute proportions, with $\alpha = 0.05$, $p = 0.48$[4], $= 0.07$ DE is the design coefficient, DE = 1.3, we have a research sample size of 255 elderly.

Systematic random sampling was conducted among 700 elderly living in Tan Vin district, Hoa Binh province.

2.5. Varibles: participant's characteristic such as age, education, marital status, living status, using simulation before bedtime, using TV or smart phone before bedtime; participant's sleep index (ISI score and sub scale).

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2.6. Outcome measurements

The Vietnames version of Insomnia Severity Index (ISI) was used [7]. This questionnaire consisted of 7 Liker item (0 to 4), the cut off of 10 was used to identify participants with insomnia; regarding the severity, ISI score rank from 11-14: mild; 15-21: moderate; 22-28: severe [6]. The Cronbach's alpha of the questionnaire in this study was 0.93.

2.7. Data analysis

Descriptive statistics and Chi-square test were used to determine the association with insomnia (univariate), multivariate analysis was performed using logistic regression with results reported as odds ratios (OR) with 95% confidence intervals.

2.8. Ethical approval

The study protocal was approved by the PHENIKAA University Ethical in human research committee according to Decision No. 024.12 /DHP - HDDD dated April 16, 2024 and agreed by the Board of Directors of Luong Son District Medical Center.

3. RESULTS

3.1. Participants' characteristics

Tables 1. Participants' characteristics (n=255)

Variales		n	%
Age group	60-80	224	91,8
	> 80	21	8,2
	Mean	$68 \pm 7 \, (60 - 89)$	
Education	≤ Elementary	115	45,1
	Junior High	122	47,8
	High School and above	18	7,1
Marital status	Married	156	61,2
	divorce/ widowed/single	99	38,8
Living	alone	55	21,6
	With family	200	78,4
Using TV or smart phone 30 mins before bedtime	Yes	207	81,2
	None	48	18,8
Use stimulants within 2 hours before bedtime	Yes	115	45,1
	None	140	54,9
napping	>30 mins/day	102	40,0
	≤ 30 mins/day	153	60,0

The results showed that the elderly were mainly between 60 and 80 years old (91.8%), 47.8% were in junior high school, 61.2% were married, 78.4% lived with relatives, 81.2% watched TV and used stimulants before going to bed, 45.1% and 40.0% respectively. The proportion of elderly people who took a nap for more than 30 minutes was 40.0%.

Tables 2. Sleep quality of participants (n=255)

Variales	n (%)				
	None	**Mild**	**Moderate**	**Severe**	**Very severe**
Difficulty falling asleep	14 (5,5)	18 (7,1)	73 (28,6)	130 (51,0)	20 (7,8)
Difficulty staying asleep	14 (5,5)	15 (5,9)	95 (37,3)	95 (37,3)	36 (14,0)
Problems waking up too early	13 (5,1)	21 (8,2)	94 (36,9)	100 (39,2)	27 (10,6)
	Very Satisfied	**Satisfied**	**Moderately Satisfied**	**Dissatisfied**	**Very Dissatisfied**
SATISFIED/DISSATISFIED with CURRENT sleep pattern	7 (2,7)	13 (5,1)	29 (11,5)	185 (72,5)	21 (8,2)
	Not at all	**A little**	**Somewhat**	**Much**	**Very much**
sleep problem impairing the quality of your life	16 (6,3)	10 (3,9)	78 (30,6)	130 (51,0)	21 (8,2)
WORRIED/DISTRESSED about current sleep problem	15 (5,9)	15 (5,9)	82 (32,2)	126 (49,3)	17 (6,7)
INTERFERE with daily functioning	19 (7,5)	12 (4,7)	90 (35,2)	115 (45,1)	19 (7,5)
ISI Score Mean (SD)	15,8 (7,2)				
Insomnia					
Yes	197 (77,3)				
No	58 (22,7)				
Insonia severity					
Mild (10-14)	21 (8,2)				
Moderate (15-21)	135 (52,9)				
Severe (22-28)	41 (16,1)				

The rate of insomnia among the elderly in the study was 77.3%, the marojity of partipants reported moderate insomnia (52.9%)

Table 3. Identify related factors

Variables		Insomnia		OR (95% CI)	p
		Insomnia n (%)	Non-insomnia n (%)		
Education	Junior High and higher	116 (82,9)	24 (17,1)	2,03 (1,1-3,7)	0,02
	Elementary and lower	81 (70,4)	34 (29,6)		
Marital status	divorce/ widowed/single	85 (85,9)	14 (14,1)	2,4 (1,2-4,6)	0,009
	Married	112 (71,8)	44 (28,2)		
Living	alone	49 (89,1)	6 (10,9)	2,9 (1,2-7,1)	0,02
	With family	148 (74,0)	52 (26,0)		
Use stimulants within 2 hours before bedtime	Yes	108 (93,9)	7 (6,1)	8,8 (3,8-20,4)	<0,0001
	None	89 (63,6)	51 (36,4)		
Using TV or smart phone 30 mins before bedtime	Yes	166 (80,2)	41 (19,8)	2,2 (1,1-4,4)	0,02
	None	31 (64,6)	17 (35,4)		
Napping	>30 mins/day	88 (86,3)	14 (13,7)	2,5 (1,3-4,9)	0,005
	≤ 30 mins/day	109 (71,2)	44 (28,8)		

The results of the univariate analysis showed that elderly with secondary school education or higher had a 2.03 times higher risk of insomnia than the other group. Elderly who were never married/divorced/separated/widowed had a 2.4 times higher risk of insomnia than the married group. Elderly who lived alone had a 2.9 times higher risk of insomnia than the other. Participants who used stimulants late before going to bed had an 8.8 times higher risk of insomnia than those did not. Elderly who watched TV or used phones too late at night had a 2.2 times higher risk of insomnia than the group of elderly people who did not use stimulants. Participants who took a nap of more than 30 minutes had a 2.5 times higher risk of insomnia than the one who took a nap of 30 minutes or less (p<0.05).

Table 4. Multivariate Logistic Regression Between General Information Factors of the Elderly and Sleep Quality by ISI Scale

Variables		Regression coefficient (B)	Standard error (SE)	p-value	Adjusted OR
Education	Junior High and higher	-	-	-	1
	Elementary and lower	0,31	0,36	0,39	1,4
Marital status	divorce/ widowed/single	-	-	-	1
	Married	1,09	0,44	0,01	2,9
Living	alone	-	-	-	1
	With family	-0,17	0,58	0,98	1,6
Use stimulants within 2 hours before bedtime	Yes	-	-	-	1
	None	2,49	0,46	<0,0001	12,1
Using TV or smart phone 30 mins before bedtime	Yes	-	-	-	1
	None	0,47	0,41	0,25	1,6
Napping	>30 mins/day	-	-	-	1
	≤ 30 mins/day	1,38	0,39	<0,0001	3,9

Multivariate results showed that participants who were divorce/ widowed/single had a 2.9 times higher risk of insomnia than other (p<0.05). Elderly people who used stimulants late before going to bed had a 12.1 times higher risk of insomnia than those who did not use stimulants. Elderly who took a nap for more than 30 minutes had a 3.9 times higher risk of insomnia than the group of elderly people who took a nap for 30 minutes or less (p<0.05).

4. DISCUSSION AND CONCLUSION

4.1. Participant's characteristic

The study results show that the elderly in the study are mainly from 60-80 years old, accounting for 91.8%. This is similar to the report on population aging in Vietnam, showing that the age group from 60-80 is still the main group in the aging population structure [3]. Regarding education level, 47.8% of the elderly only studied up to junior high school, showing that there is a significant proportion of people who have not completed higher education. Of these, 61.2% are married, and 78.4% live with relatives in the family, reflecting a positive social environment that can help support their mental health.

4.2. Participant's insomnia prevalence

The study indicated a high prevalence of insomnia among participants (77,3%) with 2.9% reported moderate insomnia and 16.1% reported severe insomnia. This rate is higher than that of Ajit Bhalchandra Dahale Ajit Bhalchandra Dahale's study in India, where 30.3% of the elderly had mild insomnia and only 3% had severe insomnia [8]. Other studies conducted in Vietnam aslo have a lower rate than our findings [4]. Overall, studies have shown that insomnia is problematic in the elderly, requiring attention from health professionals and the community. Conducting further research on the causes and impacts of insomnia will help provide appropriate solutions to improve sleep quality for the elderly, thereby improving their health and quality of life. The difference in insomnia rates between studies also shows the need for adjustments in research methods and approaches, as well as the need for cooperation between health professionals and researchers to create more effective solutions in solving this problem.

Multivariate analysis results showed that social factors and lifestyle habits had a significant impact on the risk of insomnia among participants. The group of unmarried, divorced or widowed elderly had a 2.9 times higher risk of insomnia than the married group. This reflects the association between loneliness, lack of emotional support and sleep status. This result is consistent with the study of Adetola M. Ogunbode (2014) in Nigeria, which showed that unmarried people had a higher rate of insomnia than married [9]. The association between marital status, loneliness, and insomnia needs to be considered when develop intervention to improve the quality of life of the elderly. Social support programs for the elderly will be able to help improve their mental and physical health, thereby contributing to improving sleep quality.

Nearly half of participants used stimulants before bedtime. This is worrying because substances such as caffeine, alcohol, and tobacco can increase the risk of sleep disorders. The habit of using stimulants in 2 hours before going to bed in the elderly increases the risk of insomnia by 12.1 times. Study by Le Van Minh (2020) also showed that the elderly with the habit of using stimulants has a 2.3 times higher risk of sleep disorders than the group that does not use them [5]. In addition, coffee, alcohol, and tobacco also negatively impact sleep. Caffeine, for example, is a strong stimulant that can increase the feeling of alertness and difficulty falling asleep. Alcohol, although it can help users fall asleep quickly, reduces the quality of sleep, causing waking up in the middle of the night. Therefore, limiting the use of stimulants, especially in the evening, can be an effective measure to improve the sleep quality of the elderly. Educating older adults about the effects of stimulants on sleep and encouraging healthy lifestyle habits can help improve their overall health and sleep quality. Overall, controlling stimulant consuming not only improves sleep but also supports the mental and physical health of older adults, thereby improving their quality of life.

In the current study, participants who nap for more than 30 minutes/day are 3.9 times more likely to have insomnia than those who nap for 30 minutes or less (p<0.05). The results also showed that up to 40.0% of participants took for more than 30 minutes every day. This is consistent with the study by Vuong Gia Bao et al. (2023), which showed that elderly who have a habit of napping for more than 30 minutes are twice as likely to have insomnia as those who nap for ≤ 30 minutes [10]. Long naps can reduce nighttime sleepiness, making it more difficult to fall asleep. This suggests that managing napping habits, including duration and frequency, is important for the sleep health of elderly.

5. CONCLUSION

The study indicated a high prevalence of insomnia among elderly lived in Tan Vinh district, Hoa Binh province. Being divorce/ widowed/single, using stimulant in 2 hours before bedtime, and taking napping for more than 30 mins per day were found to be associated with insomnia among participants. The findings from the current study highligh the unmet need of intervention to improve the sleep quality for the elderly. The results also supported educating sleep hygiene for participants may increase their sleep quality.

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