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Associated Risk Factors of Insomnia among Elderly People in Banepa Municipality

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ABSTRACT

Background & Objective: Insomnia is defined as a difficulty with the initiation, maintenance, duration, or quality of sleep that results in the impairment of daytime functioning. The prevalence of insomnia increases steadily with age and is often a persistent problem, particularly in older adults and is often mistaken as a normal part of ageing. The objective was to identify the associated risk factors of insomnia among elderly.

Material and Methods: A descriptive cross-sectional research design was adopted. The data was collected from respondents in 60 samples using probability systematic random sampling technique. Data was collected using standard questionnaire tool i.e. Pittsburgh Insomnia Rating Scale 20 version. Descriptive statistics (frequency and percentage) and inferential statistics (Chi-square) were applied using Statistical Package for Social Science (SPSS) Version 16 for data analysis.

Results: Study finding revealed that the mean age of the respondents was 77.5. Half of respondents i.e. (50.0%) had insomnia. There is significant association between insomnia and drinking alcohol (p=0.045), fear of death (p=0.032) and alter sleep due to bad dreams (p=0.035) and there is no significant association between insomnia and co-morbidity (p>0.05).

Conclusion: It was concluded that 50% of the respondents had insomnia. Drinking alcohol, fear of death and alter sleep due to bad dreams are significant association with insomnia. Therefore, it would be better if awareness programs regarding stress management and lifestyle modification are given to the patient to improve the quality of life.

Keywords: Elderly people**,** insomnia, risk factor,

INTRODUCTION

According to the WHO, active aging is the process of optimizing opportunities for health, participation, and security as people age. One of the most important determinants of active aging is health, which includes both physical and mental health. The concept of active aging is getting attention from

researchers and policy makers, who are interested in understanding modifiable factors, such as sleep that can improve and promote the health of aging populations [1]. Sleep is an essential biological function. It promotes restoration of body, conserves energy, repairs the damaged tissues, enhances immunity, and promotes consolidation of memory [2]. Insomnia is a common sleep disorder consisting of an inability to fall asleep easily or remain asleep throughout the night, early morning awakening, or sleep that is poor in quality associated with daytime impairment such as fatigue, memory impairment, social or vocational dysfunction, or mood disturbance [3].

Insomniacs may become physically and mentally fatigued, anxious, and irritable. Sleep disturbance also is associated with an increased risk of falls, cognitive decline, and higher rate of mortality [4]. Globally, the prevalence of insomnia has been reported in the range of 12%–40% in the older population aged >65 years whereas it has been reported to be 82.17% in India, 42.1% in Pakistan [5] and 37.75% in China [6]. The number of South Korean people who undergone treatment for sleep disorders was increased by 16% from 2012 to 2014. People over 60 years of age made up the largest portion of this treated population (45%), and their growth rate (25%) was the highest in all age group [7]. In Malaysia prevalence of insomnia was 53% [8], in mainland China 38%, an urban community of Taiwan 6% overall with a higher rate in elderly women (8%) than men (4.5%) [9]. In India, the study revealed 82.17% prevalence of insomnia, 72.44% were in age group of 60 and 84.77% were in age group of above 60. 80.76% males and 85.47% females were suffering from insomnia, which shows that insomnia is more common among females. Likewise, 56.8% of insomnia patients were not doing any type of physical exercise. Diet play an important role in the development of insomnia especially mixed type diet, result shows that 82.35% were on mix type diet. In this study 60.24% having difficulty in falling asleep, 58.21% having difficulty in staying asleep and 49.89% were having early awakening problem [10]. Although insomnia is a common troubling problem in the elderly, only minority seek professional help. Some elderly self-medicate with over-the-counter medications for their sleep problems. These practices lead to serious adverse effects over the long term. In Nepal, the prevalence of insomnia was reported 56.4%–61.5% in different regions of Nepal [11]. The study aimed to identify the associated risk factors of insomnia among elderly people.

MATERIAL AND METHODS

This study was descriptive cross-sectional research design conducted in Banepa Municipality which consists of 14 wards. According to Central Bureau Statistics (CBS), 2011 total household were 12106, the total number of population were 55628, in which 3083 were of elderly people of age group 65 years and above. The target population for the study was the elderly people of age 65 years and above.

Probability systematic random sampling technique was used for choosing 60 sample for data collection where total household were 1146 in ward no 10 and k^{th} value was 20^{th}. In this study elderly people who were willing to participate and who were available at the time of data collection were included and those who were not able to respond effectively and having mental disorder were

excluded. Face-to-Face interview was done using a structured and semi structured questionnaire. The standard questionnaire Pittsburgh Insomnia Rating Scale was used to find out prevalence of insomnia and self-developed questionnaire were used for assessing socio-demographic information and associated risk factors of insomnia. The reliability of the instrument was maintained by pretesting among 10% of the total sample size which was excluded in the actual research study.

Reliability was 0.93 for Pittsburg Insomnia Rating Scale and 0.92 for associated risk factors of insomnia. Ethical approval was taken from Scheer Memorial Adventist Hospital, Institutional Review Committee (IRC) to conduct the study.

Written permission was taken from the municipality. Pittsburgh Insomnia Rating scale is free access to use as standard questionnaire. Strict confidentiality and privacy were maintained by not disclosing the identification of the respondent and collected information. Verbal permission was taken by each respondent before data collection process. Voluntary participation of the respondents was done. The information was only be used for research purpose.

RESULTS

Among 60 respondents 56.7% were of age group 65-74 years, 58.3% were female, 55% were under Relatively Advantaged Janajati, 51.7% were living in Nuclear family, 70% of the respondents were illiterate. 81.7% were had agriculture as occupation, 73.33% were married living with spouse, 45% of the respondents were independent.

Table 1: Distribution of respondents according associated factors of insomnia (n=60)

Variables	Frequency	Percentage (%)
Day Time Nap		
Yes	36	60.0
No	24	40.0
If yes		
1-3 hours	26	43.3
4-6 hours	10	16.7
Presence of co-morbid disease		
Yes	47	78.3
No	13	21.7
If yes,		
Asthma	16	26.7
Diabetes	5	8.3
Hypertension	24	40.0
Gastritis	13	21.3
Back pain	7	11.5
Leg pain	4	6.6
Involve in any occupation		
Yes	19	31.7
No	41	68.3
Living arrangement		
Husband/wife		16.67
Son		76.67
Alone		6.66
Frequent urination at night		
Yes	56	93.3
No	4	6.7
If yes		
1-3 times	29	48.3
4-6 times	20	33.3
7-9 times	7	11.7
Habit of Alcohol intake		
Yes	17	28.3
No	43	71.7
Smoking		
Yes	13	21.7
No	47	78.3
Coffee intake		
Yes	4	6.7
No	56	93.3
Under regular medication		
Yes	39	65.0
No	21	35.0
Fear of death		
Yes	22	36.7
No	38	63.3

Stress		
Yes	41	68.3
No	19	31.7
Worry about children		
Yes	45	75.0
No	15	25.0
Sleep disturbance due to bad dream		
Yes	36	60.0
No	24	40.0
Interference of sleep		
Yes	29	48.3
No	31	51.7
If yes,		
Noise	17	28.3
Uncomfortable bed	7	11.7
Hot sleeping room	9	15.0
Snoring		
Yes	24	40.0
No	36	60.0

Table 1 shows that 60% of the respondents had day time nap in which 43.3% of the respondents had nap for 1-3 hours.78.3% of the respondents had co-morbid diseases in which 40% of the respondents had hypertension, 26.7% of the respondents had asthma, 8.3% of the respondents had diabetes. 68.3% of the respondents had not engaged in any occupation now. Majority of the respondents were living with their son i.e. 76.67%. The majority of the respondents had frequent urination at night i.e. 93.3% whereas 48.3% of the respondents had gone for 1-3 times. 28.3% of the respondents have habits of drinking alcohol, 21.7% of the respondents have habits of smoking, only 6.7% of the respondents have habits of drinking coffee.

On taking regular medicine, most of the respondents take regular medicine i.e. 65%. 36.7% of the respondents have fear of death. 68.3% of the respondents take stress. 75% of the respondents worry about their children. 60 % of the respondents have sleep disturbance due to bad dreams. On interfere of sleep, 48.3% of the respondents had interference of sleep due to environmental factors like noise (28.3%), uncomfortable bed (11.7%) and hot sleeping room (15%). According to snoring, 40% of the respondents snored at night.

Table 2 shows that 60% of the respondents were slightly bothered by one or more awakening after getting to sleep. 53% of the respondents were slightly bothered by not getting enough sleep. More than half of the respondents i.e. (58.3%) were slightly bothered by not getting refresh. Less than half of the respondents i.e. (43.3%) were slightly bothered by poor alertness during daytime. Half of the respondents i.e. 50% were slightly bothered by difficulty keeping thoughts focused. Half of the respondents (50%) were not at all bothered by others noticing appeared tired or fatigue. Half of the respondents (51.7%) were not at all bothered by too many difficulties to overcome.

Almost half of the respondents (48.3%) were slightly bothered by bad moods because of poor sleep. Half of the respondents (50%) were slightly bothered by lack of energy because of poor sleep. More than half (63.3%) of the respondents were not at all bothered by poor sleep that interfere a relationship. More than half of the respondents (61.7%) were not at all bothered by being unable to sleep. Less than half (41.7%) of the respondents were slightly bothered by being able to do only enough to get by.

Table 2: Distribution of Respondents According to intensity of distress (n=60)

Variables	Not at all bothered	Slightly bothered	Moderately bothered	Severely bothered
One or more awakenings after getting to sleep	15(25%)	36(60%)	6(10%)	3(5%)
Not getting enough sleep	18(30%)	32(53%)	9(15%)	1(2%)
Sleep that does not fully refresh you	10(16.7%)	35(58.3%)	12(20%)	3(5%)
Poor alertness during the daytime	12(20%)	26(43.3%0	18(30%)	4(6.7%)
Difficulty keeping your thoughts focused	22(36.7%)	30(50%)	7(11.7)	1(1.7%)
Others noticing you appeared tired or fatigued	30(50%)	23(38.3%)	7(11.7%)	0
Too many difficulties to overcome	31(51.7%)	22(36.7%)	6(10.0%)	1(1.6%)
Bad moods because you had poor sleep	23(38.3%)	29(48.3%)	4(6.7%)	4(6.7%)
Lack of energy because of poor sleep	25(41.7%)	30(50%)	4(6.7%)	1(1.7%)
Poor sleep that interfere with your relationship	38(63.3%)	17(28.3%)	2(3.3%)	3(5%)
Being unable to sleep	37(61.7%)	18(30.0%)	3(5.0%)	2(3.3%)
Being able to do only enough to get by	22(36.7%)	25(41.7%)	12(20.0%)	1(1.7%)

Table 3 depicts that from the time of tried to go to sleep, 41.7% of the respondents took between half to 1 hour to fall asleep on most night. When waking up during the night, 40% of the respondents took less than half hour to fall back asleep on the most night. When awake in bed, 21.7% of the respondents got more than 7 hours of actual sleep during the worst night, 41.7% of the respondents got between 2 to 4 hours of actual sleep during the worst night. 46.7% of the respondents had have 2- or 3-days trouble coping because of poor sleep.

Table 4 shows that, 61.7% of the respondents rate fair on the sleep quality, compared to most people and 10% of the respondents rates poor on the sleep quality, compared to most people. 5 % of the respondents rate excellent on the satisfaction with sleep, 56.7% of the respondents rate fair on the satisfaction with sleep. 65% of the respondent's rate fair on the regularity of sleep.

Table no 5 shows that there is a significant association between insomnia and religion (p=0.03). Table 5 shows the relation between insomnia and associated risk factors. There was a significant association between drinking alcohol (p=0.045), fear of death (p=0.032) and alter sleep pattern due to bad dreams (p=0.035) with insomnia among elderly people. Association of insomnia with associated risk factors as shown in Table 6.

Table 3: Distribution of Respondents According to quantitative sleep parameters (n=60)

Variables	**Less than half hour**	**Between half to 1 hour**	**Between 1 to 3 hours**	**More than 3 hours or I didn't sleep**
From the time you tried to go to sleep, how long did it take to fall asleep on most night?	22(36.7%)	25(41.6%)	12(20%)	1(1.7%)
	Less than half hour or I didn't wake up	Between half to 1 hour	Between 1 to 3 hours	More than 3 hours or I didn't fall back to sleep
If you woke up during the night, how long did it take to fall back asleep on the most night?	24(40%)	21(35%)	12(20%)	3(5%)
	More than 7 hours	**Between 4 to 7 hours**	**Between 2 to 4 hours**	**Less than 2 hours or I didn't sleep**
Not counting times when you were awake in bed, how many hours of actual sleep did you get during the worst night?	13(21.7%)	15(25%)	25(41.6%)	7(11.7%)
	None or 1 day	**On 2 or3 days**	**On 4 or 5 days**	**On 6 or all days**
On how many mornings did you have trouble coping because of poor sleep?	23(38.3%)	28(46.7%)	8(13.3%)	1(1.7%)

Table 4: Distribution of Respondents According to rating of quality of sleep (n=60)

Variables	**Excellent**	**Good**	**Fair**	**Poor**
Your sleep quality, compared to most people	3(5%)	14(23.3%)	37(61.7%)	6(10%)
Your satisfaction with your sleep	3(5%)	17(28.3%)	34(56.7%)	6(10%)
The regularity of your sleep	2(3.3%)	16(26.7%)	36(60%)	6(10%)
The soundness of your sleep	2(3.3%)	18(30%)	39(65%)	1(1.7%)

Table 5: Association between insomnia and socio demographic information (n=60)

Variables	Insomnia present No. (%)	Insomnia absent No. (%)	p- value (chi-square)
Age			
65-79	22(47.8%)	24(52.2%)	0.542
80-94	8(57.1%)	6(42.9%)	
Sex			
Male	9(36.0%)	16(64%)	0.67
Female	21(60%)	14(40%)	
Religion			
Hindu Christianity	29(51.8%) 1(25%)	27(48.2%) 3(75%)	0.03
Financial dependency			
Independent	11(40.7%)	16(59.3%)	0.313
Dependent	19(57.6%)	14(2.4%)	
Level of education			
Illiterate	20(51.3%)	19(48.7%)	0.787
Literate	10(47.6%)	11(52.4%)	
If literate			
Can read and write	3(30%)	7(70%)	0.303
Basic up to 8	5(62.5%)	3(37.5%)	
Higher secondary level (9-12th standard)	2(66.7%)	1(33%)	
Marital status			
Unmarried	0(0.00%)	1(100%)	0.313
Married	30(50.8%)	29(49.2%)	

Table 6: Association of insomnia with associated risk factors (n=60)

Variables	Insomnia present No. (%)	Insomnia absent No. (%)	p- value (chi square)
Day time nap			
Yes	18(50.0%)	18(50.0%)	1.00
No	12(50.0%)	12(50.0%)	
Presence of co-morbid disease			
Yes	26(55.3%)	21(44.27%)	0.11
No	4(30.8%)	9(69.2%)	
Drinking alcohol			
Yes	5(29.4%)	12(70.6%)	0.045
No	(58.1%)	18(49.1%)	
Coffee			
Yes	2(50%)	2(50%)	1.00
No	28(50%)	28(50%)	
Regular intake of medicine			
Yes	21(53.8%)	18(46.2%)	0.41
No	9(42.9%)	12(57.1%)	
Fear of death			
Yes	15(68.2%)	7(31.8%)	0.03
No	15(39.5%)	23(60.5%)	
Alter sleep pattern due to bad dream			
Yes	22(61.1%)	14(38.9%)	0.03
No	8(33.3%)	16(66.7%)	
Stress			
Yes	21(51.2%)	20(48.8%)	0.78
No	9(47.4%)	10(52.6%)	

DISCUSSION

A simple descriptive cross-sectional study is under taken to assess the prevalence and associated risk factors of insomnia among elderly in Banepa municipality. Probability systemic random sampling techniques were used for sample selection. Face to face interview technique was conducted. Standard tool Pittsburg Insomnia Rating Scale was used to assess prevalence of insomnia. In this study, more than half (58.3%) of the respondents were females which was consistent to the study done by Sushila Shrestha et al. Pashupatinath old ages in 52.3% of the respondents were females. In this study 60% of the elders people sleep at day time which was not consistent to the study done by Abdel-Hady El-Gilany et al. in Egypt where 31.8% of the elder people sleep at day time [11, 15].

In this study, the prevalence of insomnia among elderly was 50% which was consistent to the study done by Subedi RK in Panchthar in which the prevalence of insomnia was 61.3% [12]. This study showed 53.8% of the elder people who were taking medicine had presence of insomnia. The study was consistent to the study done by R. Timalsina 2017 conducted in Selected Community of Lalitpur in which 47.2% of the elder people who had taken the regular medicine had insomnia [4]. In this study, 55.3% of the respondents had insomnia that had co-morbid disease. This result was inconsistent to the result of the study done by Allah et al. in Zagazig Egypt where 88.9% of the elderly had insomnia who had co-morbid disease [13]. In the present study, there was statistically significant between presence of drinking alcohol and insomnia as the p value was 0.045 (<0.05). In this study, 29.4% of the elder people who drank alcohol had insomnia. The finding was not consistent to the study done by Dangol and Koirala conducted in Banepa municipality as it was concluded that 74.67% of the elders who had been drinking alcohol had insomnia [14].

CONCLUSION

The presence of insomnia was more in females. Elderly people who had comorbid diseases, who were financial dependent to others had higher rate of insomnia. Insomnia is higher among elders who had fear of death and worry. Moreover, physical symptoms, problems during night sleep, environmental factors, behavioural factors perceived poor health status and drugs use for illness affected the risk of insomnia. The contributing factors of insomnia must be considered to reduce the prevalence of insomnia among elderly.

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Conflict of interest

The authors affirm that they do not have any competing interests.

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