

## Factors Associated with Insomnia among Elderly of a Selected Community of Lalitpur

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### Abstract

Insomnia is a common health problem among elderly. An analytical cross-sectional study was aimed to identify the factors associated with insomnia among elderly. Non-probability purposive sampling technique was used for the selection of 64 elderly of Ward No. 2 of Karyabinayak Municipality, Lalitpur. Data collection was done from 18th to 30th of September 2016 by using structured interview schedule related to socio-demographic variables and Pittsburgh Insomnia Rating Scale. Descriptive and inferential statistics namely chi-square test was used to analyze data using SPSS software version 16 and findings were presented on the relevant tables and figures. The findings of the study revealed that 40.6% of the respondents have insomnia. Furthermore, there is significant association of health problems during night sleep with insomnia ( $p=0.003$ ). However, there is no significant association of age, gender, marital status, educational status, current working status, financial dependency, disease and medicine use at present with insomnia. Based on the findings of this study, it is concluded that insomnia is present among less than half elderly and the elderly who have health problems during night sleep have insomnia. Therefore, the awareness program regarding insomnia should be raised for early detection and appropriate management in order to decrease sleep related health problems and improve quality of life.

**Keywords:** Elderly; Factors associated; Insomnia

### Introduction

Insomnia is defined as persistent difficulty with sleep initiation, duration, consolidation, or quality occurring despite adequate time and opportunity for sleep and results in some form of day time impairment. Daytime symptoms typically include fatigue, decreased mood or irritability, general malaise and cognitive impairment, but not falling asleep during daytime [1].

Studies suggest that almost half of all older adult's report problems with insomnia, defined as difficulty initiating and maintaining sleep [2]. Ninety percent of people who suffer from depression also experience insomnia [3]. Insomnia is a very common disorder that has significant long-term health consequences.

A study in Greece suggested that 25.3% had insomnia [4]. Similarly, a study in Sweden reported that 23.8% of female and 13.3% of male complained of sleep problems among elderly which showed that insomnia is more prevalent among female than male. Among them, 43.5% reported Early Morning Awakening (EMA) and 33.4% reported difficulty maintaining sleep (DMS) [4,5]. Numerous studies have indicated that up to 50% of European individuals aged 60+ years' experience insomnia. Studies in Taiwan and mainland China found that 6% to 38% of elderly individuals experienced insomnia [6]. A study in Malaysia showed that 53% of elderly had insomnia [7]. Insomnia is the most common sleep related complains with a prevalence of 32% among elderly in India [8].

A study revealed that sleep disturbance varies from continuous problems to periodic patterns with the prevalence of 9% and 27%, respectively in general population. Nearly half of older adult's report

difficulty initiating and maintaining sleep. With age, several changes occur that can place one at risk for sleep disturbance including increased prevalence of medical conditions, increased medication use, age-related changes in various circadian rhythms, and environmental and lifestyle changes [9]. Various risk factors associated with increased prevalence of chronic insomnia include older age, female gender, and co-morbid medical and psychiatric conditions [10]. A study in Egypt reported that unmarried status, smoking, eating too close to bedtime, daytime long naps, irregular sleep hours, asthma, nocturia, apnea, taking daily medications were the factors associated with insomnia among elderly [11]. Also, a study in Greece reported that low socio-economic status and educational level, physical inactivity, existence of chronic physical or mental disease were the factors associated with insomnia [4].

Even though insomnia is found as a common psychosocial disorder among elderly and can cause significant morbidity if not addressed properly, based on the available published and printed literature, studies related to insomnia among elderly are limited in Nepal. So, the researcher initiated an attempt to identify factors associated insomnia among elderly. Therefore, it provides guidelines in recognizing the need of raising awareness about insomnia and to make further intervention to solve it.

### Materials and Methods

A cross-sectional analytical research design was used to assess the factors associated with insomnia among elderly. Non-probability purposive sampling technique was used to select sample of 64 individuals aged 60 years and above in Ward No. 2 of Karyabinayak Municipality, Lalitpur. Elderly who were available and willing to participate during the study were included in the study. Respondents

who didn't respond properly, who were taking sleeping pills at present and had severe problem of hearing or speaking were excluded in this study.

The instrument composed of two parts: part I was related to socio-demographic information (age, gender, ethnicity, religion, marital status, educational status, current and past occupational status, financial dependency with other, sources of income, physical health problems, disease, medications use and health problems during night sleep refers to nocturia, body ache, cough etc.) and part II was related to Pittsburgh Insomnia Rating Scale [12]. Back translation of the Pittsburgh Insomnia Rating Scale was done for identifying the conceptual equivalence, linguistic equivalence and semantic equivalence of the instrument. Nepali version of instrument was pretested among the elderly of ward no. 3 of Karyabinayak Municipality and reliability coefficient was found greater than 0.7. The duration of data collection was two weeks that was started from 2nd of Ashwin and ended at 14th of Ashwin, 2073 (September 18 to September 30, 2016). Before collecting data, formal administrative approval was obtained from college administration of Lalitpur Nursing Campus and the authority of Karyabinayak Municipality. Informed consent was taken from each respondent before taking the interview. The respondents were assured of their privacy and confidentiality. A face-to face interview was taken to collect data using a structured

interview schedule in Nepali version which took 45 minutes for each respondent. The researcher herself collected the data. During data collection, 68 elderlies were approached. But 4 elderlies were excluded as they were in exclusion criteria i.e. two respondents were taking sleeping pills and two respondents had hearing problem.

The data were reviewed, checked and rechecked. Data were edited, classified, coded manually, then data entry, data cleaning and analysis were done by using statistical package of social science (SPSS) software version 16. Chi square test were used for analyzing the association between independent variables and dependent variable among elderly. For each test, significance was considered at  $p = \leq 0.05$  for 95% confidence interval.

## Results

Table 1 reveals that among 64 respondents, majority of them (46.9%) were of 65-74 years. Mean age of the respondents was 70.34 years with SD 7.720 and the age group ranged from 60 years to 88 years. Majority of the respondents (59.4%) were female. More than one third (40.6%) of the respondents were Chhetri. Most of respondents (93.8%) were Hindu. More than half (62.5%) of the respondents were married. Majority of the respondents (62.5%) were illiterate. Currently most of the respondents (85.9%) were not working.

Characteristics	Frequency	Percent
<b>Age of elderly</b>		
<65	14	21.8
65-74	30	46.9
75-84	17	26.6
≥85	3	4.7
Mean age in years ± SD	70.34 ± 7.720	
<b>Gender</b>		
Female	38	59.4
Male	26	40.6
<b>Ethnicity</b>		
Chhetri	26	40.6
Brahmin	19	29.7
Newar	7	10.9
Others <sup>a</sup>	12	18.8
<b>Religion</b>		
Hindu	60	93.8
Buddhist	3	4.6
Christian	1	1.6
<b>Marital Status</b>		
Married	40	62.5
Widow	21	32.8

Widower	2	3.1
Unmarried	1	1.6
<b>Educational Status</b>		
Illiterate	40	62.5
Literate	24	37.5
<b>Current Working Status</b>		
Not Working	55	85.9
Working	9	14.1
<b>Note.</b> <sup>a</sup> : Magar, Tamang, Sanyasi, Achhami and Bishwakarma		

**Table 1:** Socio-demographic characteristics of the respondents (n=64).

Characteristics	Frequency	Percent
<b>Past Occupational Status</b>		
Agriculture	34	53.1
Service	14	21.9
House Maker	13	20.3
Business	3	4.7
<b>Financial Dependency on Other</b>		
Yes	50	78.1
No	14	21.9

**Table 2:** Respondent's past occupational status and financial dependency on other (n=64).

Table 2 shows that more than half of respondents (53.1%) had agriculture as a past occupational status. More than two third (78.1%) of the respondents were financially dependent on others.

Characteristics	Frequency	Percent
<b>Physical health problems</b>		
Yes	51	79.7
No	13	20.3
If Yes <sup>a</sup> (n = 51)		
<b>Nervous System</b>		
Headache	9	17.6
Weakness	3	5.9
Dizziness	2	3.9
<b>Musculoskeletal system</b>		
Joint Pain	36	70.6
Back Pain	11	21.6

Numbness	6	11.8
Joint Stiffness	2	3.9
Swelling of leg	2	3.9
<b>Respiratory system</b>		
Cough	11	21.6
Dyspnoea	2	3.9
<b>Gastrointestinal system</b>		
Stomach Pain	9	17.6
Loss of Appetite	3	5.9
Constipation	1	2.0
<b>Note.</b> <sup>a</sup> : Multiple responses.		

**Table 3:** Respondents' physical health problems (n=64).

Table 3 illustrates that more than two third (79.7%) of the respondents were having physical health problems. In the nervous system, less than one third (17.6%) of the respondents had headache as a physical health problem. Majority of the respondents (70.6%) had

joint pain in musculoskeletal system and less than one third (21.6%) of the respondents had cough in respiratory system. Also in gastrointestinal system, 17.6% of the respondents had stomach pain.

Characteristics	Frequency	Percent
<b>Disease</b>		
No	26	40.6
Yes	38	59.4
<b>If Yes <sup>a</sup> (n=38)</b>		
Hypertension	16	42.1
Diabetes	9	23.7
Respiratory disease	8	21.1
Gout	7	18.4
Gastritis	4	10.5
Others <sup>b</sup>	10	26.3
<b>Medication Use at Present</b>		
No	28	43.8
Yes	36	56.2
<b>If Yes <sup>a</sup> (n=36)</b>		
Anti-hypertensive drugs	16	44.4
Anti-diabetic drugs	9	25.0
Anti-gastritis medicine	9	25.0
NSAIDS	8	22.2
Bronchodilators	7	19.4

Vitamin and minerals	6	16.7
Lipid lowering drugs	4	11.1
Others <sup>c</sup>	3	8.3
<b>Health Problems during Night Sleep</b>		
No	18	28.1
Yes	46	71.9
<b>If Yes <sup>a</sup> (n=46)</b>		
Nocturia	37	80.4
Pain	17	37.0
Cough	15	32.6
<b>Note.</b> <sup>a</sup> : Multiple responses; <sup>b</sup> : Trigeminal Neuralgia, Hyperlipidemia, Sinusitis, Hemorrhoids, Migraine and Hypothyroidism; <sup>c</sup> : Thyroxine and Gabapentine		

**Table 4:** Respondents' Information related to Disease, Medication Use at Present (n= 64).

Table 4 shows that more than one half (59.4%) of the respondents had disease. Among them, more than one third of the respondents (42.1%) had hypertension and the least respondents (10.5%) had gastritis. Majority of the respondents (44.4%) were taking anti-hypertensive drugs. More than two third (71.9%) of the respondents had some sort of health problems during night sleep. Among them, 80.4% of the respondents had nocturia followed by pain (37%) and cough (32.6%).

Characteristics (Insomnia)	Frequency	Percent
Present	26	40.6
Absent	38	59.4

**Table 5:** Prevalence of insomnia among respondents (n=64); **Note.** Score >20=Insomnia present and score ≤ 20=Insomnia absent.

Table 5 presents that more than one third (40.6%) of the respondents had insomnia and 59.4% of the respondents do not have insomnia.

Characteristics	Insomnia				X2 Value	p-value
	Absent		Present			
	N	%	N	%		
<b>Age</b>						
<75 Years	25	56.8	19	43.2	0.382	0.537
≥75 Years <sup>a</sup>	13	65.0	7	35.0		
<b>Gender</b>						
Female	22	57.9	16	42.1	0.085	0.771
Male <sup>a</sup>	16	61.5	10	38.5		
<b>Educational Status</b>						
Illiterate	23	57.5	17	42.5	0.155	0.795
Literate <sup>a</sup>	15	62.5	9	37.5		
<b>Current Working Status</b>						

Not Working	30	54.5	25	45.5	3.782	0.052
Working <sup>a</sup>	8	88.9	1	11.1		
<b>Financial Dependency on Other</b>						
No <sup>a</sup>	9	64.3	5	35.7		
Yes	29	58.0	21	42.0	0.179	0.672
<b>Having Disease at Present</b>						
No <sup>a</sup>	17	65.4	9	34.6		
Yes	21	55.3	17	44.7	0.656	0.418
<b>Medication Use at Present</b>						
No <sup>a</sup>	19	67.9	9	32.1		
Yes	19	52.8	17	47.2	1.485	0.223
<b>Health Problems during Night Sleep</b>						
No <sup>a</sup>	16	88.9	2	11.1		
Yes	22	47.8	24	52.2	9.044	0.003 <sup>*</sup>
<b>Note.</b> <sup>a</sup> : Reference category. <sup>*</sup> p ≤ 0.05: Significant at 95% confidence interval.						

**Table 6:** Association of Socio-demographic Variables with Insomnia (n=64).

Table 6 displays that there is significant association between health problems during night sleep and insomnia ( $X^2=9.044$ ,  $p=0.003$ ). But, there is no significant association of age, gender, educational status, current working status, financial dependency on other, having disease at present and health problems during night sleep with insomnia.

## Discussion

In this study, more than two third 38 (59.4%) of the respondents had disease. Among them, more than one third 16 (42.1%) of the respondents had hypertension which is consistent with the study conducted in Egypt which revealed that 46.7% had hypertension [13].

More than one third 36 (56.2%) of the respondents use medicine at present. Majority of the respondents 46 (71.9%) had health problem during night sleep. Among them 37 (80.4%) of the respondents had nocturia which is similar with the study conducted in Iran11 and Egypt which yielded that 42.77% had nocturia [13].

The present study revealed that the prevalence of insomnia is 26 (40.6%). This study is consistent with the study conducted in Egypt which reported that prevalence of insomnia among elderly was 36.4% [13] Similar study conducted in Italy also reported that 36.7% of the respondents had insomnia [14] and another study conducted in Iran revealed that 39.2% had insomnia [9] and a study in North India identified that 32% had insomnia [8]. But the present study is contrary with the study conducted in Sweden which yielded that 13.3% reported insomnia [5].

The present study reported that there is significant association of health problems during night sleep with insomnia ( $X^2=9.044$ ,  $p=0.003$ ). This finding is similar with the findings of the study conducted in Egypt which revealed that physical health problem i.e. pain [13] and nocturia [13,15] were the factors associated with

insomnia. Similar findings were revealed in this study too because as people age, they are more likely to develop more than one long-term health problems like chronic pain, nocturia, cough etc. that may disturb their sleep.

The current study yielded that there is no significant association of age with insomnia ( $X^2=0.382$ ,  $p=0.537$ ). This finding is contrary with the study conducted in Iran which reported that age was significantly associated with insomnia [9]. Contradictory findings between these studies may be related to small sample size in the current study and variations in study settings.

The current study revealed that there is no significant association of gender with insomnia ( $X^2=0.085$ ,  $p=0.771$ ). This finding is contrary with the study conducted in Egypt which reported that being female was the factor associated with insomnia among elderly [15]. Contradictory findings between these studies may be related to small sample size in the current study.

The present study yielded that there is no significant association of current working status with insomnia ( $X^2=3.782$ ,  $p=0.052$ ). This finding is contrary with the study conducted in Nigeria which reported that not engaged in physical activities was the factor associated with insomnia among elderly [16]. Contradictory findings between these studies may be related to small sample size in the current study.

The current study revealed that there is no significant association of financially dependency with insomnia ( $X^2=0.179$ ,  $p=0.672$ ). This finding is contrast with the study conducted in Nigeria which yielded that financially dependency was the factor associated with insomnia among elderly [16]. Contradictory findings between these studies may be related to study settings and family system of Nepal. People in Nepal live in joint family and they share and manage their problems with the help of their family members.

The present study reported that there is no significant association of disease with insomnia ( $X^2=0.656$ ,  $p=0.418$ ). This finding is contrary with the study conducted in Canada which revealed that arthritis, asthma, high blood pressure, diabetes, heart disease and migraine were the factors associated with insomnia among elderly [17]. Also, this finding is contrary with the study conducted in Brazil which reported that hypertension, rheumatoid arthritis and urinary incontinence were the factors associated with insomnia among elderly [18]. Contradictory findings between these studies may be related to small sample size in the current study.

The current study yielded that there is no significant association of medication use with insomnia ( $X^2=1.485$ ,  $p=0.223$ ). This finding is contrary with the study conducted in Egypt which reported that daily medication was the factor associated with insomnia among elderly [11]. Contradictory findings between these studies may be related to small sample size in the current study.

The limitations of this study were: this study was conducted on small scale including only 64 elderlies of Ward No. 2 of Karyabinayak Municipality, Lalitpur. Therefore, the result cannot be generalized to all elderly of Lalitpur. Non-probability sampling technique was used for the selection of sample. So, sample selection bias might occur. Elderly were asked about sleep related information in the past weeks. Therefore, there may be a chance of recall bias.

## Conclusion

Based on the findings of the study, it is concluded that insomnia is present among less than half elderly of Ward No. 2 of Karyabinayak Municipality, Lalitpur. The study also revealed that health problems during night sleep is associated with insomnia among elderly. But there is no significant association of age, gender, marital status, educational status, current working status, financial dependency, disease and medication use at present with insomnia among elderly.

Insomnia is a common health problem among elderly that can cause significant morbidity if not addressed properly. Therefore, awareness program regarding insomnia among elderly should be raised for early detection and appropriate management of insomnia in order to decrease sleep related health problems. Also, awareness program regarding maintenance of sleep hygiene for the prevention of insomnia should be raised which ultimately leads to improve quality of life.

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