Prevalence of Insomnia Among Elderly Residents in A Rural Area in Bangalore, Karnataka

DP Rao[1], SKB Hegde[2], AM Joseph[3], A Sahu[4], G Gomez[5], A Kasthuri[6]

[1, 3,4,5] Medical Intern, Department of Community Health, St. John's Medical College, Bangalore, Karnataka, India
[2] Assistant Professor, Department of Community Medicine, SRM Medical College, Chennai, Tamil Nadu, India
[6] Professor and Head, Department of Community Health, St. John's Medical College, Bangalore, Karnataka, India

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Abstract

Introduction: Insomnia has been reported as a common health problem among the elderly.

Objectives: To assess the prevalence of insomnia among the elderly residents of a rural area and to identify associations between insomnia and selected baseline variables.

Materials and Methods: This was a cross-sectional study conducted among permanent elderly residents of Mugalur village near Bangalore. An interview schedule based on a validated insomnia-screening questionnaire was developed for the purpose of this study and administered to the study population.

Results: Among the 92 elderly studied, insomnia was prevalent in 13.04%. Among those with insomnia, 50% had parasomnias, 33.3% had circadian rhythm disturbances, 16.7% had sleep apnoea requiring further evaluation and 8.3% had movement disorders. A higher proportion of those that were currently unemployed, widowed, dependants, hypertensives, and diabetics, had urinary disturbances or had joint pains were suffering from insomnia.

Conclusions: Prevalence of insomnia was 13.04%, with no significant associations.

Keywords: Elderly, Insomnia, Likelihood of Insomnia, Rural

Introduction

The 'elderly', defined as individuals over the age of 60 years, are classified into young old (60–69 years), old-old (70–79 years) and the oldest old (> 80 years).[1] The current global and national demographic structure is shifting towards a higher proportion of the elderly in the population because of an increase in life expectancy combined with a decrease in fertility. Globally, 605 million people are above the age of 60 years, representing 10% of the world's population.[2] In India, it is estimated that the elderly constitute 8.5% of the total population,[3] a majority of whom (74.97%) reside in rural areas.[4] This translates to a large number of elderly in rural India.

The elderly suffer from many problems in the health, social, and psychological domains. Among health problems, insomnia has been identified as an important problem.[5] Insomnia is defined medically as 'difficulty falling asleep, difficulty staying asleep or non-refreshing sleep in a patient who has the opportunity to acquire a

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Address for Correspondence
Dr. Arvind Kasthuri, MD DNB PGDGM
Professor and Head,
Department of Community Health,
First Floor, Robert Koch Bhavan,
St. John's Medical College,
St. John's National Academy of Health Sciences,
Sarjapura Road, Koramangala, Bangalore 560034
Mobile : +9198809 02992 Tel: 080 – 2206 5043
Fax: 080 – 25520777 E-mail:arvindk@gmail.com

normal night's sleep of 7–8 h'[6] A multi-centric study carried out among the elderly revealed that more than half (54–62%) of the subjects reported at least any one of the following as occurring most of the time: trouble falling asleep (10–25%), waking up during night (18–34%), awaking too early (12–26%), needing to take a nap during the day (18–36%) and not feeling rested upon awakening (6–16%).[5] Population surveys and cross-sectional studies consistently estimate the prevalence of insomnia as ranging 6–10% worldwide in the general population.[7] A Canadian study estimated the prevalence of insomnia in the general population to be 13.4%.[8] According to the National Sleep Foundation 2005 "Sleep in America" poll, 33% of the respondents experienced at least one symptom of insomnia almost every night of the week.[9]

The Department of Community Health, St. John's Medical College, runs a dedicated programme for the care of the elderly, called the Senior Citizen Health Service. As a part of this programme, monthly rural geriatric clinics are conducted, where insomnia is a frequently encountered health problem. However, a few studies on insomnia have been conducted in rural Indian settings. This study was therefore undertaken with the following objectives:

1. To assess the prevalence of insomnia among the elderly residents of a rural area in Bangalore

2. To identify associations between insomnia and selected baseline variables

Materials and Methods

A cross-sectional study was carried out in Mugalur village, under Sarjapura PHC area, Anekal taluk, Bangalore district, during the months of May–July 2009. All men and women aged 60 years and above and who were permanent residents of Mugalur village were included in the study. An interview schedule was developed for the purpose of this study. Section 1 of the schedule was designed to collect sociodemographic details of the study population. Section 2 comprised the insomnia-screening questionnaire developed by a Clinical Practice Guideline Working Group based on Canadian expert and primary care physician consensus.[6] The insomnia-screening questionnaire is a screening tool used to guide the physician in the clinical evaluation of insomnia. It has six diagnostic domains: insomnia (Q1–6), psychiatric disorders (Q7–10), circadian rhythm disorder (Q11),

movement disorders (Q12 and Q13), parasomnias (Q14) and sleep disordered breathing/sleep apnoea (Q15–17). Each question in each domain had a sliding scale of response between 1 and 5, with 1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Most nights/days, and 5 = Always. According to this screening tool, a person was considered to have "insomnia" if the answer was 3, 4 or 5 on two or more of the insomnia domain questions (Q1–6) and had significant daytime impairment. A person was considered to have "likelihood of insomnia" if the answer was 3, 4, or 5 on any question from Q1–6. The tool was assessed for face validity by circulating it among the experts in Community Medicine and Geriatrics. The interview schedule was translated into the local language. All data collectors were trained on the administration of the schedule.

Ethical approval for the study was obtained from the Institutional Ethical Review Board of St. John's Medical College. Consent was obtained at the community level from local leaders and at the individual level from the subjects. A pilot study was carried out in a non-study area before commencement of the study to pretest the interview schedule, which was suitably modified. Data collection was carried out by visiting each house in the village and identifying permanent residents of the village over the age of 60 years. Persons who could not be contacted despite making three visits, those who were acutely ill and those who were not willing to sign the consent form were excluded from the study. Data collected were transferred to a Microsoft Excel spreadsheet and were analyzed using a standard statistical package. Simple descriptive statistics were used to describe the baseline data. Where necessary, ^{2} analysis was conducted to lend statistical support.

Results

Socio-demographic profile of the study population

The total population of Mugalur village is 1,460. The population of the elderly as enumerated by the study is 102, which constituted 6.99% of the total population. Of these 102 elderly, 92 were interviewed, with the others not being available, being ill or not consenting for the interview. More than half (60.86%) were females. Most of the study population belonged to the category of young old (52.17%), followed by the old-old (26.08%), and the oldest old (21.73%) (Table 1).

Majority of the elderly, that is 69.56% (78% of the elderly females and 55% of the elderly males), had not

Table 1: Distribution of the Study Population by Age and Gender

Age Groups	Males (%)	Females (%)	Total (%)
60–69	14 (38.9)	34 (60.71)	48 (52.17)
70–79	10 (27.77)	14 (25)	24 (26.08)
>80	12 (33.33)	8 (14.28)	20 (21.73)
Total	36 (39.13)	56 (60.86)	92 (100)

received any formal education. Around 65.21% of the elderly were currently married and living with their spouses, whereas 31.52% were widows or widowers. More than half of the elderly (56.92%) were not working, whereas 27.17% were involved in agriculture. Other important occupations that the elderly were involved in were manual labour, animal rearing, and owning petty shops and power looms. Almost 55.43% were financially fully dependant on others, 16.3% were totally independent, whereas 28.26% were partially dependant. The most common illnesses reported by the elderly were locomotor disorders (48.9%), visual impairment (41.3%) and dental problems (36.9%).

Prevalence of Insomnia

The prevalence of insomnia among the elderly was found to be 12 among 92 persons (13.04%). In this study, insomnia was found only among the oldest old (persons above 80 years of age), with all the 12 elderly persons who tested positive for insomnia being above 80 years of age. The prevalence of insomnia among the 20 persons above 80 years of age was 60% (Table 2). Insomnia was seen more among males (13.88%) than among females (12.5%). However, this was not statistically significant (Table 2).

Table 2: Prevalence of Insomnia by Age and Gender

	Insomnia Present (%)	Insomnia Absent (%)	Total (%)
Total	12 *(13.04)*	80 (86.95%)	92 *(100)*
Age Groups			
60–69	0	48 (100)	48 *(52.17)* *
70–79	0	24 (100)	24 *(26.08)* *
≥"80	12 (60)	8 (40)	20 *(21.73)*
Gender			
Males	5 (13.88)	31 (86.11)	36 (39.13)
Females	7 (12.5)	49 (87.5)	56 (60.86)

Associated Conditions Among Persons with insomnia

The insomnia-screening questionnaire also evaluated a person for the presence of other conditions likely to be associated with insomnia. According to the questionnaire, it was found that none of those with insomnia had psychiatric disturbances, whereas 33.3% had other circadian rhythm disturbances, 50% had parasomnias and 16.7% had sleep apnoea that required further evaluation.

Association of Insomnia with Baseline Variables

There was no statistical association between insomnia and important baseline variables such as occupational status, marital status, financial dependence and presence of hypertension, diabetes mellitus, joint pains, and urinary problems.

However, a higher proportion of those elderly who were currently unemployed (71.42%), widows/widowers (85.71%), dependants (62.5%), hypertensives (71.42%), diabetics (66.66%), those who had urinary problems (100%) and those who had joint pains (62.5%) were suffering from insomnia.

Likelihood of Insomnia

The insomnia-screening questionnaire also evaluated a person for the likelihood of insomnia. A person was considered to have 'likelihood of insomnia' if the answer was 3, 4 or 5 on any question from Q1–6. Although insomnia was found only among the oldest old, all the three age groups showed a likelihood of developing insomnia. It was the highest among the old-old (83.33%), followed by the young old (79.16%) and the oldest old (75%) (Table 3). Females had a higher likelihood of insomnia (83.67%) compared with males (74.19%) (Table 3).

Table 3: Distribution of the Likelihood of Insomnia by Age

	Likelihood of insomnia present (%)	Likelihood of insomnia absent (%)	Total (%)
Total	64 (80)	16 (20)	80 (100)
Age Groups			
60–69	38 (79.16)	10 (20.83)	48(60)
70–79	20 (83.33)	4 (16.66)	24(30)
≥80	6 (75)	2 (25)	8(10)
Gender			
Males	23 (74.19)	8 (25.8)	31 (38.75)
Females	41 (83.67)	8 (16.32)	49 (61.25)

Discussion

This study was based in a rural area close to the city of Bangalore. The proportion of population that is over 60 years of age in rural India is estimated at being 8.9%[3], which is slightly higher than the proportion found in this study (6.99%). Most of the study population belonged to the category of young old (52.17%), followed by the old-old (26.08%), and the oldest old (21.73%). Kant S et al., in their study among the elderly, also showed a similar pattern, i.e. maximum proportion of the young old (67.8%), followed by the old-old (21.9%), and the oldest old (10.3%)[10]. Most of the elderly in the population studied had received no formal education (69.56%). The rate of illiteracy was higher among females (78%) as compared to males (55%), which was similar to the results of the 52nd round of National Sample Survey Organisation (NSSO), which revealed that around 63% of the elderly in India were illiterate, with female illiteracy rate (79%) being higher than that of males (38%).[11]

Majority of the elderly were not currently employed. Among those that were employed, agriculture was the predominant occupation. Most of this population was also dependants for all or part of their income. Other studies conducted elsewhere also reported similar findings.[12,13] Locomotor disorders and visual problems were the main illnesses reported by the study group. According to National Statistics, visual impairment (88%) is the most common disorder, followed by locomotor disorder (40%) and neurological problems (18.7%).[14]

Population surveys and cross-sectional studies consistently estimate the prevalence of insomnia in the general population to range between 6% and 10% worldwide.[7] In our study, the prevalence was found to be 13.04% among the elderly. This shows that the elderly are more likely to suffer from insomnia than are the younger age groups. Other studies have also substantiated this.[15]

Older age is associated with insomnia and this is, in part, due to the increased prevalence of other medical problems that disrupt sleep. In addition, there are normal, age-related changes in sleep patterns that predispose older individuals to insomnia. This study found that insomnia was prevalent only among the oldest old.

A higher proportion of those elderly who were currently unemployed, widows/widowers, dependant, hypertensives, diabetics, those who had urinary problems and those who had joint pains were suffering from insomnia. This indicates that those who are under stress or suffering from medical problems that disrupt sleep are at a higher risk of suffering from insomnia. Similar results were also found in other studies.[16] Although our study showed that only the oldest old suffered from insomnia, the likelihood of insomnia was noted among all three age groups, with preponderance among females. Western studies also show that females are more likely to suffer from insomnia than males.[17]

Conclusions

The prevalence of insomnia in the study population was found to be 13.04%. The prevalence was higher among elderly males and was found only among the oldest old segment of the study population. Insomnia was associated with circadian rhythm disorders, parasomnias, movement disorders and sleep apnoea. A higher proportion of those elderly who were currently unemployed, widows/widowers, dependants, hypertensives, diabetics, those who had urinary problems and those who had joint pains were suffering from insomnia. The likelihood of insomnia was noticed in all the three age groups and was higher among females. These findings suggest a need to identify and address this problem while delivering care for older persons.

Acknowledgements

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