



Relationship Between Sleep Problems and Depression of Older Persons in Bangladesh

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Abstract: As age increases older persons may develop sleep problems. These may cause depression, a condition which negatively affects many aspects of older persons' life. The aim of this study was to assess the relationships between older persons' sleep problems and depression in Bangladesh. Data were collected from 280 older persons using the Athens Insomnia Scale (AIS-5), and Geriatric Depression Scale (GDS-10). Descriptive and correlational statistics were used to analyze sleep problems and depression data. Results show that sleep problems are significantly and positively related to depression. The identification of intervention programs for the screening of both sleep problems and depression, with a view to reducing the consequences of depression, is recommended.

Keywords: Older Persons, Sleep Problems, Depression

1. Introduction

Sleep problems have been shown to be the most common problem experienced by the older persons [1]. They are defined as unsatisfactory quantity and/or quality of sleep which persist for a considerable period of time [2]. They may be caused by ageing-related changes, medical conditions, and environmental or lifestyle changes [3]. Sleep problems can have a significant negative impact on morbidity and mortality, particularly in older persons [4]. Inadequate sleep can lead to difficulty sustaining attention, a slowed reply time, impairments in memory and attention, and reduced performance [5]. In Bangladesh, about 39 percent of the older persons reported sleep problems [6]. Various psychiatric problems have been linked to sleep problems in older persons [7], particularly depression [8-9]. Depression is a risk factor of sleep problems [7].

Depression among older persons is defined as changes in cognition and mood, and loss of interests [10]. Depression in old age can create many problems, including carrying out activities of daily living; increased morbidity and suicide [11]; decreased physical, cognitive and social functioning; and greater self-neglect [12]. In Bangladesh, older persons (aged 60 or above) had a 2.79 times higher risk of depression compared to middle-aged persons (aged 40-59) [13]. To

reiterate, studies [6, 13] have indicated that older persons in Bangladesh were suffering from sleep problems and depression. However, their sleep problems were not measured using instruments. In addition, there is limited information about the relationships between older persons' sleep problems and depression. Also, the results of other studies may not be applicable to Bangladesh due to differences in older person's socioeconomic statuses and social systems. Therefore, the aim of this study is to investigate the relationship between older persons sleep problems and depression in Bangladesh. The study results may support screening initiatives for sleep problems and depression for older persons and may inform strategies to prevent and reduce the consequences of these problems.

2. Data and Methods

The study data were collected between September 2015 and January 2016, from 208 older persons living in the villages of two southern districts of Bangladesh. Participants were selected by specific inclusion criteria. They had to be aged between 60 to 75 years, free from cognitive impairment, and free from severe chronic illness. Data were collected via a demographic data form, the Athens Insomnia Scale (AIS-5) [2], and the Geriatric Depression Scale (GDS-10) [10]. AIS-5

consists of five items: (1) sleep induction, (2) awakenings during the night, (3) final awakening, (4) total sleep duration and (5) sleep quality. Each item response was assessed using a four-point Likert-style scale (absent = 0, mild = 1, severe = 2, and very severe = 3). A total score of 0 is considered to indicate no sleeping problems, a score of 1 or 2 to indicate sleep problems, and a score of 3 or more to indicate severe sleep problems. GDS-10 scale consists of ten items: (1) feeling satisfied with life, (2) reduction of activities, (3) feeling empty, (4) being afraid of bad things, (5) feeling happy, (6) feeling helpless, (7) memory problems, (8) feeling full of energy, (9) feeling hopeless and (10) judgment. Each item's score was either 0 (no depression) or 1 (depression). The potential total scores ranged from 0 to 10. A total score between 0 and 4 is considered to indicate no depression and a score of 5 or more considered to indicate depression [9]. In this study, the reliability of the AIS-5, and GDS-10 were determined by Cronbach's Alpha Coefficient, and the values found were .85 and .78. These were considered as satisfactory.

The secondary data were analyzed using a statistical program (SPSS 13.0). Descriptive statistics, including frequency, percentage, mean and standard deviation, were used to analyze demographic, sleep problems and depression data. Spearman's Rho was used to identify the relationship between sleep problems and depression.

3. Results

Table 1. Demographic Characteristics of Older Persons (n = 280).

Characteristics	Categories	Frequency (%)
Age (M = 65.81, SD = 4.37)	60 - 70 years	239(85.4)
	71 - 75 years	41(14.6)
Gender	Male	141(50.4)
	Female	139(49.6)
Marital status	Married	224(80.0)
	Widow	56(20.0)
Education level	Illiteracy	154(55.0)
	Literate	126(45.0)
Employment status	Employed	232(82.9)
	Unemployed	48(17.1)
Type of family	Nuclear	149(53.2)
	Extended	131(46.8)
Family monthly income [1 USD = 80 Taka]	300 – 6,000 Taka	201(71.8)
	6,001 – 20,000 Taka	79(28.2)

The majority (85.4%) of older persons were between 60 and 70 years old. 50.4% were male and 49.60% were female. The majority (80.0%) were married, and 55.0% were illiterate. Most (82.9%) were employed. 53.2% of the sample lived in a nuclear type of family, and most (71.8%) reported their family's monthly income as between 300 and 6,000 Taka.

Table 2. Depression of Older Persons (n=280).

Variable	Categories	Frequency (%)
Depression	No depression	44(15.7)
	Having depression	236(84.3)

The majority (84.3%) of older persons reported having depression. Only 15.7% of the older persons reported no depression.

Table 3. Sleep Problems of Older People (n=280).

Variable	Categories	Frequency (%)
Sleep problems	No sleep problems	5 (1.8)
	Sleep problems	29 (10.4)
	Severe sleep problems	246 (87.9)

The majority (87.9%) of older people reported severe sleep problems and 10.4% reported sleep problems. Only 1.80% reported no sleep problems.

Table 4. Relationship Between Sleep Problems and Depressions of Older Persons (n=280).

Variable	Depression
Sleep problems	.50**
Sleep induction	.41**
Sleep awakening in night	.38**
Final awakening	.42**
Sleep duration	.49**
Sleep quality	.50**

** $p < .01$.

Older persons' sleep problems were significantly and positively related to their depression ($r = .50$, $p < .01$). All types of sleep problems were also significantly related to depression.

4. Discussion

Almost all participants reported having sleep problems and depression. The sleep problems findings are consistent with a study conducted in three French cities [7] and China [14]. The possible reasons are the older person's ageing related changes affect their normal sleep by falling asleep and awakening more often. These situations might be caused by changes in physical and psychological state, as well as environmental conditions. The depression results are consistent with a study conducted in Korea [15], India [16, 17] and Brazil [18]. In this study, 55.00% of the elderly were illiterate, 53.20% of the elderly lived in the nuclear type of family, and 71.8 of the older person's family monthly incomes were very inadequate. These may contribute to develop older person's depression. Illiteracy has a negative effect on depression [19]. Illiteracy in older individuals has been associated with a higher rate and increased severity of depression [20]. Evidence shows that the nuclear family system has been observed as strong predictors of older person's depression, and financial crisis has been observed as a strong predictor of depression among the older persons [21]. Their sleep problems were also significantly and positively related to depression. It can be proposed that if older persons' sleep problems increase, their depression levels also increase. This finding is consistent with a study conducted in California [22].

5. Conclusion

Almost all participants reported having sleep problems and depression. Sleep problems are significantly and positively

related to depression. These results may be useful for clinicians and health care providers and may support them in the development of strategies for assessing and preventing older persons' sleep problems and depression in the southern districts of Bangladesh. They may also be relevant to other settings, particularly in developing countries.

List of Abbreviations

AIS = Athens Insomnia Scale

GDS = Geriatric Depression Scale

Taka = The Bangladeshi currency (80 Taka = 1 USD).

Ethical Considerations

Permission was obtained from the appropriate district level health authority and the study participants.

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