

Sleep disorder in elderly and their association to anxiety, depression and stress

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Summary

Sleep disorders were associated with physical and mental conditions including psychosis, anxiety and mood disorders. Sleep related disorders were found more in the elderly people. The objective of the study was to find the sleep disorders of the elderly and their association with depression, anxiety and stress. It was done from July 2013 to December 2013 among 100 elderly people of both male and female, of various occupation, education and other socio-demographic background found in Probin Hitoisy Sangha of Mirpur, Dhaka and in some other areas of Dhaka city. The ages of the elderly people were 55 and above. The sleep condition was assessed by Pittsburgh Sleep Quality Index (PSQI) and depression, anxiety and stress were assessed by Depression Anxiety Stress Scale 21 (DASS 21). The scales were translated into Bangla and along with questions regarding socio-demographic data, these were supplied to the respondents. The data were collected by face-to-face interview. The results showed that 40% respondents were good sleepers and 60% were poor sleepers. Depression was found in 41 (68.3%) poor sleepers and 10 (25.0%) good sleepers, which was statistically significant ($p=0.001$). Anxiety was found in 48 (80.1%) poor sleepers and 23(57.5%) in good sleepers and it was also statistically significant ($p=0.001$). Stress was found in 38 (63.4%) poor sleepers and 8 (20%) in good sleepers and was statistically significant ($p=0.001$). The study showed depression, anxiety and stress were closely associated with sleep disorders. So, it required due attention for assessing physical, mental and all other relevant problems of the elderly people which could explain and treat the condition and bring about their wellbeing.

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Introduction

Sleep disturbances are found in all ages, but they are found more among the elderly. Nearly half of the older people suffered from initiating and maintaining sleep.¹ There is a misconception of clinicians and the public that the increased prevalence of sleep disturbance is a normal phenomenon related with aging. But this is not factual, rather it is related with medical and psychosocial comorbidities among these people.² Researchers found sleep problems were related with many factors such as arthritis, sleep apnea, incontinence and restless leg syndrome. Both men and women suffer from hormonal changed as they became aged like melatonin. Alzheimer's disease is also linked to sleep disturbances which mainly occurred in elderly people.³ Some publications recommend sleep problems as a multifactorial geriatric syndrome. There is strong bidirectional relationship between sleep disorders and serious medical problems in the

elderly. Those who suffer from sleep disorders they develop hypertension, depression, cardiovascular and cerebrovascular diseases. On the other hand, those who have these diseases they possess the risk of developing sleep problems.²

Sleep disorders coexist with many physical and psychiatric conditions including psychosis, anxiety and mood disorders.⁴ Sleep is related with mental health and wellness, those who do not sleep well suffer from mental and emotional problems such as decreased focus and attention, memory loss, confusion, anxiety and agitation.³ Sleep disorders are also common symptom of many psychiatric conditions including depression, paranoia, bipolar disorder and post-traumatic stress disorders. Poor sleep directs to mental and emotional problems as well as worsens the existing such problems.³ Sleep disorders of the elderly is related with multiple causes and create complex

consequent problems. Their sleep disorders are of multiple nature. These sleep problems are to be solved by treating the background problems, not the sleep disorders directly. Drug treatments for sleep disorders should be cautious.⁵ In an epidemiologic study over three years with a large elderly sample stated that sleep problems were associated with incidental medical and psychosocial burden.⁵

Emotional state of the elderly people influenced their quality of sleep. People having no stress or depression experience best sleep and those having stress and depression suffer from sleep disorders.⁶ From a report of a research conclusion, it was found that 150 million adult people of developing countries were suffering from sleep disorders and among them Bangladeshi people were highest in rate. Again, women and elderly people were suffering more from sleep disorders. It was found that these people were suffering from anxiety and frustration.⁷ So the objective of this study was to find the sleep disorders of the elderly people and their association with depression, anxiety and stress.

Materials and methods

It was a cross-sectional study done from July 2013 to December 2013. The study was conducted among 100 elderly people of both male and female, of various occupation, education and other socio-demographic background found in Probin Hitoisy Sangha at Mirpur, Dhaka and in some other areas of Dhaka city. The ages of the elderly people were 55 and above. The sleep condition was assessed by Pittsburgh Sleep Quality Index (PSQI) and depression, anxiety and stress were assessed by Depression Anxiety Stress Scale 21 (DASS 21). Depression, anxiety and stress were classified as normal, mild, moderate, severe and extremely severe. The sleep conditions were assessed by 7 components e.g., duration of sleep, sleep disturbance, sleep latency, day dysfunction due to sleepiness, sleep efficiency, overall sleep quality and medication needed to sleep. The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument to measure sleep quality and sleep pattern in the elderly people. It indicates poor and good sleep by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction over the last month. The respondent's self-rate each of these seven domains of sleep. Each item scored from 0-3 scale, whereby 3 reflects the negative extreme of the scale. A global sum of 5 or greater indicates poor sleeper and a total sum of equal or less than 5 indicates good sleeper.⁸ The Depression, Anxiety and Stress Scale 21 (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS 21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia.

The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic nonspecific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items. The DASS-21 was based on a dimensional rather than a categorical conception of psychological disorder. The assumption on which the DASS-21 development was based (and which was confirmed by the research data) was that the differences between the depression, anxiety and the stress experienced by normal subjects and clinical populations are essentially differences of degree. The DASS 21 therefore has no direct implications for the allocation of patients to discrete diagnostic categories postulated in classificatory systems such as the Diagnostic and Statistical Manual of Mental Disorder (DSM) and International Classification of Diseases (ICD).⁹ Data were collected by preachers and analyzed by statistical package for social sciences (SPSS). Ethical concerns were maintained throughout the study.

Results

The results showed that majority (86%) of the respondents were within the range of age from 55 to 59 years and remaining (14%) were of age 60 years and above. Among the respondents, 67% were male and 33% were female. Majority (35%) of the respondents were educated up to secondary school certificate (SSC) level of education. In respect of occupation businessmen were more (31%), then housewives (29%) and service holders (26%). Only 14% were retired and having other occupations (Table 1).

Table 1: Socio-demographic characteristics of the respondents (n=100)

Socio demographic and related factors	Frequency	Percentage
Age (in year)		
55-59 years	86	86.0
60 and above	14	14.0
Sex		
Male	67	67.0
Female	33	33.0
Educational level		
Primary	28	28.0
Secondary	35	35.0
Higher Secondary	24	24.0
Graduate and above	13	13.0
Occupation		
Housewife	29	29.0
Service	26	26.0
Business	31	31.0
Retired	08	08.0
Others	06	06.0

Among the respondents 51% were suffering from depression and 49% had no problem of depression. Then severe depression was more (19%), then moderate (17%) and less were found to have mild (8%) and extremely severe (7%) depression. Seventy one percent of the respondents had anxiety and 29% had no problems regarding anxiety. Then moderate anxiety was found more (21%), there after 12% had severe anxiety and 8% had mild anxiety. Majority (54%) of the respondents had no stress and 46% respondents had some form of stress ranging severe were 16%, moderate were 15% and mild were 11%. In respect of sleep, majority of the respondents were poor sleepers (60%) and remaining 40% were good sleepers (Table 2).

Depression, anxiety and stress were significantly related with the sleep quality ($p=0.001$). Poor sleepers were more suffering from depression (41%) than the good sleepers suffering from depression (25%). It was statistically significant (p value-0.001). Anxiety was found more among the poor sleepers (80%) than the good sleepers (57.5%) and it was statistically significant ($p=0.001$). Stress was more among the poor sleepers (63.3%) than the good sleepers (20%) and it was statistically significant ($p=0.001$) (Table 3). Most of the sleep components were significantly related with depression, anxiety and stress (Table 4).

Table 2: Depression, anxiety, stress and sleep quality of the elderly respondents (n=100)

Characteristics	Frequency	Percentage
Depression		
Normal	49	49.0
Mild	08	08.0
Moderate	17	17.0
Severe	19	19.0
Extremely severe	07	07.0
Anxiety		
Normal	29	29.0
Mild	08	08.0
Moderate	21	21.0
Severe	12	12.0
Extremely severe	30	30.0
Stress		
Normal	54	54.0
Mild	11	11.0
Moderate	15	15.0
Severe	16	16.0
Extremely severe	04	04.0
Sleep condition		
Good sleepers	40	40.0
Poor sleepers	60	60.0

Table 3: Depression, anxiety and stress in association to sleep quality of the elderly respondents (n=100)

Depression, anxiety and stress	Good sleepers	Poor sleepers	p value
Depression			
Normal	30 (75%)	19 (31.7%)	0.001
Mild	06 (15%)	02 (3.3%)	
Moderate	03 (7.5%)	14 (23.3%)	
Severe	01 (2.5%)	18 (30%)	
Extremely severe	0 (0.0%)	07 (11.7%)	
Anxiety			
Normal	17 (42.5%)	12 (20%)	0.001
Mild	07 (17.5%)	01 (1.7%)	
Moderate	09 (22.5%)	12 (20%)	
Severe	05 (12.5%)	07 (11.7%)	
Extremely severe	02 (5%)	28 (46.7%)	
Stress			
Normal	32 (89%)	22 (36.7%)	0.001
Mild	06 (15%)	05 (8.3%)	
Moderate	02 (05%)	13 (21.7%)	
Severe	00 (0.0%)	16 (26.7%)	
Extremely severe	00 (0.0%)	04 (06.7%)	

Table 4: Association of depression, anxiety and stress with the components of sleep quality (n=100)

Sleep conditions	Correlation			p value		
	Depression	Anxiety	Stress	Depression	Anxiety	Stress
Duration of sleep	0.232	0.108	0.191	0.20	0.284	0.057
Sleep disturbance	0.713	0.639	0.552	0.001	0.001	0.001
Sleep latency	0.570	0.603	0.544	0.001	0.001	0.001
Day dysfunction due to sleepiness	0.756	0.696	0.658	0.001	0.001	0.001
Sleep efficiency	0.223	0.167	0.172	0.026	0.096	0.087
Overall sleep quality	0.435	0.389	0.411	0.001	0.001	0.001
Needs medicine to sleep	0.561	0.499	0.489	0.001	0.001	0.001

Discussion

In this study 40% good sleepers and 60% poor sleepers were found among the elderly respondents. In an Indian study among the elderly, it was found 42% of the respondents suffered from sleep problems.¹ So, this study showed a worse condition. Among the general population sleep problems affected in 10-20% of adults.⁴ Whereas elderly people suffered more from sleep problems.³ Sleep problems might be related with ageing as well as co-morbid physical and mental diseases and other relevant factors. It might be related with circadian rhythm shifts, medical or psychiatric conditions, medication use or combination of these factors.¹ When rigorous exclusion criteria for comorbidities were used the prevalence of sleep disturbances was very low in healthy older adults. Careful assessment of sleep, evaluation of medical history, psychiatric history, lifestyle and environmental factors should be considered to choose due treatment. Treatment should target the sleep problems, comorbidities, improvement of quality of life and functioning in older adults¹. On the other hand, it was also proved that sleep problems were also age related, not only the result of any medical or psychiatric pathologies, primary sleep disorders or poor sleep hygiene. That was even extremely healthy, carefully screened, non-complaining aged adults manifest the changes in sleep qualities.⁵

In this study depression was found in 68.3% of poor sleepers and 25.0% of good sleepers, which was statistically significant ($p=0.001$). Anxiety was found in 80.1% poor sleepers and 57.5% in good sleepers and it was also statistically significant ($p=0.001$). Stress was found in 63.4% poor sleepers and 20% of good sleepers and is statistically significant ($p=0.001$). So, this study showed depression, anxiety and stress were closely associated with sleep disorders. But the sleep disorders might cause depression, anxiety and stress. On the other hand these psychiatric disorders might cause sleep problems, that was the condition was vice versa. Studies suggested that depression might be more strongly related to sleep disorders in older than in younger individuals. A 3-years period study among community-residing elderly persons showed that depressed affect was

related positively to sleep disturbance, even when subjects age, gender, and health status were considered simultaneously.¹⁰ Another study among 286 persons showed that compared to good sleepers, poor sleepers reported more negative affect and arousal at night and more negative affect during the day.¹¹

In this study most of the sleep components e.g., duration of sleep, sleep disturbance, sleep latency, day dysfunctions due to sleepiness, sleep efficiency, overall sleep quality and medication needed to sleep are significantly related with depression, anxiety and stress. According to researchers of California University, who reviewed a lot of studies concluded that half of the elderly above 65 years of age suffered from sleep difficulty, including longer sleep onset time, lower rates of sleep efficiency, more time in bed, more awakenings during the night, earlier wake up times and more daytime naps.³ So the finding of this study was consistent with the findings of other studies. There was now compelling evidence for linkage between sleep and emotions and emotion's relation to sleep disorder was mentioned as stress related insomnia.⁴

Conclusion

In conclusion it could be said that along with many factors sleep was significantly related with mental problems among the elderly people. Sleep could be said as the parameter of our wellbeing. It brought happiness, tranquility, comfort, vigor, restoration of energy in our life. So, all the people and the elderly should be conscious about sleep and its relevant factors.

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