Original Research Article

Descriptive study on sleep quality and its associated factors among elderly in urban population: Chidambaram

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ABSTRACT

Background: Population aging is a major health issue in most countries, sleep is one of the significant factors affecting aging and elderly people's quality of life. The present study was done to assess sleep quality and its contributing factors among elderly people.

Methods: This cross-sectional study was conducted in 2018 on 227 elderly people aged fifty five or more participants were selected from the urban field practice area Chidambaram. Data collection tools were a demographic questionnaire, pittsburg sleep quality index and five point depression scale. The collected data were entered into SPSS software (V-22) and analysed using chi-square test at the significance level of less than 0.5.

Results: Among 227 elderly people most of them were between the age group of 55 to 60 years (44.9%) and majority of them were females (59%), literacy (69.6%) married (60.5%), house wives (43.6%). Among the population 34.8% had their PSQI value <5 which suggest good sleep quality and whereas 65.2% had PSQI ≥5 suggesting poor sleep quality.

Conclusions: The finding of their study indicates that elderly population in this area, have a fairly good quality. The most important factors contributing to their sleep quality are gender, dependency in doing daily activities, other health problems, marital status and their habitual sleep efficiency.

Keywords: Aging, sleep quality, PSQI, Habitual sleep efficiency

INTRODUCTION

Aging is a natural inescapable biological phenomenon. Population aging is a major health issue in many countries.[1] The global population of people aged sixty or more increased by 48% from 2000 to 2015 and reached 901 million by 2015. Estimates show that by 2030, the number of elderly people will exceed the number of children aged 0 to 9 years old (1.4 vs 1.3 billion). Furthermore, the number of people aged eighty or more will increase from 125 million in 2015 to 434 million by 2050 that shows more than threefold increase.[2]

As the number of the elderly increase, geriatric health problems also rise up due to the related and inevitable ageing process. Evidence shows that aging is affected not only by genes but also by lifestyle factors such as sleep.[3] Sleep constitutes about one-third of human life. A restful sleep helps regain physical and mental health.[4]

Sleep is an important physiological process with many restorative functions. It is essential in maintaining the body's circadian rhythm. Insomnia defend as difficulty in falling or staying asleep which is frequent in older people. In the absence of a causative factor, it is referred to as secondary insomnia.[5]

The most common sleep disorders among elderly people are sleeplessness and sleep apnea. Age related sleep disorders are mainly brought about by psychiatric disorders (such as depression, anxiety and delirium), alterations in circadian rhythms, primary sleep disorders, physical health problems (such as respiratory or cardiovascular diseases), acute or chronic pain, medications, restricted physical mobility, smoking, alcohol or caffeine use, environmental factors (such as harsh lighting or noise) and distracting stimuli.[4,6]

Sleep disorders can be associated with serious physical and psychological consequences such as depression, fall, memory impairments, concentration problems, irritability, low quality of life, dementia, fatigue and mood instability.[3,7] Some studies also noted that sleeplessness cause depression, immunity dysfunction and cardiovascular diseases and negatively affects different aspects of life such as interpersonal communication, employment, health status, learning, memory and cognitive skills.[8,9]

Previous studies reported different statistics on the prevalence of sleep disorders among elderly people and showed that elderly people have low sleep quality. For instance, Li et al, conducted a study on 2700 Chinese elderly people and reported that 49.7% of them had low sleep quality.[10] Wang et al, also found that the prevalence of sleeplessness among Chinese elderly people was 37.75%. The objective of the present study was to determine the prevalence of sleep quality among elderly population greater than 55 years of age and to find out the association between selected risk factors and poor quality of sleep.

METHODS

A community based cross sectional study was done in urban field practice area of Chidambaram which includes Vilangiammankoil street, ilamai nayakar koil street and chinnagajiyar street. The study was conducted in the month of September 2018.

Study population included residence of urban field practice area Chidambaram who were more than 55 yrs. Data was collected from 227 individuals by face to face interview in local language at home of respondent after obtaining consent. Those who were unable to respond to the questions, ill during the interview and those did not give consent were excluded.

The study tools used were Pittsburg sleep quality index (PSQI), geriatric depression score (GDS 5 item) and self designed general socio-demographic questionnaire. Pittsburg sleep quality index is an effective instrument used to measure the quality and pattern of sleep in adult. It differentiates poor from good sleep quality by measuring seven components:

- Subjective sleep quality (C_1)
- Sleep latency (C_2)
- Sleep duration (C_3)
- Havitual sleep efficiency (C_4)
- Sleep disturbance (C_5)
- Use of sleep medications (C_6)
- Day time dysfunction (C_7)

Each component has a range of 0–3 points. A score of 0 indicates difficulty, while a score of 3 indicates severe difficulty. The seven components are added to yield one global score with a range of 0 -21 points, 0 indicating no difficulty and 21 indicating severe difficulty. A total score of 5 or greater is indicative of poor sleep quality. The 5 item geriatric depression scale (GDS 5) is a short screening tool used to identify the possible presence of depression. It consists of 5 items from the traditional form and two or more answers in bold are suggestine of depression. After data collection, the data were entered into the SPSSV-22 software and analysed using chi-square test at a significance level of less than 0.05.

5 point geriatric depression scale:[5]

Are you basically satisfied with your life?

Yes / No

Do you often get based?

Yes / No

Do you often feel helpless?

Yes / No

Do you prefer to stay at home rather than going out and doing new things?

Yes / No

Do you feel pretty worthless the way you are now?

Yes / No

RESULTS

Among 227 elderly people most of them were between the age group of 55 to 60 years (44.9%) and majority of them were females (59%), literacy (69.6%), married (60.5%) and house wives (43.6%). Table 1 shows participants demographic, socio economic and health related characteristics. Among the population 34.8% had their PSQI value<5 which suggest good sleep quality and wherease 65.2% had PSQI ≥5 suggesting poor sleep quality.

Table 2 shows the association between the various factors and the global PSQI. It is clearly shown than there is significant association between PSQI and sex,

dependency in doing daily activities, health problems, habitual sleep efficiency and martial status (p<0.05). However it is also shown that PSQI was not significantly related to age, employment status, literacy status, physical activity, intake of sleeping pills, exposure to environmental stimuli (p>0.05).

Table 1: Distribution of study participants according to socio-demographic and health related characteristics.

Variables		Frequency (N)	Percentage (%)
Age (in years)	<60	102	44.9
	61-70	77	33.9
	>70	48	21.2
Sex	Male	93	41
	Female	134	59
Literacy status	Literate	158	69.6
	Illiterate	69	30.4
Marital status	Married	151	66.5
	Widowed	72	31.7
	Unmarried	4	1.8
Employment status	Retired	42	18.5
	Employed	73	32.2
	Disabled	0	0
	House wife	99	43.6
	Unemployed	13	5.7
Persons having health problems	No	40	17.6
	Yes	187	82.4
Exposure to environmental stimuli	Exposed	116	51.1
	Not exposed	111	48.9
Physical activity	Practicing	154	67.8
	Not practicing	74	32.2
Smoking	Yes	12	5.3
	No	215	94.7
Doing daily activities	Yes	45	19.8
	No	182	80.2
Intake of pharmacological sleeping therapies	Regular	9	4
	At times	15	6.6
	No	203	89
Habitual sleep efficiency (%)	>85	177	78
	75-84	29	12
	65-74	12	5.3
	<65	9	4
Depression among population	Yes	45	19.8
	No	182	80.2
Overall sleep	Very good	67	29.5
	Fairly good	108	47.6
	Fairly bad	39	17.2
	Very bad	13	5.7

Table 2: Association between PSQI score and variables included in the study.

Variables		PSQI				Chi-square value	P value
		<5		>5			
		N	%	N	%		
Age (in years)	<60	37	46.8	65	43.9	0.29	>0.05
	61-70	25	31.6	52	35.1		
	>70	17	21.5	31	20.9		
Sex	Male	41	51.8	52	35.1	5.98	<0.05
	Female	38	49.2	96	64.8		

Variables		PSQI				Chi-square value	P value
		<5		>5			
		N	%	N	%		
Marital status	Married	62	78.4	89	60.1	7.79	<0.05
	Widowed	16	20.2	56	37.8		
	Unmarried	1	1.2	3	2.1		
Employment status	Retired	20	25.3	22	14.8	4.36	>0.05
	Employed	25	31.6	48	32.4		
	House wife	31	39.2	68	45.9		
	Unemployed	3	3.7	10	6.7		
Persons having health problems	No	21	26.5	19	12.8	6.70	<0.05
	Yes	58	73.4	129	87.1		
Exposure to environmental stimuli	Exposed	38	48.1	78	52.7	0.43	>0.05
	Not exposed	41	51.8	70	47.2		
Physical activity	Practicing	55	69.6	99	66.8	0.17	>0.05
	Not practicing	24	30.3	49	33.1		
Doing daily activities	Independent	78	98.7	131	88.5	7.36	<0.05
	Dependent	1	1.3	17	11.5		
Intake of pharmacological sleeping therapies	Regular	1	1.2	8	5.4	4.08	>0.05
	At times	3	3.7	12	81		
	No	75	94.9	128	86.4		
Habitual sleep efficiency (%)	>85	79	100	98	66.2	27.1	<0.05
	75-84	0	0	29	19.5		
	65-74	0	0	12	8.1		
	<65	0	0	9	6.1		

DISCUSSION

This study aimed to assess sleep quality and its contributing factors among elderly people. Findings revealed that 17.2% of the elderly people had fairly had sleep quality. Izadi et al also conducted a study in Kashan, Iron, on hospitalized elderly people and found that 45.9% of them suffered from poor sleep quality.[8] Similarly Wang et al. reported that the prevalence of sleeplessness among elderly people in China was 37.75%. Luo et al also studied 1086 elderly people in urban areas of china and found that 41.5% of them had poor sleep quality.[12] The prevalence of poor sleep quality is greater in all these studies than in ours. This difference may be because those studies were conducted on elderly people who were hospitalized in hospitals or nursing homes while we selected our participants from community.

Another finding of the study was female elderly people had significantly poorer sleep quality compared to their male couater parts. Lee et al, Quan et al and Sheikly et al also reported the same finding.[13-15] An explanation for this finding may be the differences among men and women respecting their biological and psychological responses to stress. Some studies reported that women experience higher levels of anxiety, concern, and stress on the other hand, gender affects the anatomy, biochemistry, and function of the brain.[16-18] Moreover, evidence supports the effects of sex steroids an rapid eye movement and non rapid eye movement sleep as well as circadian rhythms via affecting estrogen and progesterone receptors in the brain.[17,18]

Finding revealed that there is significant relation between doing daily activities and their sleep quality. Similar finding are seen by the study done by Li et al reported that disturbances in doing daily activities reduce sleep quality.[10]

Study findings also revealed that any of the health problem was directly correlated with PSQI score.in other words, elderly people who had any health problems had significantly lower sleep quality. Similarly, another study assessed the effects of four to five hour sleep restriction per night for twelve consecutive nights and reported spontaneous bodily pain from the second night.[13]

We also found that these are significant relationship between Martial status and PSQI. Similarly several studies reported that married people had better sleep quality compared to their single or widowed counter parts.[8,12,14]

CONCLUSION

The finding of their study indicates that elderly population in this area, have a fairly good sleep quality. The most important factors contributing to their sleep quality are gender, dependency in doing daily activities, other health problems, martial status and their habitual sleep efficiency. Therefore, sleep quality among elderly

people can be improved through encouraging them to engage in regular physical activity, providing them with counseling services and employing medical and rehabilitative strategies to relieve their health problems. Moreover, in service educations should be provided to health care providers in order to empower them for the accurate diagnosis and effective management of sleep disorder among elderly people.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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