

Original Research Article

A descriptive comparative study to assess the quality of sleep and factors affecting quality of sleep in hospitalized patients admitted in wards and ICUs of tertiary care hospital, New Delhi

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ABSTRACT

Background: A patient's quality of sleep is significantly affected by various factors within hospital environment. Sleep quality in intensive care units (ICUs) often differs drastically from that in general wards, as the highly technical and fast-paced ICU environment present unique challenges to restful sleep.

Methods: This descriptive comparative study design used for inmates of selected wards and ICUs at Tertiary care hospital New Delhi. A convenience sample of 300 patients, 198 from general wards and 102 from intensive care units were selected. A questionnaire consists of a demographic data sheet, modified Pittsburgh sleep quality index for analysing the quality of sleep and a check list for identifying the factors affecting quality of sleep. Data were analysed using SPSS with level of significance set at $p < 0.05$.

Results: 51% of patients (53.54 % in general wards and 46.08 % of ICUs) had good quality of sleep. "Staying away from home" (60.61% in general wards and 60.78% in ICUs) was the most reported problem that affects quality of sleep in both the groups of patients. All together 51% of patients had good sleep. The study also compared the quality of sleep of general wards and ICUs, but no significant difference was observed.

Conclusions: many patients have poor quality of sleep in the hospital environment. Both general wards and ICUs contains many factors that affects quality of sleep which should be controlled for a sleep friendly environment.

Keywords: General ward, ICU, Patient, Quality of sleep, Sleep

INTRODUCTION

Sleep is a fundamental necessity of an individual's day to day life and it also has association with physical and psychological wellbeing.¹ Sleep is a bodily function that helps in maintaining health, perception and stability of mood.² Children requires more sleep-in comparison to adults per day for optimizing growth and development, up to 18 hours of sleep for new-born babies, which is declining as the child grows.³ Sleep has an important role in healing and recovery from illness.⁴ Sleep quality is considered as a major concept in the day-to-day clinical practices.⁵ Data from earlier studies shows poor quality of

sleep in hospitalised patients.^{6,7} Many hospital inmates encounter insufficient sleep and this may affect recovery due to its after effects.^{8,9}

A patient's quality of sleep is significantly affected by various factors within hospital environment. Both actual and potential disturbances lead to sleep deprivation, which can prolong the time required for recovery. Furthermore, sleep quality in ICUs often differs drastically from that in general wards, as the highly technical and fast-paced ICU environment present unique challenges to restful sleep. Present study is assessing the sleep quality and factors affecting quality of sleep and

compares quality of sleep-in patients admitted in general wards and ICUs, of a tertiary care hospital.

Statement of the problem

A study to assess the quality of sleep and factors affecting quality of sleep-in hospitalized patients

Objectives

To assess the quality of sleep-in patients admitted in general wards and ICUs. To assess the factors affecting quality of sleep-in patients admitted in general wards and ICUs. To compare the quality of sleep of patients admitted in general wards and ICUs. To correlate quality of sleep of patients admitted in general wards and ICUs with selected background variables.

METHODS

This descriptive comparative study design used for inmates of selected wards and ICUs at AIIMS, New Delhi. The study duration was of 6 months from June to December 2009 and 300 patients (198 patients from the general wards and 102 patients from intensive care units) selected using convenient sampling for selected patients and Random sampling was used for selecting the wards and intensive care units of Hospital. Patients who have been hospitalized for at least for one week, aged between 18 to 65 years, conscious and oriented to place and time, able to answer question including open ended questions and ready to take part were included. Exclusion criteria included critically ill, mental impairment, history of sleep disorders, current endotracheal or tracheostomy tube placement and use of sedatives or other central nervous system stimulants or depressants.

Demographic profile tool consists of 12 items including socio-demographic and clinical information was used to collect data from subjects through interview, in consultation with experts.

Modified Pittsburgh sleep quality index tool prepared from Pittsburgh sleep quality index and permission for modification of the tool was obtained. Validity and Reliability of modified tool was established by experts. The tool had questions regarding the sleep of patient for the past one week and from the answers of the question sleep quality was calculated. An extensive review of literature-based check list was developed including common factor affecting sleep of hospitalized patients.

The check list included 30 factors affecting the sleep quality and 31st option for any new factor which was expressed by patients. Content validity of the study tools was established by 5 experts (3 of them from nursing and 2 anaesthesiologists). There is 100% agreement between the experts. Some extraneous variables were added and the tools were modified as per suggestions given by the experts. Patient information sheet and consent form was

developed. Ethical permission availed from the Institute Ethics Committee, eligible Patients were included as inclusion criteria of the study. A letter describing the purpose of the study was given to the subjects. Duly signed consent forms were obtained before participation in the study. Questionnaires were distributed to the patients who agreed to participate. Using the filled questionnaire sleep quality score was calculated and factors were identified. Data analysis was done using SPSS (version 21). Probability of the study accepted less than 0.05 of significance. Descriptive and inferential statistics (Chi square) was used to calculate and to obtain meaningful result.

RESULTS

Sociodemographic variable not showed any significant difference between groups in terms of age, Sex, religion, marital status and education; therefore the groups are comparable in terms of these variables. The table also shows the occupation, nature of work, length of hospitalization, type of treatment, diagnosis and presence of co morbidities have significant difference between groups, so the groups are not comparable in terms of these variables.

Table 2 depicted 53.54 % of general ward patients and 46.08% ICU patients had good sleep quality. Quality of sleep between ICU patients and general ward patients were not found any significant differences.

Table 3 depicts that awakening at night for treatment and checking vital signs" (41.41 % in general wards and 30.39 % in the ICUs) is the most reported hospital routines related factors affecting quality of sleep. that "Noise from other patients" (27.78%) in general wards and "Noise from monitors and other devices" (47.06%) in the ICU are the most reported noise related factors affecting quality of sleep.

Shows that "IV cannula" is the most reported external connection that affects quality of sleep in both general wards (26.77%) and ICUs (38.24%) patients. shows that "Staying away from home" (60.61% in general wards and (60.78% in ICUs) is the most reported psychological factors affecting quality of sleep. shows "Pain" (45.45%) in general wards and (60.78%) in ICUs is the most reported physiological factors affecting quality of sleep. highlights that among other factors "Light during night" (42.42% in general wards and 41.18 % in ICUs) was most reported factors responsible for poor sleep quality.

Quality of sleep in both groups between age groups, sexes. religions, marital status, occupation, education, nature of work, length of hospitalization, treatment in, medical and surgical patients not found any significant difference. In terms of presence of co-morbidities significant difference was observed at $p < 0.05$ level in quality of sleep of patients in ICUs, but not observed in patients admitted in general wards.

It is concluded that 53.54 % of general ward patients and 46.08 % of ICU patient found to be good quality of sleep. All together 51% of patients had good sleep. “Staying away from home” (60.61% in general wards and 60.78% in the ICUs) was the most reported problem that affects sleep quality in both the category. Length of

hospitalization was positively correlated to the sleep quality in both ICUs and general wards. Sleep quality had significant difference in ICUs in terms of presence of co morbidities, but it is not seen in general wards. Other variables showed no significant influence on sleep quality.

Table 1: Sample characteristics and other information of study samples (N=300).

Variable		Frequency (%)		P value
		General wards (n=198)	ICUs (n=102)	
Age (in years)	17-35 years	100 (67.06)	48 (47.1)	0.0578
	36-55 years	58 (29.3)	28 (27.5)	
	56 and above	40 (20.2)	26 (25.5)	
Sex	Male	138 (50.5)	60 (58.82)	0.06
	Female	60 (30.3)	42 (41.18)	
Religion	Hindu	162 (81.31)	74 (72.55)	0.056
	Muslim	22 (11.11)	21 (20.59)	
	Sikh	13 (6.57)	4 (3.92)	
	Christian	1 (0.51)	3 (2.94)	
Marital status	Single	45 (22.73)	23 (22.55)	0.529
	Married	149 (75.25)	75 (75.53)	
	Widow	4 (2.01)	4 (3.92)	
Occupation	Employed	81 (40.9)	28 (27.5)	0.04
	Unemployed	93 (47.0)	54 (52.9)	
	Students	24 (12.1)	20 (19.6)	
Education	Illiterate	16 (8.1)	11 (10.8)	0.303
	School education	59 (29.8)	37 (36.3)	
	College education	123 (62.1)	54 (52.9)	
Nature of work	Day shift	170 (85.86)	99 (97.06)	0.01
	Night shift	4 (2.02)	0	
	No specific shift	24 (12.12)	3 (2.94)	
Length of hospitalization	< 2 weeks	111 (56.06)	72 (70.59)	0.024
	2-6 weeks	77 (38.89)	29 (28.43)	
	6-12 weeks	10 (5.05)	1 (0.98)	
Type of treatment	Only medication	109 (55.05)	35 (34.31)	0.004
	Surgery+medication	80 (40.40)	62 (60.78)	
	Others	9 (4.55)	5 (4.90)	
Diagnosis	Medical	120 (60.61)	40 (39.22)	0.001
	Surgical	78 (39.39)	62 (60.78)	
Co-morbidities	Absent	171 (86.36)	96 (94.12)	0.042
	Present	27 (13.68)	6 (5.88)	

Table 2: Comparison of quality of sleep in patients admitted general wards and ICUs (N=300).

Area	Good sleep		Poor sleep		P value
	Frequency	%	Frequency	%	
Wards	106	53.54	92	46.46	0.221
ICUs	47	46.08	55	53.92	
Total	153	51	147	49	

Table 3: Factors affecting quality of sleep in patients admitted in general wards and ICUs (N=300).

Domain	Factor	General wards		ICUs	
		Frequency	%	Frequency	%
Hospital routine	Going to bed at a different time	73	36.87	16	15.69
	Emergency care is being	76	38.38	18	17.65

Continued.

Domain	Factor	General wards		ICUs	
		Frequency	%	Frequency	%
	done to another patient next to my bed				
	Awakening at night for treatment and checking vital signs	82	41.41	31	30.39
Noise	Noise from monitors and other devices	63	31	48	47.06
	Conversation of hospital staffs	34	17.17	28	27.45
	Noise from other patients	55	27.78	15	14.71
	Noise from the telephone/cell phone	28	14.14	9	8.82
External connections	Medical monitor	37	18.69	26	25.74
	IV fluid	36	18.18	22	21.57
	IV cannula	53	26.77	39	38.24
	Nasogastric tube	20	10.10	9	8.82
	Drainage device	18	9.09	8	7.84
Psychological factors	Unpleasant conversations during day time	44	22.22	9	8.82
	Unpleasant conversations during night time	33	16.67	8	7.84
	Negative thought during the day time	55	27.78	21	20.59
	Negative thought around sleeping time	58	29.29	22	21.57
	Anxiety about the outcome of hospitalization	104	52.53	38	37.25
	Worry about my family members	98	49.49	55	53.92
	Anxiety because of strange environment	60	30.30	33	32.35
	Anxiety because life is in the hands of strangers	55	27.78	20	19.61
	Away from home	120	60.61	62	60.78
Physiological factors	Pain	90	45.45	62	60.78
	Dyspnoea	55	27.78	22	21.57
	Thrust	76	38.38	54	52.94
	Hunger	42	21.21	20	19.51
Others	Light during night	84	42.42	42	41.18
	The mattress and pillow in the hospital	46	23.23	16	15.69
	Lack of privacy	45	22.75	15	14.71
	Extremely Cold/warm environment	34	17.17	19	18.63
	Bad odour	26	13.13	7	6.86
	Other problems	18	9.09	3	2.93

Table 4: Correlation of sociodemographic variables with quality of sleep in patients admitted in general wards and ICUs (N=300).

Variable		General wards					ICUs				
		Good sleep		Poor sleep		P value	Good sleep		Poor sleep		P value
		f	%	f	%		f	%	f	%	
Age (in years)	17-35	60	60.0	40	40.0	0.365	25	52.1	23	47.9	0.913
	35-5	41	70.7	17	29.3		16	57.1	12	42.9	
	55 above	24	60.0	16	40.0		14	53.8	12	46.2	
Sex	Male	77	55.8	61	44.2	0.333	25	41.67	35	58.33	0.285

Continued.

Variable		General wards					ICUs				
		Good sleep		Poor sleep		P value	Good sleep		Poor sleep		P value
		f	%	f	%		f	%	f	%	
Religion	Female	29	48.33	31	51.67	0.476	22	52.38	22	47.62	0.772
	Hindu	90	55.28	72	44.72		35	47.30	39	52.70	
	Muslim	11	50.00	11	50.00		8	38.10	13	61.90	
	Sikh	5	38.46	8	61.54		2	50.00	2	50.00	
	Christian	0	0	1	100		2	66.67	1	33.33	
Marital status	Single	19	42.22	26	57.78	0.220	9	39.13	14	60.87	0.406
	Married	85	57.05	64	42.95		35	46.67	40	53.33	
	Widow	2	50	2	50		3	75.00	1	25.00	
Occupation	Unemployed	45	55.6	36	44.4	0.050	13	46.4	15	53.6	0.444
	Employed	67	72.0	26	28.0		29	53.7	25	46.3	
	Students	13	54.2	11	45.8		13	65.0	7	35.0	
Education	Illiterate	10	62.5	6	37.5	0.971	5	45.5	6	54.5	0.913
	School education	38	64.4	21	35.6		19	51.4	18	48.6	
Nature of work	Day shift	94	55.29	76	44.71	0.351	46	46.46	53	53.54	0.653
	Night shift	1	25.00	3	75.00		0	0	0	0	
	No specific shifts	11	45.83	13	54.17		1	33.33	2	66.67	
Length of hospitalization	< 2 weeks	66	59.46	45	40.54	0.036	39	54.17	33	45.83	0.034
	2-6 weeks	38	49.35	39	50.65		8	27.59	21	72.41	
	6-12 weeks	2	20.00	8	80.00		0	0	1	100	
Type of treatment	Medication	50	45.87	59	54.13	0.051	14	40.00	21	60.00	0.265
	Surgery+medication	51	63.75	29	36.25		32	51.61	30	48.39	
	Other treatments	5	55.56	4	44.44		1	20.00	4	80.00	
Diagnosis	Medical	58	48.33	62	51.67	0.069	16	40.00	24	60.00	0.323
	Surgical	48	61.54	30	38.46		31	50.00	31	50.00	
Presence of co-morbidities	Yes	13	48.15	14	51.85	0.546	0	0	6	100	0.020
	No	93	54.39	78	45.61		47	48.96	49	51.04	

DISCUSSION

The study duration was of 6 months; 300 subjects were included as per inclusion criteria of the study. In the total patients 198 patients were from the general wards and 102 were from ICUs. Demographic data of the patients were collected. Quality of sleep was assessed by modified Pittsburgh sleep quality index and the factors affecting sleep quality were assessed by a self-developed check list. Normal sound sleep in the hospital remains a challenge for most patients. Various factors physical, physiological and emotional factors affect sleep patterns of the patients in the hospital.

When we don't sleep well, our bodies' immune system and ability to heal wounds and other types of tissue damage is reduced. Patients, admitted in intensive care units (ICUs), are monitored continuously and urgency to woken up for therapeutic and diagnostic interventions during the night and at other times when they are sleeping. Total 300 patients completed the questionnaire and the data were statistically analysed. In present study 46.46% of general ward patients and 53.92% ICU patients had bad sleep quality. A study by Kuivainen et al found out that 65% of patents had bad sleep during their hospitalization.¹⁰

A study Dagon et al shows that female patients experienced worse sleep than male patients while in the hospital.¹¹ There was no significant difference between the sleep quality of men and women in the wards or ICUs found out in the present study. Naik et al through cross sectional study found out sleep problem is highly prevalent in ICU patients.¹²

In a study conducted in hospitalized adult patients Frighetto et al found out that there is a relation between sleep effectiveness a length of hospitalization.¹³ The present study revealed that length of hospitalization is positively co-related to sleep quality which was contradictory to the common belief. Small sample size (300). Sapling method was convenient sampling. Study was limited to single setting.

CONCLUSION

Based on the scientific evidences it can be concluded that: Many patients in the hospital have bad sleep. Patient experience bad sleep in both ICUs and general wards. Both ICUs and wards environment contain certain factor that disturbs quality of sleep of patients.

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