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QUALITY OF SLEEP AND FACTORS INFLUENCING SLEEP PATTERN AMONG PATIENTS ADMITTED IN THE ICUS IN SELECTED HOSPITALS, GUWAHATI, ASSAM: A DESCRIPTIVE STUDY

PIYALI DEY[1], MANJU CHAPAGAIN[2], PINKI BARMAN[3]

[1]MSc.Nursing, Department of Medical Surgical Nursing(CTVS), Asian Institute of Nursing Education, North Guwahati, Assam, India

[2]Assistant Professor, Department of Medical Surgical Nursing(CTVS), [3]Assistant Lecturer, Department of Community Health Nursing. Asian Institute of Nursing Education North Guwahati, Assam, India

Corresponding Author: Piyali Dey

ABSTRACT:

BACKGROUND: Sleep is an important and essential process in all our lives. Rest and sleep are essential for good health. According to Maslow's hierarchy of needs, sleep is one of the most basic needs or drives to motivate human beings to achieve the fullest potential in life. According to WHO, Sleep is triggered by a complex group of hormones that are active in the body, and that respond to cues from the body itself and the environment. Sleep disturbance is a frequently overlooked complication of intensive care units (ICU).

OBJECTIVES:

- To assess the quality of sleep among patients admitted in ICUs in selected hospitals, Guwahati Assam.
- To assess the factors influencing sleep pattern among patients admitted in ICUs in selected hospitals, Guwahati Assam.
- To find out the correlation between quality of sleep and factors influencing sleep pattern among patients admitted in the ICUs in selected hospitals, Guwahati, Assam.
- To find out the association between quality of sleep and factors influencing sleep pattern with the selected socio-demographic variables.

METHODS AND MATERIALS: The investigator conducted an descriptive study to identify the quality of sleep and factors influencing sleep pattern among patients admitted in the ICUs in selected hospitals of Guwahati,in order to accomplish the objectives of the study. Non

probability purposive sampling technique was used for obtaining the adequate sample for the study.Study was undertaken on 142 patients in selected hospitals of Guwahati,Assam.Paticipants were selected on the basis of inclusion and exclusion criteria.Quality of sleep and factors influencing sleep pattern were assessed by distributing self structured SQS tool and checklist to the respondents.

RESULTS: Result showed that out of 142 respondents majority 41(28.9%) of the respondents were in the age group 31-40 years,72(50.7%) of the respondents were female, 30(21.1%) of the respondents completed primary and middle school education, 43(30.3%) respondents had monthly income Less than or equal to Rs. 9226, 40(28.2%) of the respondents were in government job, 38(26.8%) of the respondents were married, 24(16.9%) respondents were diagnosed with CVA, 17(12.0%) respondents have none of the co morbidities, 85(59.9%) respondents have previous ICU admission, 13(9.2%) respondents stayed for >30 days.In assessing quality of sleep it reveals that out of 142 respondents, 138(97.2%) had moderately adequate quality of sleep and in factors influencing sleep majority 130(91.5%) had high disturbances in the sleep pattern by 56.8(40%) environmental factors, 45.89(32.3%) treatment process, 23.24(16.36%) physical symptoms, 16.07(11.34%) non-environmental factors.It is also found that the correlation between quality of sleep and factors influencing sleep pattern was found to be -0.428 which shows a negative correlation between quality of sleep and factors influencing sleep pattern.Thus, when factors influencing sleep pattern is high then the quality of sleep among the patients admitted in ICU is poor.In association,the results showed that there is no association between quality of sleep with the age, gender, qualification, occupation, family income/month, marital status, diagnosis, any co-morbidities, previous hospitalization,duration of ICU stay.

CONCLUSION: From this study it was concluded that majority of patients had moderately adequate quality of sleep and had high disturbances in sleep pattern in the ICUs. There is moderate relationship between quality of sleep and factors influencing sleep pattern, thus the investigator concluded that though the factors in this study might likely affect the quality of sleep among patients some other factors might affect their sleep in the ICUs.

Keywords: quality of sleep,factors influencing sleep pattern,patients admitted in ICUs.

INTRODUCTION:

Sleep is essential for healthy functioning and survival. Sleep influences both behavioural and physiologic functions, including memory, mood, hormone secretion, glucose metabolism, immune function, and body temperature. Sleep is a state in which an individual lacks conscious awareness of environmental surroundings, but can be easily aroused. Most adults require 7 to 8 hours of sleep within a 24 hour period. Adequate sleep is defined as the amount of sleep one needs to be fully awake and alert next's day.

Insufficient sleep refers to obtaining less than recommended amounts of sleep. Fragmented sleep refers to frequent arousals or actual awakenings that interrupt sleep continuity.

OBJECTIVES:

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- To find out the association between quality of sleep and factors influencing sleep pattern with the selected socio-demographic variables.

METHODOLOGY:

A descriptive design was used in the study to accomplish the objectives using non- probability purposive sampling technique for obtaining adequate sample for the study. Study was done on 142 ICU patients in selected hospitals of Guwahati, Assam. Respondents were selected on the basis of inclusion and exclusion criteria; self structured SQS assessment tool and checklist was used to assess the quality of sleep and factors influencing sleep pattern among patients admitted in the ICUs.

DESCRIPTION OF THE TOOL:

In order to meet the objectives of the study, the following tools were constructed which consists of three sections:

Section-I: Socio-demographic Data

Section-II: Self Structured sleep assessment scale for quality of sleep (SQS)

Section-III:Checklist for factors influencing sleep pattern disturbance.

DATA COLLECTION PROCEDURE:

Data collection process was scheduled from 28th September to 19th October 2023.

A formal written permission was obtained from the respective authorities of the selected hospitals. After getting permission, the investigator visited the selected hospitals on given dates respectively. A brief self introduction and the purpose of the study were explained to the authorities. The investigator was accompanied by ICU sister incharge to visit the ICUs where critically ill patients were admitted.The investigator identified and selected the patients those who are conscious and willing to participate. The participants were selected using non probability purposive sampling technique. The investigator also explained regarding the study to sample prior to data collection and keeping in mind the ethical aspect of the research, the data was collected after obtaining informed written consent of the samples. The participants were assured anonymity and confidentiality of information provided by them. The investigator distributed the self structured sleep assessment tool for quality of sleep and checklist for assessing factors influencing sleep pattern among patients admitted in the ICUs by self report and it took around 20-30mins to complete the self structured tools for each patient.

RESULTS:

SECTION-I: Frequency and percentage distribution of ICU patients according to their socio-demographic characteristics.

TABLE-1 **n =142**

Demographic Variables	Frequency (f)	Percentage (%)
Age (in years)		
21 – 30 years	37	26.1
31 – 40 years	41	28.9
41 – 50 years	32	22.5
>50years	32	22.5
Gender		
Male	68	47.9
Female	72	50.7
Transgender	2	1.4
Educational status		
Primary	30	21.1
Middle school	30	21.1
High school	20	14.1
Higher secondary	22	15.5
Graduate	18	12.7
Post graduate	12	8.5
Illiterate	10	7.0
Family income / month		
Less than or equal to 9226	43	30.3
Rs.9,232 – 27,048	32	22.5
Rs.27,654-46,089	40	29.6
>Rs. 46,095	25	17.6
Occupation		
Unemployed	25	17.6
Self-employed	32	22.5

Demographic Variables	Frequency (f)	Percentage (%)
Government job	40	28.2
Private job	18	12.7
Student	14	9.9
Homemaker	13	9.2
Marital status		
Married	38	26.8
Unmarried	38	26.8
Divorce	37	26.1
Widow	29	20.4
Diagnosis		
CVA	24	16.9
Head injury	19	13.4
Fracture	19	13.4
Pneumonia	16	11.3
AKI	20	14.1
Liver cirrhosis	7	4.9
CAD	9	6.3
MI	15	10.6
ARDS	13	9.2
Any co-morbidities		
Diabetes mellitus	23	16.2
Hypertension	28	19.7
COPD	32	22.5
Asthma	20	14.1
Thyroid problem	22	15.5
Others	17	12.0
Previous ICU admission		
Yes	85	59.9
No	57	40.1
Duration of ICU stay		
5 to 10	28	19.7
10 to 15	25	17.6
15 to 20	29	20.4
20 to 25	21	14.8
25 to 30	26	18.3
>30	13	9.2

The table 1 portrays that most of the patients admitted in ICU, 41(28.9%) were aged between 31 – 40 years, 72(50.7%) were female, 30(21.1%) had primary education and middle school education respectively, 43(30.3%) had family income of less than or equal to 9226 per month, 40(28.2%) were employed in government job, 38(26.8%) were married and unmarried respectively, 24(16.9%) were diagnosed of CVA, 32(22.5%) had COPD as co-morbid illness, 85(59.9%) had been admitted in ICU previously and 29(20.4%) were staying in ICU for 15 to 20 days.

SECTION-II: Frequency and percentage distribution of quality of sleep among patients admitted in the ICUs.

TABLE- 2 **n=142**

Quality of Sleep	Frequency	Percentage (%)
Inadequate (<33%) (Score ≤12)	-	-
Moderately Adequate (34-66%) (Score 13 – 24)	138	97.2
Adequate (>67%) (Score 25 – 36)	4	2.8

Table-2 shows that out of 142 patients majority i.e.138(97.2%) had moderately adequate quality of sleep and 4(2.8%) had adequate quality of sleep.

SECTION-III:Frequency and percentage distribution of factors influencing sleep pattern among patients admitted in the ICUs.

TABLE-3(A) **n=142**

Factors influencing Sleep Pattern	Frequency	Percentage (%)
Physical Symptoms	23.24	16.36 %
Environmental Factors	56.8	40%
Non-environmental Factors	16.07	11.34%
Factors related to treatment process	45.89	32.3%
TOTAL	**142**	**100%**

Table-3(A) shows that among 142 patients admitted in ICU, majority 56.8(40%) had sleep disturbance by environmental factors, 45.89(32.3%) had sleep disturbance due to treatment process, 23.24(16.36%) had sleep disturbance by physical symptoms, 16.07(11.34%) had sleep disturbance by non-environmental factors.

TABLE-3(B) **n=142**

Factors influencing Sleep Pattern	Frequency	Percentage (%)
Low disturbances (<33%) (Score ≤8)	-	-
Moderate disturbances (34-66%) (Score 9 – 16)	12	8.5
High disturbances (>67%) (Score 17 – 24)	130	91.5

Table-3(B) shows that among the patients admitted in ICU, 130(91.5%) had high disturbances in the sleep pattern and 12(8.5%) had moderate disturbances in the sleep pattern.

SECTION-IV:Correlation between quality of sleep and factors influencing sleep pattern among patients in the ICU

TABLE-4 **n=142**

VARIABLES	MEAN	S.D	Karl Pearson's Correlation 'r' Value
Quality of sleep	19.70	2.52	**r = -0.428**
Factors influencing sleep pattern	17.83	1.93	

***p<0.001, S – Significant

The table-4 show that the mean score of quality of sleep was 19.70±2.52 and the mean score of factors influencing sleep pattern was 17.83±1.93. The calculated Karl Pearson's Correlation value of r= -0.428 shows a negative correlation which clearly infers that when factors influencing sleep pattern is high then the quality of sleep among the patients admitted in ICU is poor and found to be inadequate sleep.

SECTION-V:Association of quality of sleep among patients admitted in the ICUwith their socio-demographic variables

TABLE-5 **n=142**

Demographic Variables	Moderately Adequate		Adequate		Chi-Square p-value / Fisher Exact test p-value
	F	%	F	%	
Age (in years)					P=0.904 N.S
21 – 30 years	36	25.4	1	0.7	
31 – 40 years	39	27.5	2	1.4	
41 – 50 years	31	21.8	1	0.7	
>51 years	32	22.5	0	0	
Gender					P=1.000 N.S
Male	66	46.5	2	1.4	

Demographic Variables	Moderately Adequate		Adequate		Chi-Square p-value / Fisher Exact test p-value
	F	%	F	%	
Female	70	49.3	2	1.4	
Transgender	2	1.4	0	0	
Educational status					
Primary	27	19.0	3	2.1	
Middle school	29	20.4	1	0.7	
High school	20	14.1	0	0	P=0.475
Higher secondary	22	15.5	0	0	N.S
Graduate	18	12.7	0	0	
Post graduate	12	8.5	0	0	
Illiterate	10	7.0	0	0	
Family income / month					
Less than or equal to 9226	41	28.9	2	1.4	
Rs.9,232 – 27,048	31	21.8	1	0.7	P=0.911
Rs.27,654-46,089	41	28.9	1	0.7	N.S
>Rs. 46,095	25	17.6	0	0	
Occupation					
Unemployed	25	17.6	0	0	
Self-employed	30	21.1	2	1.4	
Government job	38	26.8	2	1.4	P=0.815
Private job	18	12.7	0	0	N.S
Student	14	9.9	0	0	
Homemaker	13	9.2	0	0	
Marital status					
Married	37	26.1	1	0.7	
Unmarried	36	25.4	2	1.4	P=0.905
Divorce	36	25.4	1	0.7	N.S
Widow	29	20.4	0	0	
Diagnosis					
CVA	24	16.9	0	0	
Head injury	18	12.7	1	0.7	
Fracture	18	12.7	1	0.7	
Pneumonia	16	11.3	0	0	P=0.402
AKI	20	14.1	0	0	N.S
Liver cirrhosis	7	4.9	0	0	
CAD	8	5.6	1	0.7	
MI	15	10.6	0	0	
ARDS	12	8.5	1	0.7	
Any co-morbidities					
Diabetes mellitus	21	14.8	2	1.4	
Hypertension	28	19.7	0	0	P=0.292
COPD	30	21.1	2	1.4	N.S
Asthma	20	14.1	0	0	
Thyroid problem	22	15.5	0	0	

Demographic Variables	Moderately Adequate		Adequate		Chi-Square p-value / Fisher Exact test p-value
	F	%	F	%	
Others	17	12.0	0	0	
Previous ICU admission					P=1.000 N.S
Yes	83	58.5	2	1.4	
No	55	38.7	2	1.4	
Duration of ICU stay					P=0.137 N.S
5 to 10	26	18.3	2	1.4	
10 to 15	25	17.6	0	0	
15 to 20	29	20.4	0	0	
20 to 25	19	13.4	2	1.4	
25 to 30	26	18.3	0	0	
>30	13	9.2	0	0	

***p≤0.001, **p<0.01, *p<0.05, S – Significant, p>0.05, N.S – Not Significant

INTERPRETATION

The table-5depicts the association of quality of sleep among patients admitted in the ICU with their demographic variables.

Age: The calculated p value was 0.904.Since the p value was more than 0.05 there was no significant association between quality of sleep and age.

Gender: The calculated p value was 1.000. Since the p value was more than 0.05 there was no significant association between quality of sleep and gender.

Educational Qualification: The calculated p value was 0.475. Since the p value was more than 0.05 there was no significant association between quality of sleep and educational qualification.

Family income/month: The calculated p value was 0.911. Since the p value was more than 0.05 there was no significant association between quality of sleep and family income/month.

Occupation: The calculated p value was 0.815. Since the p value was more than 0.05 there was no significant association between quality of sleep and occupation.

Marital status: The calculated p value was 0.475. Since the p value was more than 0.05 there was no significant association between quality of sleep and marital status.

Diagnosis: The calculated p value was 0.402. Since the p value was more than 0.05 there was no significant association between quality of sleep and diagnosis.

Co-morbidities: The calculated p value was 0.292. Since the p value was more than 0.05 there was no significant association between quality of sleep and co-morbidities.

Previous ICU admission: The calculated p value was 1.000. Since the p value was more than 0.05 there was no significant association between quality of sleep and previous ICU admission.

Duration of ICU stay: The calculated p value was 0.137. Since the p value was more than 0.05 there was no significant association between quality of sleep and duration of ICU stay.

SECTION-VI:Association of factors influencing sleep pattern among patients admitted in ICU with their socio demographic variables

TABLE-6 **n=142**

Demographic Variables	Moderate Disturbance		High Disturbance		Chi-Square p-value / Fisher Exact test p-value
	F	%	F	%	
Age (in years)					P=0.315 N.S
21 – 30 years	2	1.4	35	24.6	
31 – 40 years	4	2.8	37	26.1	
41 – 50 years	5	3.5	27	19.0	
>50 years	1	0.7	31	21.8	
Gender					P=0.272 N.S
Male	3	2.1	65	45.8	
Female	9	6.3	63	44.4	
Transgender	0	0	2	1.4	
Educational status					P=0.326 N.S
Primary	5	3.5	25	17.6	
Middle school	2	1.4	28	19.7	
High school	2	1.4	18	12.7	
Higher secondary	0	0	22	15.5	
Graduate	1	0.7	17	12.0	
Post graduate	2	1.4	10	7.0	
Illiterate	0	0	10	7.0	
Family income / month					P=0.496 N.S
Less than or equal to 9226	5	3.5	38	26.8	
Rs.9,232 – 27,048	4	2.8	28	19.7	
Rs.27,654-46,089	2	1.4	40	28.2	
>Rs. 46,095	1	0.7	24	16.9	
Occupation					P=0.625 N.S
Unemployed	1	0.7	24	16.9	
Self-employed	5	3.5	27	19.0	
Government job	4	2.8	36	25.4	
Private job	1	0.7	17	12.0	
Student	0	0	14	9.9	
Homemaker	1	0.7	12	8.5	
Marital status					P=0.405 N.S
Married	1	0.7	37	26.1	
Unmarried	5	3.5	33	23.2	
Divorce	3	2.1	34	23.9	
Widow	3	2.1	26	18.3	
Diagnosis					P=0.117 N.S
CVA	0	0	24	16.9	
Head injury	1	0.7	18	12.7	
Fracture	2	1.4	17	12.0	
Pneumonia	2	1.4	14	9.9	
AKI	0	0	20	14.1	
Liver cirrhosis	2	1.4	5	3.5	

Demographic Variables	Moderate Disturbance		High Disturbance		Chi-Square p-value / Fisher Exact test p-value
	F	%	F	%	
CAD	1	0.7	8	5.6	
MI	2	1.4	13	9.2	
ARDS	2	1.4	11	7.7	
Any co-morbidities					
Diabetes mellitus	3	2.1	20	14.1	
Hypertension	1	0.7	27	19.0	P=0.295 N.S
COPD	5	3.5	27	19.0	
Asthma	0	0	20	14.1	
Thyroid problem	1	0.7	21	14.8	
Others	2	1.4	15	10.6	
Previous ICU admission					
Yes	6	4.2	79	55.6	P=0.544 N.S
No	6	4.2	51	35.9	
Duration of ICU stay					
5 to 10	4	2.8	24	16.9	
10 to 15	0	0	25	17.6	
15 to 20	3	2.1	26	18.3	P=0.076 N.S
20 to 25	3	2.1	18	12.7	
25 to 30	0	0	26	18.3	
>30	2	1.4	11	7.7	

***p≤0.001, **p<0.01, *p<0.05, S – Significant, p>0.05, N.S – Not Significant

INTERPRETATION

The table-6 depicts the association of factors influencing sleep among patients admitted in the ICU with their demographic variables.

Age: The calculated p value was 0.315.Since the p value was more than 0.05 there was no significant association between quality of sleep and age.

Gender: The calculated p value was 0.272. Since the p value was more than 0.05 there was no significant association between quality of sleep and gender.

Educational Qualification: The calculated p value was 0.326. Since the p value was more than 0.05 there was no significant association between quality of sleep and educational qualification.

Family income/month: The calculated p value was 0.496. Since the p value was more than 0.05 there was no significant association between quality of sleep and family income/month.

Occupation: The calculated p value was 0.625. Since the p value was more than 0.05 there was no significant association between quality of sleep and occupation.

Marital status: The calculated p value was 0.405. Since the p value was more than 0.05 there was no significant association between quality of sleep and marital status.

Diagnosis: The calculated p value was 0.117. Since the p value was more than 0.05 there was no significant association between quality of sleep and diagnosis.

Co-morbidities: The calculated p value was 0.295. Since the p value was more than 0.05 there was no significant association between quality of sleep and co-morbidities.

Previous ICU admission: The calculated p value was 0.544. Since the p value was more than 0.05 there was no significant association between quality of sleep and previous ICU admission.

Duration of ICU stay: The calculated p value was 0.076. Since the p value was more than 0.05 there was no significant association between quality of sleep and duration of ICU stay.

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