ORIGINAL ARTICLE

Factors affecting the sleep status of surgical and medical patients at a University Hospital of Turkey

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Abstract

Objective: To determine the factors that affect sleep status of surgical and medical patients during hospitalisation.

Methods: This hospital-based, cross-sectional study was conducted at Karadeniz Technical University's Farabi Hospital, Trabzon, Turkey, from July to October 2014. Data was gathered using a questionnaire and the Form of Factors Affecting Sleep Pattern. SPSS 15 was used for statistical analysis.

Results: Of the 184 participants, there were 92(50%) each from the surgery and medical clinics. The mean score for the Form of Factors Affecting Sleep Pattern was 84.57±8.65 among the surgical patients and 78.01±17.61 among the medical patients. It was found that noise at the hospital affected sleep patterns among 73(79.3%) of the surgical patients and among 64(69.6%) of the medical patients. There were statistically significant differences between mean scores of the surgical patients and gender and marital status (p=0.001 and p=0.012, respectively), whereas among the medical patients statistically significant differences existed between mean scores and having operation (p=0.09).

Conclusion: Both groups of patients underwent changes in sleep routines during hospitalisation.

Keywords: Medical patients, Nursing, Sleep, Surgical patients, The factors affecting sleep pattern. (JPMA 66: 1535; 2016)

Introduction

Sleep is one of the basic daily life activities of the individuals, affects their lives and health, and has physiological, psychological and social dimensions.[1-4] Sleep patterns may change in terms of age, gender, health status, environment and personal characteristics, and therefore may vary from people to people. In the realisation of this basic human activity, factors such as smoking and alcohol, medicines, diseases and noise play important roles.[5-9]

Being hospitalised is an unexpected and negative life experience.[2-5,10,11] Among the patients, these new conditions, i.e. being different from their traditional lifestyles and settings, may result in much or little pain, some changes in the functions/appearances of the organs and may end up with events that jeopardise personal respect or body integrity. Also, an individual who is hospitalised may have difficulty meeting basic biological needs like sleep due to health problems and fears caused by staying away from his familiar environment and habits.[2,6,9,12]

In practice, it is known that hospitals are not the ideal places to rest in and lead to sleep problems by affecting the quality of sleep. Patients state that they are generally disturbed and the quality of their sleep is interrupted by being woken up to take medicines, noisy and strange environment, frequently done medical interventions and care services. Also, it is emphasised that such factors as stress and anxiety, overcrowded hospital rooms, uncomfortable hospital beds, and night-lights affect the quality of sleep.[3,6,9,10,12-16] It is known that quality of sleep, particularly of those patients who stay at surgery clinics, is negatively affected by pain, pre-surgery and post-surgery periods and restricted movements. Patients' inability to maintain routine sleep-wake cycle may affect their overall health negatively, and creates more tension in patients, retards wound-healing, intensifies pain and generates difficulties in doing activities of daily living.[5,7,10,13,17] Therefore, hospitalised patients need more sleep and rest than normal so that their bodies can be restored and recovered.[2,4,10,18]

Literature shows that most of the information about patients' sleep status at hospitals has been achieved from studies done at intensive care units (ICUs). These studies report that sleep problems are more frequently experienced, effectiveness and quality of sleep is negatively affected, especially because of ICUs being strange and isolated settings, noise, nursing care activities, medicine treatments, pain, and current diseases of the patients.[4,7,13,15,19-22] Although findings obtained from these studies provide significant information about the nature of sleep at hospital, they also point out that sleep patterns and sleep status of other patient groups should be measured during their hospital stay in order to explore their sleep structure in detail.

Nursing is a profession that includes meeting basic human needs as well as sleep needs. In order to help the patients through a holistic approach, nurses are expected to take the necessary precautions by determining the factors that affect sleep status of the hospitalised patients to help maintain

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normal sleep process and to improve the quality of sleep of the patients. The current study was planned to determine the factors that affected sleep status of surgical and medical patients during their hospitalisation.

Patients and Methods

This hospital-based, cross-sectional study was conducted at Karadeniz Technical University's Farabi Hospital, Trabzon, Turkey, from July 15 to October 15, 2014. The study population consisted of patients who presented at the surgical clinic and medical clinic of the hospital. According to a power analysis for independent sample t-test, the sample size was estimated with 95% confidence interval (CI), alpha=0.05 margin of error, and 80% power and moderate effect size level. However, to avoid possible loss of data, the sample size was increased by nearly 10% over the calculated value.[5,23,24]

Subjects who received inpatient treatment at the surgery and medical clinics, aged ≥18 years, hospitalised for at least three days, were able to communicate and willing to participate in the study were included. Patients who had a situation or disease that had a direct effect upon their sleep pattern (e.g. alcohol addiction, use of psychiatric and neurological medicines, psychological disorders, dementia, thyroid diseases, etc.) were excluded.

Data was collected using a questionnaire designed by researchers in line with the relevant literature and the Form of Factors Affecting Sleep Pattern (FFASP). The questionnaire consisted of 25 questions related to patients' socio-demographic characteristics and sleep patterns.

The FFASP was developed by Tosunoglu A. Hastanede and its reliability and validity tests were performed.[25] The FFASP is a five-point Likert scale that includes 24 questions about the factors that affect sleep routine with the following coding: affecting very much (5 point), affecting (4 point), I am neutral (3 point), not affecting (2 point) and not affecting at all (1 point). The highest score to be obtained from the scale is 120 while the lowest score is 24. Higher scores indicate that there are many factors that negatively affect sleep routine of the patients and that sleep problems are on the rise. Cronbach's alpha reliability coefficient for the FFASP was 0.70.

The study was approved by the institutional ethics committee. The questionnaire and the FFASP were filled out by the researchers during face-to-face interviews lasting 15-20 minutes each. Data was analysed using SPSS 15. Kolmogorov-Smirnov test was used to determine whether or not the data followed a normal distribution. After the normality test, independent sample t-test was used for the comparison of two groups that followed a normal distribution, whereas Mann-Whitney U test was employed for the comparison of two groups that did not follow a normal distribution. Kruskal-Wallis test was employed for the comparison of three and more groups that did not follow a normal distribution. Percentage, mean, standard deviation (SD), and minimum and maximum values were also used for the assessment of the data. P<0.05 was considered statistically significant.

Results

Of the 184 participants, there were 92(50%) each from the

Table-1: Distribution of mean FFASP scores according to patients' socio-demographic characteristics (n=184).

Socio-demographic characteristics		Surgical patients (n=92)			Medical patients (n=92)		
		n (%)	FFASP (mean±SD)	p value	n (%)	FFASP (mean ±SD)	p value
Age group	< 40 years	26(28.3)	84.61±8.03	0.630*	30(32.6)	78.00±14.82	0.897**
	≥ 40 years	66(71.7)	84.56±8.94		62(67.4)	78.01±18.92	
Gender	Female	10(10.9)	92.80 ±3.88	0.001*	53(57.6)	75.64±20.26	0.109**
	Male	82(89.1)	83.57± 8.54		39(42.4)	81.23±12.73	
Marital status	Married	76(82.6)	85.40±8.80	0.012*	71(77.2)	78.08±16.92	0.569*
	Single	16(17.4)	80.62±6.80		21(22.8)	77.76±20.21	
Educational status	≤ Primary	56(60.9)	83.78±7.11	0.319**	59(64.1)	75.67±17.29	0.930**
	≥ High school	36(39.1)	85.80±10.60		33(35.9)	82.18±17.66	
Chronic disease	Yes	61(66.3)	85.65±8.37	0.093**	42(45.7)	78.57±16.07	0.781**
	No	31(33.7)	82.45±8.93		50(54.3)	77.54±18.95	
Previous hospitalisation	Yes	31(33.7)	85.09±11.37	0.727*	64(69.6)	76.53±16.80	0.138*
	No	6 (66.3)	84.31±6.97		28(30.4)	81.39±19.22	
Operation	Yes	5(5.4)	85.20±10.37	0.958*	29(35.5)	71.34±18.23	0.009*
	No	87(94.6)	84.54±8.61		63(68.5)	81.07±16.57	
Hospitalisation length	1 - 5 days	43(46.7)	83.72±8.96	0.380**	29(31.5)	75.68±18.27	0.292*
	> 5 days	49(53.3)	85.32±8.39		63(68.5)	79.07±17.34	
Hospital room	Double room	14(15.2)	85.07±12.79	0.532*	71(77.2)	78.60±19.05	0.352*
	>Double room	78(84.8)	84.48±7.79		17(18.5)	74.82±11.83	

*Mann-Whitney U test. **Independent Sample t test. FFASP: Form of factors affecting sleep pattern. SD: Standard deviation.

Table-2: Distribution of mean FFASP scores in terms of patients' sleep characteristics (n=184).

Sleep characteristics	Surgical patients (n=92)			Medical patients (n=92)		
	n (%)	FFASP (mean±SD)	p value	n (%)	FFASP (mean ±SD)	p value
Sleep pattern						
Presence of sleep problem before hospitalisation	14(15.2)	85.92±11.01	0.371*	14(15.2)	84.14±11.28	0.295*
Changes in sleep routines after hospitalisation	54(58.7)	83.72±8.31	0.261**	29(31.5)	79.17±15.87	0.830*
Being affected by the noise at the hospital	73(79.3)	85.63±7.62	0.072**	64(69.6)	79.59±15.78	0.249**
Changes in sleep routines						
Frequently waking up	22(23.9)	90.18±6.58	0.001*	27(29.3)	79.85±19.24	0.404*
Having difficulty falling asleep	26(28.3)	85.26±10.26	0.566*	22(23.9)	85.77±13.92	0.021*
Waking up too early in the mornings	54(58.7)	83.72±8.31	0.261**	29(31.5)	79.17±15.87	0.830*
Noise types that affected sleep most						
Telephone calls	36(39.1)	88.77±3.80	0.000**	10(10.9)	71.30±16.26	0.285*
Noise of footsteps	31(33.7)	85.96±9.41	0.297**	15(16.3)	72.26±20.78	0.231*
Noises from taps, doors, window, etc.	9 (9.8)	91.00±8.30	0.015*	6(6.5)	57.66±20.17	0.010*
Noises from repairs at the hospital	22(23.9)	83.95±12.08	0.775*	14(15.2)	90.50±12.11	0.010*
Noises from outside the hospital	5(5.4)	96.00±0.00	0.001*	17(18.5)	77.47±20.64	0.650*
The person to whom sleep problems were reported*						
Nurses	43(46.7)	82.06±10.13		31(33.7)	75.29±16.91	
Physicians	8(8.7)	78.75±9.31	0.001***	16(17.4)	81.18±20.21	0.455
Nurses and physicians	16(17.4)	91.18±5.79		3(3.3)	75.33±12.70	
Not reported	25(27.4)	86.52±1.41		42(45.7)	79.00±17.62	
FFASP total score (Mean ± SD)		84.57±8.65 (min =64, max=99 score)			78.01±17.61 (min =43, max=112 score)	
Sleep duration before hospitalisation (Mean ± SD, P)		7.67±1.25 p=0.394**			7.47±1.80	
Average daily sleep duration at the hospital (Mean ± SD, P)		5.82±2.01 p=0.000**			7.18±2.02	

*Mann-Whitney U test
**Independent Sample t test
***Kruskal-Wallis test
FFASP: Form of factors affecting sleep pattern
SD: Standard deviation.

surgery and medical clinics. Of those who stayed at the surgery clinic, 66(71.7%) were aged ≥ 40 years; 82(89.1%) were men, 76(82.6%) were married and 56(60.9%) were ≤ primary school graduates. Moreover, 61(66.3%) of them suffered from a chronic disease, 61(66.3%) were previously not hospitalised and 87(94.6%) did not have any operation previously. More than half of the surgical patients 49(53.3%) stayed at the hospital for > 5 days and 78(84.8%) stayed in double room.

Of those patients who stayed at the medical clinic, 62(67.4%) were aged <40 years. Besides, 53(57.6%) of them were women, 71(77.2%) were married, and 59(64.1%) were ≤ primary school graduates. Besides, 50(54.3%) did not have a chronic disease, 28(30.4%) were previously not hospitalised and 63(68.5%) did not have any operation previously. Furthermore, 63(68.5%) of them stayed at the hospital for > 5 days and 71(77.2%) stayed in double rooms.

There were statistically significant differences between mean FFASP scores of the surgical patients and gender and marital status (p=0.001 and p=0.012, respectively). As for the medical patients, statistically significant differences were found between mean FFASP scores and having a surgery (p=0.09) (Table-1).

An examination of surgical patients' sleep characteristics revealed a statistically significant difference between mean FFASP scores and frequently waking up (for changes sleep routines) (p=0.001); telephone calls (p=0.000); noises from taps, doors, window, etc. (p=0.015) and noises from outside the hospital (for noise types that affected sleep most) (p=0.001). It was found that 43(46.7%) surgical patients reported their sleep problems to nurses and there was a statistically significant difference between mean FFASP scores and the person to whom sleep problems were reported (p=0.001).

When the medical patients' sleep characteristics were investigated, a statistically significant difference was found between mean FFASP scores and difficulty falling asleep (for changes sleep routines) (p=0.021); noises from taps, doors, window, etc. (p=0.010) and noises from repairs at the hospital (for noise types that affected sleep most) (p= 0.010). Moreover, 42(45.7%) of them did not report the sleep problems to anybody and there was not a statistically significant difference between mean FFASP scores and the person to whom sleep problems were reported (p=0.455).

The mean FFASP total score was 84.57±8.65 (range: 64-99) among the surgical patients and 78.01±17.61 (range: 43-112) among the medical patients. The mean sleep duration before hospitalisation was 7.67±1.25 hours a day among the surgical patients and 7.47±1.80 among the medical patients (p=0.394). The mean daily sleep duration at the hospital was 5.82±2.01 hours a day among the surgical patients and 7.18±2.02 among the medical patients (p=0.000) (Table-2).

Sleep patterns of surgical patients were most affected by pain in 52(56.5%) cases and airless/unventilated patient rooms in 46(50.0%), whereas sleep patterns of medical patients were most affected by overcrowded patient rooms in 38(41.3%) and pain in 37(40.2%) cases.

Discussion

Individuals who are hospitalised and worried about the disease generally meet an unknown environment, unfamiliar noises and undergo painful or uncomfortable diagnosis and treatment procedures in addition to the disease. Therefore, their quality of sleep is affected and their sleep patterns undergo changes.

In the current study, it was detected that mean FFASP scores of the surgical patients were statistically and significantly affected by some personal characteristics such as gender, marital status and educational status while mean FFASP scores of the medical patients were statistically and significantly affected by having an operation. The findings of the current study are similar to the results of some other studies.[5,6] Unlike our study, the study of Atar et al.[5] pointed out that personal characteristics did not affect FFASP scores. Sleep is an activity of daily life that can be affected by biological, psychological, environmental and economical factors.[2,7] Therefore, health care personnel should first assess the patients through a holistic approach and determine their sleep patterns and characteristics, and then develop and implement patient specific care plan.

It was found that there was no statistically significant difference between the surgical patients and the medical patients in terms of sleep duration before hospitalisation. However, surgical patients slept less than medical patients during hospitalisation, and there was significant difference between the mean daily sleep duration among the two groups. These results are similar to the findings of some other studies.[2,10,18,26] However, in the study of Frighetto et al.[12] and Bernhofer et al.[14] it was reported that the quality of sleep of the medical patients was negatively affected as a result of hospitalisation. Generally speaking, sleep duration of the hospitalised patients was reduced by the current diseases, hospital environment, interventions and the treatments made. It is known that surgical patients undergo more sleep problems as compared with the medical patients and the quality of their sleep was negatively affected due to worries about the surgeries, post-operative pain and restricted movements/positions. On the other hand, frequent medical checks for the vital signs of the surgical patients may interrupt their sleep, whereas medical patients do not experience night sleep interruption unless there is an acute event. Besides, because it is possible that medical patients often take sedative medicines at night during their hospital stay, they suffer from sleep problems less.[5,7,13,26]

Mean total FFASP scores of both surgical patients and medical patients were high but the surgical patients obtained higher mean total FFASP scores than medical patients. Our study results are similar to the results of some other studies,[2,5,6,9] which suggested that the number of the factors that affected the quality of sleep of the surgical patients was bigger than medical patients and problems that occurred during pre- and post-operation periods in surgical patients negatively affected their quality of sleep. Therefore, health care personnel who work at surgery clinics should carefully examine the possible factors that may lead to sleep problems and provide patients with physical and psychological comfort.

Our study found that nearly one-fifth of both surgery patients and medical patients suffered from sleep disturbances before hospitalisation. It was discovered that three-fifth of the surgical patients and nearly one-third of the medical patients underwent changes in sleep routines after hospitalisation. The prevalence of change in sleep routines in our study was similar to that reported by Karan and Asti[16] (57.5%), lower than that reported by Atar et al.,[5] Karagozoglu et al.,[10] Yilmaz et al.[2] and Cinar and Olgun[18] (66.4% -98%), and higher than that reported by Kain et al.[17] (51%). Many studies argue that being ill and hospitalised, and hospital settings are important factors that negatively affect sleep status and change sleep

patterns of the individuals. Hospitalised patients try to struggle against numerous internal and external problems, and have worries that disease course will deteriorate their sleep process.[2,5,9,14] Therefore, health care team should care about sleep activities and make necessary interventions that help continue sleep routines.

In the current study, nearly half of the surgical patients and one-third of the medical patients reported their sleep problems to nurses whereas nearly half of the medical patients did not report the sleep problems to anybody. Additionally, it was noted that the rate to report sleep problems by the surgical patients to physicians (8.7%) was lower than medical patients (17.4%). In the study of Yilmaz et al.,[2] 41.6% of the patients told their sleep problems to physicians while 36% of them to nurses. The respective percentages were 19.5% and 37.2% in the study of Onler and Yilmaz,[3] and 23.5% and57.5% in the study of Karagozoglu et al.[10] This points out the obligation that nurses who are in mutual interaction with the patients at the hospital setting should assess patients' sleep activity carefully, establish suitable solution options to their sleep problems and adopt a multidisciplinary approach in solving these problems.

In terms of changes in sleep routines after hospitalisation, it was found that the surgical patients and the medical patients experienced such sleep disturbances as frequently waking up, having difficulty falling asleep and waking up too early in the morning. Our study results were similar to those of other studies,[2,5-7,10,11] which suggested that the current diseases of the patients as well as being in unfamiliar setting, being away from home and change in the daily living routines negatively affected sleep. In addition, not taking sleep patterns of the patients into consideration while care, diagnosis and treatment interventions are being made may interrupt their sleep habits.[2,5,10] Therefore, it is necessary to plan and to implement care activities to be provided for the patients by taking their sleep patterns into consideration and to offer a suitable setting so that patients can maintain their pre-sleep habits.

When the literature was reviewed, it was noted that one of the most important factors that affected patients' sleep pattern was noise. In the present study, one-fifth of the surgery patients and two-thirds of the medical patients expressed that noise at the hospital negatively affected their sleep. When the causes of noise that disturbed the patients most were listed, it was found out that the patients were affected by telephone calls and noise of footsteps most. Our studies results were similar to those of other studies.[2,3,5] In the study of Zhang et al.,[26] it was indentified that such environmental factors as being in a strange place, nursing care interventions and footsteps of the nurses and pain interrupted sleep of the patients who underwent thoracic surgery. Keeping noise under control, reducing the number of the beds in the patient rooms, arranging the hospital setting in a way to help patients sleep and not waking up the patients unless necessary are important points in the sense that patients can sleep comfortably.[6,21,22]

Our study found that sleep routines of the surgical patients were mostly affected by pain and airless/unventilated or overcrowded hospital rooms while sleep routines of the medical patients were most affected by overcrowded hospital rooms, pain, uncomfortable hospital beds and frequent entering and exiting of hospital rooms. Our study results were similar to those of other studies.[2,3,5,6,10,16] In the study of Tranmer et al.,[7] patients said that they were quite disturbed by the noise from other patients, loud talks at the unit, unpleasant environmental factors, pain and anxiety. The study of Friese et al.[13] showed that post-operative pain and anxiety were the most significant problems that affected sleep. Generally, pain is considered as a factor that affects the quality of sleep negatively among many patients, particularly among the surgical patients.[3,5-7,15,17] Therefore, it is necessary to identify pain at regular intervals to make individualised interventions for pain management and to provide a more effective pain control, particularly among the surgical patients during the early post-operative period when pain is intensive so that patients can get a more satisfactory and quality sleep in hospitals.

Conclusion

Both surgery patients and medical patients underwent changes in sleep routines after hospitalisation, were affected by the noise at the hospital environment at a higher rate and surgical patients suffered from more factors that affected sleep routines as compared to the medical patients. It is recommended that health care team - nurses being in the first place - should be more sensitive to the sleep disturbances and the factors that affect sleep.

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