



Original Article

Factors Affecting on Sleeplessness of Patients in Intensive Care Unit (ICU)

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ABSTRACT

Sleeplessness is the second problematic issue during the stay in ICU. after being discharged from hospital. Almost 51% of ICU patients complaint that their sleep habit is badly affected. **Objective:** To assess the factors affecting on sleeplessness of patients in intensive care unit ICU. **Methods:** A descriptive cross sectional research study design was conducted to examine the factors affecting on sleeplessness of patients in ICU. The population was targeted through purposive sampling techniques. Data collected from those patients who were not in very critical condition who are awaken and those who are recently shifted from ICU to ward as they were critical in ICU were targeted in this study. The targeted population was 137 of ICU patients. Data analysis were done through statistical package for the social sciences (SPSS) version-21. **Results:** The overall result of this study is shown that noise and light have effect on the sleep of patients. The patients who cannot sleep when lights on were 57(47.1%), the patients who disturbed by noise were 55 (40.1%). Patients who are admitted more than 3 days or a week are more disturbed by light and noise of ICU. **Conclusions:** Study shows that noise and light levels in ICU are above than recommended levels. So, the hospital should take steps to improve the strategies which lead to comfort of patients sleep. Noise and light play vital role in patient healing. So, they can have peaceful sleep. Study shows that these factors should be minimized by using strategies that leads patients' health towards healing and make their life long.

INTRODUCTION

All over the world environmental factors has been drastic effect on sleep of patient in ICU. There are multiple environmental stressors namely noise, light etc. that affect the patient recovery in intensive care unit [1]. Patient mostly encountered with sleep disturbance in ICU. Therefore, of the disturbance in sleep and irritability of noise and light patient sleeping pattern are disturbed and as a result patient leads to dyssomnia, such as they face difficulty in sleep and early morning awakening. The Environment has major issue from the past few years which has drastic effects on patient recovery. These factors can only be controlled by staff [2]. In the study of 2016, in China many studies have found that poor sleep is the Common factor in ICU. The equipment collectively produces sounds and tones and unfortunately have affect the sleep of patients [3]. Environmental stimuli and different types of

loud noises make negative outcomes on patients. Noise may be defined as "unwanted sound" excessive noise is becoming major issue for intensive care unit [4]. Noise affects patient and staff, effect on patients' recovery time and its concentration of staff and cognitive functions [5]. Critically ill patients get irritated by whispers, alarms, and conversations. A person who is in ICU needs calm environment, so they will not get abnormal changes in mood and their behavior [6]. In Pakistan study was conducted to identify risk factors in Gulab Devi chest hospital and Hameed Latif there are more cases of sleep fragmentation because of poor development of ICUs [7]. The etiologies which cause sleep deprivation are many than noise and light and peaks >80dB are injurious to behaviors of patients [8]. According to World Health Organization in ICU in average background noise in hospital

should not exceed than 30 dB and in nighttime less than 40dB [9]. Noise affects patient psychologically and physiologically. According to the environmental theory of Florence Nightingale that patient should not be awake intentionally during the first part of sleep. The importance of sound in nursing care can be bring back to Florence Nightingale, "unnecessary sound, then is the cruelest absence of care which can be inflicted either on sick or well" [10]. The other important factor in ICU is adequate lightening for the improvement of patient care. In ICU patients sleeping pattern is disturbed and high risk of delirium if light is excessive [11]. Noise can be reduced by the earplugs in combination with eye mask, to improve sleep and reduced disorientation has been explored in several studies [12]. In Pakistan it is less concerned about the proper sleep of patients with the treatment. So, it is needed to conduct the study on that factors that effect on sleeplessness of patients [13]. ICU studies in this research is less focused on the noise that produced by patients' surroundings. So, it is important to highlight that factor (noise and light). That hospital staff and nurses should have a look on treatment as well as also provide proper sleep by controlling excessive noise and light in ICU. The aim of this study is to inspect the sound and noise level in all ICUs in Pakistan and to find the reasons of these factors [14]. This serve to support in development of hospitals in Pakistan That environment is free from noise and reduce noise from patient surroundings and use dim lights when it a patient sleep time and use lights when it is a need of patient as according to theory of Florence nightingale and this goal can only be achieved by the proper concentration of staff nurses[15].

METHODS

Descriptive cross-sectional research study was used. The study setting was Jinnah Hospital Lahore and General hospital Lahore (ICU) The study took approximately 9 months. The study target population was ICU patients affected by certain factors in Jinnah Hospital Lahore and General hospital Lahore. The study sample size was calculated by Slovin's formula. The purposive sampling technique was used to gather sample from the patient. Inclusion criteria ICU patients was included in this study admitted from last one to two weeks was included in the study. Exclusion criteria Patients who are in wards were excluded in this study Patients who are disturbed by other reasons in ICU was excluded in this study. who recently admitted in ICU was excluded in this study. As we know that ICU patients are that much ill to unable to express what they are feeling or experienced from the surrounding of ICU so the data was collected from the patients who are recently, shifted from ICU to wards. The patients except Jinnah

Hospital and Lahore General Hospital was excluded from the study. Data were analyzed by using SPSS version 21.0

RESULTS

Table 1 shows that from total no of population who responded in this study. Those with the age group 15-25 yeas were 43 (31.4%), those with age group 25-35 years were 30(21.9 %), those with the age group 35-45 years were 33(24.1%), those having age group above 45 years were 31 (22.6%). Those who respond in this study. Those who are male were 53 (38.7%), those who are female 80 (58.4%), Those who are married were 64 (46.7%), those who are unmarried were 44 (32.1%), those who are widows were 23 (16.8 %), those who divorced were only 6(4.4%). Those who studied primary were 35 (25.5%), those who studied secondary were 53 (38.7%), those who studied tertiary were 37 (27.0%), and those who are illiterate were only 12 (8.8%). Those who are employed 88(64.2%), those who are unemployed 49(35.8%) Those who earn 15000-25000 were 18 (13.1%), those who earn 25000-35000 were 44 (32.1%) those who earn 35000-45000 were 23(16.8%) and those who earn above 45000 were 12 (8.8%), those who do not earn were 40(29.2%).

Table 1: Demographic Analysis

Variable	Frequency (%) Cumulative frequency
Age	
15-25	43 (31.4%)
25-35	30 (21.9%)
35-45	33 (24.1%)
Above 45	31 (22.6%)
Gender	
Male	53 (38.7%)
Female	80 (58.4%)
Marital status	
Married	64 (46.7%)
Unmarried	44 (32.1%)
Widow	23 (16.8%)
Divorced	6 (4.4%)
Qualification	
Primary	35 (25.5%)
Secondary	53 (38.7%)
Tertiary	37 (27.0%)
Illiterate	12 (8.8%)
Occupation	
Employed	88 (64.2%)
Unemployed	49 (35.8%)
Monthly income	
15000-25000	18 (13.1%)
25000-35000	44 (32.1%)
35000-45000	23 (16.8%)
Above 45000	12 (8.8%)
0	40 (29.2%)

Table 2 Shows that total no of population responded to this question. "I can sleep even if lights on" those who respond not at all were 22 (16.4%), Those who respond rarely were 57 (41.6%) those who respond sometimes were 34 (24.8%),

those who respond often were 20 (14.6%), those who respond always were only 4 (2.9%) "I wake up from sleep because the room is too hot or too cold" those who respond not at all were 16 (11.7%), Those who respond rarely were 39(28.5%) those who respond sometimes were 51 (37.2%), those who respond often were 25(18.2%).

Table 2: Response of participants with sleeplessness on questions regarding light, noise and temperature

Questions	Frequency (%)
I can sleep even if lights on	
Not at all	22 (16.1%)
Rarely	57 (41.6%)
Sometimes	34 (24.8%)
Often	20 (14.6%)
Always	4 (2.9%)
I wake up from sleep because the room is too hot or too cold	
Not at all	16 (11.7%)
Rarely	39 (28.5%)
Sometimes	51 (37.2%)
Often	25 (18.2%)
Always	6 (4.4%)
I cannot sleep because of environmental noise such as telephone rings and machine alarms	
Not at all	7 (5.1%)
Rarely	49 (35.8%)
Sometimes	13 (9.5%)
Often	44 (32.1%)
Always	24 (17.5%)

Table 3 shows that total no of participants who responded to this question "I cannot sleep because of crying of surrounded patients from pain" Those who respond not at all were 19 (13.9%), Those who respond rarely were 30 (21.9%) those who respond sometimes were 30(21.9%), those who respond often were 39 (28.5%), those who respond always were 19(13.9%). "I wake up from sleep when other patients are treated" those who respond not at all were 6(4.4%), Those who respond rarely were 30 (21.9%) those who respond sometimes were 49 (35.8%), those who respond often were 32(23.4%), those who respond always were 20(14.6%). "I can sleep even if frequent awakening by doctors and nurses" those who respond not at all were 5 (3.6%), Those who respond rarely were 21(15.3%) those who respond sometimes were 40(29.2%), those who respond often were 35(25.5%), those who respond always were 36(26.3%).

Table 3: Response of patients regarding disturbed by their surroundings

Questions	Frequency (%)	Cumulative frequency (%)
I cannot sleep because of crying of surrounded patients from pain.		
Not at all	19 (13.9%)	13.9
Rarely	30 (21.9%)	35.8
Sometimes	30 (21.9%)	57.7
Often	39 (28.5%)	86.1

Always	19 (13.9%)
	100.0
I wake up from sleep when other patients are treated.	
Not at all	6 (4.4%)
Rarely	30 (21.9%)
Sometimes	49 (35.8%)
Often	32 (23.4%)
Always	20 (14.6%)
I can sleep even if frequent awakening by doctors and nurses.	
Not at all	5 (3.6%)
Rarely	21 (15.3%)
Sometimes	40 (29.2%)
Often	35 (25.5%)
Always	36 (26.3%)

DISCUSSION

The descriptive study was examining" the factor affecting on sleep of ICU patient: the study result shows that the total respondent who responded to the study all were male and females and transgender the majority were older males and females 80 (58.4%), the tool use for "the factor affecting on sleep of ICU patient" was adopted. Sleep deprivation Factors are multifactorial and have many affects on ICU patients. factors that affect sleep such as noise, light, ventilator alarms, frequent awakening of nurses and doctors playing vital role in sleep deprivation. by which males are more that affected by these factors out of 137 there are 77 older men and women who are more prone towards sleep deprivation. interview taken from non-ventilated patients are irritated by their noisy surroundings and people who are more than 40-50 are more disturbed because of their age factor. the recent, study conducted in south Africa shows that older adult males and older adult female are more disturbed. So, this study finding supports the previous study findings. this study consistent with the study conducted in south Africa of 152 patients, 46.1 % reported poor sleep quality during their hospitalization; their total score was 6.95 ± 3.713 . Of these, 69.1 % indicated that their sleep quality was poorer than before; 50.0% of them changed their sleep patterns. Significant discrepancies exist between nurses and patients in the perceptions of sleep-disturbing factors of patients. Sleep protocols are introduced to reduce unnecessary where physician can check patient remotely and enhance sleeping the ICU. The Cronbach Alpha, Bartlett's & KMO values has been checked to insure the validity and reliability in our context. The value shows significant and positive results and tool were consider as reliable and valid for performing statistical analysis showed that from total participants who responded about the question. The total no of population responded to this question they can sleep even if lights on [16]. Those who respond not at all were 22 (16.4%), Those who respond rarely were 57 (41.6%) those who respond sometimes were 34 (24.8%), those who respond often were 20 (14.6%), those who respond always

were only 4 (2.9). this percentage shows that light has negative affect on patients that they sleep rarely if lights on. And the previous study finding also shows that patients disturbed from lightening Which was reported by (20 patients, 15.2%)[16]. They awake sometimes when room is too hot or too cold. Those who respond not at all were 16 (11.7%), Those who respond rarely were 39 (28.5%) those who respond sometimes were 51 (37.2%), those who respond often were 25 (18.2%). And previous study by Papaioannou et al., findings shows that temperature also causes the disturbance in sleep which was reported by (28 patients, 20.1%)[17]. Patients respond they cannot sleep often when other patients are crying with pain (18). Those who respond not at all were 19 (13.9%), Those who respond rarely, were 24(17.5%) those who respond sometime were 26(19.0%), those who respond often were 61(44.5%), those who respond always were 7(5.1%). And previous study also shows that patient got disturbed by others patients if they are crying or mourn with pain which was reported by (25 patients, 10%) [16]. Patients respond that rarely they cannot sleep because of noise of telephones and alarms [18]. Those who respond not at all were 19 (13.9%), Those who respond rarely were 30 (21.9%) those who respond sometimes were 30(21.9%), those who respond often were 39 (28.5%), those who respond always were 19(13.9%). And previous study also shows that noise of alarms and ringing cause patients irritable which was reported by(29 patients, 18.6%) [19]. Patients who respond I wake up from sleep when other patients are treated [20]. Those who respond not at all were 6(4.4%), Those who respond rarely were 30 (21.9%) those who respond sometimes were 49 (35.8%), those who respond often were 32 (23.4%), those who respond always were 20 (14.6%). And previous study also shows that which is reported from (15 patients 0%). Patients who respond i can sleep even if frequent awakening by doctors and nurses[21]. Those who respond not at all were 5 (3.6%), Those who respond rarely were 21(15.3%) those who respond sometimes were 40(29.2%), those who respond often were 35 (25.5%), those who respond always were 36(26.3%). and previous study also shows that patients are more often disturbed by assessment which is reported from (20 patients, 15%). The current study findings consistent with the study conducted in 2020 by Miranda-Ackerman et al., "Association between stressors and difficulty sleep in critically ill patients admitted to ICU" in which results shows that both males (mean age 54.46 years) and female (mean age 60 years) are disturbed by certain factors which cause in ICU as compared to this article which also shows that most of the factors like noise, light, alarms triggers in ICU patients which can cause disturbance and patients who are younger than 55 years are more affected by the environmental and

biological factors than were those older than 55 years[22].

CONCLUSIONS

The study results concluded that the highlighted factor which responsible for sleeplessness were noise and light. These have shown that noise is one number of factors that may cause disruption in sleep in the ICU patients. Alarms, staff conversation frequent assessment by doctor and nurses are the most disturbing noises for patients' sleep in ICU. Study shows that these factors should be minimized by using strategies that leads patients' health towards healing and make their life long.

Authors Contribution

Conceptualization: JW, HS, STK

Methodology: JW, NS, KU

Formal analysis: JW, NS, STK, KU

Writing-review and editing: JW, NS, HS, STK, KU

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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