

## Night Shift Work and Its Impact on Health Status of Nurses

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### Abstract

**Background** Workers who engage in shift work can experience considerable disruption of family and social activities. **Aim of the study:** to assess the impact of night shift work on Health status of nurses. **Subjects & Methods: Research design:** a descriptive correlational design used. **Setting:** Emergent outpatient department and intensive care unit at Sohag University Hospital. **Subjects :**(44) staff nurses. **Tool of data collection:** A structured interview questionnaire consists of two parts; **Personal characteristics and job sheet; Night shift questionnaire. Results:** both intensive care unit (ICU) unit and Emergent outpatient department (EOPD) all of the study sample were females, (72.7%), aged less than 30 year, and (59.1%) had less than 10 years of experience. About (81.8%) at ICU and (90.9%) at EOPD were not enough sleep after night shift. More than two third at ICU and EOPD there is workload at the night shift. And (54.6%) at ICU and (77.3%) at EOPD the night shift were high effect on their behavior and mood. Also about (87.5%) at ICU and all nurses at EOPD agreed night shift increase conflict in their family. Lastly (40.9%) at ICU and (68.2%) at EOPD mentioned the night shift work affects their health. **Conclusion:** The highest percent of intensive care unit (ICU) nurses and Emergent outpatient department (EOPD) nurses, does not participate in scheduling, they were not enough sleep after night shift, and the night shift was almost high effect on their behavior and mood. Also the majority of nurses at ICU and EOPD agreed night shift increase conflict in their family and affects their health. **Recommendations:** Nurses should be given the opportunity to participate in their own schedules, and provide sufficient number and diversity of staff to work in each unit.

**Key word:** Night shift, sleep problem, family and social.

### Introduction:

To provide 24-hour health care, health workers require a variety of work shift patterns. Adapting to these different shift patterns or changes in shift patterns is difficult if the risks and problems associated with them are not properly managed and this leads to fatigue during work and poor health and it has an impact on the quality of health care required for patients<sup>(1)</sup>.

Although the duties and responsibilities are not different for a nurse that works at the night shift or a day shift work does present unique challenges. The workplace environment and scheduling system especially in the night shift requires from the nurse to make significant adjustments to his /her personal life style and daily routine. <sup>(2)</sup>

While shifts vary according to a healthcare facility or hospital, the

typical night shift is between the hours of 11:00 p.m. and 7:00 a.m. Some nurses may start a shift as early as 8:00 p.m. At the end of a night shift, nurses return home where they usually rest and rejuvenate in the early hours of the day <sup>(3)</sup>.

Shift work generally is defined as work hours that are scheduled outside of daylight. (3)The change in shift work and different periods leads to a strike between the biological clock relationship of the human body and the environment surrounding it, and this is due to sleep disturbances, increased accidents, injuries and social isolation,<sup>(3)</sup> and sleep throughout the day is sometimes difficult to achieve because as soon as wake up the nurse tends to their family commitments and continues until the next shift, which affects her health

status. <sup>(4)</sup> There is good evidence that shift work has negative effects on workers' health, safety and performance. It is quite appropriate that attention is paid to this very important feature of socio-technical systems, which may adversely affect mental and physical health, social life and safety of shift workers <sup>(3)</sup>. Sleep is a basic human need related to both circadian rhythms and homeostatic mechanisms of the body. Night shift term is defined as work performed after 6pm and before 6am the next day <sup>(6)</sup>.

Night shift work has physical and social effects on the life of an individual including nurses. The long hours work interferes with health and safety. Night work has more negative impacts on female responsibilities such as pregnancy and spending time with children. The negative effects of night shift have consequences not just for the individual, but also for work place such as decreasing alertness and reducing job performance that could endanger human lives and affect the quality of care <sup>(7)</sup>. The human body works according to a natural 24 hour sleep-wake cycle, also referred to as a circadian rhythm, which controls body temperature, sleep/wake timing, and the way our organs and body systems work together one of the most important physiological problems associated with shift work and the night shift in particular, is that working, eating, and sleeping phases are changed <sup>(8)</sup>.

Family and marital responsibilities can be severely disrupted by night shift work or long hours. Childcare, housework, shopping, and leaving a partner alone at night can lead to marital tension and family dysfunction <sup>(5)</sup>.

Many studies evaluated the effects of shift work on the quality of life among nurses have been studied in a variety of nursing environments <sup>(6)</sup> <sup>(10)</sup> <sup>(11)</sup> <sup>(12)</sup> <sup>(13)</sup>. These studies have shown that, nurses' face many problems related to night shift as work overload,

fatigue, headaches, sleep disturbance, health problems, social problems as leaving their children alone, and so on, which in turn affect the quality of care.

#### **Aim of the study:**

The present study aimed to assess the impact of night shift work on health status of nurses' working at intensive care unit and Emergent outpatient department at Sohag University Hospital.

#### **Research Questions:**

1. What are the effects of night shift on health status among nurses working in ICU and Emergent outpatient department at Sohag university hospital?
- 2- Is there a different between effects of night shift on health status among nurses working in ICU and Emergent outpatient department at Sohag university hospital?

#### **Subjects and methods:**

##### **Research design:**

A descriptive correlational design was used.

##### **Study setting:**

The study was conducted at ICU and Emergent outpatient department at Sohag university hospital. Total number of staff nurses at sohag university hospital is (730)

##### **Study subjects:**

A Purposive sample consisted of (44) staff nurses from the above mentioned setting who fulfilled the following inclusion criteria:

- Agree to participate in the study
- They had more than one year of experience.

##### **Tool of data collection:**

A structured interview questionnaire developed by the researches based on the related studies composed of two parts:

##### **Part (I): Personal characteristics and job sheet:**

It included items related to gender, age, educational level, and years of

experience in nursing, units, and marital status.

**Part (II): Night shift questionnaire:** it was comprised the following:

Job information includes (5 questions); Sleep aspects (4questions); Night shift problems (4questions); Psychological aspects (4questions); Social aspects (5questions); and Physical aspects (4questions).

**Scoring system:**

Scoring system different was for all questions; some of them ranging between (yes/no) and the others ranging from (1 -3); (1-4); (1-5); and (1-6) points.

For job information: ranged between (yes/no); for Sleep aspects: ranged between (yes / no) and (1-3 points). For Night shift problems: ranged between (1-5 points), (1-6 points), (1-4 points), and (yes/no). For Psychological: ranged between (1-3 points), and (1-4 points). Social aspects: ranged between (1-3 points); (yes/no); and (1-4points). Physical aspects: ranged between (1-3 points); (1-6 points); (yes/no); and (1-3 points).

**Content validity & reliability:**

The tools were tested for content validity by panel of experts of two from community health nursing department and three from administration department. These experts assessed the tool for clarity, relevance, comprehensiveness, applicability, and understanding. Reliability of the study through measuring its alpha Cronbach coefficient. This was 0.89

**Field work:**

The data collection was done first using interview questionnaire sheet. The average time to complete the interview questionnaire ranged from 10- 15 minutes, it begins with distribution of the sheet and explains the purpose of the research and clarify any ambiguity in the questions. Work continued for two days per week, Saturdays and Tuesdays data were collected through two months starting

from the beginning May the end of June (2016).

**Pilot study:**

Before performing the main study, a pilot study was carried out on a sample of four staff nurses. The aim was to test clarity of the instructions, the format of the questionnaire, comprehension of the items, and to estimate the exact time required for filling in the questionnaire sheet. The participants involved in the pilot study were excluded from the main study sample.

**Administrative and ethical considerations:**

Permission to conduct the study was obtained by submission of official letters issued from the dean of the faculty of nursing at university to the directors of sohag university hospitals. Also informed consent for participation was taken verbally from each staff nurse after full explanation of the aim of the study. They were informed that their participation in this study is voluntarily. The staff subjects were given the opportunity to refuse participation, and they were notified that they could withdraw at any stage of the data collection without giving any reason. They were assured that any information taken from them would be confidential and used for the research purpose only.

**Statistical analysis:**

Data collected were analyzed by computer using the statistical package for social sciences (SPSS) software version 19. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables. Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables,  $P>0.05$  (Not significance),  $P<0.05$  (Significance).

**Results:**

**Table 1:** Personal characteristics of the study sample this table indicated that, in both intensive care unit (ICU)

unit and Emergent outpatient department (EOPD) all of the study sample were females (100%), the highest percent was aged less than 30 year (72.7%), were married (63.6% and 86.4%) respectively, they had less than 10 years of experience (59.1%), and they had diploma nursing school education (95.5% and 86.4%) respectively.

**Table 2:** Percentage distribution of nurses according to Job information; this table show that, in both ICU and EOPD about (77.3%) are not participated in arrangement of shift scheduling, most of them (90.9%) don't prefer work at night shift. Moreover, in ICU and EOPD reported don't prefer night shift work because it increases in work pressure, work a long time, decrease in number of nurse and more decisions alone (50.0 % and 55.0%) respectively. About (95.4%) at ICU and (77.3%) at EOPD said work at night shift is more tiredness.

**Table 3:** Sleep problems among study sample the table clarified that in both ICU and EOPD the highest percent were not enough sleep after night shift (81.8% and 90.9%), and they were less than 5 hours sleep post night shift (63.6% and 77.3%), they had disturbance of sleep after night shift (81.8% and 54.5%), and they take warm drink when they feel a sleep (59.1% and 50.0%) respectively.

**Table 4:** Percentage distribution of nurses according to night shift problems the table clarified that the highest percent (63.6%) at ICU and EOPD were strongly agreed about there is workload at the night shift, and about (31.8%) in the EOPD were active at the night shift moreover (36.4%) at ICU were tired. About (59.1%) at ICU and (36.4%) at EOPD reported the difficult hours in the night shift were from 2A.m to 5A.m. about (68.2%) at ICU their practical skills not affected meanwhile (63.6%) at EOPD their practical skills were affected.

**Table 5:** Psychological problems among study sample this table show that, about (68.2%) at ICU and (31.8%) at EOPD reported hate night shift. And about (54.5%) in both ICU and EOPD were normal concentration during night shift, meanwhile about (54.6% and 77.3%) said the night shift were almost high effect on their behavior, and about (50.0% and 72.7%) at ICU and EOPD said sometime night shift disturbs their mood.

**Table 6:** Social problems among study sample the table clarified that, about (50.0%) in both ICU and EOPD were agreed night shift disturbs their social life. And about (87.5%) at ICU and (100%) at EOPD agreed night shift increase conflict in their family. This table also revealed that (59.1%) at ICU and (87.5%) at EOPD had children. but (69.2%) at ICU and (72.2%) at EOPD had a little time to spend with their children, and about (90.9%) at ICU and (86.4%) at EOPD reported often disturbed the marital relationship in night shift.

**Table 7:** Physical problems among study sample the table clarified that, about (40.9%) at ICU and (68.2%) at EOPD mentioned the night shift work affects their health. And (54.5%) at ICU and (50.0%) at EOPD reported they have all mentioned health problems as frequent headaches, backache, persistent tiredness, feet ailments, and inability to sleep. And about (68.2%) at ICU and (86.4%) at EOPD had occupational injuries during night shift, and (73.3%) at ICU and (57.9%) at EOPD had needle sticks injuries.

**Table 8:** Relationship between years of experience, age and sleep problems among study sample the table shows that, there were statistical significant differences between years of experience, and age with Sleep disturbance after night shift work. And

also there were statistical significant differences between years of experience and the actions when feel asleep.

**Table 9:** Relationship between years of experience, age and night shift problems among study sample, the table clarified that, there were statistical significant differences between age and activity level at night shift work, difficult working hours at night shift work, and practical skills affected by night shift ( $p = 0.04, 0.02,$  and  $0.03$ ) respectively. Meanwhile there were no statistical significant differences between years of experience, and night shift problems.

#### Discussion:

Nurses working night shift found their shift had negative influence on some aspects of their lives such as limited family time and insufficient time to manage their personal and home responsibilities Phiri et, al.<sup>(15)</sup> work night's shifts or work irregular hours, was expected to increase health, social and psychological problems and reduced performance (CCOHS,<sup>(16)</sup>

The present study was conducted to determine the effect of night shift on health status of nurses' working at intensive care unit and Emergent outpatient department in Sohag University Hospital. Regarding to demographic data of study sample revealed that all of the studied nurses' were females. And the highest percent of them was aged less than thirty years. Two thirds of the studied nurses' in ICU units and Emergent outpatient department were married. More than half of them were experience less than ten years and the fast majority had diploma of nursing school education.

The present study revealed that the majority of the studied nurses' does not participate in the arrangement of shift scheduling; this result may be due to centralized scheduling system in the study units. This is contrast to the study findings of Mohammed<sup>(13)</sup> who found that the majority of the studied nurses' do

not participated in the arrangement of shift scheduling and agree with the study findings of Abdalkader & Hayajneh,<sup>(6)</sup> who found that the majority of the studied nurses' participated in the arrangement of work scheduling.

As regard to sleep problems among study sample. The present study clarified that in both ICU and Emergent outpatient department the highest percent were no get enough sleep after night shift this result may be due to night shift lead to disturbance of sleeping patterns. This findings agree with study finding by Mohammed et, al.<sup>(13)(17)</sup> they found that night shift workers obtain 1 to 4 hours less sleep than normal when they were working nights. Moreover, the majority of study sample had disturbance of sleep after night shift. These finding are congruence with study findings of Berger & Hobbs<sup>(18)</sup> they reported that Shift work disrupts the synchronous relationship between the body's internal clock and the environment.

Night shift problems among study sample, the present study reported that about two third of the studied nurses' saw the work at night shift as work load and requires concentration in work especially in ICU, because they have a family responsibilities lead to not take enough sleeping time at morning. These finding are congruence with study findings of Abdalkader, & Hayajneh, et, al.<sup>(6)(12)(13)</sup> they reported that high percentage of nurses feel that the night shift has a heavier workload than the day shift. In addition, the night shift hours are very long time from 7.30 Pm to 7.30 Am.

The study finding regards to psychological problems, revealed that, more than two third of ICU nurses' feeling hate toward night shift work and sometime night shift disturbs their mood. They also mention that night shift work affected their behavior negatively. Regarding to level of concentration during night shift more than half of the studied nurses'

concentration level was normal during night shift work. This result may be due to nurse's work requires alert and concentration to give high quality patient care because the nurses are legally responsible and accountable for nursing care given to patients. This is on the same line with study findings of Abdalkader & Hayajneh, et al.<sup>(6)(13)(14)</sup> they found that about two third of studied nurses felt that the concentration is normal during night shift and their mood almost affected by night shift work.

The findings of the present study regarding to social problems revealed that, half of the studied nurses' agreed that the night shift work disturbs their social life, highest percent in both ICU and EOPD nurses' increases family conflict most of them have children and their children affected by their working at night shift work. This result may be due to workload at night shift which lead to need adequate rest after finished they work put no time with their responsibilities' toward their family. This is on the same line with the study of Mohammed et al.<sup>(13)(6)</sup> they studied the effect of night shift on the social life of nurses. And they reported the night shift disturbed social life and increase in family conflict for nurses.

The findings of the present study regarding to health problems revealed that, about half of the studied nurses' in ICU units and more than two third in EOPD their health affected by the night shift, and more than half of them were complain from frequent headaches, backache, tiredness, feet ailments and inability to sleep. Also the majority of studied nurses' in both ICU and EOPD had needle sticks injuries during night shift work. This result may be due to long periods of night shift, standing for a long time to give care or round with the physicians and caring patients. And injuries may relate to low concentration at part time in the night shift. These findings are supported by other research studies by Phiri et al.<sup>(15)(19)</sup> revealed that, nurses in this studies complained from

musculoskeletal pain, backache and back pain and also on the same line, with the study findings by Abdalkader & Hayajneh, et al.<sup>(6)(13)</sup> they stated that night shift work affects nurses physical state as a highest percentage of them complains about backache, feet ailments, persistent tiredness, sustained to occupational injury and muscular strain.

Regarding to relationship between years of experience, age and sleep problems among study sample, there were statistical significant differences between years of experience, and age with Sleep disturbance after night shift work. And also there were statistical significant differences between years of experience and the actions when feel asleep. This results may be due to complain from sleep problems occurred when the work changed from day to night and the body's biological clock was not immediately reset. It continues on its old wake-sleep cycle, even though it is no longer possible for the person to sleep when the body thinks it is appropriate with Drake et al.<sup>(20)</sup> Moreover, women have a major role to play in the domestic life and compromise their sleep to undertake the domestic care for their children and family. These findings are in agreement with the study findings of<sup>(21)</sup> who found that, a high percentage of the respondents who work on the night shift do not get enough sleep and sleep less than 5 hours. Also, Ohida et al.<sup>(22)</sup> reported the average hours of sleep per day of the nurses who worked night shifts were 5.9 hours

As regarding the relationship between years of experience, age and Night shift problems among study sample, there are statistical significant difference between the age of studied nurses' and Night shift problems, with regard to activity level at night shift work, difficult working hours at night shift work and practical skills affected by night shift ( $p = 0.04, 0.02,$  and  $0.03$ ) respectively. The present study revealed that the studied nurses'

in ICU units and medicine department agree that the night shift work needs more energy to perform their duties, become more tired, and reported that the difficult hours at night shift work was from 2a.m. to 5a.m. hours. These findings was agreed with the study findings of Mohammed<sup>(13)</sup> who reported that about half of the studied nurses' in ICU units and general surgical department agreed that the night shift work needs more energy to perform their duties, become more tired, and reported that the difficult hours at night shift work was from 2a.m. to 5a.m. hours. And there are no statistical significant differences between years of experience, and night shift problems.

**Conclusion:**

The study results bring about the conclusion that, the highest percent of intensive care unit (ICU) nurses and Emergent outpatient department (EOPD) nurses does not participate in scheduling they were not enough sleep after night shift, agreed about there is workload at the night shift, and the night shift was almost high effect on their behavior and disturbs their mood. Also the majority of nurses at ICU and EOPD agreed night shift increase conflict in their family. Lastly near to half of nurses at ICU and two third of them at EOPD night shift work affects their health.

There were statistical significant differences between years of experience, and age with Sleep disturbance after night shift work. And there were statistical significant differences between age and activity level at night shift work, difficult working hours at night shift work, and practical skills affected by night shift

**Recommendations:**

On the basis of the current study findings, the following recommendations are suggested:

- Nurses should be given the opportunity to participate in their own schedules to coordinate with their family responsibilities.
- Provide sufficient number and diversity of staff to work in each unit to reduce the shortage which leading to excessive work load.
- A routine medical examination should be carried out on the nurses to detect and treat any injuries or infections during work.
- Increase the shift allowance to motivate nurses and encourage them to work nightly.

**Table (1): Personal characteristics of the study sample (N=44)**

Items	Setting			
	Personal characteristics		EOPD (n=22)	
	ICU (n=22)		No.	%
	No.	%	No.	%
<b>1- Gender:</b>				
Male.	0	0.0	0	0.0
Female.	22	100.	22	100.
<b>2- Age:</b>				
↓= 30 yrs.	16	72.7	16	72.7
↑30 yrs.	6	27.3	6	27.3
<b>3- Marital status: *</b>				
Married.	14	63.6	19	86.4
Single.	8	36.4	3	13.6
<b>4- Years of experience:</b>				
↓= 10 yrs.	13	59.1	13	59.1
↑10 yrs.	9	40.9	9	40.9
<b>5 Education</b>				
Bachelor	0	0.0	0	0.0
Diploma of nursing school	21	95.5	19	86.4
Institution of nursing	1	4.5	3	13.6

**Table (2): Percentage distribution of nurses according to Job information:**

Job information	ICU (n=22)		EOPD (n=22)		P-value
	No	%	No	%	
<b>1 Are you participate in night shift scheduling</b>					
Yes	5	22.7	5	22.7	0.640ns
No	17	77.3	17	77.3	
<b>2 Prefer work in night shift</b>					
Yes	2	9.1	2	9.1	0.697ns
No	20	90.9	20	90.9	
<b>3 If yes:</b>					
Extra money	1	50.0	1	50.0	0.368ns
Agree style of my life	1	50.0	1	50.0	
Others	0	0.00	0	0.00	
<b>4 If no:</b>					
Long time	1	5.0	3	15.0	0.607ns
Increase in work pressure	4	20.0	2	10.0	
Decrease in number of nurse	4	20.0	2	10.0	
More decisions alone	1	5.0	2	10.0	
All of the above	10	50.0	11	55.0	
<b>5 Nature of night shift 12 hrs.</b>					
More tiredness	21	95.4	17	77.3	0.02*
Less tiredness	1	4.5	0	0.00	
Comfortable	0	0.00	5	22.7	

\*P-value was statistically significant when  $P \leq 0.05$



**Table (3): Sleep problems among study sample (N=44).**

Items	Setting			
	ICU (n=22)		EOPD (n=22)	
	No.	%	No.	%
<b>1- Get enough sleep after night shift work.</b>				
Yes	4	18.2	2	9.1
No	18	<b>81.8</b>	20	<b>90.9</b>
<b>2- Hours of sleep after every night shift work day.</b>				
Less than 5hrs.	14	<b>63.6</b>	17	<b>77.3</b>
6 hrs – 8 hrs.	6	27.4	2	9.1
More than 8hrs.	2	9.0	3	13.6
<b>3- Sleep disturbance after night shift work.</b>				
Yes.	18	<b>81.8</b>	12	<b>54.5</b>
No.	4	18.2	10	45.5
<b>4- Your actions when you feel a sleep.</b>				
Warm drink.	13	<b>59.1</b>	11	<b>50.0</b>
Sleeping tablets.	2	9.1	3	13.6
Music or reading.	7	31.8	8	36.4

**Table (4): Percentage distribution of nurses according to night shift problems (N=44)**

Items	Setting			
	ICU (n=22)		EOPD (n=22)	
<b>1 There is work load at night shift work.</b>				
Strongly agree.	14	<b>63.6</b>	14	<b>63.6</b>
Agree.	5	22.7	3	13.6
Mildly agree.	2	9.1	1	4.5
Disagree.	1	4.5	4	18.2
Strongly disagree.	0	0.0	0	0.0
<b>2 Activity level at night shift work.</b>				
More Active.	2	9.1	0	0.0
Active.	3	13.6	5	22.7
Moderately active.	5	22.7	7	<b>31.8</b>
Tired.	8	<b>36.4</b>	3	13.6
Moderately tired.	3	13.6	1	4.5
More tired.	1	4.5	6	27.3
<b>3 Difficult working hours at night shift.</b>				
From 8p.m to 11p.m.	3	13.6	0	0.0
From 11p.m to 2A.m.	2	9.1	7	31.8
From 2A.m to 5A.m.	<b>13</b>	<b>59.1</b>	<b>8</b>	<b>36.4</b>
From 5A.m to 8A.m.	4	18.2	7	31.8
<b>4 Practical skill affected by working at night shift.</b>				
Yes.	7	31.8	14	<b>63.6</b>
No.	15	<b>68.2</b>	8	36.4

**Table (5): Psychological problems among study sample (N=44).**

Items	Setting			
	ICU (n=22)		EOPD (n=22)	
	No.	%	No.	%
<b>1- Feeling about night shift work.</b>				
Hate.	15	<b>68.2</b>	7	31.8
Neutral.	6	27.3	9	<b>40.9</b>
Approbation.	1	4.5	6	27.3
<b>2- Level of concentration during night shift work.</b>				
Almost high.	1	4.5	0	0.0
Normal.	12	<b>54.6</b>	12	<b>54.6</b>
Almost low.	7	31.8	9	40.9
I do not know.	2	9.1	1	4.5
<b>3- Effect of night shift work on nurse's behavior with other negatively.</b>				
Almost always.	4	18.2	5	22.7
Sometimes.	12	<b>54.6</b>	17	<b>77.3</b>
Almost never.	5	22.7	0	0.0
I do not know.	1	4.5	0	0.0
<b>4- Night shift disturbs your nurses' mood.</b>				
Almost.	10	45.5	6	27.3
Sometimes.	11	<b>50.0</b>	16	<b>72.7</b>
Never.	1	4.5	0	0.0

**Table (6): Social problems among study sample (N=44).**

Items	Setting				p. value
	ICU (n=22)		EOPD (n=22)		
	No	%	NO	%	
<b>1- Night shift disturbs your social life.</b>					
Agree.	11	<b>50.0</b>	11	<b>50.0</b>	0.246
Neutral.	9	40.9	8	36.4	
Disagree.	2	9.1	3	13.6	
<b>2- Night shift increase conflict in your family.</b>					
Yes.	18	<b>87.5</b>	22	<b>100.0</b>	<b>0.04*</b>
No.	4	12.5	0	0.0	
<b>3- Do you have children?</b>					
Yes.	13	<b>59.1</b>	18	<b>87.5</b>	0.09
No.	9	40.9	4	12.5	
<b>4- Difficulties in spending much time or giving care to your children.</b>	<b>N=13</b>		<b>N=18</b>		
No difficulties.	1	7.7	0	0.0	0.349
There is more time to give better care to them	1	7.7	0	0.0	
There is little time to spend with children and children's care becomes less.	<b>9</b>	<b>69.2</b>	<b>13</b>	<b>72.2</b>	
No time.	2	15.4	5	27.8	
<b>5- Night shift disturbed the marital relationship</b>					
Often	20	<b>90.9</b>	19	<b>86.4</b>	0.393
Sometimes	1	4.5	0	0.0	
Rarely	1	4.5	3	13.6	
No					

\*P-value was statistically significant when  $P \leq 0.05$

Table (7): Physical problems among study sample (N=44).

Items Health problems	Setting			
	ICU (n=22)		EOPD (n=22)	
	No.	%	No.	%
<b>1- Night shift work affects your health.</b>				
Yes.	9	<b>40.9</b>	15	<b>68.2</b>
No.	6	27.3	4	18.2
I do not know	7	31.8	3	13.6
<b>2- Health problems related to night shift:</b>				
Frequent headaches.	5	22.7	1	4.5
Backache.	1	4.5	0	0.0
Persistent tiredness.	2	9.1	7	31.9
Feet ailments.	0	<b>0.0</b>	1	4.5
Inability to sleep	2	9.1	2	9.1
All of the above	12	<b>54.6</b>	11	<b>50.0</b>
<b>3- Sustained occupational injuries during night shift work.</b>				
Yes.	15	<b>68.2</b>	19	<b>86.4</b>
No.	7	31.8	3	13.6
<b>4- If answer yes? Which one?</b>				
Needle sticks injuries.	11	<b>73.3</b>	11	<b>57.9</b>
Muscular strain.	4	26.7	8	42.1
Others.	0	0.0	0	0.0

\*P-value was statistically significant when  $P \leq 0.05$

Table (8): Relationship between years of experience, age and sleep problems among study sample (N=44).

Sleep problems	Years of experience				p-value	Age				p-value
	↓ =10 yrs. (n=26)		↑10 yrs. (n=18)			≥ 30 yrs. (n=32)		< 30 yrs. (n=12)		
	No	%	No	%		No	%	No	%	
<b>1- Get enough sleep after night work?</b>										
Yes.	4	15.4	2	11.1	0.450	5	15.6	1	8.3	0.519
No.	<b>22</b>	<b>84.6</b>	<b>16</b>	<b>88.9</b>		<b>27</b>	<b>84.4</b>	<b>11</b>	<b>91.7</b>	
<b>2- Hours of sleep after night shift work.</b>										
Less than 5hrs.	<b>17</b>	<b>65.4</b>	<b>14</b>	<b>77.8</b>	0.254	<b>22</b>	<b>68.8</b>	<b>9</b>	<b>75.0</b>	0.335
6 hrs. – 8 hrs.	6	23.1	2	11.1		6	18.6	2	16.7	
More than 8hrs.	3	11.5	2	11.1		4	12.6	1	8.3	
<b>3- Sleep disturbance after night shift work.</b>										
Yes.	<b>16</b>	<b>61.5</b>	<b>14</b>	<b>77.8</b>	<b>0.032*</b>	<b>21</b>	<b>65.6</b>	<b>9</b>	<b>75.0</b>	<b>0.019*</b>
No.	10	38.5	4	22.2		11	34.4	3	25.0	
<b>4- Your actions when you feel asleep.</b>										
Warm drink.	<b>11</b>	<b>42.3</b>	<b>11</b>	<b>61.1</b>	<b>0.036*</b>	<b>16</b>	<b>50.0</b>	<b>8</b>	<b>66.7</b>	0.277
Sleeping tablets.	2	7.7	2	11.1		5	15.6	0	0.0	
Music or reading.	7	26.9	3	16.7		7	21.9	1	8.3	
Others.	6	23.1	2	11.1		4	12.5	3	25.0	

**Table (9): Relationship between years of experience, age and Night shift problems among study sample (N=44)**

Night shift problems	Years of experience				p-value	Age				p-value
	↓ =10 yrs. (n=26)		↑10 yrs. (n=18)			≥ 30 yrs. (n=32)		< 30 yrs. (n=12)		
	No	%	No	%		No	%	No	%	
<b>1- There is work overload at night shift work.</b>										
Strongly agree.	<b>14</b>	<b>53.9</b>	<b>14</b>	<b>77.8</b>	0.190	<b>19</b>	<b>59.4</b>	<b>9</b>	<b>75.0</b>	0.166
Agree.	7	26.9	2	11.2		8	25.0	0	0.0	
Mildly agree.	1	3.8	1	5.5		2	6.3	1	8.3	
Disagree.	4	15.4	1	5.5		3	9.3	2	16.7	
Strongly disagree.	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>		<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	
<b>2- Activity level at night shift work.</b>										
More active.	<b>9</b>	<b>34.6</b>	<b>7</b>	<b>38.9</b>	0.068	2	6.2	1	8.3	<b>0.04*</b>
Active.	3	11.5	3	16.7		5	15.6	3	25.0	
Moderately active.	5	19.2	1	5.5		<b>11</b>	<b>34.4</b>	1	8.3	
Tired.	6	23.1	6	33.4		4	12.5	<b>4</b>	<b>33.3</b>	
Moderately tired.	2	7.7	1	5.5		4	12.5	2	16.7	
More tired.	1	3.8	0	0.0		6	18.8	1	8.3	
<b>3- Difficult working hours at night shift work.</b>										
From 8p.m to 11p.m.	6	23.1	3	16.7	0.391	3	9.4	0	0.0	<b>0.02*</b>
From 11p.m to 2A.m.	4	15.4	3	16.7		7	21.9	2	16.7	
From 2A.m to 5A.m.	<b>10</b>	<b>38.4</b>	<b>8</b>	<b>44.4</b>		<b>14</b>	<b>43.7</b>	<b>7</b>	<b>58.3</b>	
From 5A.m to 8A.m.	6	23.1	4	22.2		8	25.0	3	25.0	
<b>4- Practical skills affected by night shift</b>										
Yes	12	46.1	9	50.0	0.584	<b>16</b>	<b>50.0</b>	<b>5</b>	<b>41.6</b>	<b>0.03*</b>
No	<b>14</b>	<b>53.9</b>	9	50.0		<b>16</b>	<b>50.0</b>	7	58.4	

\*P-value was statistically significant when  $P \leq 0.05$

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