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Effect of Rotating Shift on Sleep Quality, Among Nurses Work in Non-Government Hospital

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Abstract

Background: Nurses as a group of health personnel engage in shift work, and the nature of their work demands a 24-hour duty. Sleep quality directly influences mental and physical acts of human. This shift has been identified by Gordon and Henifin (1980) as stressful and may lead to psychological effects. Objective: to assess the effect of sleep quality of night shift among nurses in hospitals in the Palestine. Methods: this study utilized quantitative approach. Result: The paper is a cross sectional study among 152 nurses and correlates to demographics. Totally 66 (43%) men and 88 (57%) women participated. All of them had nursing education degree and had work experience. We found the prevalence of poor sleep quality as high as 87.8% and total mean score of the Persian version of Pittsburg's Sleep Questionnaire Index (PSQI-P) calculated 8.31 in the study. shift-work nurses was delay in sleeping initiation, Wake up in the middle of the night or early, and cannot get to sleep within 30 minutes. We did not find any significant relation between sleep disorders and gender, age, years of nursing and hospital. Although, inadequate sleep quality is a worldwide problem, but the wide difference between subjective findings of nurses and those of the general population is very significant. Conclusion: There was a high prevalence of poor sleep quality. This was persistent despite few nurses working in rotating shifts or shifts with short recovery time. The study recommended Policies that reduce long of shift work: These could include reducing the number of hours of the night shift, increasing the rest time between shifts, providing adequate meal times, and providing a fair distribution of weekend and holiday work.

Keywords

Nurses, Shift Work, Sleep Quality

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1. Introduction and Background

Health service is one of the profession that provide a continuous work around the clock, for the benefit of all citizens in all country. Health service personnel is responsible for provision of health care through application of medical science knowledge, skill and expertise in meeting the health needs of all people within each country. Palestinian nurses provide health services in hospitals, clinics, and other health centers in meeting health needs of people.

The term 'shift work' return to a way of planning daily job hours in which different human or group work in succession to cover more than the usual 8-h day, up to and including the whole 24h [9].

Nurses make 60% of the health services offered to patients within the Palestinian health care system. And nurses are 33% of all ministry of health employee (MOH, report 2012). Nurses shortage is noticed by health professional, and according to UNRWA own estimates, there are 29 nurses per 100,000 refugee inhabitants (UNRWA Annual Health Report 2004).

The effects of different shift on sleep pattern have been studied for workers of various worker in normal environment as well as in laboratory conditions [9]. Working in different

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shifts and night shifts is a potential risk for health care staff which, in turn, jeopardizes patients' health as well [2].

Difficult of sleep as one of the most common sleep problem has a wide range of definition including difficulty in sleep initiation or maintenance, early morning awakening and non-restorative sleep which may discover firstly by fatigue, irritability, malaise and decreasing in memory or concentration, for instance about 32-54% of night workers have symptoms of insomnia or daytime sleepiness compared with 18% of day workers who claim of above symptoms [8].

According to researchers, three main sources of stress are affiliated with shift work: disruption of circadian rhythms, disruption of sleep resulting in fatigue, and disruption of social/family life [9].

Sleep is an part of human life and it is difficult to imagine a human life without sleep. Sleep is important for almost every side of person well-being. Many research have shown the poor sleep pattern for shift workers, poor sleep among shift working nurses is coming with a low job performance and a high risk of work errors, which may risk patient's safety, and anxiety and bad sleep in shift working nurses adversely affects their physiological and well-being [1, 11].

Nursing is a career and shift-working nurses risk personal health for risky. There is many study published in the world look into Sleep quality and related to health conditions for shift working nurses. Alas, there is no study published in this scenario from Palestine.

Born of problem from work of a researcher in the nursing, and experience in the rotating shift and suffering of direct and non-direct and professional pressures they face, which Encouraged to conduct this study in order to identify the physiological levels. Shift rotation work is coming with sleep not rest, weak quality of life, and is a risk factor for many health problem. The effects of rotating work on sleep pattern have been studied for workers of various careers in normal environment as well as in ideal conditions [10].

Kawada and Suzuki (2002) found that rotating shift work affects the amount of sleep, but not the rate of errors among workers on a three-shift schedule. [24] found that professional mistakes, such as drug administration errors, incorrect operation of medical equipment in hospitals by nurses, and needle stick injuries were associated with the complaint of excessive sleepiness, presented no association between shift work and occupational accidents, but rather found an association between mental health and medical errors.

Several factors can contribute to poor sleep pattern of nurses on night shifts. First, rapid and continuous rotation of shifts leads to a lasting alteration of circadian rhythm and to a transitory increase of psychological disturbances after the night shift [24].

Working in rotating shifts and night shifts is a potential risk for health care staff which, in turn, jeopardizes patients' health as well [2].

But here in Palestine in our governmental hospital, the situation and the definition of night shift is different they have not been used a 12-hour shift system. They define night shift as work performed after 21: 00 and before 07: 00 the next day, which means a 10-hour shift system (Palestinian ministry of health).

Shift work can have many internal, emotional, and social effects on human, The main reason that these problems happen is related to the impaired of the normal sleep-wake cycle.

The study participants working in Hebron hospital 40% working in Beit Jala. There is 23.5% who have a work experience for more than 10 years, 60% work experience ranged from 0 to 10 years, 30% from nurses single, and 67% are married and 3% widow. It was noted that 44% of nurses are young with an age of less than 25 years with 46% with rang from range (30 – 39) years. The level of psychological stress among the participant was mean 1.8 that was moderate. There were relation between the levels of psychological stress and age, Social status, and Family members. There were no statistically significance differences at ($\alpha \leq 0.05$) in the level of psychological stress among female nurse's levels of psychological stress among the participant in the two governmental hospital at southern region of West Bank due to income, and hospital [19], In the developed countries, about 20 percent of full-time workers are engaged as shift workers, approximately 29 percent of people never adapt to shift work and experience serious problems, according to a report in Britain, the highest percentage of shift work in this country belongs to the post office, food industry and hospitals [26].

According to [17] evaluated whether nurses can work in a 12-hour shift to check whether a 12-hour working system constituted an excessive physical workload and work stress for nurses. The study was conducted on 536 nurses working a 12-hour shift and 169 working in an 8-hour day shift. Their results concluded that the 12-hour system was, characterized by less significant physical workload but greater mental load. The nurses working in a 2-shift system were more tired after work, but they could spend more time on leisure activities and do house work. Their data suggested that there are no significant contradictions for nurses to work in a 2-shift system.

2. Goal and Objectives

The goal of the research is to assess the effect of sleep quality of night shift among nurses in non-government-hospitals in the Hebron Palestine.

To achieve this goal the following objectives are set:

To assess the effect of demographic variables (academic degree, experience, age, gender, martial statues, hospital and type of shift) Sleep quality effect of night shift among nurses.

To identify Sleep quality effect of night shift among nurses among nurses in non-government-hospitals in the Hebron.

The research question: What are the rotating Shift effects on sleep quality among nurses.

Non-government-hospitals in the Hebron Palestine?

What are the sleep effects in demographic variable of nurses in non-government-hospitals in the Hebron?

3. Hypothesis

1. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to gender.
2. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to academic degree.
3. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to experience.
4. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to social statues.
5. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to hospitals.
6. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to Type of shift.
7. There are no significant differences at a level of ($\alpha \leq 0.05$), between the means of sleep effect attributed to age.

4. Research Methodology

4.1. Study Design

This study utilized quantitative approach.

4.2. Population and Sample

The study population consisted of all nurses work in non-government-hospitals and work as rotating shift in south west bank of Palestine.

4.3. Study Population and Sample Approach

The total number of nurses working in non-government-hospitals 510 nurses (alhil hospital 320, Al-Mizan 100, and Red Crescent Hospital 90 nurses) making a total of 510 nurses working in non-government-hospital Hebron hospitals.

The selection process utilized a fish ball sampling technique, nurses' names were taken from the director of Nursing at each stratum and so each name of them was recorded on a paper, then put in a bowl where shuffling of papers done and finally random sample was withdrawn.

4.4. Ethical Consideration and Accessibility

Research methods were approved by the Higher Studies Committee at the Faculty of Health Professions at Al-Quds University. Permission obtained to access the director of hospitals when approval by the director of hospital services. The study participant were informed through a consent form (attached with the questionnaire), and received thorough explanation about purpose of the study, confidentially and sponsorship was ensured. In addition, they were informed about her right to refuse or to withdraw at any time during the study through the informed consent attached with each questionnaire.

4.5. Data Analysis

Statistics were computed using the statistical package for the social Science / personal computer (SPSS / version 22), data analysis is include descriptive statistics to describe the study sample via mean, median, range, and frequency.

4.6. Validity

The instrument used in this study was constructed by the study investigator after reading studies literature. Content validity refers to how relevant the questions are to the subject under study.

4.7. Reliability

The Cronbach's alpha is 0.80, which indicates a high level of internal consistency for the questionnaire scale with the study sample.

5. Result

Data from the 152 subjects were entered into a computer by the researcher. Entry was directly into the Statistical Package for Social Sciences (SPSS) program.

Data were then analyzed using SPSS. The analysis was mainly descriptive, with data about the demographic variables age, gender, academic degree, social statues,

experience, and hospitals, being analyzed for their mean, standard deviation, minimum and maximum values. To compare the demographic variables, with sleep effect attributed, one way anova, and independent t test were used.

Table 1. Means and Standard Deviation (s. d) of Shift nights number and Global PSQI, and counts of the sample according to the demographic variables.

variable	levels	Counts	mean of Shift nights number (s. d)	Mean of Global PSQI (s. d)
gender	male	64	9.19 (6.28)	8.7 (3.69)
	female	88	7.63 (4.21)	9.3 (3.86)
age	Less than 25	66	8.77 (4.35)	9.8 (3.92)
	25 – 29 years	53	9.11 (5.85)	8.7 (3.92)
	30 – 34 years	22	6.50 (6.35)	8.22 (3.34)
	35 and above	11	5.10 (3.73)	8.1 (2.15)
Marital statues	single	69	8.84 (4.22)	9.58 (3.61)
	married	81	7.62 (5.99)	8.69 (3.95)
	divorce	2	15 (0)	9 (0)
Experience	Less than 1 year	27	7.18 (1.96)	10.22 (3.88)
	1 – 5 years	80	9.27 (5.21)	9.15 (3. 85)
	6 – 10 years	27	8.09 (6.57)	8.67 (4.1)
	11 and more	17	5.60 (5.88)	7.82 (2.51)
Academic degree	diploma	61	7.38 (3.66)	8.95 (3.88)
	Bachelor degree	86	8.83 (5.94)	9.28 (3.79)
	Master or more	4	10.75 (8.69)	7.75 (2.99)
hospitals	Al-ahli hospital	78	7.59 (5.18)	8.41 (3.56)
	Al-Mezan hospital	44	9.25 (5.27)	10.32 (4.02)
	Palestinian Red Crescent	22	8.32 (5.26)	8.91 (3.08)
Types of shift	Rotating	102	8.38 (3.74)	9.11 (3.66)
	Non – Rotating	38	7.61 (8.05)	9.03 (3.08)
Over all mean (s. d)		152	8.31 (5.2)	9.09 (3.7)

A basic descriptive statistical analysis was done. Out of the 152 subjects. The table below shows the counts, mean of Shift nights number, and Mean of Global PSQI, of the sample according to the demographic variables.

Table 1 shoes the Shift night's number and Pittsburgh Sleep Quality Index (PSQI) means, it appears that the mean of shift nights number for meals (9.19) greater than it's for the female, and it's greater for nurses with postgraduate degrees, than whom having diploma and bachelor degree. The nurses having an experience more than 11 years have a mean of shift nights number less than other nurses whom have experience less than 11 years.

Also the table shoes that the means of Shift night's number and Global PSQI, are approximately equal for all other categories of the demographic variables.

The Pittsburgh Sleep Quality Index (PSQI) has overall of mean of 9.09, this means that the sample mean have a poor sleep quality. And the overall mean of shift nights number was 8.31.

Averages and standard deviation were calculated for Questionnaire questions, to find sleep effect of night shift among nurses hospital.

Adoption of the following criteria:

1. Not during the past month: If the mean less than 0.75.
2. Less than once a week: If the mean between 0.76 and 1.5.
3. Once or twice a week: If the mean between 1.51 and 2.25.
4. Three or more times a week: If the mean between 2.26 and 3.

Table 2. Shows the averages and standard deviation for questioning questions.

Questionnaire questions		mean	Standard deviation	Class
During the past month, how often have you had trouble sleeping because you	A. Cannot get to sleep within 30 minutes	1.23	1.12	Less than once a week
	C. Have to get up to use the bathroom	1.17	0.99	
	D. Cannot breathe comfortably	0.78	0.87	
	E. Cough or snore loudly	0.84	0.92	
	F. Feel too cold	1.22	0.97	
	G. Feel too hot	1.05	0.92	
	H. Have bad dreams	1.28	1.00	
	I. Have pain	1.16	1.07	
	B. Wake up in the middle of the night or early morning	1.52	0.96	Once or twice a week
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?		0.51	0.80	Not during the past month
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?		1.05	0.96	Less than once a week
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?		1.02	0.92	

Table 3 shows the averages and standard deviation for questioning questions. shows that almost of the Questionnaire questions have a mean between 0.76 and 1.5, this means that the respondents have trouble in these items Less than once a week, the mean of question six was 1.52 which indicates that the respondents dissent took any medicine in the last month helping them to sleep. But the mean of question five (B) was 0.51 which indicates that the respondents Wake up in the middle of the night or early morning Once or twice a week.

The following table shows the percentages of respondents according to their sleep quality, and the rating of sleep quality by themselves.

Table 3. Percentages of respondents according to their sleep quality, and the rating of sleep quality by themselves.

variable	levels	percentage
Sleep quality	poor sleep quality	87.8%
	good sleep quality	12.5%
overall rate of sleep quality	Very good	19.1%
	Fairly good	36.2%
	Fairly bad	31.6%
	Very bad	13.2%

Table 4. Independent t test, testing the existence of mean differences between the levels of gender and Types of shift.

variable	levels	Mean of Global PSQI (s. d)	T - value	Sig.
gender	male	8.7 (3.69)	-1.30	0.31
	female	9.3 (3.86)		
Types of shift	Rotating	9.11 (3.66)	0.115	0.909
	Non – Rotating	9.03 (3.08)		

Table 5. One way ANOVA, testing the existence of mean differences between the levels of the other demographic variables.

variable	levels	mean of Shift nights number (s. d)	F - value	Sig.
age	Less than 25	8.77 (4.35)	1.64	0.182
	25 – 29 years	9.11 (5.85)		
	30 – 34 years	6.50 (6.35)		
	35 and above	5.10 (3.73)		
Marital statues	single	8.84 (4.22)	1.026	0.361
	married	7.62 (5.99)		
	divorce	15 (0)		
Experience	Less than 1 year	7.18 (1.96)	1.565	0.200
	1 – 5 years	9.27 (5.21)		
	6 – 10 years	8.09 (6.57)		
	11 and more	5.60 (5.88)		
Academic degree	diploma	7.38 (3.66)	0.39	0.677
	Bachelor degree	8.83 (5.94)		
	Master or more	10.75 (8.69)		
hospitals	Al-ahli hospital	7.59 (5.18)	3.85	0.023**
	Al-Mezan hospital	9.25 (5.27)		
	Palestinian Red Crescent	8.32 (5.26)		

Table 6. Post Hoc test for compering means between hospitals.

Hospitals (sig.)	Al-ahli hospital	Al-Mezan hospital	Palestinian Red Crescent
Al-ahli hospital		0.006**	0.5
Al-Mezan hospital	0.006**		0.14
Palestinian Red Crescent	0.5	0.14	

The table shoes that there is significant difference of means of Global PSQI between Al-Mezan hospital and Al-ahli hospital, from table 3 it appears that the Global PSQI for Al-Mezan hospital (9.25) grater than Al-ahli hospital (7.59).

Table 7. Stepwize multiple linear regression to measure the affect of the demographic variables on the sleep quality (PSQI).

variable	Coefficient (B)	Sig.	Overall F value (sig.)
Constant	9.723	0.000	
Experience	-0.86	0.022	5.52 (0.005)
Number of night shift	0.139	0.028	

The overall regression model is a good fit for the data (Sig. = 0.005). This shows that the independent variables (Experience and Number of night shift) statistically significantly predict the dependent variable (PSQI). So that

we can conclude that the coefficients are statistically significantly different to 0 (zero) because of the all of the sig. values are less than 0.05.

It also shows that for each one level increase in Experience, there is a decrease in (PSQI) of 0.86 and for each one night shift increase in Experience, there is an increase in (PSQI) of 0.139.

6. Discussion

There are various kinds of combination in work shift duration and rotation, so many different forms of shift-work schedules. Sleep is the main function affect by night shift [4]. There is decrease of sleep long among night workers because of the obligation to sleep during the usual early hours, especially when the surrounding conditions are unfavourable (light, noise, temperature).

In this study, sleep quality was evaluated by the overall score of Pittsburg sleep quality index (PSQI). PSQI is known to evaluate sleep quality during the month preceding the study. It was used in many other surveys [5].

Night shift was found to affect significantly sleep quality. The Pittsburgh Sleep Quality Index (PSQI) has overall of mean of 9.09, this means that the sample mean have a poor sleep quality. And the over all mean of shift nights number was 8.31. Our results are similar to those of [21], who found that almost 70% of night workers complain of sleep disorders, assessing their sleep as insufficient, unsatisfactory and little restorative.

The unmarried respondent requested to work on a day shift. The married male nurse regarded night shift as strenuous, this was in contrast to the suggestion made by the unmarried male nurse. This nurse regarded night shift as comfortable and had enough energy to perform his duties, but did not have enough sleep when on night shift. Thy needed to induce sleep by reading. Night shift was regarded as having a heavy load by 50% of male nurses when interviewed. There was no conclusive decision regarding performance during night shift by the respondents. All male nurses had normal level of concentration during the night shift, with the shift not having an effect on their general attitudes. Night shift affected the social life of male nurses but did not seriously affect their health. However, they complained about feet ailments. This could be associated with theatre work, where there is a lot of static standing.

In result, age was identified as a factor influencing sleep quality. In fact, this result is expected in the previous study as [9].

We have noticed that married persons a better quality of sleep with result score 8.69, and single nurse 9.59.

In the literature, the results concerning marital status are the same. Actually, in a study carried out among 418 Turkish nurses about sleep quality, using PSQI as tool of investigation, [5], brought into light a better sleep quality, and in this study among married nurses accept with study [7].

According to gender male mean 9 and female 7.5 its high and complain from poor sellp quality but in male high more than female. To increase productivity at work, a minimally stressful work environment is necessary. To cope with job stress, temper control, intervention with controlling depressive mood symptoms, and good sleep quality of an employee, especially among female nurses, could lead to a better and more productive work environment [16], The increased workload could cause female to suffer from severe mental health problems, like depression and sleep disturbance, thus affecting their professional and personal lives [14], Female executive workers are another group of professionals at higher risk of sleep disturbance due to the high demand of their executive work as compared to non-executive workers. Overall, shift work in female workers can lead to problems in woman's personal and professional lives, due to the atypical hours and increased physical exertion at work [2]. According [18], in the study the nursing performance and the demographic variable effect of nursing performance in Hebron hospitals.

However, given the multiplicity and numerousness of the factors influencing the quality of life, a multivariate approach is imperative in order to gather information more precisely on the real role of the schedule type. The adjustment with other variables (socio-demographic criteria, other professional characteristics) showed that the physical component of the quality of life was not dependent on.

Night shift, but rather on seniority, and only the mental component was correlated with the fixed overnight schedule. This significant correlation was negative and strong. This is probably related to an isolation which is at the same time social and professional linked with night shift.

When asking the nurses. During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep? The mean 0.51 its rare that accept with other study [29].

When ask Cannot get to sleep within 30 minutes mean 1.23 mean Less than once a week that accept with study of [13], Chronic insomnia can be best treated by using non-pharmacological techniques, such as cognitive behavioural therapies or reviewing sleep hygiene.

When ask about have bad dreams 1.28, [28], Sleep quality directly influences mental and physical acts of human. Shift

workers, such as nurses are at extreme risk for poor sleep.

Shift work comprises work schedules that extend beyond the typical "nine-to-five" workday, wherein schedules often comprise early work start, compressed work weeks with 12-hour shifts, and night work.

According to recent American and European surveys, between 15 and 30% of adult workers are engaged in some type of shift work, with 19% of the European population reportedly working at least 2 hours between 22: 00 and 05: 00. The 2005 International Classification of Sleep Disorders estimates that a shift work sleep disorder can be found in 2-5% of workers. This disorder is characterized by excessive sleepiness and/or sleep disruption for at least one month in relation with the atypical work schedule. Individual tolerance to shift work remains a complex problem that is affected by the number of consecutive work hours and shifts, the rest periods, and the predictability of work schedules. Sleepiness usually occurs during night shifts and is maximal at the end of the night. Impaired vigilance and performance occur around times of increased sleepiness and can seriously compromise workers' health and safety. Indeed, workers suffering from a shift work sleep-wake disorder can fall asleep involuntarily at work or while driving back home after a night shift. Working on atypical shifts has important socioeconomic impacts as it leads to an increased risk of accidents, workers' impairment and danger to public safety, especially at night. The aim of the present review is to review the circadian and sleep-wake disturbances associated with shift work as well as their medical impacts.

7. Conclusion

This study showed that shift-work for nurses are highly suffered by poor sleep quality. Gender, age, years of work experience of nursing have no significant effect on this issue. It seems planning new studies with deeper and more pervasive look to find what makes this highly poor sleep quality among nursing staff is a great need.

8. Recommendation

This study highlighted the quality sleep for nurses and Health service is one of the industries that provide a continuous service around the clock, for the benefit of all citizens in any country. Studies have shown that shift-work can have negative impact on job performance, sleep, physical and emotional health, social life, family life, drug use and level of job-related stress. Nurses develop personal strategies that are specific to their nature of stress through constant education and research. Policies that reduce long of shift work: These could include reducing the number of hours of the night shift, increasing the rest time between shifts, providing adequate meal times, and providing a fair distribution of weekend and holiday work.

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References

[1] Åkerstedt T, Fredlund P, Gillberg M, Jansson B. Work load and work hours in relation to disturbed sleep and fatigue in a large representative sample. Journal of psychosomatic research. 2002; 53 (1): 585–588.

[2] Almasi, J. H., Bakas, T., Bennett, S. J. and Pierce, P. K. (2006). Coping with stress: Programs of nursing research. In Rice, V. H. (ed), Handbook of stress, coping, andhealth: Implication for nursing research, theory and practice. London: Sage Publications.

[3] Amaral MO, de Almeida Garrido AJ, de Figueiredo Pereira C, Master NV, de Rosário Delgado Nunes C, et al. Quality of life, sleepiness and depressive symptoms in adolescents with insomnia: a cross-sectional study. Aten Primaria. 2017; 49 (1): 35–41.

[4] Bernstrøm VH, Alves DE, Ellingsen D, Ingelsrud MH. (2019), Healthy working time arrangements for healthcare personnel and patients: a systematic literature review. BMC Health Serv Res. 2019 Mar 27; 19 (1): 193.

[5] Boughattas, W., Maalel, O., Chikh, R., Maoua, M., Houda, K., Braham, A., Rhif, H., Chatti, S., Debbabi, F., Dogui, M. and Mrizak, N. (2014) Hospital Night Shift and Its Effects on the Quality of Sleep, the Quality of Life, and Vigilance Troubles among Nurses. International Journal of Clinical Medicine, 5, 572-583. doi: 10.4236/ijcm.2014.510079.

[6] Bruce W. Tuckman. (1994) Conducting Educational Research. 4th ed. Harcourt Brace & company.

[7] Chang, E. M., K. M. Hancock, et al. (2005). "Role stress in nurses: review of related factors and strategies for moving forward." Nurs Health Sci 7 (1): 57-65.

[8] Chien PL, Su HF, Hsieh PC, Siao RY, Ling PY, et al. (2013) Sleep Quality among Female Hospital Staff Nurses. Hindawi Publishing Corporation Sleep Disorders 283490.

[9] Costa, G. (2003) Shift Work and Occupational Medicine: An Overview. Occupational Medicine, 53, 83-88. http://dx.doi.org/10.1093/occmed/kqg045.

[10] Bonnet MH. Dealing with shift work: physical fitness, temperature, and napping. Work Stress. 1990; 4: 261–274. [Google Scholar] Kiyoshi Yamauchi, (2001) "Corporate communication: a powerful tool for stating corporate missions".

[11] Flo E, Pallesen S, Magerøy N, Moen BE, Grønli J, et al. (2012) Shift work disorder in nurses-assessment, prevalence and related health problems. PloS One 7: e33981.

[12] Győrffy Z, Dweik D, Girasek E. Workload, mental health and burnout indicators among female physicians. Hum Resour Health. 2016; 14 (1): 12.

[13] Jehan, S., Zizi, F., Pandi-Perumal, S. R., Myers, A. K., Auguste, E., Jean-Louis, G., & McFarlane, S. I. (2017). Shift Work and Sleep: Medical Implications and Management. Sleep medicine and disorders: international journal, 1 (2), 00008.

[14] Johnson, D. A., Orr, W. C., Crawley, J. A., et al. (2005) Effect of Esomeprazole on Nighttime Heartburn and Sleep Quality in Patients with GERD: A Randomized, Placebo-Controlled Trial. The American Journal of Gastroenterology, 100, 1914-1922. http://dx.doi.org/10.1111/j.1572-0241.2005.00285.x.

[15] Kikuchi Y, Nakaya M, Ikeda M, Okuzumi S, Takeda M, et al. Relationship between job stress, temperament and depressive symptoms in female nurses. Int J Occup Med Environ Health. 2014; 27 (3): 426–434.

[16] Léger, D., Bayon, V., Metlaine, A., Prevot, E., Didier-Marsac, C. and Choudat, D. (2009) Horloge Biologique, Sommeil et conséquences médicales du travail posté. Archives des Maladies Professionnelles et de l'Environnement, 70, 246-252. http://dx.doi.org/10.1016/j.admp.2009.01.007.

[17] Mackowiek-Dabrowska, T; Krawczyk-Adamus, P; Sprusiń ska, E; JÓ Ź wiak, Z. W. Can Nurses Work in 12-Hour Shift system. Department of Work Physiology and Ergonomics.

[18] Qtait Mohammad. Sayej Sumaya. (2016). Demographic Variable (Age, Gender, Marital Status, and Educational Qualifications, in Come) and Affected in Nurses 'Performance in Hebron Hospitals, Journal of Health, Medicine and Nursing, Vol. 24, 2016, ISSN 2422-8419 http://iiste.org/Journals/index.php/JHMN/article/view/29694.

[19] Qtait T Mohammed, Psychological Stress for the Female Nurses Working in Hospitals in the Palestine, International Journal of Preventive Medicine Research, Vol. 4, No. 4, Dec. 2018, Pub. Date: Oct. 19, 2018, ISSN Print: 2381-7038 ISSN Online: 2381-7046 http://www.publicscienceframework.org/journal/paperInfo/ijpmr?paperId=4179.

[20] Nofer Institute of Occupational Medicine. Poland. International Journal of Safety and Ergonomics Vol. 6, No. 3, 2000 pages 393-403.

[21] Metrek Ali S AlMetrek (2014), ffect of Shift-Work on Sleeping Quality of Male Factory Workers in Saudi Arabia, National Journal of Physiology, Pharmacy & Pharmacology Vol 4 Issue 1 61 – 68 DOI: 10.5455/njppp.2014.4.100820131NIOSH.National Institute for Occupational Safety and Health, 1999, stress at work, Steven Sauter - Lawrence Murphy, 1–800–35–NIOSH (1–800–356–4674.

[23] Sharif Nia H, Ebadi A, Lehto RH, Peyrovi H. The experience of death anxiety in Iranian war veterans: a phenomenology study. Death Stud. 2015; 39: 281–7.

[24] Suzuku, K., Ohida, T., Kaneita, Y., Yokoyama, E., Miyake, T., Harano, S., Yagi, Y., Ibuka, E., Kaneko, A., Tsutsui, T.and Ushiyama, M. (2004) Mental Health Status, Shift Work, and Occupational Accidents.

[25] Zverev, Y. P., & Misiri, H. E. (2009). Perceived effects of rotating shift work on nurses' sleep quality and duration. *Malawi medical journal: the journal of Medical Association of Malawi*, *21* (1), 19–21.

[26] Escriba V, Perez-Hoyos S, Bolumar F. Shift work: its impact on the length and quality of sleep among nurses of the Valencian region in Spain. Int Arch Occup Environ Health. 1992; 64: 125–129. [PubMed] [Google Scholar].

[27] Sleep health of Australian adults in 2016: results of the 2016 Sleep Health Foundation national survey. Adams RJ, Appleton SL, Taylor AW, Gill TK, Lang C, McEvoy RD, Antic NA Sleep Health. 2017 Feb; 3 (1): 35-42.

[28] Srivastava, U. R. (2010). Shift work related to stress, health, and mood states: A study of dairy workers. Journal of Health Management, 12 (2), 173-200.

[29] Vidacek, S., Radosevic-Vidacek, B., Kaliterna, L. and Prizmic, Z. (1999) The Productivity of Female Shift Workers. Archives of Industrial Hygiene and Toxicology, 41, 339-345.