ORIGINAL ARTICLE

Determination the Effect of Work Shift on Nurses' Health working at Teaching Hospitals

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ABSTRACT

Objectives: The study aims at assessing the level of work shit effect on nurses' health and to find out the association between level of effect and demographic variables of nurses.

Material and methods: A descriptive analytical study that is conducted for the period of October 1st 2021 to June 1st, 2022. The sample of the study includes 239 nurses were selected by convenient sampling method (non-probability sample). The setting of the study includes the teaching hospitals in Baghdad city. The questionnaire of the study is employed to fit the current study which consists of two parts; the first part is contained the covering letter and the socio-demographic variables; the second part is concerned with items related to effect of work shift on nurses' health that comprised of 65 items distributed on eight dimensions. The data have been collected through the utilization of the self-administrative report as a mean of data collection. Statistical analyses were conducted by using statistical package for social science (IBM SPSS Statistics) version 26.0.

Results: The study found that that 94% of nurses are associated with moderate level of effect regarding work shift (218.38±15.224). Nurses are associated with moderate level of fatigue and sleep disorder (38.84±5.798); moderate level of eating and social health problems (27.93±3.581); moderate level of psychological and social problems (47.43±5.791); moderate level of criteria of distributing work shift for nurses (17.12±2.996); moderate level of factors affecting work shift and controlling stress (26.12±3.691); high level of coping with work shift (19.82±3.019); moderate level of consequences related to work environment and job satisfaction (21.49±4.545); and moderate level of performance and safety from medical risks (19.63±3.446). There is significant correlation between effect of work shift and nursing qualification at p-value= .013

Conclusions: Based on the study finding, the study concludes that nurses are exposed to moderate level of impact related to work shift.

Recommendations: The study is recommended that Ministry of Health should initiate incentives for nurses who are working during night and evening shift to encourage them and decrease their problems

Keywords: Work Shift, Effect, Nurses

INTRODUCTION

Shift work is an inconsistent and atypical work schedule, compared to the typical daytime work schedule, it refers to work schedules outside of usual daytime hours and includes evening, night, morning, rotating, and irregular shift schedules [1].

Several studies have demonstrated various adverse effects of unusual working hours, regarding the deleterious effects of shift work on the essential brain functions, most of the studies have investigated its consequences on cognitive functions.

However, only a few research studies have investigated the effect of shift work on executive functions (EFs), Executive functions are a set of general-purpose controlling mechanisms associated with the prefrontal lobe, which control the dynamics of human actions and cognition. Core components of EF are cognitive flexibility/shifting, response inhibition, and working memory [2].

In the National Health Service (NHS), it has always been necessary for certain area, for example, in-patient services, to provide 24-hour service and hence shift work has been very much a feature of the organization. Nursing staff have been the main professional group to work shifts in hospitals but increasingly other staff groups are becoming involved in shift work as the hours required for their services increase. Other groups also work shifts, for example, the police and fire service, transport workers and increasingly those employed in retail outlets. In an acute teaching hospital in central England with approximately 5000 staff, shift work features prominently in the annual revenue accounting Twelve-hour shifts or ''long-days'' have become an increasingly standard shift option for nursing over recent years across the USA, UK, and to a lesser extent in Europe and Australia/New Zealand. This paper presents a scoping review of the literature to illuminate the themes associated with the actual or perceived benefits and disadvantages of this shift pattern [3].

The shift length argument had been explored by other occupational sectors than nursing and experts believe that fatigue associated with long shifts played a major role in the unfolding of disasters,the working longer shifts without sufficient rest between shifts may increase fatigue and, therefore, pose a threat to safety However, research beyond health is equivocal and some studies have found little differences in terms of cost or productivity or levels of fatigue by shift length [4].

Work shifts reduce the performance, change the nutrition habits, increase the fatigue and insomnia, create health problems and problems in social and personal lives, Work shifts induce long and short-term effects. In short term, sleep pattern, circadian rhythm, performance, immunity, social, and personal lives are affected. In long term, digestive problems and heart diseases were notable [5].

In nursing, collated evidence on 12-h shifts and concluded that long shifts are unsafe for both patients, in terms of medication errors and for nurses, who are at greater risk of musculoskeletal diseases, needle stick injuries, and drowsy driving behavior that effect of eight and 12-h shifts on quality of care and health care provider outcomes. They found insufficient evidence to conclude that shift length had an effect on patient or healthcare outcomes [6]. Therefore, the current study is trying to focus on effects of work shift on nurses' health and how this effect associated with their demographic variables to provide a conceptual framework for the future research.

Objectives of the Study: The study aims at assessing the level of work shit effect on nurses' health and to find out the association between level of effect and demographic variables of nurses.

MATERIALS AND METHODS

A descriptive analytical study that is conducted for the period of October 1st 2021 to June 1st, 2022; an assessment approach is applied in order to achieve the earlier stated objectives.

The ethical consideration of research is achieved by obtaining the agreement from the Committee of Research Ethics at College of Nursing, University of Baghdad. In addition, the agreements of the participants were asked for participation in research by filling the participation consent in covering letter of the questionnaire.

After getting approved by the College of Nursing Council/the University of Baghdad, the researcher provided a detailed description of the objectives and project of the study to Ministry of Planning, Central Statistical Organization approved the study instrument; Additional permission was got from the Ministry of Health and Environment /Baghdad Health Directorate /Training and Human Development Center/ for having access to teaching hospital at Baghdad city

The setting of the study was conducted at teaching hospital in Baghdad city which were selected randomly from Al-Karkh and Al-Rusafa Directorate, these are include: Al-Imamain Al-Kadimain hospital, Al-Karkh General Teaching Hospitals, Baghdad Teaching Hospital, and Al-Imam Ali Teaching Hospital.

Convenience sample "non-probability" sampling method was used to achieve the current study; 249 nurses were selected from hospitals mentioned above on a basis of researcher's convenience.

The questionnaire of the study is employed to fit the current study which consists of two parts; the first part is contained the covering letter and the socio-demographic variables that are: age, gender, marital status, monthly income and nursing qualification; the second part is concerned with items related to effect of work shift on nurses' health that comprised of 65 items distributed on eight dimensions as follows: fatigue and sleep disorder (11 items); eating and social patterns (9 items); psychological and social problems (14 items); criteria of distributing work shift (5 items); factors affecting work shift and controlling stress (8 items); coping with work shift (5 items); work environment and job satisfaction (7 items); and performance and safety from medical risks (6 items). All items were rated into 5-Likert scale and scored as follows: strongly disagree= 1, disagree=2, neutral=3, agree=4, and strongly agree=5. The overall score of calculated by estimation the range score for total score and rated into three levels as follows: Low: 65 – 151.66, Moderate: 151.67 – 238.33, High: 238.34 – 325. The level of each item is calculated bay estimation the cut off point for mean score and rated into three level as follows: Low= 1 – 2.33, Moderate = 2.34 – 3.67, High = 3.68 – 5.

Relevancy and adequacy of the questionnaire were done by using of panel experts to determine the content validity of the instrument in order to achieve the present objectives of the study.

The internal consistency of the instrument was determined through the pilot study and the computation of Alpha Correlation Coefficient (Cronbach's Alpha). The result of the reliability was (r = 0.70) and such an estimation was statistically adequate which means that the questionnaire had adequate level of internal consistency and equivalence measurability.

The data have been collected through the utilization of the self-administrative report as a mean of data collection. The questionnaire was distributed after being willing to answer the questionnaire and participate in the study.

Statistical analyses were conducted by using statistical package for social science (IBM SPSS Statistics) version 26.0. Data analysis was employed through the application of descriptive and inferential statistical approaches to achieve the objectives of the study.

RESULTS

This table shows that average age for nurses is 31.19±8.683 years in which 49.9% of them are with age group of 20-less than 30 years. The gender of nurses refers to 53.8% of them are females and 46.2% of them are males. Regarding marital status, 70.3% of nurses are married and 19.7% of them are still unmarried, 7.2% are divorced. The monthly income refers to 300000 to 600000 Iraqi dinars among 51.4% of them. Regarding qualification, 46.6% of nurses are graduated from nursing secondary school and 39.4% of them are graduated with diploma in nursing.

This table reveals that 94% of nurses are associated with moderate level of effect regarding work shift (218.38±15.224).

Table 1: Distribution of Nurses according to their Socio-demographic Characteristics

Characteristics		No	%
Age M±SD= 31.19±8.683	Less than 20 year	2	.8
	20 – less than 30 year	124	49.9
	30 – less than 40 year	79	31.7
	40 – less than 50 year	31	12.4
	50 ≤ year	13	5.2
	Total	249	100
Gender	Male	115	46.2
	Female	134	53.8
	Total	249	100
Marital status	Unmarried	49	19.7
	Married	175	70.3
	Divorced	18	7.2
	Widowed / er	4	1.6
	Separated	3	1.2
	Total	249	100
Monthly income	300000 – 600000 IqD	128	51.4
	601000 – 900000 IqD	73	29.3
	901000 IqD ≤	48	19.3
	Total	249	100
Nursing qualifications	Secondary school	116	46.6
	Diploma	98	39.4
	Bachelor	24	9.6
	Postgraduate	11	4.4
	Total	249	100

No: Number, %: Percentage, M: Mean, SD: Standard deviation

Table 2: Overall Assessment the Effect of Work Shift on Nurses' Health

Levels	No	%	Mean	SD	Assessment.
Low	0	0			
Moderate	234	94	218.38	15.224	Moderate
High	15	6			
Total	249	100			

No: Number, %: Percentage
SD: Standard Deviation for total score
Low: 65 – 151.66, Moderate: 151.67 – 238.33, High: 238.34 – 325

Table 3: Assessment the Domains regarding Effect of Work Shift on Nurses' Health

Domains	Mean	SD	Assessment
Fatigue and sleep disorder	38.84	5.798	Moderate[1]
Eating and Social Patterns	27.93	3.581	Moderate [2]
Psychological and Social Problems	47.43	5.791	Moderate [3]
Criteria of Distributing Work Shift	17.12	2.996	Moderate [4]
Factors affecting Work Shift and Controlling Stress	26.12	3.691	Moderate[5]
Coping with Work Shift	19.82	3.019	High[4]
Work Environment and Job Satisfaction	21.49	4.545	Moderate [6]
Performance and Safety from Medical Risks	19.63	3.446	Moderate [7]

SD: Standard Deviation for total score
[1]Low: 11 – 25.66, Moderate: 25.67 – 40.33, High: 40.34 – 55
[2]Low: 9 – 21, Moderate: 21.1 – 33, High: 33.1 – 45
[3]Low: 14 – 32.66, Moderate: 32.67 – 51.33, High: 51.34 – 70
[4]Low: 5 – 11.66, Moderate: 11.67 – 18.33, High: 18.34 – 25
[5]Low: 8 – 18.66, Moderate: 18.67 – 29.33, High: 29.34 – 40
[6]Low: 7 – 16.33, Moderate: 16.34 – 25.66, High: 25.67 – 35
[7]Low: 6 – 14, Moderate: 14.1 – 22, High: 22.1 – 30

This table reveals that nurses are associated with moderate level of fatigue and sleep disorder (38.84±5.798); moderate level of eating and social health problems (27.93±3.581); moderate level of psychological and social problems (47.43±5.791); moderate level of criteria of distributing work shift for nurses (17.12±2.996); moderate level of factors affecting work shift and controlling stress (26.12±3.691); high level of coping with work shift (19.82±3.019); moderate level of consequences related to work environment and job satisfaction (21.49±4.545); and moderate level of performance and safety from medical risks (19.63±3.446).

Table 4: Association among Effect of Work Shift with Sociodemographic characteristics of nurses

		Age	Gender	Marital status	Income	Qualification	Effect
Age	Pearson Correlation	1	-.117	.206**	.644**	.185**	-.123
	Sig. (2-tailed)		.066	.001	.000	.003	.054
Gender	Pearson Correlation	-.117	1	-.079	-.259**	-.033	-.070
	Sig. (2-tailed)	.066		.216	.000	.604	.271
Marital status	Pearson Correlation	.206**	-.079	1	.269**	.180**	.076
	Sig. (2-tailed)	.001	.216		.000	.004	.232
Income	Pearson Correlation	.644**	-.259**	.269**	1	.181**	-.019
	Sig. (2-tailed)	.000	.000	.000		.004	.771
qualification	Pearson Correlation	.185**	-.033	.180**	.181**	1	-.157*
	Sig. (2-tailed)	.003	.604	.004	.004		.013
Effect	Pearson Correlation	-.123	-.070	.076	-.019	.157*	1
	Sig. (2-tailed)	.054	.271	.232	.771	.013	
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

This table shows that there is significant correlation between effect of work shift and nursing qualification at p-value= .013 while there is no significant correlation among remaining variables.

DISCUSSION

It has seen out of analysis for sociodemographic characteristics of nurses that they are young adult female nurses who were married with previewed moderate monthly income. Interpreting the results obtained for the establishment of a professional profile is always an arduous exercise of approximation and distancing of its constituent elements not always able to be fully, apprehended in a short period of time, for the application of the questionnaire in the data collection. The variable age is an important factor for nurses' activities, since the performance of their daily functions requires a lot of vigor and physical conditioning, which are not infrequently associated with their physical fitness, that is, the capacity to perform activities of the nurse profession. It is possible, therefore, that some behaviors are related to this variable, especially when it comes to resisting and / or overcoming challenges and stress situations. The finding of this study was supported by finding of study that found the nurses are female young and married with approximately moderate level of income [7].

It has known out of findings that nurses are associated with moderate level of effect regarding work shift (218.38±15.224). The nurses are associated with moderate level of fatigue and sleep disorder (38.84±5.798); moderate level of eating and social health problems (27.93±3.581); moderate level of psychological and social problems (47.43±5.791); moderate level of criteria of distributing work shift for nurses (17.12±2.996); moderate level of factors affecting work shift and controlling stress (26.12±3.691); high level of coping with work shift (19.82±3.019); moderate level of consequences related to work environment and job satisfaction (21.49±4.545); and moderate level of performance and safety from medical risks (19.63±3.446).

For those who are working during evening shift and night shift may develop various problems as a result of work shift; they may develop health problems, disturbed quality of sleep, and behavioral problems. From the increasing interest in improving health care quality, comes the importance of enhancing nurses' performance as they involved in a large aspect of patient care. The current study assessed the level of self-rated performance for nurses working in different levels of health care system. This finding is supported by the study found nurses have higher impact related to work shift rotation [8].

The correlation analysis indicated that there is significant correlation between effect of work shift and nursing qualification at p-value= .013 while there is no significant correlation among remaining variables. The system of employment of newly qualified nurses causes discrepancies in hospitals. As a result, nurses resort to moonlighting, working day and night without rest in an attempt to get additional salary. This is psychosocial hazards (stress) to the life of the nurse and exposing patients to hazards [9].

CONCLUSION

Based on the study finding, the study concludes that nurses are exposed to moderate level of impact related to work shift, and they experiencing moderate effect of work shift consequences regarding fatigue and sleep disorder, psychological and social problems. Those with high degree qualification are positively correlated with moderate effect of work shift.

Recommendations: The study is recommended that Ministry of Health should initiate incentives for nurses who are working during night and evening shift to encourage them and decrease their problems, and regular health assessment is required for nurses working in night and evening shift to explore their health status and detection of physical problems related to sleep and eating and so on.

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