

Relationship Between Lifestyle Behaviors and Work Shifts Among Nurses

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Abstract

Background: Nursing might experience challenges as a result of changes in shift patterns and the nature of hospital work. Working in shifts leads to radical changes in the daily routine of nurses, such as possible disruptions to circadian rhythms. **Objectives:** The study objective is to assess the shiftwork patterns of nurses, which focus on the duration and length of each working shift. Then identify the association between work shift arrangements and nurses' lifestyle behaviors. **Materials and Methods:** A cross-sectional analysis was performed on a sample of 220 nurses working in hospitals in Duhok City, Kurdistan Region, Iraq. The period of data collection was from January 1, 2022, to May 1, 2022. A structured questionnaire was used to collect data from nurses via direct, individualized interviews. **Results:** Nurses who worked the morning shift were represented between 3 and 8 days per month, accounting for 44.2% of all nurses. In addition, 64.5% of nurses worked 40–50 h per week. The majority of nurses (76.4%) worked between 5 and 6 h on a morning shift every day. Consequently, nurses who worked the morning shift had a strong correlation with lifestyle behaviors (P value = 0.04). **Conclusions:** Nurses with a morning shift show healthy lifestyle behaviors as a result of having an adequate job performance schedule. However, it could be established that the diversity of work schedules, including, hours of work, days of shifts, and length of every shift, along with lifestyle characteristics, may have an impact on how well nurses handle the working shifts.

Keywords: Health behaviors, lifestyle, nurses, work shifts

INTRODUCTION

In the recent decade, most health care providers around the world employed shift working patterns. Work shift indicates that is a strategy to organize the activities of workers who are involved in the same workstation according to a certain criterion, which may be continuous or intermittent, necessitating the need for an employer to work at different times over a specified period of time, days or weeks.^[1] Professional nurses from different specialties and qualifications, such as those in the emergency room, critical care units, and medical, and surgical wards, work in shifts to provide patient care 24h a day.^[2] Lifestyle behaviors and choices are fundamental for achieving good health. Nurses who witness healthy lifestyle choices are more effective at guiding and motivating patients to adopt healthy behaviors that benefit their health.^[3]

Nurses in hospitals often practice overnight and lack a consistent routine with erratic work schedules and times

of shifts as early morning, evening, and night; these are potential causes of the disruption of several natural processes and healthier lifestyle habits of nurses.^[4] Nurses' well-being and lifestyle are not completely affected by the presence or absence of shift work, but the potential detrimental factors that disturb their habits are shifts that are disorganized, variation in shift duration and cycles of work periods between and within nurses' groups, and working hours per week and shift patterns as a fixed or rotating timetable.^[5] Further, this difference in the effectiveness of shift work depends on the time and length of the phase shift imposed, as well as nurses' characteristics such as their age and coping strategies.^[6]

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Undoubtedly, nursing might experience challenges as a result of changes in shift patterns and the nature of hospital work. Working in shifts leads to radical changes in the daily routine of nurses, such as possible disruptions to circadian rhythms. These circadian processes usually involve the 24-h cycle and affect varieties of body functions like cognitive, behavioral, and emotional status, as well as endocrine, neurological, and other physiological processes such as body temperature, blood pressure, and the secretion of different hormones.^[7] Besides, the quality of sleep is highly affected in terms of onset, duration, and length, which sleepiness, fatigue, and tiredness increase, and nurses may have poor performance efficiency during the night compared to the day, when sleep patterns are out of sync with light and dark, as can happen in shift work. Ongoing irregularity of the circadian process appears to have negative health influences.^[8] Nursing care is always arranged in shift work to ensure complete and continuous care of the patient, but there is some evidence referring to this type of work organization having a significant impact on the healthy living habits of nurses and leading to a high risk of chronic diseases, including obesity and heart diseases, as well as diabetes and other health issues.^[9]

Furthermore, constant changes in work patterns, such as timing from early morning to evening and night, the number of days in a rotation cycle between two identical sequences, and planned permanent or rotating shifts for nurses, may create barriers to maintaining an active lifestyle, such as participating in social forms of exercise or team sports, despite an increase in exertion and feeling exhausted during exercise performed at night or in the early morning. Thus, it is necessary to understand the connection between nurses' shift work patterns and the possible effects that are produced. Therefore, the objectives of the current study are to assess the shiftwork patterns of nurses, which focus on the duration and length of each working shift. Identify the association between shift work arrangements, which have been divided into morning, evening, and night shifts, and nurses' lifestyle behaviors.

MATERIALS AND METHODS

A cross-sectional analysis design was conducted to assess the association between nurses' lifestyle behaviors and their shift work scheduling patterns. Nurses who worked in various general public hospitals in Duhok City, Kurdistan Region, Iraq, were recruited for the study. The period of data collection was completed within four months. A non-probability consecutive sampling method was used to enroll the participants, which included 220 nurses from different levels of education who graduated from school, an institute, higher education, and a university degree. The eligibility criteria included nurses who were working in different hospital departments involved (medical, surgical, pediatric, gynecology, and obstetrics, as well as critical care units such as ICU, CCU, HDU, and emergency departments). The

nurses who work in the rotating shift system periodically include morning, evening, and night shifts. There were disparate differences in working hours depending on the hospital's clinical areas, which are classified as follows: The nurses who worked in the medical, surgical, pediatric, gynecology, and obstetrics wards, as well as emergency rooms, had their working hours distributed as follows: morning shift (8:00 AM to 1:30 PM), evening shift (1:30 PM to 6:00 PM), and night shift (6:00 PM to 8:00 AM).

While the nurses who worked in the critical care units (ICU, CCU, and HDU) had their working hours distributed, they included the morning shift (8:00 AM to 4:00 PM), evening shift (4:00 PM to 12:00 AM), and night shift (12:00 AM to 8:00 AM). Nurses had one year or more of experience. They were willing to take part in the study. While the exclusion criteria for the current sample were that they had less than one year of experience and refused to participate in the study.

The data were taken from the participants by the direct individualized interview method for a period of twenty minutes according to the questionnaire structured for the study. The participation was voluntary and took into consideration the confidentiality of nurses. In addition, the investigators explained the study's purposes and gave a brief clarification about the study tools. The questionnaire included as follows:

Socio-demographic and clinical characteristics of nurses were (age, gender, marital and nurses' educational status, nursing workplace at hospitals, their living conditions in the dormitory, alone or with family, and participant experience years). Besides questions related to smoking, alcohol consumption, and body mass index, furthermore, nurses' shiftwork performance is classified into morning, evening, and night shifts. Also, it considered precise details, which included the number of days, working hours, and length of each work shift necessary to provide nursing care to all patients admitted to all hospital departments.

The current study used the previously modified the Positive Health Behavior Scale (PHBS) by Woynarowska-Soldan *et al.*^[10]. The questionnaire was completed by 1017 nurses. Cronbach's reached 0.844 for the entire scale and 0.623–0.761 for specific subscales. PHBS is comprised of 29 statements describing certain positive health behaviors in four subscales: The nutrition and food choices domain consists of 9 sub-items; the physical activity domain consists of 4 sub-items; the relaxation and behaviors related to mental health domain consists of 7 sub-items; and the preventive behaviors domain consists of 9 sub-items. The respondents described their frequency of engaging in these behaviors on a 4-point Likert-type scale as follows: (4 = always, 3 = often, 2 = sometimes, and 1 = never).^[10] Four experts from the University of Duhok determined the face validity of the Positive Health Behavior scale. Analyses were conducted for reliability;

the alpha Cronbach of the scale was within an acceptable range of 0.63.

Before analysis, the collected data were scanned for missing and extreme values. The study's data were analyzed through Statistical Package for Social Science (SPSS) software, version 25. Further descriptive data analysis is done through tabulation as frequencies and percentages. In addition, for the comparison of categorical variables, inferential statistical analysis such as Chi-square and Fisher's exact tests were used. The result of the analysis is considered statistically significant at a P value ≤ 0.05 . The college approval letter and research ethics committee were granted by the general directorate of health/Duhok governorate for the conduct of the study. Also, verbal and signed consent was obtained from each participant in the study.

RESULTS

Two predominant age groups in the study sample were identified. The first one appeared between 20 and 29 years old and the second group between 30 and 39 years old, which represented 41.1%. Regarding the gender of the study sample, most of them (52.3%) were female. Moreover, the marital status distribution indicated that 58.2% of nurses were married, whereas 41.4% were single. In addition, the nurses' years of experience were between 1 and 40 years, with a calculated mean of 9.03. Further, one predominant group of the study participants was identified as 73.2% of the nurses having work experience between 1 and 10 years. The educational levels of the participants varied from school to higher education degrees, where the majority of nurses had institute graduations, which exist 63.2%. According to the sample workplace, nurses worked in different hospital departments, where medical, surgical, and critical care units and emergency departments collectively accounted for 69.1%, whereas 30.9% of them worked in gynecology and pediatric hospitals. Furthermore, in the living statuses of the study sample, most of the nurses lived with family members, which represented 59.5% of them, whereas 30.0% of them lived in hospital dormitories. In addition, the majority of participants were nonsmokers who exist 81.8% and they do not alcohol consumption. Finally, the BMI of the study sample was included 57.3% as normal weight, whereas minorities of nurses were overweight included 33.2% registered in this study, which are shown in Table 1.

Nurses were responding according to the three shifts: morning, evening, and night. In addition, performance patterns for each shift include the number of days of shifts during a month, the number of working hours during a week, and the length of each shift per day. According to the nurses' morning shift, about 95% of nurses responded with "yes." Nurses worked between 3 and 8 days during a month which represented 44.2%. In addition, 64.5% of

Table 1: Distributions of socio-demographic and clinical characteristic of study sample

Variables	F (220)	% (100)
Age groups		
20–29	91	41.1
30–39	91	41.1
40–49	26	11.8
50 and more	12	6
Gender		
Male	105	47.7
Female	115	52.3
Marital status		
Single	91	41.4
Married	128	58.2
Widowed	1	0.4
Nurses years of experience		
1–10	161	73.2
11–20	40	18.2
21–30	13	5.9
31–40	6	2.7
Mean = 9.03		
Standard deviation = 7.28		
Nurses educational status		
School graduate	36	16.4
Institute	139	63.2
University graduation	45	20.4
Workplace		
Medical wards	60	27.3
Emergency department's	26	11.8
Surgical wards	32	14.5
Critical care units	34	15.5
Pediatrics	33	15.0
Gynecology & obstetrics	35	15.9
Nurses Living status		
living alone	23	10.5
Living with parents/family	131	59.5
living in dormitory	66	30.0
Smoking		
Yes	32	14.55
No	180	81.81
Ex-smoker	8	3.64
Alcohol intake		
Yes	6	2.7
No	214	97.3
BMI (body mass index)		
Underweight	5	2.3
Normal weight	126	57.3
Overweight	73	33.2
Obese	16	7.3

F: Frequency, %: percentage

nurses work 40 to 50 h per week. Finally, the majority of nurses (76.4%) worked between 5 and 6 h on a morning shift every day. The details are shown in Table 2.

Regarding nurses' evening shifts, about 60% of nurses responded with "yes." Nurses worked between 3 and

Table 2: Distribution of nurse's morning work shift performance patterns

Morning work shift			Days/month			Hours/week			Hours/day		
	F	%		F	%		F	%		F	%
Yes	209	95	3-8	97	44.2	20 less 30	3	1.4	5-6	166	76.4
			9-14	17	7.8						
No	11	5	15-20	30	13.7	30 less 40	32	14.5	7-8	27	11.3
			>21 days	65	29.5	40 less 50	142	64.5	9-12	16	7.3
Total	220	100				> 50 more	32	14.6			

F= Frequency, % percentage

Table 3: Distribution of nurse's evening work shift performance patterns

Evening work shift			Days/ month			Hours/week			Hours/day		
	F	%		F	%		F	%		F	%
Yes	132	60	3-11	121	54.9	20 less 30	7	3.2	5-6	107	48.6
			12-19	6	2.8	30 less 40	8	3.7	7-8	23	10.5
No	88	40	20-27	5	2.3	40 less 50	104	47.2	9-12	2	0.9
						> 50 more	13	5.9			
Total	220	100									

F: Frequency, %: percentage

Table 4: Distribution of nurse's night work shift performance patterns

Night work shift			Days/ month			Hours/week			Hours/day		
	F	%		F	%		F	%		F	%
Yes	150	68.2	1-7	138	62.6	20 less 30	1	0.5	6-8	32	14.6
			8-14	6	2.8	30 less 40	2	0.9	9-11	14	6.4
No	70	31.8	15-21	6	2.8	40 less 50	18	8.2	12-14	104	47.2
						> 50 more	129	58.6			
Total	220	100									

F: Frequency, %: percentage

Table 5: Correlation between nurses work shifts (morning, evening and night shifts) with Positive Health Behaviors Scale (PHBS)

Nurses' work shifts	All-Positive Health Behaviors Scale (PHBS)	Sig. (2-tailed)
Morning work shift	<i>P</i> value = 0.04*	S
Evening work shift	<i>P</i> value = 0.615*	NS
Night work shift	<i>P</i> value = 0.904*	NS

S: significant correlation; NS: non-significant correlation

*Chi-square test

11 days during a month, which represented 54.9%. In addition, 47.2% of nurses worked between 40 and 50 h per week. Finally, about 48.6% of nurses work among 5–6 h in a length of evening shift every day. The details are shown in Table 3.

Moreover, concerning night shift nurses, around 68.2% of nurses responded with “yes.” Nurses worked between 1 and 7 days during a month, which represented 62.6%. Furthermore, 58.6% of nurses work 50h or more per week. Finally, as shown in Table 4, approximately 47.2% of nurses worked between 12 and 14h night shifts every day.

The study revealed a correlation between nurses' shift work patterns among morning, evening, and night shifts and the Positive Health Behaviors Scale. Consequently, there was a significant correlation between the morning shift work and

their positive health lifestyle behaviors (*P* value = 0.04). These associations are allocated in Table 5.

DISCUSSION

A recent study was conducted to address the association between nurses' positive lifestyle behaviors and their shift work scheduling pattern of performance. Nurse staff at various hospitals in the current survey work regular rotation shifts, including morning, evening, and night shifts, in combination with some characteristics such as working hours, length, and scheduled days off, which may have an impact on the lifestyle behaviors of nurses. The results indicated that the majority of nurses were female. The majority of them were less than thirty-nine years old. They have nearly nine years of nursing experience, from institute graduation and working mainly in the

morning shift at different parts of the hospital, including surgical, medical, emergency, and others. This finding was comparable with that of other researchers, who stated that most of the participants were female, their age was over 35, and they had experience working at hospitals for more than 11 years. The nurses' staff was working day shifts throughout the week and two overnight shifts within the same week.^[11]

In the present study, the work of nurses was organized into three shifts: morning, evening, and night shifts, each with different durations, characteristics, and schedules. Thus, the majority of nurses work morning shifts with appropriate hours and suitable shift lengths. The possibility of having a well-thought-out schedule among nurses will cover the needs of staff constantly; also reduce the recurring pressures and variety of health problems. Other study suggested that nurses with long hours and duration of shifts will be more vulnerable to physical and spiritual health problems. This will have a direct effect on staff performance and the quality of the health services they provide.^[12] Hence, the highest job performance relies on the healthiest nurses, and that leads to job satisfaction. The determinants of nurse success in the workplace are both job satisfaction and organizational engagement processes, which are certainly linked to working performance.^[13] However, depending on culture and tradition, organizing schedules for nurses in terms of permanent or rotating as well as working hour criteria and schedules are likely to vary in terms of starting times and duration.^[14]

Lifestyle behavior among shift workers refers to the different daily living patterns chosen by the nurses, which may be healthy or unhealthy. Positive healthy lifestyle behaviors are a plan followed by nurses to achieve good health behaviors that have a close impact on work performance, such as a balanced diet, exercising, reducing anxiety, and stress management caused by the work pressure of care they provide in their assigned schedules.^[15,16] Studies by Sharma *et al.*^[17] and Heidke *et al.*^[18] revealed that when nurses are involved in healthy lifestyle ways, it not only improves their health but also increases their truthfulness as health educators and role models for their patients, their families, and their wider society.

Another finding in our study was that nurses who work morning shifts have a significant association with positive lifestyle behaviors compared with those who work evening or night shifts. The morning shift of our nurses with fixed and regular hours may help greatly to maintain their level of mental status, social and physical activity. The findings are consistent with other studies that acknowledged that nurses involved in the morning shift have more self-improvement, good memory, and concentration.^[17] Also, the good and stable hours of the day shift might

be attributable to getting adequate sleep duration, enough energy for greater job performance, increased physical and mental health, and a raised level of satisfaction with a social role. The continuous changes in the work schedule of health care providers reduce the achievement of some important activities, including exercise, a healthier diet, hobbies, and social communication.^[19,20]

Generally speaking, a nurse's shift work performance plays a great role in promoting positive and healthy lifestyle behaviors and can be influenced by the working environment as well as the accessibility of sufficient time, duration, and an appropriate schedule.^[21] Besides, nurses who follow healthy habits like exercising, consuming a healthy nutrition status, and practicing stress management will have a positive effect on their health and patients' conditions in their clinical setting.^[22,23]

CONCLUSION

As a consequence of the study, it was determined that most of the nurses were married women. The educational levels of the participants ranged from high school to higher education degrees, with the majority of nurses having graduated from an institute. Additionally, nurses had proper timetables for their shifts, both in terms of length and duration. Three to eight days each month were dedicated to the nurses' morning shift. A 40- to 50-h work week was also required of them. Additionally, the shifts lasted between 5 and 6 h. As a result, it was shown that nurses who worked the morning shift had a strong correlation with healthy living choices and behaviors. As opposed to this, there was no correlation between nurses' lifestyle behaviors and working the evening or night shift.

RECOMMENDATIONS

It is suggested to use the Positive Health Behaviors Scale (PHBS) continuously to assess the extent of the effect of daily shift work on nurses lifestyle behaviors and to ensure the safety of their healthy living; this will reflect on the quality of care provided to their patients. As well, nurses should regularly be empowered with health education and refresher training to provide them with the necessary knowledge about adopting a healthy lifestyle. Strategies for promoting healthy lifestyle behaviors should be covered in health education programs. Finally, future research should continue evaluating shift work among nurses and their lifestyle behaviors on a larger sample size and enrolling nurses from further townships and specialized clinical settings than the current selected hospitals' to support the current finding.

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Author contribution

SJK, RYA: Study conception and design; SJK, DSR, RYA: Data collection; AAS, SJK: Data analysis and interpretation; SJK, RYA: Drafting of the article; SJK, RYA, DSR: Critical revision of the article.

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Conflicts of interest

There are no conflicts of interest.

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