

# An Overview of Shift Work Variability among Nurses in Governmental Sectors in Kuwait: Cross-Sectional Study

Zafer Alajmi<sup>1</sup>, Mukhlid Alshamari MSN<sup>2</sup>, Yousef Buresli<sup>3</sup>, Eid Amutairi<sup>4</sup>

<sup>1</sup>Consultant for Nursing Affairs, Ministry of Health, Kuwait City, Kuwait, <sup>2</sup>Specialist nurse, Ministry of Health, Riyadh, Saudi Arabia, <sup>3</sup>Senior specialist family medicine, Ministry of Health, Kuwait City, Kuwait, <sup>4</sup>Senior Register Nurse, Ministry of Health, Kuwait City, Kuwait

## Abstract

**Background:** Shift work is a work schedule with a diversity of working time arrangements. The diversification of working time is significantly associated with health problems such as cancer, diabetes and cardiovascular. Shift work is considered a workplace hazard. It indicated high levels of stress and exhaustion among nurses and a low level of job satisfaction. Irregularity in working hours might compromise nurses' performance and contribute to low quality of care in health care settings.

**Aim:** This study aims to describe the shift work variability, the sufficiency of sleeping, general aspects of health and performance among nurses working in the governmental sectors in Kuwait.

**Methods:** An observational cross-sectional design was used among nurses working in Kuwait's governmental health care sectors.

**Findings:** A total of 329 nurses participated in this study. The majority of participants reported rotating shift work 297 (90.3%). The mean and standard deviation of sleeping hours were reported as 5.8±1.15 hours. Of them, 167 (50.8%) nurses reported falling asleep while driving after finishing their work duty. Besides, frequent feeling of fatigue was expressed by the participants 268 (81.5%).

**Conclusion:** The present study revealed a high level of shift work variability among nurses. Fatigue, falling asleep, and work incidences were also reported by nurses. Special attention should be given to nurses working under shift work rotation as this might affect their general health and performance. Decision makers should provide adaptation programs and apply enhancement measures to promote health and productivity of nurses in Kuwait.

**Keywords:** sleeping, nurse, work performance, Shift work, workplace hazard

## Introduction

Shift work is a work schedule with a diversity of working time arrangements. Recent statistics divulge that majority of workers are engaged in irregular or rotational work patterns, including working at night

shift, weekend work, on-call work with prolonged duty hours<sup>1,2</sup>.

The global changes in economics and political trends dramatically promote the demand for shift work. Previous studies showed that the diversification of working time is significantly associated with health problems such as cancer, diabetes, gastrointestinal disorders, metabolic and cardiovascular disease; besides, It has a major effect on patient's safety and job performance<sup>2,3</sup>.

---

### Corresponding Author:

**Dr Zafer Alajmi**, PhD

Ministry of Health, Kuwait City

Kuwait, Email: dr.z.alajmi@gmail.com

Tel: 00965 65549999

Shift work is considered a workplace hazard<sup>4</sup>. One of the major problems resulting from shift work is sleep problems affecting individuals' quality of life and productivity. The prevalence of sleep disorders among shift-workers (48%) was significantly higher than day workers (40%). The highest prevalence of low sleep quality was observed in nurses (64%) comparing to other professions<sup>5</sup>. On the other hand, sleeping problems associated with shift work indicated high stress and exhaustion among nurses and a low level of job satisfaction<sup>6</sup>.

Furthermore, the risk of occupational stress from the variability of shift work can affect the nurses personally and increase absenteeism rates. These consequences of irregularity in working hours may compromise the patients in health care settings, contribute to low quality of care and increase the incidence of errors<sup>7-9</sup>. Thus, this highlights the importance for nurses to adopt strategies to cope with the demands of shift work to increase the quality of care for patients and themselves<sup>10</sup>.

The present study aims to explore the quality of sleeping among Kuwaiti nurses and the variability in working hours, including the general aspects of health and work performance. Also to assess some health habits that might be related to shift work. This study might help the decision-maker to consider the quality of life for nurses and increase their satisfaction toward the workplace.

## Methodology

### Population and Sampling

This study's nature is an observational cross-sectional design; This study has conducted on a sample of Kuwait nurses. The potential participants were selected from government hospitals using an electronic survey. In particular, a convenience sampling technique was applied by using a self-administered questionnaire. Invitation letters were sent to heads of each hospital's nursing department, including a link to access the electronic survey. Heads were asked to share this link with nurses who later accessed the electronic link and read a brief introduction about study aim and objective and voluntary accept to fill up a Questioner within 5 to 7 minutes. An electronic survey is a cost-effective method

of recruiting participants who might be hard to reach through traditional recruitment. Nurses from different departments can easily read the study's purpose and objective. Then, they can either fill out the questionnaire or decline.

### Data Collection instruments

The data was collected using a self-administered questionnaire, several variables, and questions adopted from previously published studies<sup>4,11-12</sup>. The questionnaire divided into three main sections; the first section focused on participants demographic such as age, marital and level of education status in addition to working background, which includes years of working, daily working hours and department where the participants are working, the second section concern on exploring the impact of variable-shift on general health the variables include a question about a sleeping pattern, number of sleeping hours per day, ability to perform regular exercises and frequency drinking caffeine. The final section focused on work performance. The data collection was carried out over almost three weeks. SPSS version 26 was used for statistical processing and data analysis; significance level (P-value) was considered at 0.05.

## Results

### Participants' Socio-Demographic and working background Characteristics

Three hundred twenty-nine nurses from the governmental hospital participated in this study by completing the electronic survey. The majority of participants are female 215 (65.3%) comparing with males comprising 114 (34.7%) of the sample. Most of the participants 310(94.2%) were married with a mean and standard deviation (SD)  $2.46 \pm 1.139$  as a number of children. Among participants, 120(36.5%) had diploma-level education, 193(58.7%) had a university-level education, and only 16(4.9%) had a master level of education. Only 32(9.7%) have regular working hours. Most of the participants reported that they need ( $34 \pm 15$ ) minutes to reach their home after finishing their duty hours. Table 1 presents detailed information on participants' demographics and their work background

**Table 1. Descriptive Statistics for Participant Demographics and Working Background**

| Demographics                                 | N(%)             |
|----------------------------------------------|------------------|
| Gender                                       |                  |
| Male                                         | 114(34.7)        |
| Female                                       | 215(65.3)        |
| Education level                              |                  |
| Diploma                                      | 120(36.5)        |
| BSc                                          | 193(58.7)        |
| Master                                       | 16(4.9)          |
| Marital status                               |                  |
| Married                                      | 310(94.2)        |
| Single                                       | 19(5.8)          |
| number of children (Married) mean $\pm$ SD   | 2.46 $\pm$ 1.139 |
| Work characteristics                         |                  |
| Department                                   |                  |
| Critical areas                               | 226(68.7)        |
| Non Critical areas                           | 103(31.3)        |
| Shift type                                   |                  |
| Regular working hours                        | 32(9.7)          |
| Rotating work shift                          | 297(90.3)        |
| Time until reach home in mints mean $\pm$ SD | 34 $\pm$ 15      |

**variability in shift work and general health-related behaviours**

The mean and standard deviation (SD) of participants sleeping hours were 5.8 $\pm$ 1.15, with 167 participants (50.8%) reported that they have fallen asleep while driving. However, a few of them 22(6.7%) reported that they use sleeping aids. On the other side, 92(28%) of participants find time to perform exercises, 17(5.2%) were smokers, and 204(62%) reported that sometimes they feel stress due to work pressure. (Table 2)

**Table 2: Shift work and health-related behaviours**

|                             | N(%)       |
|-----------------------------|------------|
| Smoker                      |            |
| Yes                         | 17(5.2%)   |
| No                          | 312(94.8%) |
| Perform exercises regularly |            |
| Yes                         | 92(28%)    |
| No                          | 237(72%)   |

**Cont... Table 2: shift work and health-related behaviours**

|                                                           |                                  |
|-----------------------------------------------------------|----------------------------------|
| sleeping hours mean $\pm$ SD                              | 5.8 $\pm$ 1.15                   |
| Frequent of coffee or tea mean $\pm$ SD                   | 1.98 $\pm$ 1.5                   |
| frequent of fell Stress<br>None<br>sometimes<br>Usually   | 1(.3%)<br>204(62%)<br>124(37.7%) |
| fallen asleep while driving after work shift<br>Yes<br>No | 167(50.8%)<br>162(49.2%)         |
| use sleep aids<br>Yes<br>No                               | 22(6.7%)<br>307(93.3%)           |

### Variability in shift work and general work performance

More than half of the participants reported that they lost their concentration, sometimes 187(56.8%), the majority reported they feel fatigued, sometimes 268(81.5%). Regarding the number of accidents that happened at the workplace, respondents reported that they had it once. Others had two or more accidents per month, as following 48(14.6%) and 12(3.6%). Days of absence per month generally was shallow. (Table 3)

**Table 3. Describing work performance**

|                                                                               |                                      |
|-------------------------------------------------------------------------------|--------------------------------------|
|                                                                               | N(%)                                 |
| Level of performance<br>Loss of concentration<br>none<br>sometimes<br>usually | 131(39.8%)<br>187(56.8%)<br>11(3.3%) |
| frequent of fell fatigue<br>none<br>sometimes<br>usually                      | 19(5.8%)<br>268(81.5%)<br>42(12.8%)  |
| accidents at work<br>none<br>once<br>two or more                              | 269(81.8%)<br>48(14.6%)<br>12(3.6%)  |
| Days of absent per month                                                      | 0.3 $\pm$ 0.7                        |

## Discussion

Shift work is not limited to reducing the quality of sleep among nurses. However, it also has a negative impact on general health, such as increasing the indices of social dysfunction and depression<sup>13-14</sup>. The findings of this study showed that nurses in Kuwait have a low mean of sleeping hours. The majority of participants engaged in a family with a number of children, which might add an extra burden for them. Lack of sleeping is associated with a higher risk of diabetes<sup>15</sup>. Previous studies prioritize the importance of a good night's sleep. Still, it is recommended for an adult to sleep 7-9 hours per day<sup>16-17</sup>.

Nevertheless, workplace accidents were associated with low quality of sleep among nurses, as indicated in the previous studies<sup>18</sup>. This is expected to happen among nurses in Kuwait since most of them reported irregularity in working hours, which affects the regularity of sleeping hours among them; in whatever way, accidents in health care setting might have a direct thread the patient life. However, in this study, nurses exhibited frequent feeling fatigue and reported they had an accident at work. These results highlight important issues related to patient safety, which might be a risk if not enough attention has been considered. Thus, Kuwait's decision-maker should pay close attention to eliminate any possible risks associated with variability in shift work among nurses in Kuwait. It was also argued that lack of physical activities has a negative impact on health. This study presents that only a few nurses have time to do regular exercises. The investigation also indicated that the risk of variability in shift work might be beyond the healthcare facility setting; falling asleep while driving is one of the unfavourable problems reported by the participant. However, the current study conducted over a short period, the study population is relatively small, preventing representing the actual population. On the other hand, the author could not present additional analysis due to insufficiency in the study sample between groups. Further investigation is recommended to understand the association and the impact of variability in work shifts on nurses' different domains. In addition, this study was limited to participant who has time to access the survey link with leaving the views of other nurses who were busy during the time of study conduction unexplored.

## Conclusion

The present study revealed a high level of variability in work shift among married nurses and the demand for proper choice of the dormitory or hostel that help nurses find more time for rest and reduce the time needed to reach their houses. The findings suggest that special consideration and attention should pay to nurses working in the critical area as their sleep quality might directly affect patient care. Therefore, coping programmes related to variability in work shifts should target this stratum of workers and increase hospital administrators' awareness about the impact of shift work on nurses' quality of life, which finally might affect patient care. Thus, suggest that the decision-maker consider providing more break time for nurses on shift work, specifically those working in critical areas. At the same time, provide adaptation programs that help to promote the health and productivity of nurses. On the other said, daily screening and monitoring programs are recommended to assess the performance and general ability to handle the duty tasks to improve the quality of care and enhance the safety level among nurses and patients.

**Ethical Considerations :** Ethical approval was obtained from the Institutional Review Board at the ministry of health in Kuwait (approval number #1622/2021). Participants of this study were informed that their contribution is voluntary and that their feedback has excellent value. No written consent has taken, as there are no personal identifiers. The collection of data framed with confidentiality in a matter where the participant's name and/or contact information will not be identified or traced by anyone.

**Authors Contributions:** All authors contributed equally to the study design in addition to reviewing and approving the final manuscript.

**Conflicts of Interest:** All authors declared none.

**Funding :** This work received no funds.

## References

- 1- Costa G. Shift work and health: current problems and preventive actions. *Safety and health at Work*. 2010 Dec 1;1(2):112-23.
- 2- Ahmed AS, Hamed RA. Sleep disorder among shift

- work nurses and its impact on their quality of life at Al Ahrar Governmental Hospital, Zagazig City, Egypt. *Egyptian Journal of Psychiatry*. 2020 May 1;41(2):117.
- 3- Vásquez-Trespalcacios EM, Palacio-Jaramillo V, Gómez-Parra M, Romero-Arrieta L. Shift work and work-related stress symptoms in health care workers in a tertiary hospital in Medellin, Colombia: A cross-sectional study. *CES Psicología*. 2016 Dec;9(2):28-39.
- 4- McDowall K, Murphy E, Anderson K. The impact of shift work on sleep quality among nurses. *Occupational Medicine*. 2017 Nov;67(8):621-5.
- 5- Ghalichi L, Pournik O, Ghaffari M, Vingard E. Sleep quality among health care workers. *Archives of Iranian medicine*. 2013 Feb 1;16(2):0-.
- 6- Dorrian J, Paterson J, Dawson D, Pincombe J, Grech C, Rogers AE. Sleep, stress and compensatory behaviors in Australian nurses and midwives. *Revista de saude publica*. 2011 Oct;45(5):922-30.
- 7- Savic M, Ogeil RP, Sechtig MJ, Lee-Tobin P, Ferguson N, Lubman DI. How do nurses cope with shift work? A qualitative analysis of open-ended responses from a survey of nurses. *International journal of environmental research and public health*. 2019 Jan;16(20):3821.
- 8- Sprinks J. Pinpointing the risks and benefits of shift patterns. *Nursing Standard* (2014+). 2015 Aug 5;29(49):12.
- 9- Gaudine A, Saks AM, Dawe D, Beaton M. Effects of absenteeism feedback and goal-setting interventions on nurses' fairness perceptions, discomfort feelings and absenteeism. *Journal of Nursing Management*. 2013 Apr;21(3):591-602.
- 10- Gifkins J, Johnston A, Loudoun R. The impact of shift work on eating patterns and self-care strategies utilised by experienced and inexperienced nurses. *Chronobiology international*. 2018 Jun 3;35(6):811-20.
- 11- Books C, Coody LC, Kauffman R, Abraham S. Night shift work and its health effects on nurses. *The health care manager*. 2020 Jul 1;39(3):122-7.
- 12- Fido A, Ghali A. Detrimental effects of variable work shifts on quality of sleep, general health and work performance. *Medical Principles and Practice*. 2008;17(6):453-7.
- 13- Bazrafshan MR, Rahimpour R, Moravveji F, Soleymaninejad N, Kavi E, Sookhak F, Zolghadr R. Prevalence and Effects of Sleep Disorders Among Shift Work Nurses. *Jundishapur Journal of Chronic Disease Care*. 2019 Jan 31;8(1).
- 14- Dehring T, Von Treuer K, Redley B. The impact of shift work and organisational climate on nurse health: a cross-sectional study. *BMC health services research*. 2018 Dec;18(1):1-6.
- 15- Xu Q, Song Y, Hollenbeck A, Blair A, Schatzkin A, Chen H. Day napping and short night sleeping are associated with higher risk of diabetes in older adults. *Diabetes care*. 2010 Jan 1;33(1):78-83.
- 16- Chaput JP, Dutil C, Sampasa-Kanyinga H. Sleeping hours: what is the ideal number and how does age impact this?. *Nature and science of sleep*. 2018;10:421.
- 17- Morgenthaler T. How many hours of sleep are enough for good health. *The Mayo Clinic*. Retrieved from <http://www.mayoclinic.org/healthy-living/adulthealth/expert-answers/how-many-hours-of-sleep-are-enough/faq-20057898>. 2013.
- 18- Zencirci AD, Arslan S. Morning-evening type and burnout level as factors influencing sleep quality of shift nurses: a questionnaire study. *Croatian medical journal*. 2011 Aug 15;52(4):527-37.