Shift Work: a risk factor for nurses

What are the potential consequences of the disruption to a nurse's circadian rhythm who work rotating shifts including night shifts, and does this have an effect on the quality of care that these nurses provide?

Introduction: There are claims that nurses who work shift work are at a higher risk of an early death (Park, 2015). A nurse's circadian rhythm is affected by shift work due to a frequent alteration of their sleep-wake cycle. Rotating shift work and especially night shift, causes nurses to attempt to sleep during high activity rhythms during the day and to work when the body is physiologically prepared to rest at night (Dempsey, Hillege & Hill, 2014). This has potential consequences to their health and wellbeing and can affect the care they provide to their patients.

Discussion

Shift work has been associated with the increasing incidence of obesity among nurses. (Lee et al., 2016). Literature suggests that shift work exhibits a significant increase in mean waist circumference for female nurses aged between 30-39 years (Lee et al., 2016).

Type 2 diabetes mellitus has shown an increasing incidence among nurses who work shift work (Craft, Gordan, Huether, McCance, Brashers & Rote, 2015). Sleep deprivation causes less insulin to be secreted after eating, which increases the amount of glucose in the blood stream (National Sleep Foundation, 2018b). This increases the risk for a nurse who is sleep deprived by shift work to develop type 2 diabetes mellitus.

On average, adults need between 7-9 hours of sleep each night to maintain their wellbeing (Dempsey et al, 2014), as sleep allows for the restoration of normal body cycles (Craft, et al., 2015). Literature suggests that shift work reduces the duration of sleep that a nurse gets to an average of 6.79 hours between consecutive 12-hour day shifts and an average of 5.68 hours between consecutive night shifts (Hirsch-Allen et al., 2014).

Fatigue, caused by an inadequate sleep duration due to shift work, has significant effects on alertness, concentration, judgement and performance (Blachowicz & Letizia, 2006). A fatigue questionnaire by Gold, Rogacz and Block (1992) found that nurses who work rotating shifts and obtain inadequate sleep, were twice as likely to report committing a medication error compared to nurses who work day shift (Blachowicz & Letizia, 2006).

Recommendations:

Nurses should be educated about light therapy as a way to reduce the effects of shift work. Bright light exposure at night, during the night shift, with attenuation of light in the morning is thought to improve insomnia for nurses working rotating shift work (Li-Bi Huang, Mei-Chu Tsai, Ching-Yen Chen, Shih-Chieh Hsu, 2013). The exposure to light helps reprogram the body's circadian rhythm which then reduces the physiological and psychological stress and fatigue that is caused by ineffective sleep (Craft et al., 2015).

Endorse the importance of practicing good sleep hygiene. Sleep hygiene is necessary for improving quality of sleep and alertness during the work time period (National Sleep Foundation, 2018a). Sleep hygiene practices include:

- Avoiding stimulants such as caffeine and nicotine close to bed time.
- Establish a regular bed time routine to help the body recognize it is bedtime.
- Promote a pleasant sleep environment, such as having pillows and a mattress that is comfortable and avoiding bright lights. Nurses who need to sleep during the day should use black out curtains, to block out the sun while they sleep.
- Avoiding bright light on the way home from a night shift by wearing sunglasses will decrease awakening stimulation.

Jessica Smith

Conclusion: Literature suggests that the consequences of shift work on nurses is significant. These effects can impact the quality of care that they provide to their patients. It is important that nurses, their managers and employers are educated about ways they can reduce the effects of shift work on the nursing workforce.

References

Blachowicz, E., & Letizia, M. (2006). The challenges of shift work. *MEDSURG Nursing, 15,* 274 – 280. Retrieved from: http://web.b.ebscohost.com.op.idm.oclc.org

Craft, J. A., Gordon, C. J., Huether, S. E., McCance, K. L., Brashers, V. L., & Rote, N. S. (2015). *Understanding pathophysiology* (2nd ed.). Chatswood, NSW: Elsevier.

Dempsey, J., Hillege, S., & Hill, R. (2014). *Fundamentals of nursing and midwifery: A person-centred approach to care* (2nd ed.). Sydney, NSW: Lippincott.

Hirsch-Allen, A. J., Park, J. E., Adhami, N., Sirounis, D., Tholin, H., Dodek. P., Rogers. A. E., & Ayas, N. (2014). Impact of work schedules on sleep duration of critical care nurses. *American Journal of Critical Care, 23,* 290 – 295. doi: 10.4037/ajcc2014876

Lee, G., Kim, K., Kim, S., Kim, J., Suh, C., Son, C., Lee, C., & Choi, J. (2016). Effects of shift work on abdominal obesity among 20 – 39-year-old female nurses: a 5-year retrospective longitudinal study. *Annals of Occupational and Environmental Medicine, 28*(69), 1-7. doi: 10.1186/s40557-016-0148-6

Li-Bi Huang, B. S., Mei-Chu Tsai, M. S., Ching-Yen Chen, M. D., & Shih-Chieh Hsu, M. D. (2013). The effectiveness of light/dark exposure to treat insomnia in female nurses undertaking shift work during the evening/night shift. *Journal of Clinical Sleep Medicine, 9*, 641-646. doi: 10.5664/jcsm.2824

National Sleep Foundation (2018a). Sleep hygiene. Retrieved from: https://sleepfoundation.org

National Sleep Foundation (2018b). The link between a lack of sleep and type 2 diabetes. Retrieved from: https://sleepfoundation.org

Park, A. (2015, January 7). Why working at night boosts the risk of an early death. *Time*. Retrieved from: http://time.com

PECOT Model

PECOT	Information relating to the question	Explanation
Population	Nurses who have worked and/or are currently working rotating shifts including night shift for a period longer than 5 years.	Nurses are a vital part in providing health care to people in all settings and they are required to be completely focused throughout the hours they work. I am concerned that nurses who work rotating shifts will have continually disrupted circadian rhythms. After briefly reading the literature, there is a strong argument that shift work could affect nurse's health and therefore the quality of care they provide to their patients.
Exposure/ intervention	Nurses who work rotating shifts including night shift in an acute ward setting.	Nurses who work night shifts have a greater disruption to their circadian rhythm and are therefore at a greater risk for health issues compared to day workers (Blachowicz & Letizia, 2006).
Comparison/ control	Nurses who work normal day shift hours e.g. 0830 - 1700	Nurses who work normal day shift hours have a better chance for a routine without a disrupted circadian rhythm. The control group will help identify a relationship between disrupted circadian rhythm and health outcomes of nurses.
Outcome	To discuss how disrupted circadian rhythms effect the health outcomes of nurses who work shift work compared to nurses who only work day shifts. To discuss whether these consequences affect the quality of care given to patients.	I would like to know what the health risks are associated with disrupted circadian rhythms and how these can be minimized. I would also like to know how the consequences of shift work on nurses effect the quality of care that these nurses provide. This is to help improve the health of nurses and improve the service delivery of health care for their patients.
Time	N/A	

Summary

The PECOT model (Schneider, Whitehead, LoBiondo-Wood, & Haber, 2013) was used to refine the clinical issue into a specific research question to form an argument using recent and relevant evidenced based literature.

I chose to present my clinical issue in the form of a poster, to present the findings of my literature review to a wide audience. The issue not only involves nurses who are working shift work on the wards, but also managers and employers who are responsible for rostering and management of their staff. Posters are used to summarise information concisely and attractively and generate discussion (New York University Libraries, 2018). I want to generate discussions with other nurses and medical professionals to get people thinking about ways that could help shift workers reduce their levels of fatigue. A poster is a highly visual way of effectively communicating information, as it can be displayed in a variety of places to allow wide audiences to see it (University of Leicester, n.d.).

References:

Blachowicz, E., & Letizia, M. (2006). The challenges of shift work. *MEDSURG Nursing, 15,* 274 – 280. Retrieved from: http://web.b.ebscohost.com.op.idm.oclc.org

New York University Libraries (2018). How to create a research poster: Poster basics. Retrieved from: http://guides.nyu.edu

Schneider, Z., Whitehead, D., LoBiondo-Wood, G., & Haber, J. (2013). *Nursing and midwifery research methods and appraisal for evidence-based practice* (4th ed.). Sydney, NSW: Elsevier.

University of Leicester (n.d.). Poster presentations. Retrieved from: University of Leicester website: https://www2.le.ac.uk