INTRODUCTION

- Healthcare organizations often have to provide patient care around the clock. Emergency Room (ER) Nurses work in a highly stressful environment. Working long hours (more than average 40 hours/week) and nightshift increase the risk for reduced performance on the job, sleep deprivation, obesity, injuries, and a wide range of chronic diseases.
- Several studies have previously reported that psychosocial work stress may be associated with many debilitating diseases and is a risk for long term health damage.
- Long work hours and nightshift work can also lead to oxidative stress causing an imbalance between free radicals and antioxidants in body and pose a risk for long term health damage.
- This study aimed to investigate if long working hours and shiftwork contributed to psychosocial work stress and oxidative stress and pose a health risk in ER nurses.

METHODS

- ER nurses (n=42) were recruited from University of Alabama at Birmingham Hospital for this cross sectional study following IRB approval. Participants signed informed consents, provided urine samples and filled out survey questionnaires providing information about their work hours and nightshift.
- Psychosocial work stress was evaluated from survey questionnaires using the Effort Reward Imbalance model identifying Effort Reward Ratio (ERR) and Over-commitment (OC) as a stress indicator.
- Oxidative stress biomarker 8-Isoprostone was analyzed from urine sample by Enzyme Linked Immuno-absorbent Assay (ELISA). Urine samples were normalized by creatinine to adjust for analyte concentration. Regression analysis was used to identify association between Psychosocial work stress, extended work hours and nightshift and 8-Isoprostone.

RESULTS

- Figure 1: Work schedules of study participants were shown as pie charts, 55% of study participants work in nightshifts, 55% of participants work more than average 40 hours/week.

- Figure 2: Association between psychosocial work stress indicator Effort Reward Ratio, and extended work hours and nightshift were determined. Significant correlation was found between ER Ratio and extended work hours (p = 0.05) but no correlation between ER Ratio and nightshift was observed (p > 0.05).

- Figure 3: Association between work stress biomarker 8-Isoprostone was examined. No positive significant correlation was observed between ERR and OC and 8-Isoprostone.

CONCLUSION

- More than half (55%) of study participants worked in nightshifts and for extended work hours/week.
- Significant correlation was observed between extended work hours and psychosocial work stress (ERR) among ER nurses
- (r = 0.33, p = 0.03). No significant correlation between shiftwork (nightshift) and psychosocial work stress was observed in the group (r = 0.04, p = 0.78).
- Significant association was observed between working nightshift and oxidative stress biomarker 8-Isoprostone (p <0.001).
- This study helped us to understand that working long hours and shiftwork could contribute to psychosocial stress and oxidative stress especially in a high job demanding environment and may pose a health risk. Regulating working hours in hospital emergency room nurses could benefit their health and patient quality care.

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