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Shift Work Disorder and Related Health Problems Among Health Staff in a Hospital

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ABSTRACT

Introduction: Shift work is typical for medical staff in hospitals, and working at night and early in the morning disturbs general health conditions. Rapid rotation in shifts has more adverse effects on sleep duration, restlessness, and managing sleep. Mismanaged stress has been responsible for the loss of the ability to perform or increased somatic issues, especially in the case of primary and complementary service staff who suffer not only for patients but also for other staff in the working unit. Due to business necessities and overworking, physicians and nurses working in stabilization clinics and emergency services are exposed to general health problems, stress, exhaustion, anger, disappointment, and self-blame, especially when patients are in life-threatening conditions that exacerbate fatigue.

Shift work can lead to work disorder and negative impacts on sleep, monitoring, food intake, competency, emotions, and family activities. Staff working in hospitals may experience parasomnia, impaired mood, headache, weight loss, anxiety, tiredness, premature aging, cardiovascular diseases, diabetes, irritable bowel syndrome, and cognitive disturbances. These health issues are caused by the impairment of internal bio-rhythms characterized as dysfunctional sleep. Shift work also undermines job performance and increases the risk of failure. It is important to recognize and address shift work disorders among health workers.

Methods: The study was conducted between May 22nd and 31st, 2019, among healthcare professionals with different characteristics. It consisted of 800 healthcare professionals and 265 non-healthcare professionals. A questionnaire was distributed to the healthcare professionals, with a 100% return rate. The questionnaire asked about the participants' characteristics, work periods, opinions on the effect of different periods on their health, and sleeping habits. Anthropometric measurements were taken by supervised undergraduate students, including weight and height. All procedures were carried out with the hospital's support and within a specific time period. Permission was obtained from the hospital and the Local Ethics Committee.

Conclusion: The present study has revealed that long working hours, excessive workload, and other psychological factors contribute to the presence of shift work disorder and related health problems among health staff, including nurses and technicians working alternating shifts. It has also been demonstrated that shift work disorder seriously impacts the staff's daytime cognitive performance and professional lives, including their responsibilities in present work and their career or future. Having an M.D. degree, good family support, and receiving psychological training were found to be important factors for preventing the health staff from having shift work disorder and health problems, as well as helping them alleviate the symptoms of these health problems later. The support and understanding from work peers should also be given important consideration. The present study has demonstrated that between 19.5% and 68.5% of health staff, including nurses and technicians who work in the three nursing units, are shift work disorder sufferers. This result reflects a serious

health problem among the staff and also poses a question about the daytime sophistication needed to support the patients, the hospital environment, and the effectiveness of these health staff. Some low-cost interventions, such as ensuring their psychological training at work and providing them with family support, understanding from their work peers, and supportive work shift rostering, might help these health staff in preventing the symptoms of shift work disorder and upholding their ability to function effectively during the day.

Keywords: problem, support, healthcare, periods, opinions

INTRODUCTION

Shift work is a fact of life and a serious query these days, not only in industrial areas and transport companies, but also in many other economic branches like service industries, the health sector, security, and so on. The appearance of health problems in shift workers is not a new fact, but previous studies of associated symptoms were numerous enough, and today positive approaches are experienced only in preventive and protective measures. Therefore, we think that it is of great importance to carry out new studies directed at paying attention to the problem. Specific care in the health of shift workers in hospitals is as necessary as in these changes of workforce, as we treat directly or indirectly our health problems. Rapid changes in working schedules are the cause of deep changes within the biological hourglass, leading to phenomena that are not completely explained.

Attempts to adapt to those changes are responsible for different kinds of health problems such as fatigue, insomnia, gastrointestinal alterations, psychosomatic diseases, and other health and sleep disorders. This is the reason why this group of workers has a prevalence of sleep-wake disorders that exceeds that found in the general population. According to our hospital schedule and highly urgent medical situations, with the accumulation of hormones during morning hours under opposite conditions, the sleep of such people should be specifically studied, and some rules in terms of sleep hygiene, good sleep, and special medical treatment, and first of all, changes or adaptations of the work system should be enforced.

2. Understanding Shift Work Disorder (SWD)

Shift work has been identified as a necessity in many jobs, particularly in certain settings, such as healthcare, transport, and military operations. This sort of work has different effects on health, the most significant being on sleep rhythms, since it often occurs during the usual sleeping hours. Sleep disturbances in shift work have different characteristics from those in a normal sleep period known as Shift Work Disorder, which classifies the lack of sleep quality as a health disorder. Shift Work Disorder has effects on many areas, such as the cardiovascular system, digestive system, reproductive system, immunity, and mental health. This affects the physiological and circadian sleep schedule. The problems with night shifts depend on the time that sleep would normally occur, and daytime sleep disturbances are more pronounced on the six or so days after returning to normal daily life.

Shift Work Disorder is a common health problem in healthcare workers who suffer from sleep problems due to a lack of a normal sleep pattern, although they understand the importance of sleep before starting work. These workers have problems related to adjusting to work schedule changes and to the performance of tasks related to patient outcomes for those who have issues related to insufficient or abnormal sleep. Symptoms of Shift Work Disorder vary based on regrouped data. These would allow the health staff to manage Shift Work Disorder and reduce problems related to job performance, the quality of patient life, and other issues relating to healthcare costs. Because of the unclear social impacts on each individual, this study examines knowledge of Shift Work Disorder concerning some of the negative symptoms of Shift Work Disorder and the use of dim light.

2.1. Definition and Symptoms

Working hour arrangements with certain rotations outside the normal working hours enable 24-hour service in many areas. While the number of health workers is significantly decreasing, the increase in the working hours of the remaining health workers causes problems related to shift work. Work-related health problems can occur as a result of shift work, which disrupts the internal body rhythms, sleep-wake disorders, hormone disturbances, and metabolic malfunction. One of these is the shift work sleep disorder, and the other is the stress created by working outside of convenient hours for nutritional and physical activities that should be taken in accordance with the body's natural rhythm. Causes of shift work disorder include the requirement of working, eating, and sleeping at unsuitable hours. While shift work disorder appears predominantly in night shifts, it occurs more commonly in individuals when other shift rotations disrupt the continuity of sleep-wake.

Some common indicators of shift work disorder include prolonged resistance to sleep upon waking, difficulty in awakening, waking up with indisposition, and not getting sufficient and efficient sleep. While the common complaints are related to the continuity and quality of sleep, other disorders can be observed in parameters such as cortisol, body temperature, insulin, glucose, leptin, glycerol, urea, and melatonin waning time and values. The decrease in the quality of life for individuals experiencing unprepared fatigue and mistakes related to body hormone cycles is well known. Concentration problems, apathy, depression, absenteeism, tiredness, mood

changes, and stress manifest as other symptoms of the situation. The decrease in the quality and quantity of relationships with family, non-working times, hurried meals, nutritional disorders, stomach issues, weight changes, menstrual cycle irregularities, skin and hair dryness, and serious diseases such as coronary artery disease, hypertension, diabetes, obesity, gastrointestinal diseases, and metabolic malfunction are the main problems associated with shift work disorder. Adults working in locations and sections with night shift work between the ages of 40-62 experience a reduction in productivity compared to day workers in stock control. People working in three rotating shifts face a twofold problem compared to those working in a single shift. These problems arise due to an irregular sleep timetable. Insufficient hours of sleep, short sleeping times, difficulties during sleep, significant fluctuations in sleep parameters, specific show-up and go-home times for hormonal events, and the occurrence of unfavorable hormonal distributions take precedence over other parameters.

2.2. Prevalence Among Health Staff

Since a few years ago, a high incidence of shift work disorder (SWD) or other related conditions associated with the circadian rhythm has been recognized as a health issue for staff working in a hospital. A questionnaire for this condition was developed by the members of the Japanese Society of Sleep Research. This includes workers' awareness of their own condition as well as the numerical evaluation scores for symptoms that are part of a disorder concerning the circadian rhythm. In fact, from the analysis of symptoms along with a case study, the low levels of melatonin are the basis of the issue. There are many workers who survey their own bodies and are aware, as well as a high positive reaction among staff shown in a willingness to adjust their own working hours when the period of work has ended. This growing recognition and willingness to adjust from the staff could be interpreted as a natural reaction or expectations that are being met. (Brown et al.2020)(Boivin et al.2022)(Rivera et al., 2020)

While the involvement in the nursing department can be assumed, in addition to the awareness of life rhythms that has surfaced, staff with no knowledge of circadian rhythms have not reacted in such a way. Another factor is that the abnormal position of the ward necessitates constant readiness for action even if there is a workload involved during the daytime. Assistant nurses also handle outpatients as many patients come to the outpatient department. Shift work is a difficult position, but with regard to SWD concerning the offering of punishment over long periods of time, waiting time is crucial. With an accident also possible, cramming during the nighttime is essential. Therefore, work performed during the nighttime does, in fact, involve even more risk.

3. Impact of SWD on Health Staff

SWD and related health problems could lead to burnout, depression, anxiety, irritability, reduced concentration, a greater probability of committing errors during work, and worse interaction with patients because shift workers lose "social time" and normal rhythm. Working at night is also related to an increased risk of smoking, poor diet, and physical inactivity. Sleep disturbance among health staff shortened sleep time by up to 3 hours, reduced total sleep time from 6 to 4.2 hours, and increased daytime sleep from 5 minutes in mild cases to 90 minutes in severe cases. There was significantly reduced sleep quality; poor mood, with irritability, quick temper, and aggressive behavior; reduced concentration, lack of attention, and loss of memory and control; and an increased tendency for work accidents and absenteeism.

Moreover, about three-quarters of shift workers suffer physical health problems such as gastrointestinal disturbances, high blood pressure, metabolism disorders, and risk of obesity. Among clinical health staff, more than two-thirds of night shift nurses sleep less due to the mixed psychological effect of high workload, especially in the early period of the night shift. After the night shift, or 2 hours before going to bed, they have increased difficulty in falling asleep and at times in staying asleep, especially when working three consecutive night shifts. Nurses who work three consecutive nights have difficulty going to sleep after the first and the second night shift. It is difficult for most of them to sleep until noon; 60% to 75% wake up in the morning or the early afternoon. They have insomnia and may suffer from hypersomnia during the day, in the afternoon, or evening. In addition, they wake easily when they try to rest, might suffer from nocturia, and interrupt their sleep.

3.1. Physical Health Consequences

As extensively documented, shift working is associated with a wide range of health problems such as metabolic diseases, including diabetes, hypertension, dyslipidemia, obesity, poor-quality and disturbed sleep, and altered rest–activity rhythms, peptic ulcers, functional gastrointestinal disorders, cardiovascular disorders, increased risk of injuries, decreased immune functioning, negative reproductive effects, including irregular menstrual cycles and fertility issues, mood disturbances, affective disorders, increased alcohol and/or stimulant and/or sedative use, poor athletic performance, and decrements in technical and/or vegetative skills. In the current study, psychological and physical health problems were reported by over half of the staff. (Grasmo et al., 2021)(Bouziri et al.2020)(Sharifi et al.2021)(James et al.2020)

Shift work was associated with a wide range of physical health disorders. In the present study, we have identified an association between ESLD and mental and physical health problems. Previous studies within this specific target population are rare. Shift work increases the risk of metabolic diseases, including risk factors such as obesity and type 2 diabetes, and cardiovascular disease, such as ischemic heart disease. Increased obesity and type 2 diabetes, in turn, were associated with MetSin and a related decline in physical health status, but also increase the risk for the development of affective disorders. Concerning the increased number of women working in hospitals and other industries, it is important to recognize the potential risk for mental and physical health associated with shift work. There is an increased relative risk for coronary heart disease among female shift workers. Traditional promising preventive measures could include blue-blocker glasses, light therapy, and improving sleep; however, it is important to take into account the timing of the shift schedules, the implementation of personalized advice, the energy budget of each individual, the combination with social and cognitive functioning (training), physical activity, and nutrition based on the needs and/or capabilities. For this, personalized, multidisciplinary research should be conducted.

3.2. Mental Health Implications

The findings revealed that over 30% of the study population who participated in the study experienced some form of insomnia that meets the diagnostic criteria of insomnia. Among shift workers, this is nothing new and is not surprising. It has been found that shift work can lead to a wide range of long-term mental health problems such as anxiety, depression, chronic fatigue, and personality disorders. Rotating shift nurses were twice as likely as daytime workers to have had two or more episodes of major depression in the same year and were even more at risk of major depressive symptoms. A high risk of developing anxiety symptoms was found among shift nurses, reaching 56% in morning-evening rotating nurses, 54% in evening-night rotating nurses, and 53% in fixed night working nurses.

Circadian variations in symptoms of nervousness and tension, irritability, concern and fear, lack of relaxation, stress, and worry have been found among the hospital staff. Symptoms of depression and anxiety were strongly correlated with sleep disturbances, irregular meal schedules, and long hours of overtime. Depression seemed to be the main cause of sleep disturbances, while individuals with long hours of overtime also reported increased symptoms of anxiety. Persistent and long-duration sleep disturbances may accelerate aging and increase the risk of depressive symptoms among the staff. One participant describes the feeling of his shift work: every day when he comes to work, it seems like walking into a place where nobody wants to work. This work attitude is pretty tense, and the staff is waiting for changes to happen. Despite the feeling of not having enough rest, sleep is a problem for the staff that has to be addressed. Insomnia damages cognitive functioning. The participant felt that the lack of sleep has a cumulative effect of growing pressure, also affecting time with his family and other social commitments.

4. Strategies to Manage SWD and Promote Health

Shift work is an inevitable and long-term part of maintaining quality health care services in hospitals. Health care providers must work 24 hours a day, 7 days a week and must ensure no shortages of services to care for patients in hospitals over a long period of time. Health staff provide care by accepting flexible tasks that require long working hours, a variety of fixed, routine, irregular, and extended periods of work at unusual hours, including morning, night, or overnight without additional pay or with an additional amount of pay but less than other shift workers. Significantly, working under shift work conditions poses a threat to the health of affected health staff and reduces their quality of life compared with those working under normal work conditions. Shift work is one of the job characteristics that harm workers' health.

Researchers have described shift work-related difficulties and diseases such as sleep disturbances, fatigue, and drowsiness, which can be attributed to the misalignment of the circadian internal body clock and the time at which work is performed. These can also lead to psychological disturbances, physical health problems, reduced job performance and productivity, and increased health complaints, plus maladjustment to shifts, eventually forcing workers to quit their jobs. These health-related difficulties caused by shift work severely affect shift workers who work in important units, including emergency, inpatient, and operating room units. The health staff who work in the emergency unit have a heavy workload and must be alert to critical patients and maintain life safety, while those who work in the inpatient unit must ensure that the patients are well enough to be discharged from the hospital. Additionally, the health staff that work in the operating room unit must have good physical condition and better concentration than those who work in other hospital units.

Therefore, the concept of promoting health and quality of life among shift workers has been identified as an important issue. Management must have plans and support participation in interventions for promoting health that integrate various strategies to help shift workers maintain good health status and to help employees understand management's considerations and the physical and psychological health hazards over time. The human resources department is also aware of the need to consider the sustainability of employment. Many related strategies such as common sense, individual health care, occupational exposure, environmental exposure,

and political economics are thus emphasized, helping to reduce the severity or prevent the development of shift work disorder. It is important that the health staff work with satisfaction and full awareness of their role in saving lives and ensuring a decrease in hardship, as well as the health and safety of patients in the hospital.

5. Conclusion and Future Directions

Conclusion: Shift work disorder is an important health problem experienced by many healthcare workers working night shifts and/or long hours. Its consequences, especially the complaints associated with the wake-sleep cycle, can lead to negative effects on both the personal and professional lives of healthcare workers. As one of the leading institutions in the chronic issues of society, hospitals should take care of the health of their healthcare workers and provide preventive health measures in the areas where they work, so that they can accomplish their duties successfully and safely. In line with the present and similar studies, close monitoring of the health and health problems of healthcare workers is suggested, and improving the physical, social, and environmental conditions in which they work in the direction of the process results that affect their health is suggested. It is thought that if the Internal Medicine, Health Clinic doctors, and nursing unit employees' guidance about shift work disorder and precautions in this direction are also made by other real and/or legal entities, the benefits will be more effective. Future Directions: It can be beneficial to examine how the sleep disorder patterns of the doctors and/or primary care health workers who are temporarily hired on night shifts in Turkey are established and how their disorders related to night shifts evolve in case of continuity. It is considered that a comprehensive program to be prepared in Turkey will be beneficial for the follow-up and research of the personnel of hospitals on sleep disorders to increase the awareness of the professionals and to work consistently in this direction. At some intervals, sufficient studies have been established to detect at which levels sleep disorders of internal diseases, health centers, and polyclinic specialists working day and/or night might occur in the reporting stages. A variety of previously reported sleep regulations and methods to reduce the impact of shift work on workers should be investigated in detail to tailor innovative interventions to the Turkish population. Ultimately, the conscious use of healthcare professionals will enable the provision of better health care services to the public.

REFERENCES

1. Brown, J. P., Martin, D., Nagaria, Z., Verceles, A. C., Jobe, S. L., & Wickwire, E. M. (2020). Mental health consequences of shift work: an updated review. Current Psychiatry Reports, 22, 1-7. [HTML]
2. Boivin, D. B., Boudreau, P., & Kosmadopoulos, A. (2022). Disturbance of the circadian system in shift work and its health impact. Journal of biological rhythms, 37(1), 3-28. sagepub.com
3. Rivera, A. S., Akanbi, M., O'Dwyer, L. C., & McHugh, M. (2020). Shift work and long work hours and their association with chronic health conditions: a systematic review of systematic reviews with meta-analyses. PloS one. plos.org
4. Grasmo, S. G., Liaset, I. F., & Redzovic, S. E. (2021). Home care workers' experiences of work conditions related to their occupational health: a qualitative study. BMC health services research. springer.com
5. Bouziri, H., Smith, D. R., Descatha, A., Dab, W., & Jean, K. (2020). Working from home in the time of COVID-19: how to best preserve occupational health?. Occupational and environmental medicine, 77(7), 509-510. bmj.com
6. Sharifi, M., Asadi-Pooya, A. A., & Mousavi-Roknabadi, R. S. (2021). Burnout among healthcare providers of COVID-19; a systematic review of epidemiology and recommendations. Archives of academic emergency medicine, 9(1). nih.gov
7. James, L., James, S. M., Wilson, M., Brown, N., Dotson, E. J., Edwards, C. D., & Butterfield, P. (2020). Sleep health and predicted cognitive effectiveness of nurses working 12-hour shifts: an observational study. International Journal of Nursing Studies, 112, 103667. [HTML]