

A study to assess the prevalence and effect of shift work disorder among health professionals at selected hospitals

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Abstract

Background: In order to provide constant care and monitoring to the patients, health professionals are required to work in different rotating shifts. Shift work is one of the essential parts of health care sector and it cannot be abolished. Shift work not only affects the physiological health of the health professionals but also adversely affect their psychological and social health. Therefore, special attention should be paid to this area and efforts should be made to develop methods and strategies for reducing the negative effects of shift work on physiological, psychological and social health of health professionals. This study investigates the prevalence and effect of shiftwork disorder among the health professionals and its association with the selected demographic variables.

Materials and methods: A descriptive study was undertaken on the health professionals in selected hospital at Mathura. 200 health professionals were selected based on non-probability purposive sampling technique and data were collected by administering self made questionnaire and the findings were analyzed by using descriptive and inferential statistics.

Results: The results of present study showed that the total prevalence of shift work disorder in the selected health professionals was 64% (49.5% mild and 14.5% moderate). The results also reveal that 48% of health professionals had mild, 20% had moderate and 0.5% had severe physiological effects of shift work disorder. 40%, 7% and 1.5% health professionals had mild, moderate and severe psychological effects of shift work disorder, respectively. In addition, 58.5% and 13% health professionals had mild and moderate effects of shift work disorder on their social life respectively. Association of physiological, psychological and sociological effects of shift work disorder with selected demographic variables showed no significance, except the education level of the health professionals that showed a significant association (χ^2 (df=9, N = 200) = 22) with physiological effect of shift work disorder at level of significance P=0.05.

Conclusion: A high prevalence of mild shift work disorder among the health professionals was found. It was also found that a significant portion of the selected population was physiologically, psychologically and sociologically affected from shift work disorder. However, no association is found between physiological, psychological and sociological effects of shift work disorder and all demographic variables, except the education level of the samples that showed a significant association with physiological effects of shift work disorder.

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I. Introduction

Shift work has become an inherent part of the health care sector because the patients admitted in hospitals need constant care and monitoring. However, studies have shown that it could be a significant source of several physiological, psychological and social health problems among health professionals. For an instance, the health professionals working in rotating shifts experience more severe gastrointestinal, musculoskeletal symptoms when compared with others and they are more prone to colorectal cancer^{1, 2}. The shift work also increases use of sedatives and raises diabetes and metabolic disorders among the health professionals³. Longer duration of rotating shift can also increase the risk of CHD among woman health professionals⁴. The health professionals engaged in rotating shifts experience lower job satisfaction, quality and quantity of sleep, with more frequent chronic fatigue, psychological, and cardiovascular symptoms in comparison with the day shift workers⁵. Studies have shown that shift work can also negatively impact social/family life of the health professionals^{6, 7, and 8}. According to the World Health Organization (WHO), social and personal problems are more prevalent among rotating shift healthcare workers, compared to those working in day shifts only. Irregular shifts tend to cause more social and subjective problems and dissatisfaction at work⁹. The ILO (International labor organization) survey carried out in developing countries revealed that less favorable living conditions as well as lack of social protection and support increases the negative impacts of shift work on the health of

workers¹⁰. It can therefore be inferred that in medical domain high percentage of workforce may be physiologically, psychologically and socially affected by problems related to shift work. Therefore, special attention should be paid to this area and efforts should be made to develop methods and strategies for reducing the negative effects of shift work on physiological, psychological and social health of health professionals.

II. Material And Methods

A descriptive study was carried out on the health professionals at Nayati multi super specialty hospital Mathura, Uttar Pradesh from July to September 2020. A total 200 health professionals were selected for in this study.

Study Design: Non experimental exploratory research design

Study Location: this study was conducted at Nayati multi super specialty hospital Mathura, Uttar Pradesh.

Study Duration:

Sample size: 200 health professionals.

Subjects & selection method: The study population was drawn from the health professionals who are working in rotating shifts at Nayati multi super specialty hospital, Mathura, Uttar Pradesh. Non probability purposive sampling technique was used to select the samples.

Inclusion criteria:

1. Health professionals who are working in rotating shifts.
2. Health professionals who are willing to participate in the present study.
3. Health professionals who are able to read/write Hindi/English language.
4. Health professionals include only doctors, Nurses, paramedical staff and pharmaceutical staff.

Exclusion criteria:

1. Health professionals who are working in only one shift (General shift)
2. Health professionals who are on leave.
3. Health professionals who are having less than 6 months of shift work experience.
4. Health professionals who are not willing to participate in the present study.

Procedure methodology

After written informed consent was obtained, a structured questionnaire (rating scale) was used to assess the physiological, psychological, and sociological problems that may arise among the selected health professionals due to working in rotating shifts. The tool comprise of two sections: Section A includes demographic characteristics of the samples such as age, gender, profession, duration of experience, marital status, education level and frequency of night shifts. Section B includes structured questionnaire to assess the physiological, psychological, and sociological problems that may arise among the health professionals due to working in rotating shifts.

Statistical analysis

Data was analyzed using Microsoft office excel 2007. Chi-square test was performed to test for finding association between effects of shift work disorder and selected demographic variables. The level $P < 0.05$ was considered as the cut off value or significance.

III. Results

Findings have been organized and presented under the following sections:

Section A: Description of the prevalence of Shift work disorder among health professionals

Section B: Description of the effects of Shift work disorder among health professionals

Section C: Association between effects of Shift work disorder with selected demographic variables at level of significance 0.05.

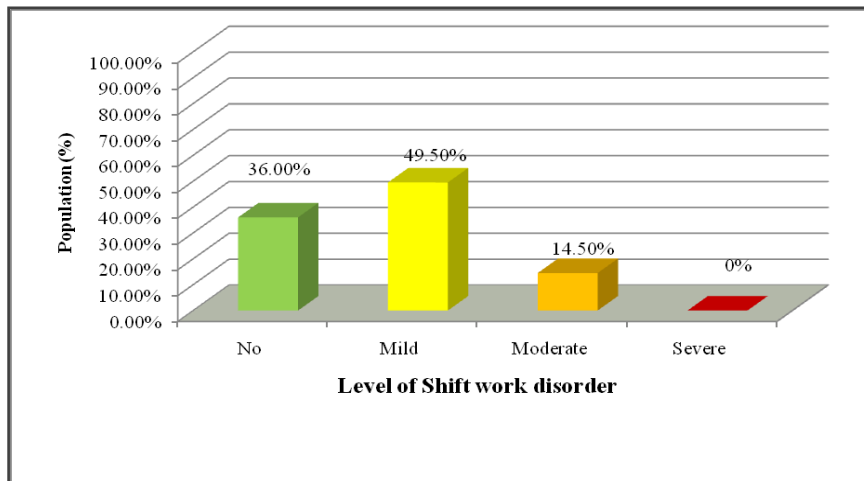
Section A

Table no.1 reveals that 36% of the total population reported no shift work disorder. Majority of the selected population (49.5%) reported mild shift work disorder while only 14.5% participants were reported moderate shift work disorder. None of the participants were reported severe shift work disorder.

Table no. 1: Overall prevalence of Shift work disorder among the health professionals

Level of shift work disorder	Frequency	Population (%)	Mean	SD
No shift work disorder	72	36.00%	29.16	12.67

Mild shift work disorder	99	49.50%
Moderate shift work disorder	29	14.50%
Severe shift work disorder	0	0%

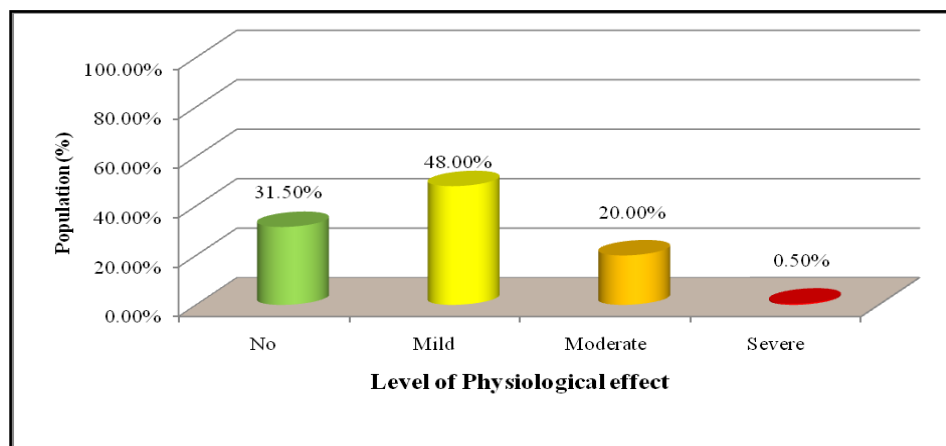


Section B

Table no.2 shows the effect of shift work disorder on physiological aspects of the selected health professionals. It reveals that 31.5% of the total population had not experienced any physiological effect of shift work disorder. Nearly half of the selected populations (48%) were reported mild effect of shift work disorder on their physiological aspects. 20% participants were reported moderate while only 0.5% participants experienced severe physiological effects of shift work disorder.

Table no. 2: Effect of shift work disorder on Physiological Aspects of health professionals

Level of Physiological effect	Frequency	Population (%)	Mean	SD
No Physiological effect	63	31.50%		
Mild Physiological effect	96	48.00%	17.32	8.52
Moderate Physiological effect	40	20.00%		
Severe Physiological effect	1	0.50%		



The effect of shift work disorder on psychological aspects of the selected health professionals are depicted in Table no.3. The data shows that more than half of the selected population (51.5%) was not reported any psychological effect of shift work disorder. 40% of the selected population were reported mild effect of shift

work disorder on their psychological aspects. Only 7% and 1.5% of the selected participants were reported moderate and severe psychological effects of shift work disorder respectively.

Table no. 3: Effect of shift work disorder on Psychological Aspects of health professionals

Level of Psychological effect	Frequency	Population (%)	Mean	SD
No Psychological effect	103	51.50%		
Mild Psychological effect	80	40.00%	4.51	3.171
Moderate Psychological effect	14	7.00%		
Severe Psychological effect	3	1.50%		

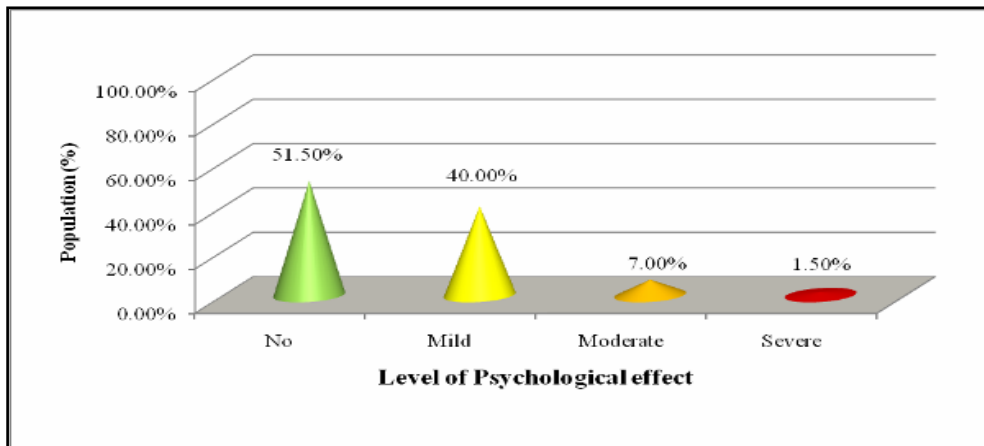
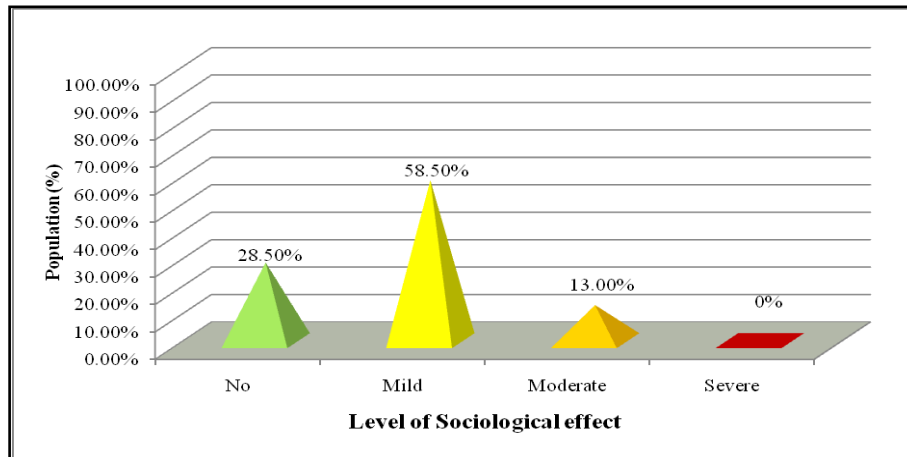


Table 4 depicts that overall effect of shift work disorder on sociological aspects of the selected health professionals. The collected data reveals that 28.5% of the total population had not experienced any effect of shift work on their social life. More than half of the selected population (58.5%) was reported mild effect of shift work disorder on their sociological aspects. 13% participants were reported moderate while none of them experienced severe sociological effects of shift work disorder.

Table no. 4: Effect of shift work disorder on Sociological Aspects of health professionals

Level of Sociological effect	Frequency	Population (%)	Mean	SD
No Sociological effect	57	28.50%		
Mild Sociological effect	117	58.50%	7.335	2.864
Moderate Sociological effect	26	13.00%		
Severe Sociological effect	0	0%		



Section C

❖ Association of Physiological effect of shift work disorder with selected demographic variables

A significant association was found between Physiological effect of shift work disorder and Education level of the samples, χ^2 (df=9, N = 200) = 22.26 at level of significance P=0.05. However, no significant association was found between Physiological effect of shift work disorder and other demographic variables of the samples.

❖ Association of Psychological effect of shift work disorder with selected demographic variables

No association was found between Psychological effect of shift work disorder and selected demographic variables of the samples.

❖ Association of Sociological effect of shift work disorder with selected demographic variables

No association was found between Sociological effect of shift work disorder and selected demographic variables of the samples.

IV. Discussion

Shift work in health care sector plays a vital role in order to provide round-the-clock care and monitoring to the patients admitted in the hospitals. Most of the health professionals are required to work in irregular hours to fulfill the demand of healthcare sector. However, studies have shown that working in irregular shifts can pose significant public health problems. It seems that health authorities and the medical staff are continuously ignoring the negative effects on their health caused by working in these rotating shifts. Shift work disorder refers to the disorder characterized by health problems that arises among health professionals due to working in rotating shifts. Health professionals working in rotating shifts may experience many undesirable consequences, particularly those covering the night or with early morning starts^{11, 12}. For example, shift work may result in physiological problems, psychological problems and social and domestic problems. These problems can affect performance, increase the likelihood of errors and accidents at work and might have a negative effect on health of health professionals.

The adverse effects of shift work disorder on physiological health of a health professional include: cardiovascular problems⁴ (such as hypertension, coronary heart disease), gastrointestinal problems¹³ (such as abdominal pain, constipation, and peptic ulcers), increased susceptibility to minor illnesses such as cold and flu, increased reproductive problems in female shift workers¹⁴, increased chances of colorectal and breast cancer^{15, 16} and exacerbation of existing health problems such as diabetes, asthma and epilepsy. The psychological problems that may arise due to shift work include: disruption of the internal body clock¹⁷ (circadian rhythms), sleeping difficulties^{18, 19}, mental fatigue or decreased mental functioning²⁰, reliance on sedatives and/or stimulants, reduced sense of well being during working hours and drowsiness at work. The sociological problems that may arise due to shift work include: relevant interference on family and social life which may result in psychological stress and psychosomatic disorder²¹, reduction in time spent with family and friends^{6, 22}, clashing of work schedule with domestic responsibilities^{8, 23}, addiction towards smoking and alcoholisms and increased chances of accidents and errors^{24, 25}.

Currently no Indian study is available for assessing the prevalence and effects of shift work disorder among the health professionals that includes all the three aspects: physiological, psychological and social health problems.

Thus the present study is aimed to assess the prevalence and effects of shift work disorder among the health professionals in all three directions: physiological, psychological and social health problems. The present study was non experimental descriptive study conducted at Nayati Super Specialty Hospital, Mathura, Uttar Pradesh in the time interval of July and September 2020.

The present study showed a high prevalence, 49.50% of mild shift work disorder and 14.50% prevalence of moderate shift work disorder. The total prevalence of shift work disorder in the selected population was found to be 64 % which implies that every two of three health professionals were somehow affected from shift work disorder. Only 31.50% participants reported no physiological effects of shift work disorder. Nearly half of the selected health professionals (48%) were reported mild effect of shift work disorder on their physiological aspects. 20.% participants were reported moderate while only 0.50% participants experienced severe physiological effects of shift work disorder. The study provide clear evidence that health professionals with rotating shift schedule need special attention due to the higher risk of undesirable health effects. More than half of the selected population (51.50%) was reported no psychological effect of shift work disorder. 40% of the selected population were reported mild effect of shift work disorder on their psychological aspects. Only 7% and 1.50% of the selected participants were reported moderate and severe psychological effects of shift work disorder. The results of the study provide clear evidence that shift work has a significant negative impact on psychological well- being. Only 28.50% participants reported no sociological effect of shift work disorder. Majority of the selected health professionals (58.50%) were reported mild effect of shift work disorder on their social life. 13% participants were reported moderate while none of them experienced severe effects of shift work disorder on their social life. The results of the present study provide clear evidence that shift work has a significant negative impact on personal/family life of health professionals. A significant association was found between physiological effect of shift work disorder and Education level of the samples, χ^2 (df=9, N = 200) = 22.26 at level of significance P=0.05. Further, no significant association was found between physiological effect of shift work disorder and all other demographic variables of the samples. In addition, no significant association was found between Psychological and Sociological effects of shift work disorder and various demographic variables of the samples.

V. Conclusion

A high prevalence of mild shift work disorder among the health professionals was found. It was also found that a significant portion of the selected population was physiologically, psychologically and sociologically affected from shift work disorder. However, no association is found between physiological, psychological and sociological effects of shift work disorder and all demographic variables, except the education level of the samples that showed a significant association with physiological effects of shift work disorder

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