

Shift Work Disorder and Associated Health Problems among Nursing Staffs Working in a Tertiary Health Centre, Chennai, South India

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Abstract:- Nurses are healthcare workers who don't care about their health but their patient. There are evidences that nurses are engaged into improper shift system (mainly night shifts)- such work schedules have been related to numerous health problems, which include gastrointestinal problems, cardiovascular problems, metabolic syndrome, migraine, anxiety, and depression. The diagnostic criteria for SWD, as defined by the American Academy of Sleep Medicine (AASM)'s International Classification of Sleep Disorders-2 (ICSD-20). Here in this study we assess the prevalence of Shift Work Disorder and related health problems among nurses in a tertiary care hospital, Chennai, South India. A cross sectional Hospital based study on nurses of tertiary hospital in Chennai for a duration of 2 months on sample size (N):127 using Standard Shift work Index questionnaire. The results will be tabulated and analysed statistically with appropriate parametric and non-parametric tests such as student's t-test and chi-Square test. The prevalence of SWD will be assessed and related health problems among the health care nurses will be assessed using the questionnaire as the tool. Shift work and related health problems are important topics in the health-care sector due to their possible negative impact on the workers' health and safety. Health education, awareness among workers regarding their work schedules, shifts, holidays, and treatment plays a major role in treating SWD. Till now only few studies have been done to assess the shift work disorder hence, this study will be useful in assessing the prevalence of shift work disorder and to create awareness among the health care individuals whose primary job is taking care of other people's health.

Keywords:- Shift Work Disorder, Health Problems, Night Shifts.

I. INTRODUCTION

Nurses are healthcare workers who don't care about their health but their patient's. No hospital can function effectively if there is a high incidence of health problems among nurses. The healthy work environment is very important for the function of hospitals. Circadian rhythm, mediated by hypothalamus, is essential for the normal body function of a person. This circadian rhythm is disrupted in a shift worker and can affect a person's health [1]. Poor sleep significantly affects a person's performance.

There is evidence to suggest that SWD can lead to headaches, Cardiovascular Diseases (CVD), hypertension, gastrointestinal tract problems (GIT), type II diabetes mellitus, obesity, Metabolic Syndrome, stroke, acute respiratory infections, back pain, anxiety, mood disorders, and depression. [2-5]

Individuals vary on how they tolerate shift work, and how their body reacts. The diagnostic criteria for SWD, as defined by the American Academy of Sleep Medicine (AASM)'s International Classification of Sleep Disorders-2 (ICSD-2), are as follows: (i) Complaints of insomnia or excessive sleepiness temporally associated with repeated shift schedules affecting their sleep pattern, (ii) symptoms associated with the shift work schedule over least 1 month, (iii) sleep disturbance not better explained by another sleep disorder, mental disorder, a medical or neurological disorder, medication use, or substance use disorder.[6]

➤ Need for the study

Healthcare professionals, such doctors, and nurses are at a greater risk of getting SWD and its related health problems. Anxiety and depression are found to be more among shift workers compared to day shift workers due to their altered sleep pattern.

Here in this study, we assess the prevalence of Shift Work Disorder and related health problems among nurses in a tertiary care hospital, Chennai, South India.

II. METHODOLOGY

- Study Design: Cross-Sectional Hospital-based study
- Study Population: Nurses of a tertiary care hospital in Chennai
- Study Duration: March 2019- May 2019
- Sample Size(N) : 127 (P=43.07, L=20%) using the formula $(4*P*Q)/L^2$ using the article [7] as the reference article
- Study Tool: Basic demographic details along with brief details about their shift working time and A pretested and validated questionnaire- Standard Shift Work Index Questionnaire.

Nurses working in shifts and those who agree to participate in the study. Clearance from the Institutional Ethics Committee was obtained. All the eligible participants were identified and were invited to take part in the study. All

the eligible participants were explained about the nature of the study and were given the choice of enrolling for the study. People who provide their written informed consent for the study were enrolled for the study. The enrolled individuals were given a questionnaire with include details about their basic demographic data along with brief details about their shift working time and a pretested and validated questionnaire Standard Shift Work Index Questionnaire.

➤ *Statistics and Analysis of the Data*

The prevalence of SWD will be assessed and related health problems among the health care nurses will be assessed using the questionnaire as the tool. The data were entered and coded in Microsoft Excel and online Chi-square calculator for proportions, frequencies, and associations. Measures of central tendency, dispersion, and Chi-square tests were used to analyze data. We considered *P* value of less than 0.05 as significant.

III. RESULTS

The study population comprised of 129 nurses. Of the 129 nurses, 119(92%) were female nurses and 10(8%) were male nurses. Nearly 44(34%) of nurses were less than the age of 24, 66(51%) were between the age 24-28 years and 19(15%) were above the age of 28, and the mean age was 24.44 ± 2.19 years. Nearly 61(47%) nurses have an experience of about 1-2 years, 45 (35%) of nurses have an experience of 2-4 years, and the remaining 23(18%) have more than 4 years of experience. Around 66 (51%) works for about 48-52 hours a week, 29(23%) of the nurses works for more than 56 hours a week. Majority 69(53%) nurses stay in the hostel, Around 57 (44%) nurses have to travel around 1-2 hour. The basic demographic details of the nurses are given in Table-1.

Variable	Category	Number	Percentage
Sex	Female	119	92%
	Male	10	8%
Age (in years)	20-24	44	34%
	24-28	66	51%
	>28	19	15%
Marital status	Unmarried	119	92%
	Married	10	8%
Travel	NA	69	53%
	1-2 hours	57	44%
	>2 hours	3	3%
Experience (in years)	1-2	61	47%
	2-4	45	35%
	>4	23	18%
Number of hours working each week	48-52	66	51%
	52-56	34	26%
	>56	29	23%

Table 1:- Demographic details (N=129)

The prevalence of SWD was found that 47(36%) out of 129(64%). Out of this, 44 who's between the age of 20-24, 23 (52%) were affected by SWD, out of 66 between the age of 24-28 years, 22(33%) were affected by SWD and who's above the age of 28 years only 2(11%) were affected by SWD. Those who have an experience of 1-2 years 35 (57%) were affected and as the experience increases the number of people affected decreased to 20% in case of 2-4 years and 13% in case of more than 4 years. In the 47 affected those who worked for more than 56 hours a week in shifts, 22(76%) are affected by SWD. Those who travel around 1-2 hours 29(51%) and more than 2 hour 2(67%) are also affected by SWD. Table-2 (Explains the prevalence of SWD by age and years of experience).

Variables	SWD present (%)	SWD absent (%)	P value
Overall prevalence	47(36%)		
Age (in years)			
20-24	23 (52)	21 (48)	
24-28	22 (33)	44 (67)	<i>P-value is .005127.</i>
>28	2 (11)	17 (89)	
Experience (in years)			
1-2	35 (57)	26 (43)	
2-4	9 (20)	36 (80)	<i>P-value is .000015.</i>
>4	3 (13)	20 (87)	
Number of hours worked in a week			
48-52	19 (29)	47 (71)	
52-56	6 (18)	28 (82)	<i>P-value is < 0.00001</i>
>56	22 (76)	7 (24)	
Travel duration			
NA (in hostel)	16 (23)	53 (77)	
1-2 hours	29 (51)	28 (49)	<i>P-value is .000029.</i>
>2 hours	2 (67)	1 (33)	

Table 2:- SWD and its associated factors

Related health problems such as Headache, gastritis, palpitation, anxiety and depression were the most common complaints related to shift work disorder.[Table 3] Here headache was found to be in around 22 (46%), Gastritis was found to be around in 20(43%), palpitations and tight chest were seen in 18(38%) and anxiety and, depression were found to be around 45%. Few had multiple symptoms, around 9(19%) have all the 4 major symptoms of SWD.

Health problems in SWD patients	Number (out of 47)	Percentage affected in SWD
Gastritis	20	43%
Palpitations and tight chest	18	38%
Headache	22	46%
Anxiety and depression	21	45%

Table 3:- health problems due to SWD

Based on the P-value we found that there is a statistically significant association between the presence of SWD and age (higher chance in younger age), number of hours worked in a week (more the shifts), experience in years (lesser the experience more the chance of getting SWD), it also associated with travel (more the travel hour) higher the chance of getting SWD. No significant relation was seen between marital status, and gender was seen with SWD.

IV. DISCUSSION

Mental and physical illnesses are more among Swift-workers compared to non shift-workers [8]. Night shift work is associated with poor sleep, and disturbed sleep is a major risk factor for Type II Diabetes Mellitus, obesity, and Metabolic Syndrome which is related with poor health and can affect the person's performance [9]. The prevalence of SWD among nurses in the present study was found to be 36.43%. We found that young nurses who were aged 20-24 and who have less experience are at a higher risk of getting SWD.

We need further studies to identify the precise reason for this phenomenon. This study finds that headache(46%), gastrointestinal and digestive problems, such as indigestion, heartburn, stomach ache and loss of appetite, were(43%) and mild cardiovascular problems such as palpitation, tight chest were found to be (38%) and sleep problems were found more common during their morning shifts. It is also found that older individuals tend to have a higher chance of SWD due to increased workload. The health problems occur due to altered biological clock or circadian rhythm [10]. The limitations to this study are that we didn't account for the possible confounding factors such as increased workload, exact shift changes for the past 1 year, their work ambiance, environmental factors, and their illness.

Shift work and related health problems pose a negative impact on the health of the health care individual and society. Awareness against SWD is very much important as most of the health care individual work in shift basis, hence health education, awareness among workers regarding their work schedules, shifts, holidays, and treatment plays a major role in treating SWD.

Insomnia can be best treated by using non-pharmacological techniques, such as cognitive behavioural therapies or reviewing sleep hygiene or stress management techniques. Healthy work environment among nurses,

management, and colleagues can significantly reduce the stress among the workers and reduce the risk of SWD [11].

Health education should be provided to nurses about SWD and related disorders to shift work. Selecting proper work schedules, selection of appropriate people for work, mandatory time off, and proper treatment for the condition are very helpful in treating SWD.

As of today, only a few studies have systematically assessed the Prevalence of SWD and its related health problems. Thus, it's difficult for an epidemiological researcher to properly assess the symptoms of SWD as the questionnaire used is also under development. Hence, such researches are needed to further understand the dimensions of SWD and its related health problems.

V. IMPLICATIONS

Shift work and related health problems are important topics in the health-care sector due to their possible negative impact on the workers' health and safety. Health education, awareness among workers regarding their work schedules, shifts, holidays, and treatment plays a major role in treating SWD.

Till now only a few studies have been done to assess the shift work disorder hence, this study will be useful in assessing the prevalence of shift work disorder and to create awareness among the health care individuals whose primary job is taking care of other people's health.

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