

## Original Article

# Effect of Shift Work on the Frequency of Depression in Nursing Staff of Yazd University of Medical Sciences

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### Abstract

**Introduction:** Depression as a disorder is relatively common in all societies; several factors are involved in depression development, that shift work is one of these factors. This study compared the frequency of depression in different shifts of nurses in hospitals of Yazd University of medical sciences.

**Materials & Methods:** This study is a descriptive analytical study. Based on statistical methods, 150 nurses participated in this study. The research tool was a questionnaire that included 15 personal questions and 21 questions related to Beck test. The results were analysed by SPSS software.

**Results:** 13.3% of all subjects were males and 86.7% were females. Results showed that, there is no significant relationship between gender, education, type of job, employment status and satisfaction levels of income with depression. Marital status (P-Value = 0.009 and F = 6.93), shift work (day working and shift work) (P-Value = 0.032 and F = 1.11), job satisfaction (P-Value = 0.000 and F = 7.641) and the satisfaction of the employer (P-Value = 0.001 and F = 5.414) were significantly associated with depression. 3.49% of the nurses were in normal status, 7.26% had mild depression, 3.9% required consultation with the psychiatrist, 7.8% suffered from moderate depression, 75.4% from severe depression and 3.1% from very severe depression.

**Conclusion:** It seems that shift work can not cause depression alone, but depression is the result of the interaction of several factors.

**Keywords:** Depression ; Sleep Disorders, Circadian Rhythm ; Nursing Staff, Hospital

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## Introduction

The usual time of daily work is 6 am to 6 pm. Any work that is done out of this range is considered as shift work. Shift work is a non-standard program. Many industries and factories such as the steel industry, iron smelting, electric power plants and generally such industries that have expensive machines, important products or massive investments also servicing jobs such as medicine, nursing, mail, police and transportation are required to work 24 hours a day and 7 days of the week on a shift work schedule.

In the developed countries, about 20 percent of full-time workers are engaged as shift workers. Approximately 29 percent of people never adapt to shift work and experience serious problems. According to a report in Britain, the highest percentage of shift work in this country belongs to the post office, food industry and hospitals<sup>[1]</sup>.

Depression is the most common mental disorder in adults by the overall prevalence of about 15 to 25 percent of the population. Also, according to World Health Organization and the World Bank (1997), depression is among the top 10 leading causes of disability in the world. Depressed people are suffering from many symptoms.

The main symptoms are depressed mood, lack of interest and pleasure, and in two thirds of cases suicidal ideation that in 10 to 15 percent of cases leads to death<sup>[2]</sup>.

Many studies have been done in this regard<sup>[3-6]</sup>. A study was conducted by Mehrabi and Ghazavi on public health of nurses in the Hospitals of Isfahan University of Medical Sciences. The

results showed that 78.8% of the nurses were healthy and 18.8% had moderate depression<sup>[7]</sup>.

A research conducted by Kawakami and colleagues showed that 14% of workers in the electrical industry were depressed<sup>[8]</sup>. Boey and colleagues in a study conducted on nurses in Singapore observed that the stress of work and shift work has a significant relationship with the mental health of nurses.

In a study by Callaghan, stressing factors and public health conditions of Hong Kong nurses was studied. The results of the study showed that there is a significant relationship between marital status and educational level with the prevalence of mental illnesses and depression<sup>[10]</sup>.

The results of a study conducted by Callaghan and his colleagues on the factors related to stress and coping among Chinese nurses showed that 58% of nurses had moderate stress levels, 21% high stress, and 11% had low stress levels<sup>[11]</sup>.

According to the study of Venuta and Barzaghil on sleep quality and mental health of nurses, those working at night were more depressed and had lower sleep quality than other nurses<sup>[12]</sup>. Many researches have evaluated the relationship between shift work and performance, mental health and amount of sleep, and concluded that there is a significant relationship between shift work and performance and mental health of nurses<sup>[13-16]</sup>.

Due to the special role of nurses as a key member of the medical team and their direct contact with patients, their health is very important.

Nurses often may suffer from depression and inner conflict due to long working hours, shift work, communication with non-curable diseases,

regular contact with susceptible patients, irritable and depressed patients and other issues related to the profession,

This study compared the effect of shifts on the rates of depression among nurses in hospitals of Shahid Sadoughi University of Medical Sciences.

## Materials & Methods

This study was a descriptive analytical study that analysed 3 medical centres including 150 nurses of the Afshar, Shahid Sadoughi and Shahid Rahnemoun Medical Centers. Nurses might work in the morning, evening, night or rotating shifts. Research data were collected within 1 month.

The data were collected using Beck depression standard test and a questionnaire containing personal information including age, work experience, educational level, marital status, shift specifications, the rate of daily working hours, job satisfaction, income satisfaction, and satisfaction of the employer.

The Beck Depression test consists of a 21-question multiple-choice self-report inventory, one of the most widely used instruments for measuring the severity of depression [1].

This questionnaire has twenty-one questions about how the subject has been feeling in the last week. Each question has a set of at least four possible answer choices.

Beck test validity and reliability have been confirmed [7]. After data collection and coding, data were analysed with SPSS ver. 13.

## Results

Among 150 nurses, 13.3% were males and 86.7% were females. The youngest person was 23 and the oldest was 50 years old and the mean age

was  $31.1 \pm 6.7$  years. Personnel had 1 to 27 years of experience and worked between 6 to 15 hours a day, with a mean of  $8.43 \pm 2.1$  hours.

**Table 1.** The mean and SD of depression scores according to marital status

Marital status	N	Mean of depression score	SD	P-Value
Married	113	13.61	10.11	0.009
Single	37	8.96	6.68	
Sum	150	12.46	9.61	

Regarding type of work, 72% were nurses, 23.5% were licensed practical nurses, and 4.5% had other occupations.

24% of employees worked in the morning, 6.7% in the evening, 2% at nights and 67.3% were shifted workers. 2.7% of nurses reported being somewhat satisfied, 28.7% satisfied, 48.6% very satisfied, and 20% of nurses were dissatisfied with their job. 22.7% were somewhat satisfied with their employer, 41.3% satisfied, 25.3% very satisfied, and 10.7% were dissatisfied.

**Table 2.** The mean and SD of depression scores according to shifts of work

Shift of work	N	Mean of depression score	SD	P-Value
Day working	36	9.94	7.06	0.032
Shift work	114	13.25	10.8	
Sum	150	12.46	9.61	

In the case of income, 60% were dissatisfied, 30% very satisfied, 2% somehow satisfied, and 8% were satisfied and there was not any significant association between depression and gender (P-Value=0.499, F=0.46), education (P-Value=0.62, F=0.47), type of work (P-Value=0.0619, F=2.724), shifts of work (P-

Value=0.336, F=1.139), employment status (P-Value=0.762, F=0.388), the satisfaction level of income (P-Value=0.959, F=0.101).

There was also a significant association between depression and marital status (P-

Value=0.009, F=6.93), morning shifts and turn over shifts (P-Value=0.032, F=1.11), the satisfaction level of occupation (P-Value=0.000, F=7.641), and satisfaction of the employer (P-Value=0.001, F=5.414).

**Table 3:** Mean and SD of depression score according to job satisfaction

Job satisfaction	N	Mean of depression score	SD	P-Value
Very satisfied	73	11.69	9.2	0.000
satisfied	43	9.04	6.89	
Somewhat satisfied	4	13.25	0.95	
dissatisfied	30	19.1	11.45	
Sum	150	12.46	9.61	

**Table 4.** Mean and SD of score of depression according to satisfaction of the employer

Satisfaction of the employer	N	Mean of depression score	SD	P-Value
Very satisfied	34	9.11	7.69	0.001
satisfied	62	11.7	6.7	
Somewhat satisfied	38	13.47	8.94	
dissatisfied	16	20.06	17.67	
Sum	150	12.46	9.61	

## Discussion

This study was aimed to evaluate the effect of shift work and personal characteristics on depression in 150 nurses of Shahid Sadoughi University of Medical Sciences in different working units.

Internationally around 20% of employees in developed nations work in rotating shifts or carry out overnight duties. Previous studies have identified many adverse health problems associated with long-term participation in shift work schedules. These included the higher risk of anxiety, depression, insomnia, chronic fatigue as well as different cardiovascular and gastrointestinal disorders. In particular, shift work of hospital nurses induces stress, disturbs family life and interrupts regular meal schedules. More

recent studies have reported that shift work increased job strain and the risk of metabolic syndrome. Night shift working could have significant effects on the sleep patterns in the long run, leading to higher cardiac sympathetic excitation. Among hospital nurses, shift work is recognized as an occupational stressor<sup>[17]</sup>.

Results show that there is no significant relationship between gender, education, type of work, employment status, and income satisfaction with depression which is concordant with Wong et al<sup>[17]</sup>.

Variables such as marital status, two mornings and rotational shifts, job satisfaction and satisfaction of the employer had a significant relationship with depression, so that married nurses had more severe depression than single

ones that may be due to more problems in their families about their spouses and child.

The results of this study about the status of education do not match with Ohida's study but about marital status two studies were similar. Moreover Ohida et al <sup>[13]</sup>, Ardekani et al <sup>[14]</sup>, and Tenant <sup>[16]</sup> confirmed the findings of the current study about the correlation of shift work with depression in nurses. According to Josling <sup>[4]</sup> there was no correlation between marital status and depression, which does not match with the findings of this study, this is perhaps due to lower number of single people than married people and cultural differences in other countries. Night staff had the highest and day staff had the lowest mean of depression.

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Social life interrupted the physiologic circadian rhythm, and added time pressures to the shift workers <sup>[17-20]</sup>. Persson and Martensson adopted a critical-incident approach to evaluate nurses' dietary habits, and reported that they were especially prone to social interactions and circadian rhythm disruption. It has been suggested that nurses may select particular types of foods to relieve the bowel symptoms experienced during night shift. Another explanation of the abnormal eating behavior includes the intake of food high in sugar to overcome cravings and tiredness during the shifting duties <sup>[19]</sup>.

Finally it seems, shift work can not cause depression alone, but depression is the result of the interaction of several factors.

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