

HARMFUL EFFECTS OF JOB STRESS AND NIGHT WORK ON PSYCHOLOGICAL HEALTH**Mohammad Taghi Mahmoody, Islamic Azad University Shahrekord Branch****Yousef Ahmadi, Islamic Azad University Shahrekord Branch****Fereydoon Farazandeh, Islamic Azad University Shahrekord Branch****Abstract:**

Shift working, including turning shift night work, and stable night work, leads psychological health problems. Beside to the shift work system, job stress and individual conditions factors also relate to the psychological health of employees, however, details of job stress and psychological health problems among stable night workers are still uncertain. The aim of this study is to analysis the amount of job stress and the psychological health problems among stable night workers, and also to analysis what factors should find out the psychological health situation of the stable night worker. The sample consisted of 87 civil workers, who completed the questionnaires, which included the NIOSH generic job stress questionnaire and the General Health Questionnaire (GHQ). A group with a GHQ score of 7 or more was determined as having psychological disorder(s). Multiple logistic regression was executed to estimation the odds ratios (ORs) for psychological disorder(s), including age, type of job, working year, marital status, and some subscales of the NIOSH questionnaire. Findings showed that the married workers were less likely to engage in psychological health problems than single group (OR=0.52, 95% CI=0.34-0.79). The psychological health of the employees with lower job control was better than the group with higher job control (OR=0.52, 95% CI=0.31-0.84). The group with a higher overloading job was more likely to have psychological health problems (OR=2.92, 95% CI=1.84-4.79). This study found out that a person with a high overloading, high job control, as well as single had greater ORs for psychological disorder among stable night **workers**.

Key words: civil worker, GHQ, work stress, psychological health, Night worker, NIOSH questionnaire (generic job stress)

Introduction

Shift job, including turning shift night job, and stable night work, leads psychological health problems, sleeping problems, fatigue, disturbance of the circadian rhythm, and other physical health troubles, but compare to turning shift night job, stable night work has been counted as preferable, in terms of sleeping, circadian rhythm, and achievement^{2, 5}. Stable night personnel have a higher amount of sleep, and less sleeping disorder than turning shift night employees. Adaptation of the circadian rhythm can be accomplished better in stable night workers than among a group on turning shift night work. In contrast, social and family life, and individual satisfaction might be worse with stable night work than turning shift night job. Less social support from family can lead to increase the work stress and psychological health problems of workers^{6, 7}.

In addition to the shift work system, job stress and individual background factors also relate to the psychological health of workers⁸. Job demand, job overload, less workshop support, and interpersonal conflict boost psychological distress, fatigue, anxiety, depression and irritation. Variables like age, family structure, lifestyle, marital status, experience and personality also modify the work stress and psychological health of employees, 9-11¹.

Nevertheless, the amount of the work stress and psychological health problems among the stable night workers is still uncertain, mostly because stable night work is rare. This study aimed to examine the amount of work stress and psychological health problems among stable night workers, and also to analysis what factors can determine the psychological health situation of the stable night worker, by applying both of the questionnaires: NIOSH generic job stress¹² and the general health questionnaire(GHQ)¹³.

Methodology

Participants of this study include 87 employees of a company in Iran which has involved in the maintenance of the city's services. The employees were divided into three types of worker: repair and mending, constructor, and both. Considering the efficiency of work and safety of employees, repair and mending is done during the night because there is less traffic at night and also no user of the instruments at night. Thus, employees basically work at night, more exactly from midnight to 7 a.m.

The assessment was self-administrated and the questionnaires were the 30-item Iranian version of the GHQ¹⁴ and some scales of the Iranian version of the NIOSH generic job stress questionnaire^{15, 16}, encompass subscales like intragroup conflict, job control, social support from supervisor, social support from coworkers, social support from family/ friends, quantitative workload, and non-work activities. Moreover, the demographic characteristics variables including age, marital status, years of employing, and type of work were recorded.

Statistical analysis

The participants were classified according to their demographic characteristics variables: age (less than 25, 25-34, 35-43, and more than 44 years), years employed (less than 4, 4-9, over 9 years), marital status (single or married), and type of work (repairing, constructor, and both). Multivariate analyses of variance (MANOVA) were executed to determine the adjusted means of each subscale of the NIOSH generic job stress questionnaire, with the categories of demographic terms as the level of factors. Employees with a GHQ score of at least 7 were determined as having psychological disorder. The cut-off score of 6/7 was considered reasonable in the study on the validity of the Iranian version of the 30-item GHQ score¹⁷. Logistic regression was applied to determine the odds ratio (OR) of each of the demographic characteristics, such as age, years of employing, marital status, type of work and selected subscales of the NIOSH generic job stress questionnaire for psychological disorder. Several reference

categories in the model were defined as the highest and middle point of job control, social support from manager or supervisor, social support from colleagues, social support from family, relatives/ friends, and non-work activity; at the same time, the lowest and middle point of Job conflict and quantitative overloading were determined as reference categories in the model. The multivariate ORs for psychological disorder including age, working years, marital status, type of job, and selected subscales of the NIOSH generic job stress questionnaire were then assessed. The calculations were performed with the Statistical Analysis System¹⁸⁾.

Findings

First some of characteristics of the subjects and the means for the NIOSH generic job stress questionnaire are provided. The mean age of the subjects was 36.6 (SD=9.3) and the mean years of working was 9 (SD=8.4). Around 30% of the sample was engaged as repairing and 17% as constructor and the rest were both functions. In terms of marriage situation it can be said that 64% percent of the sample were married.

The means' indexes for the NIOSH generic job stress questionnaire and the findings of ANOVA are also counted. After (MANOVA) multiple analyses of variance, both the means for intragroup conflict and the job control WERE changed significantly with reference to the type of job. The means for quantitative overloading differed significantly according to the job employing years. Daily life activities differed significantly according to age and marital condition of the group. There was a significant variation in the values for social support from colleague in the groups with respect to employing years, and the means for social support from family, relatives/friends changed significantly with respect to marital situation and job type.

Like other indexes the values of the multiple logistic regressions are reported. The married group was less likely to have psychological health disorders than single ones (OR=0.52, 95% CI=0.34-0.79). The psychological health of the workers with lower job control was better than the ones with higher job control (OR=0.52, 95% CI=0.31-0.84). The workers with a higher overloading were more likely to have psychological health problems (OR=2.92, 95% CI=1.84-4.79).

Conclusion

This study proved that the chosen scales of the NIOSH generic job stress questionnaire differed for the people according to age, employed records, marital situation, and type of work, among stable night workers. This study also found out that marital status, job control, and quantitative job-loading were significantly associated with psychological disorder according to the GHQ.

The features of the present subjects according to NIOSH generic job stress questionnaire, when compared with a previous study conducted among Japanese workers, was that they had a lower quantitative workload, lower job control, and slightly higher social support from colleagues and family¹⁹⁾. However, it is unclear whether these features were characterized by night work or garbage work, because scores in the NIOSH generic job stress questionnaire vary according to the type of job. According to the GHQ, there is no significant difference from other Iranian employees reported formerly in the rate of psychological disorder among the present subjects²⁰⁾.

Job control was the lowest in those who worked as both constructor and repairman. Their process of job is in small groups consisting of one repairman and two or three constructor, and most of the employees who worked only as a repairman or a constructor were the leader of their group. As a result, repairmen and constructors are rather easily able to control their jobs. A probable explanation for the least intragroup conflict in constructors is because constructors can converse with each other more than repairmen due to this group makeup. The employees with more than nine years employment had the least quantitative job-loading. Expert workers could do the duty easier than employees with little

experience. Instead, employees with little experience might be ordered to do the harder jobs. Social support from colleagues was the least among people with more than nine years employment. Employees with more experience might be able to carry out their duty without help. It is usual that the married people had stronger supporting from their family than the single ones. People who are married and older might be inclined to have an opportunity for non-work actions, such as entertainment, being with their family, and contribution in neighborhood and social activities.

Marital situation is counted as modifying the relationship between job stress and the psychological health of the employees¹², but the conjugal relationships of night employees could be different from those of daytime workers. Stable night work may cause some difficulties in marital relationships, such as the break in the daily life timetable between the couple, or problems in contribution in childcare. However, this study showed that marriage is an important feature maintaining the psychological health of stable night workers. In the current study, the workers with high job control had a high OR for psychological disorder, which is incompatible with prior studies which discovered that low job control growing job stress and health problems^{21, 22}; but the relation between work control and work stress ought to be treated cautiously. One study showed that work control correlated with imaginative fatigue symptoms among middle-aged Iranian workers²³. The research explained that the response to work control in employees of Western countries is different from Iran. Furthermore, in other study²⁴ it was found that the accessibility of control opportunities that exceed the individual's ability to take benefit of them can produce negative outcomes including both self-report and psycho-physiological indexes of stress, and inferior job performance. Moreover, employees with an inclination for low control seem to suffer more when have greater rather than fewer choices to exercise control. If employees in the current study prefer simple duties with low job control, higher job control increases psychological health disturbances. The present research also showed that a quantitative job-loading was significantly connected with psychological health disturbances among stable night employees, a finding which is congruent with former studies which were executed among daytime employees or shift personnel^{25, 26}. However, the explanation of this outcome should be restricted because this research was cross-sectional, and a worker with a psychological disorder may feel that a duty is more difficult than another without the same psychological disorder.

The limitations and strength of this study can be as following: First, logistic regression assumes that explanatory variables are independent from each other. The factors including the logistic regression model in this study were not significantly correlated with each other (correlation coefficient: $\gamma=0.97-0.53$), except for between age and years employed ($\gamma=0.73$), and between social support from colleagues and supervisor ($\gamma=0.70$). To evade from the statistical dilemma known as collinearity, the results of multiple logistic regression were compared with the findings of univariate logistic regression, and it was found that the estimated ORs of each variable were all similar. Consequently, it can be practically said that the effect of collinearity was small. Second, the validity of using a GHQ to assess the psychological health of employee should be cited. The Iranian version of GHQ-30^{13, 14} is widely used in Iran, and many studies have showed that power of the cut-off point of 6/7 is 94% and 82%, and specificity is 91%¹⁷⁰, even though the researchers used neurotic samples or hospital outpatients as subjects, and the application of their cut-off point for a job population is a dilemma.

In conclusion, the worker who had a high quantitative workload, high job control, and was single was likely to have psychological health problems, but additional study is necessary to observe whether these variables in stable night work effect psychological health more than ones in other job styles, such as daily work or rotating shift night work. Moreover, findings of this study showed that high job control enhanced psychological disorder among stable night employees was unanticipated, and could not be recognised. This problem should also be understood in more future studies.

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