Abstract

Background: Stress, as the most common issue in human life, has become one of the characteristics of modern life. Nurses, due to the challenging nature of their profession, are constantly exposed to stress. According to studies, job stress is related to smoking. This study aimed to investigate the prevalence of drug use and its relationship with job stress in nurses in Bandar Abbas.

Materials and Methods: This study was a descriptive-analytical survey. The statistical population included all nurses working in hospitals affiliated to Hormozgan University of Medical Sciences in 2018 with a sample size of 488 people. Data collection tools included a demographic characteristics questionnaire, the active and inactive drug use questionnaire, and the Osipow Job Stress questionnaire. SPSS version 19.0 was used for data analysis.

Results: The mean score of job stress was 179.16 ± 31.55 in men and 177.44 ± 24.39 in women. According to the Mann-Whitney test, there was a significant difference between the levels of tobacco use and levels of marriage in terms of stress scores (P=0.001). There was a significant inverse correlation between age and stress (P=0.001).

Conclusion: The results of the present study showed that nurses, due to their stressful job, can be constantly exposed to high-risk behaviors to address these stresses and conflicts; therefore, policymakers should develop well-written programs to address these pressures.

Keywords: Nurses, Stress, Drug

Introduction

Stress, as the most common issue in human life, has become one of the characteristics of modern life, and work is the main reason for its creation. There is more stress in jobs where human communication is involved. Excessive job-induced mental stress is one of the stresses that can not only endanger people's health by causing physical, psychological, and behavioral complications but also lead to reduced quality of individuals' performance by threatening organizational goals (1).

According to the National Institute for Occupational Safety and Health (NIOSH), job stress occurs when there is no coordination between job needs and abilities, capabilities, and desires (2). Additionally, the amount of stress in various professions and occupations is different and professions and jobs that deal with human services cause a lot of stress. Among them, the effect of stress on health care workers, due to the complexity of work, is much more significant and is known to be effective as an important factor (1-3).

Nurses are constantly exposed to stress due to the nature of their profession; therefore, stress is a recognized component of modern nursing and a challenge to the nursing profession (4). The US National Institutes of Health reported that out of the 130 stressful jobs surveyed, nursing was ranked 27th due to its effects on mental health (5).

Risk of disease transmission from patients, dealing with dying patients, heavy work duties, insufficient time, high workload, long working hours, irregular shifts, insufficient salary, lack of control over the workplace, poor supervision, conflict with colleagues and patients, frequent demands, overtime work, and conflict with physicians have all been identified as sources of job stress in nurses (6, 7). Long-term job stress can lead to fatigue, pessimism, inefficiency, personal failure, reduced organizational commitment, absenteeism, and ultimately poor productivity. Job stress reduces attention, concentration, and decision-making and judgment skills and raises the likelihood of clinical errors (4).

Global tobacco use began 500 years ago (8), which included smoking, inhaling, and chewing different tobacco products. A lot of expenses are spent annually on the prevention and treatment of diseases caused by smoking (9). Based on the available evidence and according to the World Health Organization, about 1.3
billion people in the world smoke, and if the prevalence of smoking remains constant, this figure will increase up to 1.7 billion people by 2025 (10). The average death rate of people over 30 years old due to smoking is 12%. These statistics show that this high-risk behavior can be one of the factors that impose significant material and spiritual costs, such as medical insurance costs and waste of time, and also one of the factors that have a negative impact on culture. In Iran, the death of 50,000 people and the hospitalization of 500,000 people due to tobacco consumption have been recorded every year. Out of 79 million people, nearly 8 million people are considered to be tobacco users (11).

Smoking is one of the most dangerous behaviors that disrupt human health and despite many efforts to prevent its spread, this factor is still recognized as one of the most important causes of death in the world (12). Cigarettes are the most commonly abused substances in the world. It is not part of illegal substances, but the law wants to reduce it. It harms to others, hence prevention is imposed. Smoking is one of the serious health threats that kills about 5 million people in the world every year. The result is waste of economic resources and incidence of dangerous diseases (13). Cigarette smoke contains more than 4000 different toxins. Smoking alone accounts for 90% of lung cancer, 80% of chronic bronchitis, and 25% of other lung disease cases. None of the organs in the body are immune to the harmful effects of smoking. Smoking causes death in various ways and in fact, it is a risk factor for 6 of the 8 leading causes of death in the world (14). According to the latest statistics on the risk factors of non-communicable diseases in Iran, about 12% of the population aged 15-64 are consumers of substances on a daily basis. In Iran, more than 45 billion cigarettes are smoked annually. In other words, 10 million Iranians spend about 1700 billion tomans a year on cigarettes, and more than 60,000 Iranians fall victim to drug use annually. According to current trends, more than 5.4 million people die annually in the world due to the adverse effects of smoking. This figure is higher than the rate of deaths from tuberculosis, AIDS, and malaria (15).

Smoking is four times more common in men than in women, and three-quarters of all smoking-related deaths occur in men (16). Smoking is the first preventable cause of disease and death in the world, causing preventable early death of millions of people at the most productive ages, and about half of these deaths occur between the ages of 25 and 69. In addition, many people suffer from unwanted exposure to smoke and are at risk of diseases caused by it (17).

According to studies, job stress is associated with smoking and in hospitals where the prevalence of smoking is higher among nurses, this relationship is stronger due to the fact that in stressful situations, nurses are more likely to be allowed to smoke (18). Based on the results of a study, one of the most important sources of stress in people's lives is their job (19).

According to the Iranian Medical Association, 10.6% of specialists, 12.5% of dentists, and 18.2% of nurses are smokers, and 39% of health care personnel suffer from diseases related to drug use (20). The role of health care workers in controlling tobacco use has been proven. According to statistics, health care workers have been able to encourage many patients to stop smoking, and 10% of patients have been successful at stopping smoking. The role of the health care system in controlling tobacco use has been proven (21).

According to a study conducted by Hadi and Barazandeh (21) to examine the lifestyle of nurses in Shiraz, 3.7% of nurses were smokers; however, 45.3% of the total population and 44.3% of non-smokers were exposed to second-hand smoke. Since secondhand smoke contains poisonous and carcinogenic compounds, the only protection against the risks of smoking is the complete cessation of smoking at home, in work environments, and public places (9). However, considering that 89.6% of the study population were women and drug use is less prevalent among this group for conventional reasons, the low number of nurses who used drug was expected (22).

In fact, the presence of stressors in the nursing profession is inevitable and it is necessary to control and prevent the psychological and behavioral effects of the stress (23) because the personal habits and interests of nurses and their living conditions affect their approach to patients (22). Therefore, this study was designed to determine the prevalence of active and inactive drug use and its relationship with job stress in nurses in Bandar Abbas.

**Materials and Methods**

**Design and Setting**

This was a descriptive-analytical study. The population included all nurses working in hospitals affiliated to Hormozgan University of Medical Sciences in 2018 with a sample size of 488 people. The study setting was limited to Children's Hospital of Bandar Abbas city. Based on the number of nurses working in each of the departments (70 nurses in emergency department, 158 nurses in specialized care units, and 260 nurses in general and specialized departments), 32 nurses from the emergency department, 71 nurses from specialized care units, and 117 nurses from general and specialized departments were selected using stratified random sampling.

The sample size was calculated using the sample size formula. Considering $P_1 = 0.398$ and $P_2 = 0.281$, the proportion of men and women with high levels of stress, respectively, as well as $α = 0.05$ and $β = 0.20$, the sample size was estimated to be 220. Using a stratified random sampling method, 32 nurses from the emergency department, 71 from the intensive care unit (ICU), and
The fifth dimension, responsibility (feeling the pressure of working with co-workers who are problematic) was related to one's sense of responsibility in terms of efficiency and well-being of others in the workplace. The sixth dimension, the physical environment (noise, humidity, dust, heat, cold, etc.) was related to the adverse conditions of the physical environment to which the person is exposed.

Scores for men and women were determined according to the instructions of the Osipow questionnaire. The general stress is divided into four levels as follows:

- Low stress level: 55 to 99 scores
- Low to medium stress level: 100 to 149 scores
- Moderate to severe stress level: 150 to 199 scores
- Severe stress level: 200 and above (199) scores

In this study, a person with moderate to severe stress is considered a person with stress.

The standard Osipow Job Stress questionnaire was first used by Osipow et al in 1987 as a tool for measuring job stress (22). This questionnaire has been used repeatedly by various researchers in the country and its validity and reliability were confirmed by test-retest method (23). In this study, Cronbach's alpha coefficient was used to determine the reliability of the job stress questionnaire and the reliability of the questionnaire was measured using the data of 20 nurses.

For data analysis, SPSS version 19 was used. After checking the normality of the data, independent samples t test was used to compare quantitative variables between the two groups. In addition, for examining the relationship between two categorical variables, chi-square test and Fisher's exact test (expected count of less than 5) were applied. Spearman correlation test was also used to assess the relationship between two quantitative variables. For all statistical tests, a significance level of less than 0.05 was considered statistically significant.

**Results**

Of the 220 nurses included in this study, 183 (83.18%) were female and 37 (16.82%) were male. A total of 123 (55.91%) nurses were single and 97 (44.09%) were married. Sixty (7.27%) nurses had a diploma, 200 (90.91%) had a bachelor's degree, and 4 (1.82%) had a master's degree. Additionally, 32 (14.55%) were working in the emergency ward, 71 (32.27%) in ICU, and 117 (53.18%) in other wards (Table 1).

As shown in Table 2, four men (10.8%) and 17 women (9.3%) were smokers ($P = 0.774$). The prevalence of passive smoking was significantly higher among men (62.2%) than among women (38.3%) ($P = 0.007$). The results showed that the tendency to use hookah is significantly higher among men (18.9%) than among women (5.5%) ($P = 0.005$). Among men, having a smoking colleague had a significant effect on their tendency to smoke ($P < 0.001$). Three men (8.1%) and 19 (10.4) women were tobacco

| Data Collection Method |
|------------------------|
| Data collection tools included demographic characteristics questionnaire, active and inactive drug use questionnaire, and job stress questionnaire. Demographic characteristics of individuals were collected using 7 questions including age, gender, marital status, working shift, educational degree, place of work, and work experience. Active and inactive drug use was assessed by a researcher-made questionnaire consisting of 25 questions about active and passive use of cigarettes, hookahs, drugs, tobacco, and psychedelics. In this questionnaire, the amount of use of each of the items mentioned by the individual and its consumption by family members living at home and their relationship with the individual, as well as its consumption by colleagues on the shift were investigated. The validity of this questionnaire was examined using face and content validity by consulting ten faculty members of the university and reviewing the values of content validity ratio (CVR) and content validity index (CVI). Additionally, its reliability was examined by test-retest method. The standard Osipow Job Stress questionnaire was used to assess job stress. The Nursing Stress Scale (NSS) questionnaire was also designed and its validity and reliability were confirmed. However, considering that this tool measures nurses' stress in all aspects of life and in this study, the aim was to assess the job stress in nurses, it was preferable to use the Osipow questionnaire, which has been used in several studies to assess the job stress of nurses. The Osipow job stress questionnaire is scored on a five-point Likert scale from 1 to 5 (never: 1, sometimes: 2, often: 3, usually: 4, and more often: 5). The questionnaire covers six dimensions of job stress and each dimension contains 10 questions.

The first dimension, the workload of the role (lack of necessary support in the burden of job responsibilities) was related to how a person responds to the demands of the workplace. The second dimension, the inadequacy of role (the mismatch between skills and what the job expects from the individual) was related to the suitability of the individual's skills, education, and educational and experimental characteristics for the needs of the work environment. The third dimension, role duality (ambiguity in the tasks that a person is expected to perform and how to evaluate it) was related to the individual's awareness of workplace priorities and expectations and evaluation criteria. The fourth dimension, the role limitation (feeling skeptical about expressing demands and unclear limits of authority) was related to the conflicts of the individual in terms of work conscience and the role that is expected.
Job Stress and Drug Use in Nurses

The results of Kolmogorov-Smirnov showed that all quantitative variables in Table 3 were normally distributed \((P > 0.05)\). Therefore, to compare quantitative variables between males and females, independent samples \(t\) test was applied.

The results showed that the mean age of men was \(30.32 \pm 4.96\) and that of women was \(28.90 \pm 4.77\). Additionally, the mean job experience of men was \(5.03 \pm 4.01\) years and that of women was \(4.53 \pm 4.62\) years. Furthermore, there was no difference between men and women in terms of age \((P = 0.101)\), job experience \((P = 0.544)\), repeated smoking \((P = 0.273)\), repeated use of tobacco, and repeated use of hookah \((P = 0.801)\) (Table 3).

The results showed that there was a significant association between stress level and cigarette smoking \((P = 0.033)\) and tobacco smoking \((P = 0.005)\) (Table 4).

Discussion

In the present study, which was conducted to investigate the prevalence of job stress and drug use in nurses working in hospitals in Bandar Abbas, the mean job stress score was calculated to be \(179.16 \pm 31.55\) in men and \(177.44 \pm 24.39\) in women, indicating a moderate stress level which requires interventions to reduce it. These results are consistent with the findings of the study conducted by Samadirad et al in which the level of job stress was also reported to be high (1). Numerous other studies have examined job stress in different jobs and the

### Table 1. Distribution of Demographic Characteristics of Participants

| Characteristics | Factor | Frequency | Percent |
|-----------------|--------|-----------|---------|
| Gender          | Male   | 37        | 16.82   |
|                 | Female | 183       | 83.18   |
| Marital status  | Single | 123       | 55.91   |
|                 | Married| 97        | 44.09   |
| Education       | Diploma| 16        | 7.27    |
|                 | BS     | 200       | 90.91   |
|                 | M.s    | 4         | 1.82    |
| Ward            | Emergency | 32         | 14.55  |
|                 | ICU    | 71        | 32.27   |
|                 | Other  | 117       | 53.18   |

BS: bachelor’s degree, MS: master’s degree, ICU: intensive care unit.

### Table 2. Distribution of Cigarette and Hookah Smoking among Males and Females

| Variables         | Subgroup        | Male \((n=37)\) | Female \((n=1830)\) | \(P\) Value |
|-------------------|-----------------|-----------------|---------------------|-------------|
|                   |                 | No. | %    | No. | %    |         |
| Cigarette smoking | Yes             | 4   | 10.8 | 17  | 9.3  | 0.774b |
|                   | No              | 33  | 89.2 | 166 | 90.7 |         |
| Passive smoking   | Yes             | 23  | 62.2 | 70  | 38.3 | 0.007b |
|                   | No              | 14  | 37.8 | 113 | 61.7 |         |
| Smoking colleague | Yes             | 21  | 56.8 | 24  | 13.1 | <0.001b|
|                   | No              | 16  | 43.2 | 159 | 86.9 |         |
| Hookah smoking    | Yes             | 7   | 18.9 | 10  | 5.5  | 0.005b |
|                   | No              | 30  | 81.1 | 173 | 94.5 |         |
| Passive hookah    | Yes             | 6   | 85.7 | 7   | 77.7 | 0.998a |
|                   | No              | 1   | 14.2 | 2   | 22.2 |         |
| Hookah user colleague | Yes         | 1   | 2.7  | 2   | 1.1  | 0.441b |
|                   | No              | 36  | 97.3 | 181 | 98.9 |         |
| Tobacco smoking   | Yes             | 3   | 8.1  | 19  | 10.4 | 0.674b |
|                   | No              | 34  | 91.9 | 164 | 89.6 |         |
| Tobacco user colleague | Yes       | 37  | 100.0| 183 | 100.0|         |
|                   | No              | -   | -    | -   | -    |         |
| Psychedelics user | Yes             | 1   | 2.7  | 3   | 1.6  | 0.659a |
|                   | No              | 36  | 97.3 | 180 | 98.4 |         |
| Psychedelics user colleague | Yes       | 0   | 0    | 2   | 1.1  | 0.523b |
|                   | No              | 37  | 100  | 181 | 98.9 |         |

\(a\) Fisher’s exact test; \(b\) Chi-square test.
results confirm that everyone in any place and situation feels some degree of stress in their work environment, which is tangible and undeniable in modern organizations today (4). According to these results, stress has affected a significant part of the life of employees in the work and organizational environment. Accordingly, if this continues for a long time or the rate of stress is high, the person will gradually get tired and the continuation of the above-mentioned situation will decrease physical and mental energy of people, cause danger to public health, weaken the ability of individuals, and consequently reduce job performance of employees (1).

Based on the results obtained in the present study, there was a difference between different age groups in terms of mean job stress score. Moreover, the results of the study by Sarbooz et al are in line with the present study (24). Demographic factors, such as age, have an effect on job stress and younger people are more exposed to injury. This can be due to the ability of older people to cope with stressful situations (22).

The results of the present study also showed that the mean job stress score of women was higher compared to men, which is consistent with the results of several studies that showed that job stress is higher in women. High job stress in women can be due to the conflict between job responsibilities and family responsibilities as well as dual duties at home as a housewife and in the workplace as an employee. Other biological conditions, as well as social and cultural status, are also involved in this case (1).

However, according to several other studies, no significant relationship was observed between age and job stress (26,27).

The level of job stress in the married group was significantly lower compared to single people. This finding is consistent with the results of a study that reported a statistically significant relationship between marriage, as a safe haven for the individual, and job stress caused by work activities (1).

Lack of effective coping with workplace challenges in nurses leads to higher levels of stress and anxiety symptoms. Additionally, the person engages in dysfunctional and harmful self-regulatory behaviors such as smoking. In this regard, some people use drugs to regulate emotions and relieve fatigue, reduce depression and stress, and achieve relaxation. Indeed, such a process is likely to occur with smoking as well, due to the physical and psychological consequences of smoking. As a result, the process of reducing psychological health problems by smoking is consistent with Khantzian’s model which hypothesizes that drug users use the physiological and psychological properties of the drugs to regulate negative emotions and achieve emotional stability. This effect of self-medication

| Variable                  | Gender | Sample size | Mean | SD   | P Value |
|---------------------------|--------|-------------|------|------|---------|
| Age (year)                | Male   | 37          | 30.12| 4.96 | 0.101   |
| Job experience (year)     | Male   | 37          | 5.03 | 4.01 | 0.544   |
| Repeated smoking (times a day) | Male | 4          | 3.75 | 3.10 | 0.273   |
| Repeated use of tobacco (times a day) | Male | 1          | 0    | 0    |         |
| Repeated use of hookah (times a day) | Male | 7          | 1.14 | 0.378| 0.801   |

Table 3. Comparison of Quantitative Variables in Males and Females

| Variable                  | Subgroup | Low (55 to 99) | Low to Moderate (100 to 149) | Moderate to Severe (150 to 199) | Severe (>200) | P Value |
|---------------------------|----------|----------------|-----------------------------|--------------------------------|---------------|---------|
| Marital status            | Single   | 18 (18.6)      | 62 (63.9)                   | 17 (17.5)                      |               | 0.129\footnote{Fisher’s exact test} |
| Cigarette smoking         | Yes      | 12 (9.8)       | 82 (66.7)                   | 29 (23.6)                      |               | 0.033\footnote{Chi-square test} |
| Hookah smoking            | Yes      | 3 (17.6)       | 14 (82.4)                   | 0 (0.0)                        |               | 0.087\footnote{Fisher’s exact test} |
| Tobacco smoking           | Yes      | 0 (0.0)        | 20 (90.9)                   | 2 (9.1)                        |               | 0.005\footnote{Chi-square test} |

\footnote{Fisher’s exact test; \footnote{Chi-square test}}
and reduction of negative emotions is the cause of their continuation and recurrence of consumption (28).

There is a similar situation with anxiety disorders such as stress and its relationship with smoking. Pawlina et al (29) also reported a high prevalence of smoking and nicotine dependence in patients with anxiety disorders. They emphasized the effect of nicotine on brain circuits and the reduction of anxiety following nicotine use.

Hosseinian et al emphasized the complex relationship between smoking and anxiety disorders and stated that people with depressive and anxiety disorders smoke to reduce the symptoms of the disorder they suffer from. This is consistent with Khantzian’s self-medication hypothesis, according to which people use drugs to reduce their mental health problems and illnesses. In other words, people use drugs, including cigarettes, to relieve their suffering. The primary goal is to reduce suffering and mental illness, not to achieve pleasure. Finally, people with certain genetic or psychological vulnerabilities use certain substances and find that their suffering and discomfort are reduced (28).

In this regard, Pawlina et al (29) believe that smoking can be a form of self-medication for feeling lonely or negative mood. Cooper et al (30) also stated that the reason for using drugs such as tobacco is emotional changes and reported that there is a relationship between negative and undesirable feelings and smoking. He emphasized that high sensitivity to anxiety and reduction of negative emotions are the main reasons for smoking. In relation to the above-mentioned issues, especially self-medication, the role of drug use motivation is discussed more seriously.

Job stress in nurses was reported to be correlated with tobacco use in women. In general and specialized departments, the relationship was significant between job stress and passive smoking and active tobacco use. Unfortunately, one of the reasons that nurses are turning to tobacco use is job stress, which is more often seen in tobacco users. According to the results, exposure to cigarette smoke is an important factor in increasing job stress in nurses.

**Conclusion**

The results of this study and its comparison with similar studies show that the prevalence of drug use is relatively high among nurses working in teaching hospitals of the University of Medical Sciences. According to studies, the most common cause of tendency to smoke was work stress, and nurses, due to their stressful jobs, can be constantly exposed to high-risk behaviors to resolve these stresses and conflicts. Therefore, officials should take effective measures to improve mental health and reduce job stress and pay more attention to the factors that disrupt the general health of employees. They should also reduce job stress by establishing a right and desirable relationship with employees, supporting them, and creating a suitable environment for professional activities.

Additionally, policy-makers should develop well-written programs to reduce the pressure on nurses and protect them to a large extent from upcoming injuries by teaching resilience skills in different stages of employment.

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**Authors’ Contributions**

Writing—Original Draft Preparation: MM, Writing—Review and Editing: ZK, Supervision: MM, Project Administration: EI

**Conflict of Interest Disclosures**

The authors declare no competing interests.

**Ethical Statement**

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**Informed Consent**

The present study was carried out after obtaining informed consent.

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