

Frequency of depression, anxiety and stress among participated workers in periodic examinations of occupational medicine centers in Kashan during the 4 month period (2018-2019)

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Abstract

Aims: Mental disorders such as depression, anxiety, and stress are important factors in determining the life quality as well as many social and economic problems in workers' life. The purpose of this study was to determine the frequency of psychological symptoms (depression, anxiety, and stress) among the examined workers in the periodic examinations of the medical centers of Kashan County during the 4-month period in 2018–2019. **Materials and Methods:** This cross-sectional study was conducted randomly on 154 workers examined in different industrial towns of Kashan County (5 areas). Data were collected using a DASS-42 questionnaire. Data were analyzed using SPSS 16 software, using Chi-square and Fisher's exact tests for qualitative variables and *t*-test and ANOVA test for data analysis of quantitative variables. **Results:** The symptoms of depression, anxiety, and stress were 18.83%, 33.12%, and 18.74%, respectively, in the present study. Moreover, the comparison of depression, anxiety, and stress with demographic variables showed a significant relationship between education level, employment type, and sex ($P < 0.050$). **Conclusion:** According to the results, workers' anxiety symptoms were more than depression and stress. Hence, it is essential to plan to identify such disorders in the workers to implement educational interventions and empowerment of these worthy people to increase mental health in the workplace.

Keywords: Anxiety, depression, psychological, stress

INTRODUCTION

Efficient workforce plays a pivotal role in organizations and achieving organizational goals which can only be accessed through a high-quality workforce.^[1] Hence, paying attention to the needs of employees, providing mental and physical health and Their satisfaction, are required for achieving the goals of organizations.^[2] The job potentially has a positive impact on a person's mental health, job security, and time management.^[3] Mental health problems of workers can impair their performance and cause increased absenteeism, decreased efficiency as well as costs related to solving such problems.^[4]

Psychological symptoms comprise 13%–14% of the total burden of disease worldwide. Depression is one of the major medical and social issues of the day.^[5] Around the world, about 350 million people of all ages suffer from depression, and each year, more than 800,000 people die due to depression.^[6] Almost 15% of the total population experience a period of major depression at some points of time in their lives, and

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by 2020, it is estimated that depression is the second most common cause of illness in the world.^[5] Another psychological symptom is anxiety, which can affect workers' job performance and turn their work environment into an unhealthy one.^[7] Depression and anxiety are the most common psychological disorders, with a prevalence of 10%–20%/year in the general population.^[8] Moreover, occupational stress, if it has been excessive, can lead to physical, psychological, and behavioral complications for the individuals and endanger their health.^[3,9] In 1992, the United Nations declared occupational stress as the disease of the 20th century, and later, the World Health Organization (WHO) introduced it as a common problem over the world. The International Labor Organization declared the cost of occupational stress in countries 1%–3.5% of the gross domestic product. The family physicians' association also reported that approximately two-thirds of cases examined at work had symptoms of stress.^[10] Decreased motivation for physical activity and exercise,^[11] the effect on staff health,^[12] and cardiovascular diseases^[13] can be mentioned as complications resulted from the persistence of psychological disorders. According to the WHO reports, most of the mental disorders are preventable.^[14] Different studies stated that lack of social justice, unreasonable discrimination,^[15] unsafe jobs, inappropriate behavior against workers, environmental incompatibility, illiteracy, insufficient income, tension, high working pressure, and high workload^[16] are correlated to psychological disorders. Besides, occupational factors, group factors, organizational factors, conflict of work and life, and relationships with colleagues may also affect these disorders.^[14] The results of a study about workers at the Tehran Oil Refinery reported that depression symptoms of workers are 43%.^[17] A study of Khandan and Koohpaei indicated that 0.88% of workers in the printing Qom industry are in unsuitable condition regarding their depression.^[12] In a study in Bangalore, Rao and Ramesh showed that anxiety and stress were 36% and 18%, respectively.^[18] Lee *et al.* reported that depression symptoms among male workers in South Korea are 44.3%.^[19] Identifying and investigating such disorders in workers, in addition to preventing their incidence and symptoms, can play a more effective role in maintaining and promoting the mental health of workers and increasing efficiency. Therefore, the present study aimed to determine the frequency of depression, anxiety, and stress symptoms among the workers examined in the periodic examinations of occupational medicine centers of Kashan County in 2018–2019.

MATERIALS AND METHODS

This cross-sectional study was performed on 154 workers examined in periodic examinations of Kashan medical centers in 2018–2019. The sampling method was simple random sampling from different industries of Kashan County in 5 areas. In this study, by considering 95% confidence and 2% accuracy in estimating sample size, the required sample size was 162. Among these samples, six questionnaires were not returned and two were incorrect and incomplete that were excluded

from the study. The response rate was 95.1%. Questionnaires were randomly assigned among the workers examined in each industry to complete. After necessary coordination with the centers of occupational medicine and industry in different towns of Kashan and explaining the objectives of the study, the method of its implementation was obtained. In accordance with ethics and confidentiality, all participants were informed about the basics and objectives of the study, data confidentiality, and anonymity of the questionnaires.

Research tools

During this investigation, data were collected using a two-part questionnaire: part 1: demographic information questionnaire including gender, age, work experience, education, employment status, and marital status and part 2: standard mental health screening questionnaire of depression, anxiety, and stress (DASS-42) containing 42 questions based on three subscales of depression, anxiety, and stress and each subset containing 14 questions.^[20] To complete the questionnaire, every individual should determine the status of a mark over the past week and answer each of the DASS subscales that each final score is obtained by summing the scores of its questions. Each question was scored from zero (does not apply to me at all) to 3 (absolutely applies to me). Then, the sum of the scores was calculated for each individual and classified from normal to very severe status. In this study, normal and mild cases were classified into one group as normal. The calculation of the percentage of mental disorders includes mild-to-moderate cases. In a study in Iran by Asghari *et al.* (2008), the validity and reliability of this tool were thoroughly evaluated. The reliability of the questionnaire by Cronbach's alpha was also reported 0.93 for depression subscale, 0.90 for anxiety subscale, and 0.92 for stress subscale.^[21] Data were analyzed by SPSS ver 16 (SPSS Co, Chicago, ILL, USA) and using Chi-square and Fisher's exact tests for qualitative variables and *t*-test and ANOVA for quantitative variables. Multivariate linear regression analysis was used to eliminate and control the effects of probable confounding factors, and $P < 0.05$ was considered statistically significant.

RESULTS

In this study, 154 individuals were studied. Among these individuals, 119 (77.3%) were male and 74% had <10 years of work experience and 81.2% were married. In terms of education level, 97 (63%) had a diploma and the others had a university degree. Most of the individuals were older than 40 (57.2%) and most were contractual (95.5%). In the present study, the rates of depression, anxiety, and stress were 18.83%, 33.12%, and 18.74%, respectively. The frequency of moderate-to-severe depression of formal workers (57.1%) was higher than contractors (17%).

There was a statistically significant relationship between depression and type of employment ($P = 0.002$), but no significant relationship was found between depression with demographic and occupational variables ($P > 0.05$). The

frequency of anxiety at the moderate and severe levels of formal workers (85.7%) was more than contractual (30.6%), and the relationship between anxiety and type of workers' employment was significant ($P < 0.001$), whereas there was no significant relationship between anxiety and other demographic and occupational information. In addition, the frequency of moderate and severe stress in workers with more than 10 years of work experience was 32.5% and 14%, respectively, which was statistically significant ($P < 0.036$). The frequency of stress in workers with a diploma (11.3%) was higher than that of a university degree (1.8%). This relationship was statistically significant ($P < 0.001$) [Table 1].

The comparison of mean scores of depression, anxiety, and stress showed that the rate of these disorders in women is higher than men and people over 40 years old than other people.

The mean scores of these disorders were higher in workers with more than 10 years of work experience. There was also a significant relationship between work experience and stress ($P = 0.004$). Furthermore, there was no significant relationship between depression and anxiety with work experience ($P > 0.05$). Whereas, the mean scores of psychological disorders in college-educated workers were lower than those of other individuals, and only the relationship between stress and education was significant ($P = 0.002$). In

addition, there was a significant relationship between the type of employment and all three psychological variables. Namely, personnel with formal employment status had more depression, anxiety, and stress than other people. Moreover, the rate of these disorders was higher in married people, but this relationship was not statistically significant [Table 2]. The multiple linear regression analysis indicated that sex, education, and type of employment had a significant effect on the overall score of mental disorders ($P < 0.01$). In other words, male workers have a higher mental disorder rate than female ones. Chart1 shows mean scores of depression, anxiety, and stress in terms of demographic and occupational variables of workers. also mean scores of depression, anxiety, and stress in formal workers was higher.

Contracted workers have more mental disorders than formal ones. Moreover, with the increase in education level, the level of mental disorder of workers decreased significantly [Table 3].

DISCUSSION

Psychological symptoms in this study were higher than men in women, which is consistent with the results of other studies in this field.^[22,23] The frequency of anxiety in the Koohpaie and Khandan study was 30.4%.^[24] The study performed by Lee *et al.*^[19] reported that the rate of depressive symptoms is

Table 1: Frequency of depression, anxiety, and stress levels based on demographic and occupational variables of workers

Variables	Depression			Anxiety			Stress		
	Mild	Moderate	Severe	Mild	Moderate	Severe	Mild	Moderate	Severe
Gender									
Male	100 (84)	15 (12.6)	4 (3.4)	84 (70.6)	23 (19.3)	12 (10.1)	99 (83.2)	13 (10.9)	7 (5.9)
Female	25 (74.1)	6 (17.1)	4 (11.4)	19 (54.3)	10 (28.6)	6 (17.1)	26 (74.3)	4 (11.4)	5 (14.3)
<i>P</i>		0.061			0.331			0.432	
Age (year)									
<39	99 (82.5)	13 (10.8)	8 (6.7)	81 (67.5)	26 (21.7)	13 (10.9)	101 (84.2)	11 (9.2)	8 (6.7)
>40	26 (76.4)	8 (23.5)	0 (0)	22 (64.7)	7 (20.6)	5 (14.7)	24 (70.6)	6 (17.6)	4 (11.8)
<i>P</i>		0.106			0.419			0.369	
Work experience (year)									
<9	96 (84.2)	14 (12.3)	4 (3.5)	78 (68.4)	27 (23.7)	9 (7.9)	98 (86)	11 (9.6)	5 (5.5)
>10	29 (72.5)	7 (17.5)	4 (10)	25 (62.5)	6 (15)	9 (22.5)	27 (67.5)	6 (15)	7 (17.5)
<i>P</i>		0.305			0.133			0.036	
Education									
School	75 (77.3)	14 (14.4)	8 (8.2)	61 (72.5)	20 (20.6)	16 (16.4)	70 (72.1)	16 (16.5)	11 (11.3)
University	50 (87.7)	7 (12.3)	0 (0)	42 (73.7)	13 (22.8)	2 (3.6)	55 (96.5)	1 (1.8)	1 (1.8)
<i>P</i>		0.139			0.212			0.001	
Employment status									
Formal	3 (42.9)	4 (57.1)	0 (0)	1 (14.3)	2 (28.6)	4 (57.1)	1 (14.3)	2 (28.6)	4 (57.1)
Non formal	122 (82.9)	17 (11.6)	8 (5.4)	102 (69.4)	31 (21.1)	9 (9.5)	124 (84.3)	15 (10.2)	8 (5.4)
<i>P</i>		0.002			<0.001			<0.001	
Marital status									
Single	24 (82.8)	5 (17.2)	0 (0)	21 (72.4)	7 (24.1)	1 (3.4)	23 (79.3)	5 (17.2)	1 (3.4)
Married	101 (80.8)	16 (12.8)	8 (6.4)	82 (65.6)	26 (20.8)	17 (13.6)	102 (81.6)	12 (9.6)	11 (8.8)
<i>P</i>		0.528			0.509			0.414	
Total	125 (81.17)	21 (13.64)	8 (5.19)	103 (66.88)	33 (21.43)	18 (11.69)	125 (81.17)	17 (11.04)	12 (7.7)

Table 2: Mean and standard deviation of depression, anxiety, and stress scores based on demographic and occupational variables of workers

Variables	Depression		Anxiety		Stress	
	Mean±SD	P	Mean±SD	P	Mean±SD	P
Gender						
Male (n=119)	7.15±5.7	0.002	6.97±6.05	0.023	7.7±6.24	0.096
Female (n=35)	10.77±7.2		9.77±7.23		9.77±6.96	
Age (year)						
<39 (n=120)	7.94±6.41	0.904	7.44±6.56	0.542	7.62±6.25	0.046
>40 (n=34)	8.09±5.69		8.2±5.96		10.12±6.83	
Work experience (year)						
<9 (n=114)	7.43±5.76	0.068	7.11±5.8	0.106	7.3±5.72	0.004
>10 (n=40)	9.52±7.3		9.02±7.85		10.12±6.83	
Education						
School (n=97)	8.68±6.71	0.051	8.44±7.11	0.02	9.42±7.08	<0.001
University (n=57)	6.77±5.19		6.19±4.75		6.05±4.49	
Employment status						
Formal (n=7)	13.86±5.64	0.01	14.28±5.47	0.005	19.28±7.32	<0.001
Non formal (n=147)	7.7±6.15		7.3±6.3		7.64±5.92	
Marital status						
Single (n=29)	6.8±5.35	0.26	6.24±5.21	0.203	7.37±6.07	0.406
Married (n=125)	8.25±6.42		7.93±6.65		8.4±6.53	

SD: Standard deviation

Table 3: Multiple linear regression coefficients of different factors on mental disorder variables of workers

Variables	Standard coefficient		T	Significant
	Coefficients	SE of coefficient		
Constant	57.81	14.904	3.42	0.001
Gender (male)	12.26	3.336	3.675	0.001
Age (year)	-3.67	2.284	-1.607	0.11
Work experience (year)	6.137	3.881	1.581	0.116
Education	-5.715	1.608	-1.581	0.001
Employment status (formal)	22.824	6.775	-3.369	0.001
Marital status	2.172	3.656	0.594	0.0553

SE: Standard error

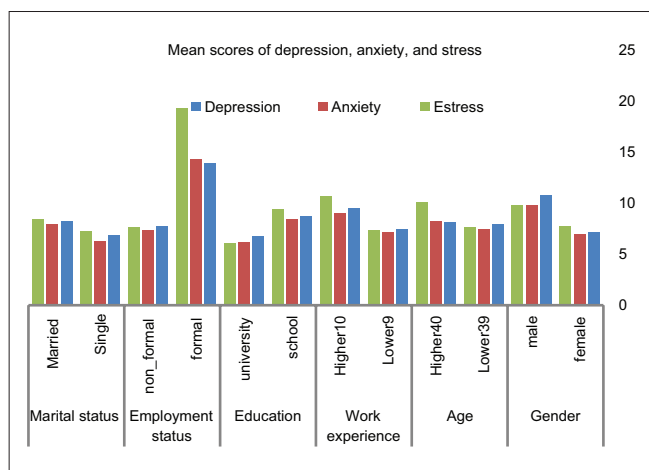


Chart 1: Mean scores of depression, anxiety, and stress in terms of demographic and occupational variables of workers

44.3%, which was lower than our results. This difference may be due to the different characteristics of the study populations.

The prevalence of depression and anxiety in the study of Zare *et al.* was 10.3% and 34.63%, respectively,^[25] which is less than the result of the present study. This difference can be due to different sample sizes and different collection tools. The research by Khandan and Koohpaei^[12] that carried out in workers in the printing industry with poor mental health showed a significant statistical relationship between age and stress. However, the relationship between depression and anxiety with age was not significant, which requires a larger statistical population. This is consistent with the findings of similar studies.^[10,26,27] Whereas, it is inconsistent with the study of Khajehnasiri *et al.*^[28] and Salehi's study.^[29] In Soori's study,^[30] there is a direct relationship between age and psychological symptoms that are consistent with the

present study in terms of stress, but contradicts the findings of Molazem *et al.*^[31] and Ali Morrowatisharifabad *et al.*^[7] Totally, it can be said that there is a linear link between getting older and psychological symptoms even with the increase in work experiences, so more attention and care are needed.

Moreover, there was a significant relationship between the level of stress and anxiety with the level of education, which decreased with increasing the level of education. This finding is consistent with the study of Ali Morrowatisharifabad *et al.*^[7] but is inconsistent with the studies of Soori *et al.* and Lotfizadeh *et al.*^[32,33] In the present study, there is a significant association between stress and work experience. This finding is in line with the results of the study of Malakouti *et al.*^[10] On the contrary, it is inconsistent with the results of the investigation of Ali Morrowatisharifabad *et al.*^[7]

Furthermore, Khajehnasiri *et al.* observed a significant link between work experience and depression in their study, which has not corresponded with the results of our study.^[28] This may be because of different sample size and data collection tools. In this study, although there was no significant association between marital status and psychological disorders, depression, anxiety, and stress were higher in married people than single ones. These findings can be justified by concerns about the life and economic issues of married people. Married people are usually older than single individuals, and subsequently, their work experience is long and their type of employment tends toward formal employment. Thus, it can be stated that there is no directional association between marital status and psychiatric disorders, whereas mediated variables, including age, work experience, and type of employment, play a role among them. The results of the present study have corresponded with the study of Soori *et al.*^[30] However, our results were against the result of Alipoor *et al.*'s study.^[26] In general, it can be stated that rapid industrialization increases the risk of psychological symptoms such as depression, anxiety, and stress. Exposure of workers to various chemical and physical disadvantages in the workplace causes these symptoms. Anxiety was one of the most studied cases that were reported more than depression and stress. Anxiety has a direct relationship with stress and the physical environment of the occupation, so it can be a threat to the health of workers. Stressful physical factors in the workplace result in mental pressure on workers, which can cause tension and stress.

Limitations

There is a possibility that some of the workers may have not answered the questions honestly, which is very important in understanding the emotional and psychological problems of individuals. For improving these limitations, it is recommended to employ interviews with a psychologist and use clinical diagnosis as well as combinatorial methods for providing a more appropriate analysis in future studies.

CONCLUSION

The prevalence of psychological disorders in this industry is relatively high. Regarding significant relationship anxiety and

stress with education level, can improve their anxiety and stress by changing type of employment of workers and increasing their education levels.

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Conflicts of interest

There are no conflicts of interest.

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