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The Mental Health and Social Support in Bafq's Miners

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Abstract

In this paper the levels of mental health and social support of miners and their correlaition with demographic characteristics of these miners are investigated. Methodology: It is a descriptive, cross-sectional study conducted on 250 miners. The required data was collected using 28-itemgeneral health questionnaire (GHQ28) and Multidimensional Scale of Perceived Social Support (MSPSS), besides items on demographic characteristics and job satisfactions. Findings: It was indicated that for 38% of miners, the mental health was at risk, and there was a significant positive correlation between mental health of miners and social support ($P<0.001$, $r=0.251$). The mean score of job satisfaction was 3.39±1.72. Results revealed that educational background, income level, job experience, and types of employment were not significantly different from mental health status. These variables were not also significantly different from the mean score of social support. However, the level of job satisfaction significantly correlates with general health status ($P<0.001$, $r=0.35$) and the level of social support ($P<0.05$, $r=0.376$).Conclusion: although the level of social support of workers seemed relatively good, their mental health status indicated a lower level, compare to other studies, which requires more investigation. The present study also confirmed the correlation between the levels of mental health and social support.

1. Introduction

World health organization defined health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, and emphasized that all dimensions are of the same importance. In the past, since the main focus was on the health problems such as Infectious and contagious diseases, little attention was paid to mental health[1]. In 1998, W.H.O. reported that there are 11.5% mental health problems in the world. As figures show, it seems that these mental disorders may reach 15% by 2020, that is, anxious and disappointed people will cause many problems in societies, so the global society has many things to do in order to improve individuals and social well-being[2]. Reviewing literature on the mental health status of Iranian individuals aged 15 years and older, it was revealed that 21% of people, on average, suffered from mental disorders[3].

Epidemiological studies conducted on mental disorders indicated that their prevalence

ranged from 11.9 to 30.2[4, 5]. Mental stress causes widespread damages and heavy costs for every person and organization. Stress at workplaces leads to less efficiency and more absence of laborers, training new laborers to occupy the position of those who lost their jobs due to mental disorders, imposes heavy costs on organizations and companies[6].

Researchers in many studies reported that there was a more strong and basic correlation between social support and mental health, among different mental and social variables[7]. Social support refers to the levels of love, sympathy and attention devoted to one person[7-9] social support offered by friends, family and significant others leads to less mental pressure, and consequently better mental health status [7, 9, 10]. Lack of social support is known as a source of stress[7]. There was a negative correlation between depression and social support. Even people suffered from cardiovascular diseases, had lower social support and metal health[11].

Social support was considered as an adjustment source in stressful situations[12], including an interpersonal exchange between friends, colleagues, and even managers which was informal, bilateral, and useful[13]. Social support is a protective factor buffering an individual from the effects of stress in the workplace and acts as a safety valve for the tensions that build up at work [14] and may lead to mental health. Usually those who enjoy more social support, have a better mental health[7].

Mental and physical problems among workers of industrial units are among problems of the industrial sector and there is evidence for the workers' vulnerability, particularly miners, in this regard[15]. Specific situation at mines, regarding the workplace and work, makes the miners as the more vulnerable workers of the industrial sector [16].Concerning the importance of mental health of miners, the present study investigated the level of mental health and social support among miners in Bafq. Iron Ore Mine of Bafq is located in Yazd. The population of Bafq is around 40000 among which 10000 are employed and most of the men in the town worked in iron ore mines. Since the town is located within a desert and is far from other cities, iron ore mines are the main working opportunities for the workers of Bafq.

2. Methodology

This research was a descriptive, cross-sectional study and the statistical population includes all the workers who worked at least a year ago at mines.

Based on statistical formulas, a sample population of 250 out of a total 700 workers was decided to be the appropriate sample size. Then, for each part, a number of samples were assigned in proportion to its number of workers. The samples of each part were selected randomly from the worker's list. Ensuring them to remain anonymous and keep the information confidential, those workers who were agreed, filled the questionnaire. Moreover, the topic of study and the questionnaire were accepted by the Ethical Committee of the Shahid Sadoughi University of Medical Sciences.

To collect data, a questionnaire was used including 28-item General Health Questionnaire, 12-item social support inventory, 1 item on job satisfaction, and some items on demographic characteristics such as age, educational level, residency, income, employment, work shifts, and house ownership.

To estimate workers' general health, 28-GHQ was used. This questionnaire is a well-known instrument of screening in psychiatry, used to identify non-psychotic mental disorders in different situations, and predicting possible disorders [3, 7, 17]. The validity of the questionnaire was confirmed in previous studies [18-21].

The 28-GHQ includes four subscales of somatic symptoms, anxiety, social dysfunction, and depression. Concerning reliability, it was reported as 83% for total scale, as 85% for somatic symptoms, as 87% for anxiety, as 91% for depression, and as 79% for social dysfunction. Items were scored as a four-point Likert Scale, ranging from 0 to 3; therefore, total score were from 0 to 84. The cut-off point was 23, that is, scores higher than it showed that mental health is more at risk. Concerning scores of the four subscales, ranging from 0 to 28, the cutoff point was 14, scores higher than which were considered as the indicators of mental disorders.

Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure the level of social support. This scale included 12 items which estimate three factors of Perceived Social Support from family (4 items), from others (4 items), from friends (4 items). All items were scored based on a five-point scale, from 1 to 5 (very agree, agree, no idea, disagree, very disagree). The lowest score was 12 and the higher was 60. The internal reliabilities of the items of the scale, using Cronbach's Alpha reliability coefficient, were 91%, 89%, and 91%, respectively [22].

In Iran, after translation of the questionnaire by Masoudnia and comments of psychologists to normalize the scale, main aspects analysis on 12 items was conducted. The internal reliability coefficient for three aspects were calculated, using Cronbach's alpha as .78, .81, .87. [32]. In our study, the Cronbach's alpha coefficient for these aspects were .80, .78, .81; respectively.

To measure job satisfaction level, one three-point question [1-3] (little, average, much) were used. The collected data were analyzed by SPSS 16 software. Finally based on data distribution, parametric tests were used, and Pearson Correlation Coefficient, Chi-Square, T-test, ANOVA, and Regression analyses were operated.

3. Results

Among 250 miners participated, 50% aged less than 35 years and 40% had less than 10 years of work experience. 38% less than 8 million Rials, 82% between 8 to 12 million Rials, and 10% had earned more than 12 million Rials per month. Concerning educational background, 60% of workers

had Diploma or less, 15% had Foundation degree, and 13% had higher education. 86% of participants were native residents. 71% were house owners. 52% were permanent employees and 72% had worked on shifts. Results revealed that 62.8% of workers were mentally healthy. In terms of somatic symptoms, anxiety, social dysfunction, and depression, 92%, 91%, 94% and 97%, respectively, were in a good condition.

The mean score of general health among workers was 19.40 ± 12.30. The highest and lowest scores belonged to social dysfunction and depression, 6.88±3.40 and 1.95±3.28, respectively. 93% of the workers obtained more than 50% of the maximum score of social support. The highest score among different aspects of social support was obtained by support from family (16.69±2.92). The mean score of job satisfaction was 3.39±1.72. (Table 1)

There was no significant correlation between social support and demographic factors including educational background, work experience, income, type of job and employment, and house ownership. The correlation between general health mean score and job satisfaction was meaningful (p<.001). The social support mean score significantly correlated with job satisfaction (p<.05) (Table 2)

Table 1. *Mean and standard deviation of general health, social support, and job satisfaction among workers.*

variables	Min	Max	M	SD
Total GHQ–28	0	75	19.40	12.30
Somatic Symptoms	0	22	5.16	4.26
Anxiety	0	21	5.33	4.24
Social Dysfunction	0	26	6.88	3.40
Severe Depression	0	18	1.95	3.26
social support	12	60	46.84	7.42
friend support	4	20	16.69	2.92
family support	4	20	15.07	2.76
Significant other support	4	20	15.08	2.63
Job satisfaction	0	15	3.39	1.72

Table 2. *Mean and standard deviation of general health and social support among workers based on their demographic characteristics.*

general health and social support / demographic characteristics	GHQ			social support		
Educational Background	M	SD	P	M	SD	P
≤12	18.46	10.16		46.75	7.26	
13-14	20.91	16.78	0.277	45.97	10.18	0.597
≥15	22.28	11.73		47.84	5.96	
Work Experience						
≤10 years	19.46	13.10	0.968	47.61	6.46	0.186
>10 years	19.37	11.78		46.34	7.98	
income						
≤800	19.14	21.26		46.88	7.00	
810-1200	20.20	13.27	0.362	46.56	7.84	0.577
>1200	16.09	10.54		48.29	6.70	
Type of job						
In shifts	19.83	12.71	0.392	179	46.71	0.392
Regular working hour	18.23	11.26		69	47.60	
Employment						
permanent	20.21	12.04	0.364	47.27	6.59	0.391
contract	18.48	12.73		46.45	8.20	
House ownership						
owner	18.88	11.74	0.192	47.38	6.62	0.154
renter	21.46	14.44		45.80	9.36	
Job satisfaction						
little	28.67	17.19		46.17	10.08	
average	17.72	8.75	0.000	46.09	6.38	0.057
much	13.08	13.08		48.77	6.19	

Table 3. *Correlation matrix for general health and social support and job satisfactionamong workers.*

	variables	GHQ	SS[1]	AI	SD	D	SS[2]	S Fr	SSO	S FA	JS
1	GHQ	1									
2	SS[1]	r=0.828**	1								
3	AI	r=0.890**	r=0.716**	1							
4	SD	r= 0.707**	r=0.409**	r=0.499**	1						
5	D	r=0.723**	r=0.425**	r=0.551**	r=0.397**	1					
6	SS[2]	r =-0.376**	r=-0.244**	r=-0.277**	r=-0.334**	r=-0.365**	1				
7	SFr	r =-0.267**	r= -0.168**	r= -0.179**	r=-0.227**	r=-0.293**	r=0.870**	1			
8	SSO	r =-0.381**	r=-0.248**	r= -0.288**	r=-0.330**	r=-0.389**	r=0.921**	r=-0.691**	1		
9	S FA	r =-0.371**	r= -0.242**	r= -0.282**	r=-0.348**	r=-0.297**	r=0.888**	r=0.618**	r=0.780**	1	
10	JS	r = -0.357**	r= -0.383**	r= -0.282**	r=-0.160*	r=-0.321**	r=0.160*	r=0.108*	r=0.134*	r=0.189*	1

SS[1]Somatic Symptoms; AIAnxiety/Insomnia; SDSocial Dysfunction; DSevere Depression; T Total GHQ–28 score; SS[2] social support;
SFr friend support ; SFa family support; SSO significant other support; JSJob satisfaction**P <0. 001*P <0.05

All variables of general health and its subscales and social support and its subscales significantly correlated with each other (P<.05) (table 3)

According to linear regression, job satisfaction was the best predictor of general health and depression was the best predictor of social support.

Table 4. *Linear regression analysis to predict general health based on independent variables.*

Dependent variables	Adjusted R^2	F	Direction of effect	Beta	P
GHQ	0.235	17.923	Job satisfaction	-2.155	0.000
			Significant other Support	-0.925	0.042
Social support	0.163	9.553	Social Dysfunction	-0.461	0.004
			Severe Depression	-0.630	0.000

4. Discussion

Nowadays, all people experience mental pressure and stress in their life, and consequently try to confront them. Most of the studies focused on the useful effects of social support on health and well-being, which showed the protective effects of social support against stress[23]. The hypothesis of this study was as follows: there is a significant correlation between general health and social support among miners in Bafq. The results revealed that the mean score of mental health, considering its four subscales, was in a good level. However, regarding mean score of total mental health, 37% of workers were at risk. It seems a very high percentage, compare to the mental health of Iranian population. Although the previous studies were somehow limited, the findings suggested that the level of mental health among Iranians ranged from 11.9% to 30.2% [4, 5, 24, 25].

A study on mental health among Iranian aged 15 and more showed that 21% of them were suspected to suffer mental disorders[26]. However, studies similar to the current paper showed that concerning mental health, 38% of workers in industrial sector were at risk[25]. One reason behind these diverse results is the difference between the type and place of living and work [25, 27].In industrial and technical centers, because of noises, open space, inappropriate light, and risky conditions, workers' mental health was lower [28]. In another study, while the working conditions of workers were relatively the same, the mental health of workers of the industrial sector was less than others[27].

This study indicated that subscale of depression obtained the lowest mean score. It seems that workers in this study, who were mostly native residences, because of their culture, beliefs and fair income, were less depressed. Results showed that the mean score of depression was noticeably lower than the mean score of social dysfunction. In a study by Goldberg and Hiller[29], the mean score of social dysfunction was more than depression's mean score, and in some studies depression symptoms played an important role [5, 19, 30, 31]. Depression and anxiety were the prevalent disorders based on Noorbala and Halvani [3, 32]. Goldberg believed that different results was not a sign of inappropriateness of GHQ, since the factor structure of samples should not be necessarily similar[29].

However, the relationship between social support and depression was seen in this study. More social support may reduce effects of stressful events and depression [9]. A meta-analysis revealed that the correlation between mental health and social support, in Iran, was more than average[10]. Our findings also indicated that those workers, who had enough social support, were mentally healthier. There was a significant and negative correlation between mean scores of anxiety and sleep disorders, depression, and social dysfunction and mean score of social support. Therefore, increasing social support will reduce anxiety, depression, and social dysfunction. In other studies, such a relationship between social support and mental health was confirmed[33, 34]. Social support has been identified as a main predictor of workers' general health, so the better and broader the social support network was, the better the mental health was [7]. No significant correlation was seen between mean score of general health and shift work or regular hours work. Probably the fact that more than 70% of participants were shift workers is a reason behind this finding. However, mental health among shift workers was less than those who worked in regular work hours. Poor mental health among those working on shifts was confirmed in previous studies [32, 34-37]. There was no significant relationship between mean score of social support and shift work or regular hours work[34].

In the present study, the difference between educational background and mean score of general health was not significant [4, 32, 38]. However, the more educational level, the more was mean score of general health. It may be said that as revealed in some studies, more education led to more expectation and consequently the mental health of individuals would be at risk[31, 39]. There was no significant difference between mean score of social support and educational background of workers, but as their educational level was higher, the social support was more. The highest level of social support belonged to those who were received Bachelor's degree or higher. Although the higher the education, the more the mental challenges, higher education leads to a better social status and consequently more social support.

In this study, contrary to some others[25, 31], there was no significant difference between mean score of mental health and job experience. Maybe, other variables affected the mental health of workers. The same was true about the relationship between social support and job experience. In this study social support depended on other variables.

In some studies, there was a positive correlation between

income and mental health [9, 32], but in this paper, no significant difference was seen between workers' income and mean scores of mental health and social support. It should be mention that the income levels of most of the workers were relatively similar.

House ownership, concerning the particular culture and lifestyle of this region, is one of the main priorities of marital life. It can also affect individuals' mental health[9]. Although the difference between mean score of mental health and social support and house ownership was not significant, those workers who owned a house had better mental health and more social support.

Type of employment (permanent or contract) and its relationship with mental health was reported as significant in another study[32], but not significant in current paper. Probably, type of employment was a less effective factor on mental health, compare with other variables.

The level of job satisfaction, which was measured by one item, was very low among the workers. Since only one item was used, it is not possible to analyze this dissatisfaction clearly and in details.

Findings of this study indicated that there was a direct and negative correlation between the mean score of general health and job satisfaction, that is, the higher the job satisfaction, the better the general health. The relationship between job satisfaction and decreasing anxiety, depression, social dysfunction, and Somatic Symptoms seems logical. In this study the relationship between social support and job satisfaction was significant, which was similar to other studies' results[32, 40].The job satisfaction had a direct and positive correlation with social support, the higher social support, the more job satisfaction. Job satisfaction accompanied by good internal and emotional feelings toward one's job [41].

Analyzing the predictor of mental health among workers, social support from significant others and family were the best. These results, similar to some other studies [32, 33, 42]among different factors which may affect the mental health, revealed that social support and job satisfaction are the best predictors of mental health. Concerning social support, depression and social dysfunction, which were subscales of mental health, were the best predictors.

Generally, it can be concluded that, in spite of limitations of this study in terms of Generalization, because of particular characteristics of workers in the study area, although most of them favored a good level of social support, it is necessary to investigate 38% of workers whose mental health was at risk. Moreover, job satisfaction was very low. Since the measuring method was very limited for job satisfaction, further studies are needed.

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