

1 Burnout and Social Support in Bafq's Miners

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6

7 **Abstract**

8 Concerning the nature of mining, miners are more likely to suffer from different damages
9 including burnout, which may damage the organization, besides its physical and mental
10 damages to individuals. Social support and job satisfaction, on the other hand, can decrease
11 burnout in the workplace. The present paper aims to identify the level of social support, job
12 satisfaction and burnout among miners. Methods: This investigation was a descriptive and
13 analytical, cross-sectional study. 250 out of 700 miners working at Bafq's Iron Ore Mine were
14 selected randomly to participate in this study. To collect data, Maslach Burnout Inventory
15 (MBI) and Adolescent Family Caring Scale (AFCS), besides some items on demographic
16 characteristics and job satisfaction were used. The collected data were analyzed using SPSS
17 Software, version 16, operating descriptive analysis and Pearson Correlation Test, T-test, and
18 Regression analysis. Findings: The mean age of miners was 34.73 ± 6.83 . 90

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20 **Index terms**— burnout, social support, job satisfaction, miners, workers.

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24 characteristics and job satisfaction were used. The collected data were analyzed using SPSS Software, version
25 16, operating descriptive analysis and Pearson Correlation Test, T-test, and Regression analysis.

26 Findings: The mean age of miners was 34.73 ± 6.83 . 90% of them were married and native residents. More than
27 70% of the subjects had mild emotional exhaustion and depersonalization, however, reduced sense of personal
28 accomplishment was severe among more than 70% of workers. There was a significant correlation between burnout
29 level and social support and its three dimensions $P < 0.05$. The social support level was good enough among over
30 80% of the workers, besides, more than 58% of them reported more than average job satisfaction. There was
31 a significant correlation between job satisfaction and burnout level ($p < 0.05$). According to linear regression
32 analysis, house ownership and job satisfaction were the best predictors of burnout.

33 **1 I. Introduction**

34 Work in mines is one of the most dangerous jobs, all around the world. Among different jobs, accidents, especially
35 those leading to death, happen in mines (1). Figures showed that 10% of accidents are due to hardware problems,
36 while 90% happen because of problems of human forces. It is proved that working in mines causes different
37 diseases and studies revealed that miners' life expectancy was considerably shorter than that of other workers
38 (2). Nowadays, different mental and emotional pressures in job environment cause stress among people. Factors
39 such as role confusion, lack of social support, and organizational changes, if continued, may lead to burnout (3).
40 Burnout affects the individual, as well as his/her organization, and in a longer period of time may affect the
41 society (4).

42 It is estimated that an average of 37 million workdays are lost due to mental disorders, neurological problems,
43 and headache; and in many cases, burnout caused absence and workday loss (5). Scholars have defined burnout

2 II. METHODS

44 differently. Freuden Berger was the first one who defined this term in late 1960s. He had seen symptoms of
45 exhaustion among his staffs and called it the staff burn out syndrom (6). The first one suffering from depression
46 is the individual him/herself. Unsuitable work condition, thinking to be inefficient in the organization, lack of
47 personal development and few opportunities to promote in the organizational hierarchy system are among factors
48 causing burnout (7).

49 Burnout refers to the state of physical and mental exhaustion and lack of motivation which may causes absence,
50 workday loss, and decrease in motivation, and in some cases leads to physical disorders and cardiovascular
51 dysfunction (8).However, social support is introduced as a useful adjustment recourse to manage stressful
52 circumstances in workplace and is known as a reducer of bad stressful effects of workplace (9)(10)(11). Social
53 support refers to the interpersonal interaction with friends, colleagues, managers and other people which may
54 include mutual, informal, automatic and useful exchanges (12). Job satisfaction is defined as the indicator of the
55 level of interest in the job and enjoying doing that (13).

56 Some studies revealed that human services jobs caused burnout (15). However, it seems that research on
57 miners, because of their hard work situation, is also possible. It is noticeable that economically, mines are part
58 of national treasures; therefore, it is important to pay attention to miners' physical health and mental abilities.

59 Concerning the importance and difficulties of mining, the factors which provide the condition for burnout in
60 this workplace, and limited studies done in this regard particularly on miners in Iran, the hypothesis of this study
61 was "the levels of social support and job satisfaction have some influences on miners' burnout". Therefore, it
62 aimed at investigating levels of burnout, social support and job satisfactions among mine workers.

63 2 II. Methods

64 This study was a cross-sectional, descriptive, and analytical study conducted to investigate the burnout, social
65 support and job satisfaction among miners of Bafq. Bafq is a town in Yazd Province, having several iron ore
66 mines. The population of Bafq is around 40000, and 10000, or in other words, most of the men in the town, work
67 in iron ore mines. Since the town is located within a desert and is far from other cities, iron ore mines are the
68 main working opportunities for the workers.

69 The statistical population under investigation included all workers who had worked in mines within the last
70 year. The sample size, based on statistical formula, was estimated as 250 workers out of 700. Then a stratified
71 random sampling was done to select appropriate proportion of workers working in different parts of the mine.

72 Having the consent of mine managers and workers to fill the questionnaire and ensuring them to remain
73 anonymous and keep the information confidential, the selected miners filled the questionnaire. Moreover, the
74 topic of study and the questionnaire were accepted by Ethical Committee of Shahid Sadoughi University of
75 Medical Sciences, Yazd. The questionnaire was categorized into four parts including Maslach22item Burnout
76 Inventory, 12-item social support questionnaire, one question on job satisfaction, and the last part contained 14
77 items on demographic characteristics such as age, educational level, residency, income, employment, work shift,
78 and number of children.

79 Maslach Burnout Inventory (MBI) was introduced by Maslach and Jackson in 1982 to measure burnout
80 rate(??6).This inventory consisted of 22 items which measure three aspects of burnout, 9 items dealt with
81 emotional exhaustion, 5 items measured depersonalization, and 8 items were about reduced sense of personal
82 accomplishment. The frequencies were estimated by scores ranged from 0 to 7 (never, a few times a year, once a
83 month or less, a few times a month, once a week, a few times a week, every day).obtained scores were divided into
84 three categories of low, average, and high. The scoring is reported in table 2. The higher the scores of emotional
85 exhaustion, depersonalization, and reduced sense of personal accomplishment, the higher is the burnout level.
86 Like other studies done in Iran (12,17,18). since the scores of frequency and severity were very similar and
87 related and respondents were unable to distinguish them, The obtained scores of frequency and severity were
88 alike; therefore, only burnout frequency is reported. The reliability of the questionnaire was confirmed according
89 to other studied conducted in Iran (5,(19)(20)(21).

90 To measure perceived social support, Adolescent Family Caring Scale (AFCS) was used (22).This scale
91 contained 12 items which measures three categories of perceived support from family (4 items), from other
92 important people (4 items), and from friends (4 items). All the items were scored from 0 to 5 (strongly agree,
93 agree, no idea, disagree, strongly disagree). The total score of this scale ranged from 12 to 60. In Iran, after
94 translation of the questionnaire by Masoudnia and comments of psychologists to normalize the scale, internal
95 reliability coefficient for three aspects were calculated, using Cronbach's alpha (23). In the present study, the
96 internal coefficient of questionnaire's items, using Cronbach's alpha were .76, .80, .85; respectively.

97 To measure job satisfaction level, a three-point question (1-3) (little, average, much) was used. Demographic
98 questions were about educational level, residency, income, employment, house ownership, and work experience.
99 The collected data were analyzed by SPSS 16, and statistical figures were explained. Finally based on data
100 distribution, parametric tests were used, and Pearson Correlation Coefficient, Chi-Square, T-test, ANOVA, and
101 Regression analyses were operated.

102 3 III. Results

103 Miners' mean age was 34.73 ± 6.83 . Among 250 miners working in the production section, 234 (93.6%) were male.
104 57 (24%) workers had primary education, 97 (40%) had Diploma, and 87 (36%) had university degrees.
105 215 (90%) of workers were native residents and 103 (43%) were permanent employees. 153 (64%) worked in shifts.
106 167 (69%) of them owned personal houses. 174 (84%) of workers had incomes less than 12 75% of miners had mild
107 depersonalization and more than 72% of them had low emotional exhaustion. However reduced sense of personal
108 accomplishment of around 70% of workers were sever. 70% of miners showed average and high job satisfaction.

109 4 Table 2 : Frequency of burnout among miners according to 110 demographic characteristics

111 There was a significant difference between workers' scores on depersonalization and their house ownership $P < .005$.
112 The difference between scores of depersonalization and educational level was also significant. $P < .005$. The
113 burnout level significantly and negatively correlates with three dimensions of social support and job satisfaction.
114 This correlation was negative that is, the more social support and job satisfaction levels, the less was burnout
115 level.

116 The relationship between depersonalization and social support and job satisfaction was significantly negative.
117 However reduced sense of personal accomplishment correlate with job satisfaction and social support, significantly
118 and positively. Based on results of regression analysis, job satisfaction was the best predictors of emotional
119 exhaustion and depersonalization levels. The Reduced sense of personal accomplishment were predicted better
120 by job satisfaction and family support. (Table 4)

121 5 IV. Discussion

122 Based on the findings, mild emotional exhaustion and depersonalization and severe reducedsense of personal
123 accomplishment were shown among miners which was different from some studies (5,24,25)and in accordance
124 with some other (6,12,21,26,27). Although working in offices and organizations in big cities leads to sever
125 burnout (24,25), it seemed that the low level of burnout among 70% of miners is due to cultural, economic,
126 and social characteristics of the majority of workers which caused low burnout in terms of emotional exhaustion
127 and depersonalization , since similarity in economic and social basis of native workers leads to less conflict and
128 tensions and consequently less emotional exhaustion and depersonalization. Experts believe that average and
129 severe emotional exhaustion relates to the role conflict and interpersonal conflicts (6). However, in accordance
130 with other studies, in this study reduced sense of personal accomplishment were severe (6,12,27).these feelings are
131 revealed by lower efficiency and job dissatisfaction, feelings of failure, losing recognition and understanding ability.
132 Success and domination are achieved when the individual can affect the policies of the respective organization,
133 and therefore, show his/her capabilities and will take positive attitudes toward himself/herself and clients (25). it
134 seemed that in this paper, based on the results, lack of positive attitude and feelings of effectiveness in the policy
135 making process of the organization led to lower sense of personal accomplishment. Contrary to some studies
136 in which the higher level of education resulted in lower burnout level (24,25,28). In accordance with another
137 study (29), in the present study, there was no significant difference between miners' educational levels and
138 burnout levels. However, the mean score of depersonalization was significantly different from their educational
139 level. Depersonalization refers to the mental detachment from one's occupation (30) .it can be said that this
140 detachment and negative reaction lessened as the educational level increased. However, since 75% of the workers
141 had associated degree or less. Maybe because of the relative similarity in the educational levels of most of the
142 miners, mean scores of emotional exhaustion and reduced sense of personal accomplishment were not significantly
143 different from educational levels.

144 Mean scores of emotional exhaustion and the miners' work experience were not significantly different. However,
145 greater percentage of workers with less than 10 years of experience, had lower burnout. This finding was different
146 from some other studies' (5,16,31,32) but showed that there was no significant difference between work experience
147 and total burnout scale. Probably, factors other than work experience affected the burnout level of the workers
148 studied (30).

149 In accordance with other studies, the difference between income level and mean score of burnout was not
150 significant (5,26,33). It seemed that income level did not caused higher levels of burnout among the miners, since
151 the income of most of them were similar to each other. While the minimum wage of workers in Iran, determined
152 by the Supreme Labor Council, was 4,300,000 Rials, more than 80% of the workers received between 8,000,000
153 to 12,000,000Rilas.

154 Probably, native workers, considering the living environment in Bafq and relative income satisfaction, were far
155 from severing burnout. Those who had great expectations and got a job full of motivation, hopes and ideals are
156 more likely to suffer burnout (33).

157 As the results showed, 64% of the workers under study worked in shifts and 67% of them were contract
158 employees. Although in some studies the working condition affected burnout (34) in the present study, no
159 significant relationship was seen between the mean score of burnout and type of employment (permanent,
160 contract) and type of working (shift working, regular working hour). It may be said that other factors, different
161 from type of employment and work, influenced the workers' burnout.

6 V. CONCLUSION

162 House ownership at the native residents' point of view is very important, which includes 90% of the workers
163 in Bafq. The effect of house ownership in burnout was shown in this study and those who had a private house
164 experienced lower burnout. Probably, workers in the small traditional town of Bafq, by adherence to their
165 traditions, had less dissatisfaction and burnout. Burnout can be correlated with type of job, job satisfaction and
166 also social life and personal relationship (35,36) Around 75% of the miners had average to high job satisfaction
167 and there was negatively significant correlation between job satisfaction and burnout. The negative correlation
168 of job satisfaction and burnout was also reported by other researchers (4,11). Concerning different factors which
169 make working in mines susceptible to burnout, job satisfaction leads to less burnout among the workers under
170 study.

171 Although some studies did not find any relationships between social support and burnout (13,37), the
172 present study showed the significantly negative correlation of social support with emotional exhaustion and
173 depersonalization. This result showed in other studies (29,(38)(39)(40)and significantly positive correlation of
174 social support with lack of sense of personal accomplishments, that is, the more the social support in the family,
175 the more was the sense of personal accomplishments (11,28,41). Bataineh said that designing support systems
176 are one of the most important factors which increase individuals' resistance against burnout. In fact, Bataineh
177 believed that strong support systems were the bases of professional and occupational promotion in the workplace,
178 and these systems reduce the sensitivity of individuals to burnout, quitting and changing the job (35).One of
179 the best methods to confront psychological pressure is looking for support from reliable members of belonging
180 colleagues, family or social group (9,42). The present study revealed that job satisfaction was the best predictors
181 of burnout; however the determining role of job satisfaction in three aspects of burnout was noticeable.

182 Limitations of the study: one of the shortcomings of the study refers to the similarity of the samples. Most
183 of them were native residents and their demographic characteristics were relatively similar. This may reduce the
184 generalizability of the results. Besides, since job satisfaction is an important factor in determining the burnout
185 level, other studies can be done on it using more valid and standard questionnaires to investigate that.

186 6 V. Conclusion

187 In general, it can be said that relatively lower levels of emotional exhaustion and depersonalization among the
188 workers depends on the environment and social conditions, as well as working conditions. Accordingly, Miners in
189 Bafq had appropriate condition in terms of social support and job satisfaction and consequently lower burnout.
However, the low level of the sense of personal accomplishment should be studied further. ¹



Figure 1:

children. Concerning work experience, 26 (53%) had less than 10 years of experience. The level of workers' burnout depersonalization, and reduced sense of personal accomplishment are reported in

million Rials. 154 (76%) of them had two

in terms of emotional exhaustion,

Figure 2: Table 1 .

frequency of burnout demographic characteristics	Emotional Exhaustion			Depersonalization			P value		
	severe N ??)(%)	moderate N (%)	mild N (%)	severe N %)	moderate N (%)	mild N (%)	severe N %)	moderate N (%)	high N (%)
9	5(9.41)	8(15.1)	40(75.5)	.781	5(9.3)	4(7.4)	45(83.3)	.028	35
By 12	14(14.9)	12(12.8)	68(72.3)		12(12.6)	13(13.7)	70(73.7)		71
By 13	2(7.7)	5(19.2)	19(73.1)		1(3.8)	4(15.4)	21(80.8)		18
?14	9(15.0)	10(16.7)	41(68.3)		3(4.9)	18(29.5)	40(65.6)		39
Educational (year)									
?10 years	2(7.4)	2(7.4)	23(85.2)	.984	0		29(100)	.090	10
>10 years	2(8.3)	2(8.3)	20(83.3)		3(11.5)	1(3.8)	22(84.6)		11
Work experience									
>800	9(9.7)	15(16.1)	69(74.2)	.509	4(4.2)	17(17.9)	74(77.9)	.273	65
810-1200	13(17.1)	10(13.2)	53(69.7)		10(13.2)	13(17.1)	53(69.7)		57
<1200	3(9.1)	7(21.2)	23(69.7)		2(5.9)	5(14.7)	27(79.4)		22
Income (ten thousands Rials)									
shiftwork	19(12.9)	23(15.6)	105(71.0)	.971	16(10.6)	23(15.2)	112(74.2)	.507	102(70)
Regular working hour	11(13.3)	12(14.5)	60(72.3)		5(6.1)	14(17.1)	63(76.8)		55
Type of the job									
permanent	12(12.0)	16(16.0)	72(72.0)	.544	9(9.0)	20(20.0)	71(71.0)	.424	71
contract	16(12.6)	18(14.2)	93(73.2)		13(10.0)	16(12.3)	101(77.7)		85
Type of employment									
?2	7(11.3)	29(19.3)	104(69.3)	.232	16(10.5)	22(14.5)	114(75.0)	.543	105(69)
>2	27(15.7)	4(8.9)	34(75.6)		3(6.7)	9(20.0)	33(73.3)		32
Number of children									
owner	20(12.3)	29(17.8)	114(69.9)	.433	20(12.0)	23(13.9)	123(74.1)		11
renter	9(12.9)	7(10.0)	54(77.1)		1(1.4)	16(22.9)	53(75.7)	.027	47
Emotional Exhaustion (low = <13, moderate = 14-20, high = >21).DP, Depersonalization (low = <4, moderate = >4, high = <8).AP, Accomplishment (low = >34, moderate = 33-29, high = <28).									
N* unequal relate to missing some of item									

[Note: © 2016 Global Journals Inc. (US)]

Figure 3: Table 1 :

6 V. CONCLUSION

3

	dimensions of Burnout, Social Support, job satisfaction	1	2	3	4	5	6	7
1	Emotional Exhaustion	1						
2	Depersonalization		r=0.677**	1				
3	Personal Accomplishment		r= -0.332**	r=-0.206**	1			
4	Friend support		r =-0.196*	r= -.249**	r= 0.194*	1		
5	Family support		*r =-0.199	r= -0.199*	r= 0.196**		r=0.4551*	
6	Other support		r =-0.347**	r= -.308**	r= 0.224**		r=0.700†=0.446**	
7	Job satisfaction		**r = -0.531	r= -.341**	r= 0.438**		r=0.232* =0.136*	r=0.377**

*P<0.05 **p<0.001

Figure 4: Table 3 :

4

	(Constant)	Emotional exhaustion	Depersonalization	Personal accomplishment	Job satisfaction
Friend Support	-.056	-.188	.152		-.013
Family Support	-.179	-.065	.230*		-.008
Others Support	-.688	-.147	.080		.255**
Job Satisfaction	-3.912**	-1.070**	2.213**		

P<0.05 **p<0.001

Figure 5: Table 4 :

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