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A comparative study of burnout and mental health with respect to demographic characteristics of male and female employees in arak refinery

E. Soleimani^{a,*}, A. ShafieAbadi^b, A. Majidi^c

^aIslamic Azad University of Arak .MA in General Psychology.

^bUniversity of Allameh Tabatabai. PhD in Counseling.

^cEducation Bureau of Markazi Province. MA in counseling.

*Corresponding author; Islamic Azad University of Arak. MA in General Psychology.

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ABSTRACT

Stress is part of life, and is generally associated with a constant change in the circumstances one faces. The term "stress" refers to an internal condition caused by a need , exhaustion or lack of consent. A certain level of stress is unavoidable. The purpose of the present study was to compare burnout and mental health according to the demographic characteristics of male and female employees in Arak refinery. The present research is a descriptive cross-sectional study of burnout and mental health with respect to demographic characteristics of male and female employees in Arak refinery. The statistical population was all the male and female employees in Arak refinery from whom 120 male and female participants were selected by using convenience sampling. Measurement tools included Hillier and Goldberg GHQ questionnaires. Burnout was also measured by Maslach burnout inventory questionnaire. In general , we concluded that emotional exhaustion was linked directly to high levels of job demands. The primary determinant of emotional exhaustion, is the organizational pressure on a person. Thus, an employee whose job involves interpersonal contacts is subject to more burnout.

1. Introduction

In the contemporary complicated world, special attention has been given to psychological stress which causes tension and discomfort in human beings. As stress has become inevitable in the life of modern man, it is vitally important for him to look for ways to cope with stress or at least get along with it in order to maintain his health in this ever changing world and to be able to meet his physiological and psychological needs as far as possible (Hartoon, 1993). Burnout can cause problems like quitting and absenteeism and reduced efficiency followed by frequent energy cuts. (Eftekhary, 2002). Workplace stress can affect health and happiness and efficacy of people, as those who are under constant stress, enjoy less health and satisfaction. (Stephen Robbins translated by Parsaeian, 74).

Concepts like health and illness are influenced by the views and theories of the time, so there are a number of definitions of them. Should health be defined as the absence of disease or as the presence of favorable and positive conditions? Indeed, it involves the absence of disease, having a balanced emotional condition, social reconciliation, integrity of character, a sense of comfort, knowing one's environment and etc. (Malekzade 2001). According to the World Health Organization, health and well-being is complete welfare and not sickness, in other words, health is not limited to physical one, it encompasses psychological and social aspects as well. (Khaghani, 2005). Mental health is the basis and foundation of human well-being and performance and cannot be simply described as the absence of mental disorder. So mental health and well-being pervades all aspects of human life. One's family life, relation with children and friends, and even work relationships with other people are all affected by mental health components (Maslach, 2006). Those with lesser anxiety, depression and tension will have better and more efficient performance at work and in life. (Bynaj et al, 2007). Mental health is one of the effective and important features of organizational psychology and human relations. Most recent studies on work-related stress, have revealed the fact that much more common diseases are caused by tension and by absence of consent than by bacteria and viruses (Selye, 1980).

Health and disease are extensively associated with work conditions. According to the International Labor Organization, in 2000, one out of three employees, complained about the incongruity between work and family environments as one of the most important problems of life. (ILO, 2000).

Job burnout is one of the most important occupational hazards that has recently attracted much attention. Job burnout is a term used to describe human responses to the pressures of the workplace and was first introduced in late 1960 by Freudenberg who noticed the symptoms of fatigue in his staff. He called this phenomenon as mental health dementia syndrome. Maslach has defined burnout as a psychological syndrome involving emotional exhaustion, depersonalization, and reduced personal accomplishment (Schaufeli, Maslach and Market, 1994). Emotional exhaustion is quite similar to stress variable including feeling pressure and loss of emotional resources. Depersonalization is the person's negative and callous rejection of those who are usually the recipients of his/her service and refers to the person's negative perceptions (Maslach & Jackson, 1981). Burnout can lead to decreased quality of job performance. Studies show that occupational stress is associated with mental illnesses and relationship problems (Rasouljan, 2004).

Cooper (1990) found that teachers experienced higher levels of anxiety and depression in comparison to other people in society. Jackson and colleagues (1986) (Saberi et al, 2007) have also shown that many of teachers' mental problems such as pain and depression were related to burnout. In another study on job stress and depression among physicians trained in emergency departments in three countries, Australia, England and America, a significant and definite relationship was seen between stress and depression. (Najafi, 1980). Research showed that demographic variables including age, gender, and marital status are associated with work burnout (Maslach & Jackson, 1981). On the whole, we can conclude that different people in different occupational positions reveal individual unique

characteristics. In general, it implies the fact that, rather than an individual phenomenon, burnout is a social phenomenon (Shafi Abadi et al, 2003).

With this in mind, the present study aimed at investigating the effects of burnout on mental health. The present article is a descriptive cross-correlational study of burnout and mental health with respect to demographic characteristics of male and female employees in Arak refinery. The statistical population was all the male and female employees in Arak refinery from whom 120 male and female participants were selected using convenience sampling which is the sampling approach in this study.

2. The measuring instrument

A) the general health questionnaire

Using Hillier and Goldberg GHQ questionnaires (GHQ) the general health of the sample members was evaluated. The questionnaire included four scales of 7 questions, which measured physical symptoms, social dysfunction, anxiety and depression on the basis of a 4-degree scale. In evaluating the reliability of this test, studies show that the sensitivity of the optimal cutting score equals 87% (between 77% to 89%) and moderate specificity is 82% (between 78% to 85%)

B) Burnout Inventory

Burnout was assessed by using Maslach burnout inventory questionnaire. It consisted of 25 questions in which four factors of emotional exhaustion, personal accomplishment, depersonalization and involvement were evaluated. In the questionnaire, each question contained sentences with two scales, one showed the frequency of the variable and the other one indicated the intensity of the variable. Both of them were shown with multi-point scales from which the participants selected one according to their condition. By summing of the scores, a final score was obtained for each factor. It is worth mentioning that scores of the four factors could not be summed up together. Because for some factors higher scores were indicative of burnout (ie, emotional exhaustion) and in some subscales (eg, personal accomplishment) low scores were indicative of burnout.

The reliability of the questionnaire has been reported by Maslach and Jackson (1981) to be 83% for frequency and 84% for intensity. In Iran, Behnia (2000) has obtained MBI alpha coefficient in a sample of 221 subjects as follows:

burnout 87%, depersonalization, 55%, self-accomplishment 83%

The validity of the questionnaire was determined by correlating the scores in this study with the scores of Goldard questionnaire in studies done by Zareie (2000) and Khakpour (2002) with the following results: emotional exhaustion 61%, personal accomplishment 63%, depersonalization 63%.

3. Statistical methods

In the present study, beside using descriptive statistics such as mean, standard deviation, tables, and charts, the hypotheses were examined by Pearson correlation coefficients, partial correlation, and multiple regression analysis, too. Fisher's Z test was used to study the correlations between women and men.

4. Research hypotheses

1. There is a significant relationship between emotional exhaustion and physical symptoms.
2. There is a significant relationship between emotional exhaustion and impaired social functioning.
3. There is a significant relationship between emotional exhaustion and anxiety.
4. There is a significant relationship between emotional exhaustion and depression.
5. There is a significant relationship between depersonalization and physical symptoms.
6. There is a significant relationship between depersonalization and impaired social functioning.

7. There is a significant relationship between depersonalization and anxiety.
8. There is a significant relationship between depersonalization and depression.
9. There is a significant relationship between self-accomplishment and physical symptoms.
10. There is a significant relationship between self-efficacy and impaired social functioning.
11. There is a significant relationship between self-efficacy and anxiety .
12. There is a significant relationship between self-efficacy and depression.
13. Burnout has a different effect on the mental health of men and women.
14. Burnout has a different effect on the mental health of employees with different work experience.
15. Burnout has a different effect on the mental health of employees who work in different shifts.
16. Burnout has a different effect on the mental health of the married and singles.

Table 1
Correlation matrix of variables.

12	11	10	9	8	7	6	5	4	3	2	1	Index
											0/61	Physical signs
										43/0-	0/34*-	Anxiety
										**		Psychosocial functioning
									0/49	0/57	0/34**	Depression
									**	**		
								44/0	0/37	0/58	0/27**	The frequency of emotional exhaustion
								**	**_	**		
							02/0-	16/0	0/16	0/27-	0/32*-	Frequency of personal accomplishment
								-		**		
						29/0	31/0	08/0	0/29	0/24	22*/	Frequency of depersonalization
						**_	**		**	**		
					04/0	32/0	1/0	009/0-	01/0	01/0	06/0	The frequency of involvement
					**	**	**	-	-			
				0/28	4/0	004/0	76/0	19/0	0/24	/37	26/0*	Emotional exhaustion intensity of personal accomplishment
				**0	**	0	**		*_	**0		
			0/28	0/29	23/0	69/0	07/0	04/0	17/0	0/13-	19/0*-	Intensity of depersonalization
			**	**								
		0/1	45/0	0/20	84/0	35/0	24/0*	19/0	31/0	0/3**	27/0**	Intensity of involvement
		3	**		**	**_	*	**_				
	34/0**	03/0**	4/0**	8/0**	24/0*	08/0	110/080/	04	110/	02/0		Intensity of involvement
			**	**	**	**		-0/				
07/0	25/0**	09/0-	3/0	05/0-	160/28/0	48	68	19	88	75**0/		Total mental health score
					**	**0/	**0/	-0/ *	**0/			

Significant at 0/01 **
0/05 Significant at *

4. Results

the results in table I show the regression coefficient obtained in the relationship between emotional exhaustion and physical symptoms, was 27% and significant at 0/01. This means that with 99% confidence, the hypotheses number 1 was confirmed. The correlation between emotional exhaustion and impaired social function was equal to - 0/37. So, we can say with 99% confidence that the relationship between these two variables was reversely significant .In other words, increasing emotional exhaustion,

lowered social functioning, hence the second hypothesis was confirmed. The correlation coefficient between these two variables was equal to $+0.58$ which indicated a positive strong and significant relationship between these two variables at the level of 0.01 . Therefore, the third hypothesis was confirmed. According to the results in table 3, the correlation coefficient between these two variables was equal to $+0.44$ and it was confirmed with a 99% confidence that with increased emotional exhaustion, depression also increased. Hence, the fourth hypothesis was proved.

The relationship between physical symptoms and depersonalization at 0.05 was equal to 0.22 and significant. In other words, changing the component of depersonalization changed stress-related physical symptoms at the same time and in the same direction; hence, the hypothesis number five was confirmed. The relationship between these two components was positively significant at 0.01 and was equal to $r = 0.29$ and the sixth hypothesis was confirmed. The correlation coefficient between the two components of anxiety and depersonalization with 99% confidence was $r = 0.24$. So the hypothesis number seven was confirmed. The correlation between depression and depersonalization components equals $r = 0.18$ that neither at 0.01 nor at 0.05 was significant, thus the eighth hypothesis was rejected. Among the personal accomplishment and somatic symptoms, there was a significant relationship. Between the two components of personal accomplishment and physical symptoms a negative, yet significant relationship was obtained ($p < 0.05$ and $r = -0.32$) in the sense that by increasing personal accomplishment in performing job duties, stress-related physical symptoms reduced and the ninth hypothesis was confirmed. The relationship between personal accomplishment and social function ($r = 0.16$) at 0.05 and 0.01 was not significant and therefore the hypothesis number ten could not be confirmed. A negative significant correlation was found between the two components ($r = 0.27$, $p < 0.01$), thus increasing the sense of personal accomplishment, decreased anxiety and hypothesis number eleven was confirmed. The correlation coefficient between these two components was equal to $r = 0.16$ which was not significant at 0.05 and 0.01 , so the hypothesis number twelve was not confirmed. To examine the 13th hypothesis, at first the correlation between component of burnout and total mental health score was calculated for men and women separately. Then, the difference between these two correlations was tested. However, since the number of women in the sample was less than the number of men, we were not able to compare the correlation coefficient of women ($n = 6$) with men ($n = 109$). If n was big, a small correlation coefficient would be definitely significant. Therefore, 10 male workers were randomly selected and the correlation between burnout and mental health of them was compared with that of female workers. None of the correlation coefficients at 0.05 was significant. Thus hypothesis 13 was not confirmed. To evaluate the fourteenth hypothesis, the partial correlation coefficient was used. In this way the effect of the third variable i.e. the controlled work experience as well as the relationship between the two variables would be clarified. According to the results, the correlation between mental health and frequency of emotional exhaustion equaled 0.45 , which was significant at 0.01 ($r = 0.45$, $p = 0.00$) and the correlation coefficient between intensity of depersonalization and mental health equaled 0.24 , which was not significant ($r = 0.24$, $p = 0.03$). With regard to work experience, other burnout variables had no significant correlation with mental health. In other words, work experience had only affected the relationship between two components of frequency and intensity of emotional exhaustion with mental health. Hypothesis number fourteen was confirmed.

To evaluate 15th hypothesis, the correlation between burnout and mental health of the staff working in different shifts was obtained but the number of people with shift work was so different (Table 1-4). Therefore, 30 day workers were randomly selected and compared with a group of 26 night workers (shift workers) and by using Fisher's Z test their different correlation coefficients were calculated in which the hypothesis was proved. To investigate the sixteenth hypothesis because of big differences between the number of married and single people in the sample, 20 individuals were randomly selected from married workers and were compared with 17 single people from the sample. First, Pearson correlation coefficients were found between burnout and mental health, and then using Fisher's Z-test, significant differences in correlation coefficients for each single and married group were calculated in which the sixteenth hypothesis was tested and finally approved.

5. Discussion and conclusions

This study was designed to determine the relationship between burnout and mental health in 120 workers of Arak refinery using the Maslach burnout inventory and the general health questionnaire (GHQ).

Results of correlation and regression analysis showed that there was a significant relationship between emotional exhaustion and mental health, in the sense that when burnout in individuals increased, somatic symptoms, anxiety and depression also increased and social functioning was disturbed as well. These results were in line with Masoule research (2006), Rostami (1998), Mohammadi(2006), Asadi (1998), Bahri (1995), Malekzadeh (2004), Fouladvand (2005), Hanken (2006), Sicko (2006), Johnson (1996), and Evans (2006).

As expected, a high score in the emotional exhaustion subscale led to behavioral and physical symptoms that could endanger human health (Malekzadeh et al, 2004). In addition, high scores on the depersonalization subscales led to the formation and expansion of a negative attitude and emergence of emotional responses to people and environment which would eventually end in mental disorders (Abdi et al 2002). On the subscale of personal achievement this can be stated that its efficiency in stressful working conditions was not certain. According to Carmen (2001) burnout is emotional exhaustion cut point.

Evans (2006) also claimed that exhaustion is the most important aspect of burnout. Maslach et al (2001) also confirmed the above comments. (Zarrabian, 1999)

The results indicated a positive correlation between emotional exhaustion and depersonalization subscales with mental disorders in specific and mental health variables in general. So, on the whole it can be concluded that emotional exhaustion is linked directly to high levels of labor demand. (Rahimi 1995). Wherever there are interpersonal contacts job burnout is more likely to happen (Alavi et al, 2008). Cardiovascular diseases are among the most common physical symptoms associated with job stress which may be exacerbated by anxiety (Shafi Abadi, 2003).

So, as the signs of burnout appear, mental health is also affected. Besides, personal accomplishment and physical symptoms and anxiety show a significant correlation. However the relationship of these components with depression and social functioning was not approved in our study, which is consistent with the findings of Malekzadeh (1384) Masoule (1386), Saberi(2000), Shafi Abadi (2003), Kirsi (2008), Melamed, (2006), Johnson (1996), and Evans (2006).

On the other hand, higher level of burnout with respect to self-accomplishment can be an indication of negative attitude towards one's job, one's self and low job satisfaction and low self esteem (Najafi 2002). As burnout increases, regarding the emotional exhaustion and self-accomplishment, inadvertent physical signs emerged that are associated with higher anxiety. The more mental health is affected by various factors, and the greater the stress, the resulted

burnout will be greater. (Keshtaryan, 1995). Moreover, higher scores in depersonalization subscale will lead to a formation of negative attitudes and emergence of emotional responses to other people and environment which eventually may lead to mental disorders (Ganji 2005).

The presence of relationship between lack of personal accomplishment and mental health can be expressed in terms of the doubt about the efficiency of this subscale regarding the stressful job conditions. For example Malamyd (2006) concluded that, lack of personal accomplishment subscale may be more justifiable within the theoretical context of learned helplessness and depression than the reactions related to stress (Lee 1990, Gorgavi quoted by Badri, 1996).

The stress caused by occupational conditions affect the physical and mental health of individuals. The component of depersonalization has shown significant relation with the three components of anxiety, somatic symptoms and social functioning, but its relationship with the component of depression has not been approved. This finding is in line with the results of the studies done by Khajehaldin (2004), Masole (2007), Mohammadi. (2008), Rustami (2007), Pico (2006), Kirsi (2008) and Karl (2003). Maslach and Lighter (1997), looked at the phenomenon of burnout as a systematic relationship and believed that burnout occurs when there is no systematic link between one's real self and his /her job expectations.

Mohammadi (2008) states that this syndrome leads to social isolation and low social functioning of the person who has been associated with anxiety. Rostami (2007) expresses that emotional exhaustion and unexpected punishment are positively correlated with depersonalization; and depersonalization, unruly expectations and lack of conditional rewards are negatively correlated with the sense of reduced

personal accomplishment. The problem with people who are afflicted with burnout is that they may suffer attitudinal burnout (often called depersonalization) (Najafi, 2000) . These people are suspicious of others. Kirsi (2008) believes that high scores on the depersonalization subscale indicate the formation and expansion of negative attitudes and emergence of false emotional responses associated with the environment and other people which ultimately end in psychological disorders.

Depersonalization dimension of burnout shows high levels of stress and anxiety. Components to determine the effects of burnout on mental health scores, scores on the subscales of emotional exhaustion, depersonalization, self-accomplishment were regarded as predictor variables (independent) and the scores of mental health and its components were considered as the criterion variable (dependent) in the regression analysis. Given the significance of F, the results show that among the components of burnout, the emotional exhaustion, and self-accomplishment are able to predict the mental health score. But depersonalization scores cannot predict mental health score. So we can conclude that the components of burnout, emotional exhaustion rate (51%) and personal accomplishment (26%) had the highest share in the increase and decrease of burnout .

The results on the difference of the correlation coefficients between two sexes showed that there is no significant relationship between mental health and burnout. In other words, gender has no role in this respect. Among the correlation coefficients , gender has affected the relation between depersonalization and mental health which is consistent with the findings in the studies done by Khaghani zadeh. (2006), Najafi (2000), Shafi Abadi (2003), Rustami (2007), Honkon (2006), Melamed, (2006).

According to social expectations the roles of men and women are defined in a process called socialization. Due to society's expectations of women their use of strategies focused on emotion- such as crying or looking for emotional support –cannot be blamed. But in men the opposite is true. Men deal with stressors with more patience; however, women are much more seeking for social and emotional support and more openly express their emotions and less than men can control stressors. On the other hand, men show signs of depersonalization more than women do (Eftekhari, 2003).

Maslach et al (2001) believe that gender is not an important predictor of job burnout for women. In this respect there are major differences among some studies. Najafi (2000) states that in general, men work more hours than women ,which makes women stay at home and take much of the responsibility of the family so there is more social and psychological pressure on them .In some cases ,women are much more capable to adapt to new situations. Maternal responsibility together with social and occupational duties put extra pressure on women which in general makes it difficult to draw a reasonable conclusion from the obtained results. In relation to the impact of marital status on the relationship between burnout and mental health variables, the results showed that the correlation between the prevalence of mental health and emotional exhaustion among married and singles was significant at 0/05 which is consistent with researches done by Abdi (2006),

and Masouleh (2007), and is unlike the results obtained by Najafi (2000) and Rasoulia (2004).

Although colleagues are the most important sources of support for employees, the inverse relationship between support received from spouse and family with burnout in respect to emotional exhaustion, suggests that the major sources of support are the family members and spouse. A study by Strom and Robinson (1991) showed that burnout, particularly the emotional exhaustion was inversely related to managerial support. Being married and receiving emotional support from the spouse leads to lesser burnout. Abdi et al quoting Funk (2001) also showed that burnout is significantly and inversely related to the support of the members of one's family. In general it can be concluded that being married is possibly a major source of stress reduction and health improvement Khodarahimi (2002) .Positive personal interactions between family members, especially spouses improves their ability to cope with stress and to maintain psychological health .The results of the comparison between correlation coefficients of variables of shift work and job experience showed that none of them is significant , with the exception of the two components of the frequency and intensity of emotional exhaustion. Yaghoobnia (2000) and Abdi (1994), Relying on previous research have reported no significant relationship between work experience and job burnout, However, Rasoulia (2004) reported that there is more emotional exhaustion in people older than 40 years and with more work experience. Esfandiari (2002) found that burnout in younger groups is less than older groups. As people get more experienced ,they can face problems more readily and there will be less burnout .Burnout appears more in younger people in

their early years of work because they are less able to adapt themselves with working conditions. Binaj et al(2007) and Abdi reported that there is no significant association between shift work and burnout, but Esfandiari found a significant relation between them. He came to the conclusion that night work is one of the factors which accelerated the incidence of burnout. In night work, people's sleep patterns change. However, in this paper we got no evidence of the presence of such a relationship, maybe because of the differences between study groups.

Finally, given the findings of this study and the previous ones which are in line with our study we can put emphasis on the importance of mental health in improving work efficiency and providing a mentally healthy environment. In general, we found that burnout variables are significant predictors of mental health.

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