



## Investigating the relationship between physical and mental health among operating room personnel

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### Original Article

#### Abstract

**BACKGROUND:** Communities have been involved in adverse health factors at any point in time and have sought to improve community health and quality of life (QOL). The purpose of this study is to investigate the condition of physical and mental health and the relation between the two variables with each other in the operating room of hospitals in Shiraz, Iran.

**METHODS:** This was a cross-sectional study performed on 192 staff of operating rooms of Shiraz University of Medical Sciences. The data for the study were collected through the General Health Questionnaire (GHQ) and the General Lifestyle Questionnaire (GLQ).

**RESULTS:** Analyzing the results, the mean total scores of lifestyle and mental health were  $333.93 \pm 42.91$  and  $39.24 \pm 12.59$ , respectively. In addition, the correlation coefficient between the total lifestyle and mental health scores was -0.411.

**CONCLUSION:** Since the operating room is the most sensitive part of any hospital and the so-called heart of the hospital, special attention should be paid to staff working in this department, as any disruption to the operating room staff is not only harmful to them. Rather, it has many detrimental effects on patients and the health system. Therefore, given the stressful environment of the operating room, managers should promote operating room programs focused on reducing stress and by conducting classes and training sessions, improve the mental and physical health of the operating room personnel.

**KEYWORDS:** Mental Health; Operating Room Technicians; Operating Room Nursing

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### Introduction

Different communities have experienced adverse health factors at any point in time and sought to improve community health and quality of life

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(QOL).<sup>1</sup> Ensuring the health of individuals from physical, mental, and social dimensions in society is one of the fundamental issues of any country.<sup>2</sup> According to the WHO, health defines as "the complete state of physical, mental and social well-being, not just the absence of illness or disability".<sup>3</sup> Freud considered the signs of mental health as the balance between the institution, the ego and superego, as well as the

levels of self-awareness and unconscious awareness.<sup>4</sup> The World Health Organization (WHO) defines mental health as the ability of harmonious communication with others, modification of personal and social environments, and the resolution of conflicts and personal desires in a rational, just, and appropriate manner.<sup>3</sup> Overall, health factors are reflected in both physical and psycho-behavioral dimensions, and one's ability to cope with the problems of daily living and his/her willingness to look for challenges and variations in life must also be considered.<sup>5</sup> Mental disorders are one of the most important components of the burden of illnesses and it is anticipated that by 2020, the share of mental disorders will increase to about 50% of the overall burden of disease.<sup>6</sup> The major share of these stress-related mental illnesses is due to working conditions. Stress occurs when individuals realize that they cannot adequately respond to their desires or when they cannot cope with threats to their well-being.<sup>7</sup> Occupational stress is a branch of stress that arises in the workplace and is defined by the individual's occupation and physiological effects, which can affect their mental, physical, or emotional activities,<sup>8</sup> in addition to causing physical and behavioral symptoms.<sup>9</sup> Exposure to stressful situations is always present in the nursing profession, and nurses cannot avoid stressors, so the ability to adapt to these stressors is crucial to professional success.<sup>10,11</sup> Occupational stress in the nursing profession has raised serious concerns that adversely affect not only health and well-being of nurses, but also the performance of the nursing profession and the quality of services provided.<sup>12</sup> Stressors related to the nursing profession include overtime work load,<sup>13</sup> low occupational benefits,<sup>14</sup> coping with patients' emotional needs,<sup>15</sup> uncertainty about treatment,<sup>16</sup> dealing with death and end stage patients,<sup>13,17</sup> lack of organizational support,<sup>18</sup> and conflict with managers, colleagues, or physicians.<sup>19</sup> Operating room personnel are more affected by occupational stresses due to

different working environments and working conditions than nurses, which can affect their mental health. Lack of studies in this area made us to investigate the relationship between physical and mental health status in operating room personnel.

## Methods

The present study was the result of a research approved by Shiraz University of Medical Sciences No. 17491/08/0197 and ethics code No. IR.SUMS.REC.1397.606. This cross-sectional study was performed in the operating room of seven hospitals affiliated to Shiraz University of Medical Sciences. This study evaluated 192 operating room personnel that met the inclusion criteria and had different qualifications, including associate's degree, bachelor's degree, master's degree, and nursing degree. The inclusion criteria were three years of work experience and willingness to participate in the study, and the exclusion criteria were unwillingness to continue cooperation or refuse to complete the questionnaires. In this study, the total number of operating room personnel in each hospital was determined and based on the stratified random sampling method, individuals meeting the inclusion criteria were selected. After obtaining written informed consent, the questionnaires were distributed among the subjects and after completion, they were collected at the end of the same day.

The data collection tools included a demographic questionnaire, the standard General Health Questionnaire (GHQ), and the General Lifestyle Questionnaire (GLQ). The standard GHQ consists of 28 items, which include four dimensions, including physical disorder, anxiety disorder, social dysfunction, and depression. The items of this questionnaire are scored in a 4-point Likert scale as 0-3, with the score of each dimension being in the range of 0-21. Scores below and above 14 indicate good health and a disorder, respectively. The

validity (correlation coefficient of 0.55) and reliability (Cronbach's alpha of 0.90) of this questionnaire were studied by Taghavi.<sup>20</sup>

The GLQ, whose validity and reliability (Cronbach's alpha 0.87) were evaluated by Lali *et al.*, has 70 items designed aiming at evaluating different aspects of lifestyle including physical health, exercise and health, weight control and nutrition, prevention of diseases, psychological health, mental health, social health, avoidance of drugs and medications, accident prevention, and environmental health.<sup>21</sup>

After collecting the questionnaires, the data were entered into the SPSS software (version 20, IBM Corporation, Armonk, NY, USA) and then analyzed. Descriptive statistics [frequency distribution, mean, and standard deviation (SD)] were used to examine the social demographic characteristics of employees and inferential statistics (t-test, chi-square test, and correlation coefficient) to analyze the data.

## Results

In this study, 192 staff members of the operating rooms of Shiraz University of Medical Sciences were studied to investigate the relationship between lifestyle and mental health. The frequency distribution of the demographic characteristics of the population under study is shown in table 1.

In this study, 68.75% of the operating room staff were women and 62.5% were married. In terms of the distribution of participants in hospitals, 11.5%, 21.9%, 16.7%, 16.7%, 15.6%, 9.4%, and 8.3% were the staff of Faghihi, Namazi, Chamran, Khalili, Rajaei, Zeinabieh, and the Mother and Baby hospitals, respectively. Most of the study population had a bachelor's degree (80.2%). Work experience of 67.18% of the personnel was less than ten years and 55.2% of the staff had a monthly income of over three million tomans (Iranian currency).

The average lifestyle and mental health scores and its dimensions are shown in table 2. The

highest and lowest mean scores were related to accident prevention and exercise and health as  $41.66 \pm 6.46$  and  $26.38 \pm 8.25$ , respectively, and the mean total life style score was  $333.93 \pm 42.91$ . Regarding mental health, the highest mean score (worst mental health status) and the lowest mean score (best mental health status) were reported for the dimension of social dysfunction and the depression as respectively  $16.21 \pm 4.06$  and  $5.31 \pm 4.81$  and the mean score of total mental health was  $39.59 \pm 12.59$ .

**Table 1. Demographic characteristics of operating room staff**

Variable	n (%)
Gender	
Man	60 (31.25)
Woman	132 (68.75)
Marital status	
Single	72 (37.50)
Married	120 (62.50)
Education	
Associate degree	33 (17.20)
Masters	154 (80.20)
Masters	5 (2.60)
Work experience	
Less than 10 years	129 (67.18)
10-20 years	53 (27.60)
More than 20 years	10 (5.20)
Monthly income	
1 million tomans	5 (2.60)
1-2 million tomans	16 (8.30)
2-3 million tomans	65 (33.90)
More than 3 million tomans	106 (55.20)

Table 3 shows the relationship between the lifestyle score and demographic characteristics of the operating room personnel. There was a significant relationship between the staff education and mean life style score ( $P < 0.05$ ), and mean life style score in postgraduate staff was higher ( $374.60 \pm 22.33$ ) than others.

Then, the relationship between the lifestyle score and mental health with demographic characteristics of the operating room personnel was investigated. The analysis showed that there was no significant relationship between the mean score of mental health and demographic information in any of the variables.

**Table 2. Determination of mean life style and mental health scores**

Dimensions of lifestyle	Mean $\pm$ SD	Minimum	Maximum
Physical health	34.44 $\pm$ 5.84	16	48
Exercise and health	26.38 $\pm$ 8.25	8	42
Weight control and nutrition	30.43 $\pm$ 6.66	12	42
Prevention of diseases	35.18 $\pm$ 5.45	12	42
Psychological health	33.40 $\pm$ 6.55	7	42
Mental health	29.95 $\pm$ 5.99	6	36
Social health	34.47 $\pm$ 6.04	10	42
Avoidance of drugs and medications	32.49 $\pm$ 6.38	6	36
Accident prevention	41.66 $\pm$ 6.46	14	48
Environmental health	35.49 $\pm$ 5.88	9	42
Total	333.93 $\pm$ 42.91	208	414
<b>Dimensions of mental health</b>			
Physical disorder	9.67 $\pm$ 4.62	0	21
Anxiety disorder	8.54 $\pm$ 6.02	0	21
Social dysfunction	16.21 $\pm$ 4.06	2	21
Depression	4.81 $\pm$ 5.31	0	21
Total	39.24 $\pm$ 12.59	15	73

SD: Standard deviation

In the lifestyle section, only a significant relationship was observed between the staff education and mean life style score ( $P < 0.05$ ), with the mean life style score in postgraduate staff ( $374.60 \pm 22.33$ ) being higher than others.

The correlation coefficient between the total score of lifestyle and mental health was  $-0.411$  (significant correlation), indicating that there was an inverse relationship between mental health and lifestyle of the operating room personnel. This suggests that with increasing the lifestyle score, the score of mental health declines, indicating an improvement in the mental health status of the staff (the lower the average mental health score, the better the

mental health status of the person) ( $P < 0.05$ ). Correlation coefficients between the dimensions of mental health and lifestyle in the highest correlation coefficients in the table are related to the relationship between physical dimension and anxiety disorder ( $-0.498$ ) and then to the psychological dimension related to the depression signs ( $-0.443$ ).

### Discussion

The purpose of this study was to investigate the relationship between physical and mental health status in the operating room personnel of hospitals affiliated to Shiraz University of Medical Sciences.

**Table 3. Relationship between lifestyle and mental health in operating room personnel**

Aspects of mental health	Depression	Social dysfunction	Anxiety	Physical disorder
<b>Dimensions of lifestyle</b>				
Physical health	-0.393	-0.382	-0.498	-0.393
Exercise and health	-0.289	-0.345	-0.419	-0.369
Weight control and nutrition	-0.369	-0.317	-0.441	-0.319
Disease prevention	-0.325	-0.216	-0.297	-0.139
Psychological health	-0.443	-0.412	-0.380	-0.215
Mental health	-0.357	-0.362	-0.273	-0.133
Social health	-0.297	-0.242	-0.198	-0.102
Avoidance of drugs and medications	-0.191	-0.067	-0.180	-0.092
Accident prevention	-0.264	-0.080	-0.225	-0.145
Environmental health	-0.284	-0.099	-0.179	-0.088

The results of the study showed that in the lifestyle section, the personnel received the highest score in the aspect of accident prevention and the lowest score in the aspect of exercise and health, showing weakness in this area. In the study of mental health status, the individuals had the best status in the aspect of depression, and the social dysfunction was noticeable and they did not get an acceptable score in this area.

The results of this study showed that there was an inverse relationship between lifestyle and mental health, as the lifestyle scores increased, the mental health scores decreased. This indicates an improvement in the mental health status of the staff (the lower the average mental health score, the better the mental health status of the individual). Sadeghian *et al.* conducted a study to investigate the role of health beliefs, physical complaints, and mental health on the level of back pain of nurses working in hospitals of Shahroud, Iran, using the Cultural and Psychosocial Influences on Disability (CUPID) questionnaire. After analyzing the data, it was concluded that the mental health dimension of QOL had no significant relationship with lifestyle.<sup>22</sup> The results of the present study showed that the highest correlation coefficient was related to the correlation between the physical dimension of lifestyle and anxiety symptoms of mental health (-0.498). But the extent of this relationship was weak, for which the stressful environment of the operating room could be a major cause. Other results of this study showed a weak relationship between the physical health dimension of lifestyle and physical disorder of mental health. Although this relationship was significant, the relationship was not strong enough. Palmer *et al.* conducted a study to examine the relationship between physical health and physical complaints in the UK. The study concluded that the relationship between physical health and low back pain (LBP) with

the mental health dimension of QOL was weaker than physical complaints.<sup>23</sup> The results of this study were consistent with those of the present study and showed that there was a significant but weak relationship between lifestyle and mental health. This case, due to the similarity of the subjects under study may be due to working in the hospital environment which affects the health of the individuals. By calculating the correlation coefficient between the total life style and mental health scores in the present study, a significant relationship was observed in the reverse direction. In this regard, Shehni Yeylagh *et al.* conducted a study on the causal relationship between different attitudes, including mental and physical health in the students of Shahid Chamran University in Ahvaz, Iran. At the end of this study, the relationship between health and one-way causality from mental health to physical health was reported to be meaningful and positive mental.<sup>24</sup> The findings of this study contradict the positive and one-sided relationship in the present study. This could be due to the different groups and populations under the study.

In addition, operating room is a stressful environment, which could affect people's health and outcome of the study. In a study conducted by Saanei *et al.* aimed at examining physical fitness and its relationship with faculty members' mental health in military universities of Iran, no significant relationship was found between the physical fitness and mental health variables among the faculty members. It was found that the level of physical fitness of the subjects could not be assessed by their mental health.<sup>25</sup>

Individuals and communities are always considered as factors influencing the results of the study. To justify the inconsistency of the results of the present study with other studies, we can point out the differences between the workplace and their type of services. The limitations of the study included

low number of participants and disregarding different dimensions of mental health and lack of evaluation of students and operating room personnel of private hospitals. Therefore, it is recommended that future studies consider evaluating students and staff of private hospitals.

### Conclusion

There was a weak significant relationship between mental health and physical health of the operating room personnel in this study. Therefore, the physical healthy only cannot mean a physically and psychologically desirable status of these personnel. Consequently, they should be examined with special attention to their mental health. Therefore, given the stressful environment of the operating room, managers and administrators should promote operating room programs focused on reducing stress and conducting classes and training courses to improve the mental and physical health of the operating room personnel.

### Conflict of Interests

Authors have no conflict of interests.

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