

The Relationship between Physical and Mental Health and Coping Strategies in Operating Room

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Abstract

Background: Coping strategies depend to a large extent on stressors, individual experiences, severity, and characteristics of the stressors. In general, it seems that the risk of physical and mental health problems in stressful situations increases if people do not use coping mechanisms.

Methods: This is an observational cross-sectional study of analytical and descriptive type performed on 192 operating room staff at 7 hospitals affiliated to Shiraz University of Medical Sciences. The data were collected through "Ways of Coping Questionnaire (Folkman and Lazarus)", "General Health", and "Lifestyle" questionnaires. SPSS software version 20 was then used to analyze the data.

Results: The analysis of the results revealed that the total mean scores of lifestyle and mental health were reported to be 333 ± 42.91 and 39.24 ± 39.24 , respectively. Also, the mean total scores of the emotion-focused problem-focused style were equal to 100.16 ± 13.90 and 104.38 ± 14.89 , respectively. There was a significant relationship between gender and work experience in the emotion-focused coping style ($P < 0.05$). There was also a direct relationship between lifestyle and coping strategies in the operating room staff, and that the relationship was significant ($P < 0.05$).

Conclusion: Due to the high level of stress among the operating room staff and also the relationship between coping strategies and gender, it seems quintessential that operating room staff should take measures to avert and reduce staff stress. Furthermore, given the use of various coping strategies in stressful situations by operating room staff, it appears necessary to train the people living in that specific society to use effective coping techniques.

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Introduction

Health has a history as long as human life, and societies at any point in time have been involved in disruptive health factors and have strived to ameliorate the health of society as well as the quality of life.¹ Ensuring the health of people in the community from physical, psychological and social points of view is considered one of the basic issues in any country.² According to the World Health Organization (WHO), health means

“the full state of physical, mental, and social well-being, not just the absence of disease or disability.” Mental health, like physical health, is more than just the absence of disease or other problems. The organization also defines mental health as the ability to communicate harmoniously and in coordination with others, to alter and improve one’s personal and social environment and resolve one’s conflicts and desires logically, fairly, and appropriately.³ Research shows that mental disorders are one of the most important components of the overall

burden of diseases and it is estimated that by 2020, the share of mental disorders increase by about 50% of the total burden of diseases.⁴ A major part of these mental illnesses is caused by stress, which is in turn caused by working conditions. Stress occurs when people realize that they cannot cope appropriately with their desires or when they cannot cope with the threats to their well-being.⁵ Occupational stress is a type of stress that occurs in the workplace and is defined in terms of the physical and physiological effects of that occupation on the individual, which can affect a person's mental, physical, or emotional activities⁶ and bring about physical and behavioral symptoms.⁷ Occupational stressors include overtime work, disagreements and inconsistencies, and unpleasant career-related experiences. A bulk of studies have reported the detrimental effects of nursing anxiety and stress on the physical and mental health of nurses, their families, and their social relationships.⁸ Facing stressful situations has always existed in the nursing profession, and nurses cannot avoid stressors, so the ability to adapt to these stresses is very important in achieving professional success.^{9, 10} Occupational stress in the nursing profession has raised serious concerns that negatively affect not only the health and well-being of nurses, but also their professional performance and quality of services provided.¹¹ Among the stressors related to the nursing profession are overtime work,¹² high job demands and low job benefits,¹³ coping with patients' emotional needs,¹⁴ uncertainty about treatment,¹⁵ and dealing with patients and the dead ones,¹⁶ lack of resources,¹⁷ lack of organizational support,¹⁸ and conflict with managers, colleagues or doctors.¹⁹ People's coping strategies in stressful situations are a method of psychological balance that responds by controlling stress.^{7, 20} People's coping strategies depend on stressors, individual experiences, and severity and characteristics of the stressors, which are in turn divided into two types, positive and negative. Positive coping strategies can be helpful for a person's psychological adaptation, while negative coping strategies can make the body and mind fatigue worse.²⁰

In general, if people do not use coping mechanisms, the risk of developing mental health problems in stressful situations increases.^{20, 21} In a study in China, Chaye et al. (2005) found that nurses tended to actively deal with stress caused by reduced personal achievement,²² but when stress was caused by environmental and resource problems, patient care problems and interpersonal relationships and management problems, they coped with them inactively.²³ Nurses in the United States support the problem-solving method, and some use humorous messages more.²⁴ Operating room staff are more affected by occupational stress due to their different environments and working conditions (dealing with different surgeries and seeing stressful scenes of surgery), which can affect their mental health. Moreover, the dearth of studies in this field led the

research team to study the relationship between physical and mental health status and coping strategies among the operating room staff.

Methods

This study was an observational cross-sectional research of analytical-descriptive type in the operating rooms of 7 hospitals affiliated to Shiraz University of Medical Sciences. In this study, operating room staff holding associate, bachelor, and master's degree in operating room, and nursing bachelor's degrees that met the inclusion criteria were evaluated. Having 3 years of work experience and willingness to participate in the study were the inclusion criteria. In order to determine the sample size in this study, first the total number of operating room staff in each hospital was determined. Then, based on a study conducted by Chang et al.,²⁵ the sample size was estimated as 192 ones. After obtaining permission from the Ethics Committee, (Research Project approved by Shiraz University of Medical Sciences No. 17491/08/01/1397 and the Code of Ethics of IR.SUMS.REC.1397.606), the researchers referred to hospitals in various shifts. Stratified random sampling technique was used for sampling taking into account the mentioned criteria and after obtaining the informed and written consent form from the staff, the sampling was done. Then, the questionnaires were distributed among the individuals by the researcher and collected at the end of office hours on the same day after completion.

In order to collect the data, we used a demographic data collection form, the General Health Questionnaire, Lifestyle Questionnaire, and Ways of Coping Questionnaire (Folkman and Lazarus). The validity and reliability of the Ways of Coping Questionnaire (Folkman and Lazarus) (Cronbach's alpha of 0.85) were measured by Amini et al. It consists of 66 items and evaluates a wide range of thoughts and actions that people use when faced with internal or external stressful situations. This instrument encompasses emotion-focused and problem-focused coping styles. Emotion-focused coping style includes four dimensions of confrontive coping, distancing, escape-avoidance, and seeking social support, whereas problem-focused coping styles also include the dimensions of accepting responsibility, self-controlling, planful problem-solving, and positive reappraisal.²⁶ The General Health Questionnaire has 28 items and 4 dimensions (physical symptoms, anxiety symptoms, social dysfunction, and depressive symptoms) and was first developed by Goldberg in 1972. The validity (correlation coefficient of 0.55) and reliability (Cronbach's alpha of 0.90) of the questionnaire in Iran has been confirmed by Taghavi.²⁷

The lifestyle questionnaire, validity and reliability (Cronbach's alpha of 0.87) of which were evaluated by Lali et al., has 70 items and its purpose is to evaluate various aspects of lifestyle (physical health,

exercise and health, weight control and nutrition, disease prevention, mental health, mental health, social health, avoidance of drugs and narcotics, accident prevention, and environmental health.²⁸ After collecting the questionnaires, we entered the data into SPSS software version 20 and then analyzed them. In order to examine the personal social characteristics of the employees, we used descriptive statistics (mean, standard deviation, number and percentage), and inferential statistics (T-test, ANOVA, Pearson correlation and Chi-square) were used to analyze the data; if the data distribution was not normal, non-parametric methods were used.

Results

In the present study, 192 operating room staff of educational and medical centers affiliated to Shiraz University of Medical Sciences were studied to investigate the relationship between physical and mental health status and coping strategies. In this study, 68.55% of the participants were female and 62.5% were married. Also, most of the subjects had a bachelor's degree (80.2%). In addition to these cases, 67.18% of the participants' work experience was reported to be less than ten years, and 55.2% of the individuals had a monthly income of more than three million Tomans.

In terms of the distribution of participants in hospitals, 11.5% of them were at Faghihi Hospital, 21.9% at Namazi Hospital, 16.7% at Chamran Hospital, 16.7% at Khalili Hospital and that in Rajai, Zeinabieh, and Mother and Child Hospitals accounted for 15.6%, 9.4% and 8.3%, respectively.

Regarding the lifestyle score and its dimensions, the highest reported score was related to accident prevention (41.66±6.46), and the lowest average score belonged to exercise and health dimension (26.38±8.25). The mean total lifestyle score was 333.93±42.91. In the mental health section, the highest mean score (worst mental health status) reported was related to the dimension of social dysfunction (16.21±4.06), while the lowest one (best mental health status) belonged to the dimension of depressive symptoms (4.81±5.31). The mean score of total mental health was 39.59±12.59. In the section on measuring coping methods, in the field of emotion-focused coping style, the highest reported mean score was related to escape-avoidance dimension (29.10±5.12), whereas the lowest belonged to confrontive dimension (20.93±3.71). In the domain of coping style, the highest and lowest mean scores reported were related to self-controlling dimension (32.25±4.90) and accepting responsibility (16.23±3.05), respectively. The total mean score of the emotion-focused and problem-focused style scores

Table 1: The relationship between the score of coping strategies and demographic characteristics of the operating room staff

| Emotion-focused coping style | | Number | Mean | *SD | Sig |
|------------------------------|-------------------|--------|--------|-------|-------|
| Gender | Male | 60 | 102.95 | 16.59 | 0.011 |
| | Female | 132 | 98.89 | 12.35 | |
| Marital status | Single | 72 | 102.06 | 13.29 | 0.840 |
| | Married | 120 | 99.01 | 14.18 | |
| Work experience | Under 10 years | 129 | 102.12 | 13.93 | 0.018 |
| | 10-20 years | 53 | 96.41 | 13.38 | |
| | Over 20 years | 10 | 94.70 | 11.54 | |
| Level of education | Associate's | 33 | 99.42 | 11.38 | 0.690 |
| | Bachelor's | 154 | 100.15 | 14.44 | |
| | Master's | 5 | 105.20 | 13.14 | |
| Financial status (Tomans) | 1000000 | 5 | 96.00 | 17.08 | 0.877 |
| | 1000000-2000000 | 16 | 100.81 | 8.46 | |
| | 2000000-30000000 | 65 | 100.76 | 10.91 | |
| | More than 3000000 | 106 | 99.88 | 16.01 | |
| Problem-focused coping style | | Number | Mean | SD | Sig |
| Gender | Male | 60 | 105.36 | 16.25 | 0.540 |
| | Female | 132 | 103.93 | 14.28 | |
| Marital status | Single | 72 | 104.18 | 14.10 | 0.883 |
| | Married | 120 | 104.50 | 15.40 | |
| Work experience | Under 10 years | 129 | 105.68 | 15.02 | 0.222 |
| | 10-20 years | 53 | 101.66 | 14.62 | |
| | Over 20 years | 10 | 102.00 | 13.78 | |
| Level of education | Associate's | 33 | 102.12 | 12.84 | 0.350 |
| | Bachelor's | 154 | 104.62 | 15.38 | |
| | Master's | 5 | 112.00 | 10.36 | |
| Financial status (Tomans) | 1000000 | 5 | 101.60 | 19.08 | 0.909 |
| | 1000000-2000000 | 16 | 103.81 | 26.12 | |
| | 2000000-30000000 | 65 | 103.67 | 12.04 | |
| | More than 3000000 | 106 | 105.03 | 16.69 | |

*Standard deviation

were 100.16 ± 13.90 and 104.38 ± 14.89 , respectively.

Table 1 shows the relationship between the score of coping strategies and the demographic characteristics of operating room staff. There was a significant relationship between gender and work experience and the mean score in the emotion-focused coping style ($P < 0.05$), so that the mean score of the emotion-focused coping style among the staff with less than ten years of work experience (102.89 ± 13.93) and female gender (98.89 ± 12.35) were higher than others.

The correlation coefficient between the overall lifestyle score and coping strategies in emotion-focused and problem-focused styles was reported to be 0.183 and 0.423, respectively, indicating the relationship between lifestyle and coping strategies among operating room staff ($P < 0.05$); as the lifestyle score increased, so did the coping strategy score. However, this relationship was stronger in relation to problem-focused style. The correlation coefficients between lifestyle dimensions and coping strategies are shown in Table 2. The highest correlation coefficient was related to the relationship between weight control and nutrition and planful problem-solving (0.318).

Correlation coefficients between the total score of mental health and coping strategies in emotion-oriented and problem-focused styles were reported to be -0.010 and -0.132, respectively, indicating that this relationship was not significant ($P \geq 0.05$). The correlation coefficients between the dimensions of mental health and coping strategies are shown in Table 3.

The highest correlation coefficient was related to the relationship between depression symptom dimension and positive reappraisal (-0.260) and then related to social dysfunction dimension with planful problem-solving (0.241).

Discussion

This study sought to investigate the relationship between physical and mental health status and coping strategies among the operating room staff of hospitals affiliated to Shiraz University of Medical Sciences. Examining the results at the end of this study, we found that there was a direct and significant relationship between the total lifestyle score and coping strategies, whereas no significant relationship was observed between the total

Table 2: The relationship between lifestyle and coping strategies among the operating room staff

| | Confrontive coping | Distancing | Escape-avoidance | Seeking social support | Emotion-focused coping style | Accepting responsibility | Self-controlling | Planful problem-solving | Positive reappraisal | Problem-focused coping style |
|------------------------------|--------------------|------------|------------------|------------------------|------------------------------|--------------------------|------------------|-------------------------|----------------------|------------------------------|
| Physical health | 0.073 | 0.274 | 0.123 | 0.231 | 0.228 | 0.228 | 0.257 | 0.326 | 0.307 | 0.331 |
| Exercise and health | 0.120 | 0.293 | 0.105 | 0.174 | 0.223 | 0.181 | 0.222 | 0.318 | 0.212 | 0.274 |
| Weight control and nutrition | -0.019 | 0.186 | 0.014 | 0.208 | 0.127 | 0.238 | 0.257 | 0.318 | 0.245 | 0.309 |
| Disease prevention | -0.019 | 0.143 | -0.036 | 0.153 | 0.081 | 0.137 | 0.300 | 0.288 | 0.275 | 0.304 |
| Psychological health | 0.035 | 0.111 | -0.014 | 0.242 | 0.116 | 0.156 | 0.257 | 0.284 | 0.294 | 0.305 |
| Spiritual health | 0.036 | 0.036 | -0.033 | 0.215 | 0.076 | 0.172 | 0.291 | 0.267 | 0.297 | 0.310 |
| Social health | 0.063 | 0.010 | -0.031 | 0.260 | 0.089 | 0.168 | 0.281 | 0.217 | 0.265 | 0.267 |
| Avoiding drugs and narcotics | -0.002 | 0.071 | 0.090 | 0.218 | 0.124 | 0.193 | 0.242 | 0.177 | 0.239 | 0.253 |
| Accident prevention | -0.004 | 0.018 | 0.020 | 0.194 | 0.057 | 0.182 | 0.146 | 0.207 | 0.279 | 0.241 |
| Environmental health | 0.057 | 0.005 | 0.0 | 0.193 | 0.076 | 0.185 | 0.255 | 0.215 | 0.261 | 0.273 |

Table 3: The relationship between mental health and coping strategies among the operating room staff

| | Physical symptoms | Stress symptoms | social dysfunction | Depression symptoms |
|------------------------------|-------------------|-----------------|--------------------|---------------------|
| Confrontive coping | 0.153 | 0.161 | -0.022 | 0.097 |
| Distancing | -0.191 | -0.199 | 0.060 | -0.059 |
| Escape-avoidance | 0.050 | 0.071 | -0.075 | 0.113 |
| Seeking social support | -0.111 | -0.115 | 0.183 | -0.108 |
| Emotion-focused coping style | -0.039 | -0.033 | 0.043 | -0.014 |
| Accepting responsibility | -0.023 | 0.008 | 0.073 | -0.003 |
| Self-controlling | -0.051 | -0.106 | 0.147 | -0.104 |
| Planful problem-solving | -0.134 | -0.206 | 0.241 | -0.129 |
| Positive reappraisal | -0.192 | -0.229 | 0.199 | -0.260 |
| Problem-focused coping style | -0.126 | -0.172 | 0.201 | -0.162 |

mental health score and coping strategies.

In this study, in the field of emotion-focused coping style, the highest mean score was related to escape-avoidance, and in the problem-focused style, self-controlling was the highest score. In the study conducted by Singh et al. (2011) in India, it was found that half of nursing students often used the avoidance method,²⁹ which is consistent with the results of the present study. However, in a study conducted by Hasanzadeh et al. (2014), entitled “Stress and coping strategies in clinical education of nursing undergraduate students of North Khorasan University of Medical Sciences”, it was observed that the most prevalent coping style among nursing students of North Khorasan University of Medical Sciences was a problem-focused approach.³⁰ Contrary to our research, the least applicable was the avoidance style, which may be due to differences in the type of samples, because the methods of coping with stress can be different among the staff and students. Also, the difference between the operating room environment and the hospital wards can be another reason for this discrepancy because there is more stress in the operating room.

In the present study, a significant and direct relationship was observed between the overall score of lifestyle and coping strategies in emotion-focused coping style. In this study, the escape-avoidance dimension, after self-controlling, had the highest mean. In a study by Gibbons et al. (2011), on nursing students, the avoidance coping style was identified as the strongest factor in pre-health disorder (lowest mean) that is inconsistent with the results of the present study;³¹ this discrepancy could be due to the difference between the target group in terms of their work environment and performance.

Another finding of this study was the study of demographic information and its relationship to stress management methods. Our study found that there was a significant relationship between gender and work experience of the staff with emotion-focused coping style ($P < 0.05$), so that the mean score of emotion-focused coping style was higher in the females and the staff with work experience of less than ten years than others. It can be concluded that women with less work experience and younger age use more emotion-focused coping methods (confrontive coping, distancing, seeking social support, and escape-avoidance) to deal with stress. However, in the study entitled “the relationship between job stressors and coping strategies from clinical nurses’ perspective”, Royani et al. (2019) found that there was no significant relationship between job stress and demographic features (age, education and marital status). There was only a significant association between job stress and gender, with men having higher job stress.³² The justification for this discrepancy is the difference in

the workplace of the samples (operating room versus special care unit). In the problem-focused coping style, after the self-controlling dimension, the highest mean was related to positive reappraisal. This strategy is a combination of efforts to create positive concepts according to the degree of individual development. In 2010, Gholamzadeh et al. conducted a study entitled “Sources of Occupational Stress and Coping Strategies among nurses Who Work in Admission and Emergency Departments of Hospitals Related to Shiraz University of Medical Sciences.” In line with the results of the present study, positive reappraisal was the second strategy used³³ which, considering the key role of religion in our country and also considering that this dimension of positive reappraisal includes religious structures and beliefs, this consistency can be justified.

Lack of evaluation of operating room students and staff of private hospitals is one of the limitations of this study. Therefore, it is recommended to study them in future studies.

Conclusion

Given the high stress among the operating room staff, as well as the link between coping strategies and gender, operating room officials need to take steps to prevent and reduce stress and provide the staff with adequate support. It is also important to teach effective coping techniques because of the variety of coping strategies used in stressful situations by the operating room staff. On the other hand, due to the significance of job stress and coping strategies on physical and mental health and its effect on the quality of services delivery to clients, further research is needed to clarify how to use coping strategies. Although the findings of this study provided a detailed description of the dimensions of stress management strategies among the operating room staff, they have also been associated with limitations. The limitations of the research include the low number of participants, the fatigue of the staff, and its impact when completing the questionnaires.

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