Original Research

An Investigation into the Relation of Coping Skills with Mental Health and Quality of Life in Family Members of Nurses During the COVID-19 Pandemic

Soheila Banitalebi MSc[1], Kobra Mohammadi MSc[1], Manigeh Torabi MSc[1], Leili Rabiei PhD[2] and Reza Masoudi PhD, RN[1] (ORCID)

[1]Community-Oriented Nursing Midwifery Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran and [2]Social Health Determinant Research Center, School of Health, Shahrekord University of Medical Sciences, Shahrekord, Iran

Abstract

Objectives: During the coronavirus disease (COVID-19) pandemic, health care workers, including nurses and their family members, experienced various psychological problems. Coping skills may help them deal with the current challenge and maintain their mental health and improve their quality of life. Therefore, this study investigated the relation of coping skills with mental health and quality of life of the nurses' family members during the COVID-19 pandemic.

Methods: This cross-sectional study was conducted on the family members of the nurses working at Hajar Hospital of Shahrekord dedicated to admission and hospitalization of COVID-19 infected patients using a census sampling method in 2020. Participation in this study was voluntary and finally 220 persons were included in this study. To prevent the spread of COVID-19 through respiratory droplets or contact, a weblog was created using blogging software that contained questionnaires for collecting data on demographic information, mental health (PHQ-9), coping skills (coping responses inventory [CRI], Billings & Moos), and quality of life (SF-36). The collected data were analyzed using descriptive and inferential statistical tests in SPSS software version 22 (IBM Corp, Armonk, NY).

Results: Of the 220 participants in this study, 101 participants were male and 119 were female. The mean age of the subjects was 35.78 years, and 56.4% of them had an academic education level. The Pearson correlation analysis showed a significant relationship between coping skills and mental health, quality-of-life items, total quality-of-life score, and demographic variables of participants (except education) ($P < 0.05$). This was a direct relationship in such a way that as the score of coping skills increases, so does the score of mental health and quality of life. Based on the results of regression analysis, the predictive power of mental health, coping skills, and education level was obtained to be 0.634. The coping skill variable was the strongest predictor (ß = 0.467), and after that, the mental health variable (ß = 0.421) had the highest predictive power.

Conclusion: The obtained results showed that coping skill is the association between psychological health and quality of life such that the coping skill has a significant direct effect on psychological health and quality of life. The results also showed that, at the time of crisis, further attention should be paid to coping skills to develop and improve the quality of life and psychological health.

SDMPH
SOCIETY FOR DISASTER MEDICINE & PUBLIC HEALTH

Introduction

Coronavirus disease (COVID-19) is a novel and highly communicable disease, which has posed a serious threat to human health worldwide.[1] Thousands of people are either sick or have lost their lives due to the prevalence of this disease.[2,3] COVID-19 has resulted in serious mental and socio-economic consequences and posed challenges to all aspects of life.[4,5] The effect of COVID-19 on people's mental health goes far beyond its effect on their physical health and it causes fear, anxiety, depression, stress, and anger in people.[6] Maintaining positive mental health in the presence of psychological distress such as stress, anxiety, and depression may be challenging. In these circumstances, people express different coping responses that can affect their psychological health and quality of life.[7] These post-crisis emotional responses are consistent and normative as long as the function and ability to lead a highly dynamic life remain intact. Considering that health care workers, including nurses, are at the forefront of the fight against infectious diseases and COVID-19, they are the first to be exposed to the virus and are particularly vulnerable to infection due to close contact with patients.[8] Research studies show that the infectious disease

epidemics, including SARS, MERS, and influenza H1N1, have been accompanied by problems and challenges among the public, nurses, patients, and their families.[9]

The most important experiences reported by nurses during the COVID-19 outbreak were the suffering from fatigue and stress caused by the risk of developing the disease and spreading the infection to their family members.[10–12] Moreover, by affecting nurses and, consequently, their families, the critical condition of COVID-19 has caused significant psychological disorders such as stress, anxiety, and depression symptoms in nurses and their family members, and therefore nurses' family members are known as vulnerable groups and are included in the third priority group given the guidelines of the International Health Commission for the implementation of emergency psychological interventions for COVID-19-infected patients.[13,14] As stress and coping are among factors determining the mental health, and the way of adaptation plays an important role in people's health and well-being, therefore, an epidemiological study of coping strategy will provide important information about the mental health status of the target population.[15] Mental health has been defined as effective adaptation to self and environment and choosing the best option from the solutions available when facing problems.[16] Stress and coping with stress are the main factors determining the mental health, and adaptation styles play an important role in people's health and well-being.[17] Considering that COVID-19-related stressors may affect people's psychological health during the disease outbreak, investigation of the individuals' psychological characteristics, coping styles, effective factors, and possible modulators with regard to psychological problems can help with understanding the impact of preventive behaviors on psychological health, development and maintenance of mental health, and therapeutic interventions.[18]

According to most cognitive-behavioral models, stress management and acquiring coping skills will reduce negative mental health outcomes. Therefore, it is necessary to not only study the emotions during the epidemic, but also the association between individuals and these emotions.[19] Chew suggested that the coping responses be investigated in different sub-groups of the population affected by the disease prevalence.[20] Psychological responses at the critical time of COVID-19 outbreak affect the well-being of the individual and society and may persist long after the outbreak.[7] Research studies indicate that people who are exposed to the COVID-19 pandemic may be more likely to develop depression and have lower health-related quality of life. Moreover, health-related quality of life is associated with a variety of factors, including age, gender, health literacy, income, physical activity, social status, and diet. Therefore, lifestyle is very important to prevent depression and improve quality of life during the COVID-19 epidemic.[21,22]

To date, a series of studies have investigated the effect of COVID-19 outbreak on health care providers, including nurses. However, there is scant epidemiological information about the effect of the COVID-19 pandemic on families of health care providers, including nurses. As looking after the mental health of individuals at different levels of promotion, prevention, and clinical cares is of significant importance in chaotic and critical conditions,[4,23] this study attempts to perceive the relationship between coping skills, quality of life, and psychological health among family members of nurses during the COVID-19 outbreak.

Theoretical Framework and Hypotheses

The theoretical framework of this study was adopted from the theory of stress, evaluation, and coping developed by Lazarus and Folkman (1989).[13] According to this theory, a stressor is a stressor when the situation is felt by the person exceeding his resources and endangering his health. Stress is classified as neither good nor bad but is classified based on the degree, type, and circumstances that it brings about. According to Lazarus and Folkman, coping refers to cognitive and behavioral efforts to prevent, organize, or reduce stress. Coping style is the process through which a person manages demands that are beyond personal resources and abilities and are threatening. According to this definition, coping is a process that varies depending on the success of its efforts. In Lazarus and Folkman's view, our interpretation and estimation of events are more important than the events themselves. They believe that it is neither the environmental event nor the individual's response, but the individual's perception of events that determines the stress and its intensity. This perception includes harms, measures, threats, potential challenges, and the perceived ability of the individual to cope with them. Lazarus and Folkman's cognitive coping model includes 3 situations: estimation, coping, and consequence, and 2 well-known general types of coping: coping with stress and coping with complex situations (problem-focused coping style and emotion-focused coping style).

Method

After obtaining the necessary permits from the Ethics, Research and Technology Committee (1399.99IR.SKUMS.REC), and after coordination with the officials of Hajar Hospital of Shahrekord, this cross-sectional study was conducted on the family members of the nurses working at Hajar Hospital of Shahrekord dedicated to admission and hospitalization of COVID-19-infected patients in 2020. To prevent the spread of COVID-19 through respiratory droplets or contact, a weblog was created using blogging software containing questionnaires for gathering data. The blog address and necessary explanations about the study and its objectives were put on the hospital website, and the nurses provided this information to their families. The inclusion criteria for research population are family members of the nurses working at Hajar Hospital which is dedicated to admission and hospitalization of COVID-19-infected patients, and having access to Internet and social media; exclusion criteria are having a history of neurological disorders, mental illness, and other serious systemic disorders and drug abuse. Participation in this study was voluntary and the research sample was selected using a census sampling method. The questionnaires were anonymous. Data were collected using a questionnaire consisting of 4 sections. The first part included demographic information about the participants (gender, age, level of education), the second part was assigned to Billings and Moos' Coping Responses Inventory (CRI), the third part to Health-related Quality of Life Questionnaire, and the fourth part to the Mental Health Questionnaire.

Ethical considerations were considered in the present study: the necessary permits were obtained from the Ethics Committee and the Deputy Minister of Research and Technology. The objectives of the study were explained to the participants, and participation in this study was voluntary. Additionally, the study imposed no cost to participants. The participants could opt out of the study at any time. The results of this study were provided to individual participants if they requested it. The study data were analyzed and published in accordance with observance of a trusteeship, and the textbooks and scientific sources were used with the utmost care and observance of copyrights and trusteeship.

Data Gathering Tools

Billings and Moos' Coping Responses Inventory (CRI)

This questionnaire was designed in 1984 following an easy and valid method to assess coping responses in the form of a 32-item questionnaire designed on a Likert scale with 4 options ranging from "never" to "always" (scored as never = 0, sometimes = 1, often = 2, and always = 3). The maximum and minimum possible scores that one can achieve on this questionnaire are 96 and 0, respectively. The standard reliability coefficient of this questionnaire has been reported by Shirvani et al. to be 0.75%.[24]

SF-36 Health-Related Quality of Life Questionnaire

It is a 36-item scale that measures the health status in 8 dimensions, including physical functioning, role playing limitation due to physical reasons, role playing limitation due to emotional reasons, bodily pain, social functioning, energy and vitality, emotional role, and general health. The items of this questionnaire determine both positive and negative aspects of health. The maximum and minimum scores achieved for each part or subscale range from 100 to 0 points, with 100 points indicating good and 0 indicating poor quality of life. The total quality of life score is also obtained from the average measurement of various dimensions of health status. The standard reliability coefficient of this questionnaire has been reported by Shirvani et al. to be 0.83%.[25]

Psychological Health Questionnaire (PHQ-9)

PHQ-9 was developed by Robert Spitzer at Columbia University. It consists of 9 items designed based on a 4-point Likert scale ranging from "never" to "almost every day." The questionnaire scores each of the items as 0 ("not at all"), 1 ("several days"), 2 ("more than half of the days"), and 3 ("nearly every day"). The total score of PHQ-9 for these 9 items may range from 0 to 27. A score greater than or equal to 15 is classified as major depression, and a score greater than or equal to 20 indicates severe depression. The standard reliability coefficient of this questionnaire has been reported by Dadfar et al. to be 73.3–77.5%.[26]

Data Analysis

After collecting the data, the coded data were entered into SPSS software version 22 (IBM Corp, Armonk, NY). Descriptive statistics such as frequency and percentage were used to describe the categorical variables, and the mean and standard deviation were identified for the continuous variables. Pearson's correlation test was used for a correlation analysis.

Results

Participants

Of the 220 participants in this study (ie, the family members of the nurses working at Hajar Hospital of Shahrekord dedicated to admission and hospitalization of COVID-19-infected patients), 101 participants were male and 119 were female. The mean age of the subjects was 35.78 years, and 56.4% of them had an academic education level (Table 1). Participation in this study was voluntary and the questionnaires were anonymous. The research sample was selected using a census sampling method.

Frequency distribution and mean and standard deviation values of coping skills in the family members of nurses show that the mean and standard deviation values were 43.61 ± 12.74 such that 19.23% of people had poor coping skills, 75% had moderate coping

skills, and 5.77% had good coping skills. Frequency distribution and mean and standard deviation of mental health in the family members of nurses show that the mean and standard deviation values were 12.91 ± 3.75 such that 23.56% of people had mild depression, 74.52% had moderate depression, and 1.92% had severe depression. Frequency distribution and mean and standard deviation of quality of life in the family members of nurses show that the mean and standard deviation values were 60.19 ± 14.89 such that 30.77% of people had poor quality of life, 27.88% had moderate quality of life, and 41.35% had good quality of life (Table 2).

In the quantitative analysis of the quality of life in various aspects, the mean score of the quality of life was 12.44 ± 2.86 in physical functioning, 10.32 ± 3.06 in role playing limitation due to physical reasons, 4.53 ± 1.59 in role playing limitation due to emotional reasons, 6.34 ± 2.08 in bodily pain, 2.99 ± 1.78 in social functioning, 6.40 ± 2.92 in energy and vitality, 7.58 ± 3.37 in emotional role, and 9.74 ± 2.84 in general health. The mean scores of different dimensions of quality of life in nurses' family members show that the maximum and minimum mean scores of quality of life were related to physical functioning (12.44 ± 2.86) and social functioning (2.99 ± 1.78), respectively (Table 3).

According to Table 4, Pearson's correlation test showed a significant relationship between coping skills and mental health, quality of life items, total quality-of-life score, and demographic variables of participants (except for education level) ($P < 0.05$). This was a direct relationship in such a way that as the score of coping skills increases, so do the scores of mental health and quality of life.

Based on regression analysis results, the predictive power of mental health, coping skills, and education level was 0.634. Coping skill variable is the most powerful predictive variable (ß = 0.467), and after that the mental health variable has the greatest predictive power (ß = 0.421) (Table 5).

Discussion

The present study investigated the relationship between coping skills, mental health, and quality of life of nurses' family members at the time of the COVID-19 outbreak. Findings showed a significant relationship between the participants' coping skills and mental health, quality-of-life items, total quality-of-life score, and demographic variables. This was a direct relationship in such a way that as the score of coping skills increases, so do the scores of mental health and quality of life. Moreover, the results of the present cross-sectional study provided evidence of low coping skills, poor quality of life, and mental health problems. The results showed that family members of nurses had poor coping skills in the face of the challenges posed by the COVID-19 disease pandemic, and only a small part of them (5.5%) had good coping skills. In this regard, Shamblaw et al. found in their study during the COVID-19 outbreak that people who experience certain stresses in their lives will experience significant mental health symptoms and low quality of life, and further use ineffective coping methods, such as denial.[27] In the present study, coping style mediated the association between mental health and quality of life indicating a mutual effective relationship between coping style and mental health. Additionally, Wang et al. stated that the effective coping strategies differ based on the exact nature of the stressful event. Consequently, negative coping styles may lead to the next mental illness. They also state that paying attention to coping skills and effective coping style is of paramount importance during the

Table 1. Demographic characteristics of the family members of nurses

Group	Variable	Number	Percentage
Gender	Male	101	45.9%
	Female	119	54.1%
Education level	Below diploma holder	32	14.5%
	Diploma	64	29.1%
	Academic	124	56.4%
Age	10-33	106	48.2%
	34-57	97	44.1%
	58-80	17	7.7%

Table 2. Frequency distribution and mean and standard deviation values of coping skills, mental health, and quality of life in the family members of nurses

Variable	Mild Number (%)	Moderate Number (%)	Severe Number (%)	Mean and standard deviation
Mental health	49 (23.56)	155 (74.52)	4 (1.92)	12.91 ± 3.75
Coping skills	40 (19.23)	156 (75)	12 (5.77)	43.61 ± 12.74
Quality of life	64 (30.77)	58 (27.88)	86 (41.35)	60.19 ± 14.89

Table 3. Mean and standard deviation of quality of life and their dimensions in family members of nurses

Row	Dimensions of quality of life	Standard deviation ± mean
1	Physical functioning	12.44 ± 2.86
2	Role playing limitation due to physical reasons	10.32 ± 3.06
3	Role playing limitation due to emotional reasons	4.53 ± 1.59
4	Bodily pain	6.34 ± 2.08
5	Social functioning	2.99 ± 1.78
6	Energy and vitality	6.40 ± 2.92
7	Emotional role	7.58 ± 3.37
8	General health	9.74 ± 2.84
9	Total quality of life	60.19 ± 14.89

Table 4. Relationship between the participants' mental health and coping skills, quality-of-life items, total quality of life score, and demographic variables

Independent variables	Standardized beta (β)	*P* value	R2
Coping skill	0.467	0.015	0.634
Mental health	0.421	0.019	
Education level	0.318	0.036	

outbreak of the disease.[28] The results of the present study also indicate that weakness in coping skills is correlated with negative effects on mental health. They also showed that the mental health of family members of nurses with low coping skills is at risk. In this regard, Dawson et al. reported a high level of clinical psychological problems in the general population. Moreover, they found that

avoidance coping behaviors were negatively related to all indicators of anxiety such as stress, anxiety, and depression and were positively related to well-being.[29]

Jungmann et al. found that the inefficient emotion regulation and adaptive emotion regulation have positive and negative relationships with anxiety, respectively, and optimal coping has a positive relationship with anxiety.[18] Consistent with the results of the present study, Kar states that vulnerable populations, such as COVID-19-infected patients, people who are in close contact with these patients, the elderly, children, and health care specialists and staff have more problems with coping skills.[30] Active coping behaviors are positively associated with healthy adaptive strategies and a better understanding of quality of life. In some cases, emotional coping strategies may also be a protective factor and they can help reduce depressive symptoms and contribute to health-related quality of life.[31]

Due to the many challenges posed by indirect contact with COVID-19-infected patients, coping skill is considered a protective factor to improve the quality of life and mental health of people, especially family members of nurses during the COVID-19 pandemic. The obtained results indicate that care planners and the health care system need to focus on planning and performing interventions for family members of nurses so that they can acquire the required adaptation to specific conditions of crises such as COVID-19 disease by focusing on learning coping skills of life to help themselves and other family members. This study suggests developing a scale to assess the challenges that family care providers are encountered with.

Limitations

Among the limitations of this study are: (1) As we conducted a cross-sectional study, our results do not show a causal relationship; (2) in order to prevent a potential COVID-19 infection, a web-based study was conducted; therefore, the sampling of our study was voluntary and might affect the results; (3) psychological problems, and personal and character differences of family members of nurses might have affected the results of the study; and (4) the findings are emerged from Iranian context, which may be different from the other cultural contexts.

Conclusion

Considering the wide international scope and global uncertainty about this disease pandemic, even people who have not been directly affected by the pandemic have experienced psychological and quality-of-life problems and need to use coping strategies. However, the analysis of the investigated factors showed that family members of nurses generally experience significant mental health symptoms due to the specific experience and situation of life stress. This may have caused them to fail to show the right adaptive coping responses. In addition, their quality of life has reduced and they use ineffective coping approaches compared to people who have not experienced mental pressure. Our findings can be proposed as useful baseline information for health care providers to allocate appropriate health resources, therapies, and interventions to family members of nurses who experience mental health problems during the COVID-19 pandemic and any outbreaks of infectious diseases in the future. Furthermore, as the results obtained from this study indicate the relationship between coping skill, mental health, and quality of life, different types of coping styles

Table 5. Regression analysis of mental health variables, coping skills, and some demographic variables with quality of life in nurses' family members

Variables	Mental health	Coping skills	Quality of life	Physical health	Gender	Education level	Role limitations due to physical health	General health	Role limitations due to emotional problem	Emotional well-being	Pain	Social functioning	Energy/ fatigue
Mental health	1												
Coping skill	0.339* P < 0.001	1											
Quality of life	0.628* P < 0.001	0.235* P < 0.001	1										
Physical health	0.458* P < 0.001	0.6728* P < 0.001	0.721* P < 0.001	1									
Gender	0.095 P < 0.001	0.267* P < 0.001	0.216* P = 0.001	0.616 P = 0.001	1								
Education level	0.008 P = 0.88	0.307* P < 0.001	0.298 P < 0.001	0.257 P < 0.001	0.061 P = 0.998	1							
Role limitations due to physical health	0.298, P < 0.001	0.344 P < 0.001	0.334 P < 0.001	0.622 P < 0.001	0.031 P = 0.37	0.160* P = 0.005	1						
General health	0.215* P < 0.001	0.467 P < 0.001	0.329* P < 0.001	0.379* P < 0.001	0.212* P = 0.011	0.013 P = 0.81	0.334* P < 0.001	1					
Role limitations due to emotional problem	0.335* P < 0.001	0.292 P < 0.001	0.542* P < 0.001	0.433* P < 0.001	0.211 P = 0.03	0.125 P = 0.071	0.421 P < 0.001	0.014 P = 0.71	1				
Emotional well-being	0.655 P < 0.001	0.345 P < 0.001	0.876 P < 0.001	0.436 P < 0.001	0.234 P = 0.008	0.547 P < 0.001	0.332 P < 0.001	0.386 P < 0.001	0.532 P < 0.001	1			
Pain	0.641* P < 0.001	0.521 P < 0.001	0.432 P < 0.001	0876 P < 0.001	0.087 P = 0.76	0.176 P = 0.011	0.521 P < 0.001	0.477 P < 0.001	0.611 P < 0.001	0.421 P < 0.001	1		
Social functioning	0.544 P < 0.001	0.312 P < 0.001	0.561 P < 0.001	0.341 P < 0.001	0.710 P < 0.001	0.710 P < 0.001	0.453 P < 0.001	0.456 P < 0.001	0.581 P < 0.001	0.533 P < 0.001	0.374 P < 0.001	1	
Energy/fatigue	0.654 P < 0.001	0.467 P < 0.001	0.721 P < 0.001	0.755 P < 0.001	0.591 P < 0.001	0.269 P < 0.001	0.356 P < 0.001	0.311 P < 0.001	0.743 P < 0.001	0.641 P < 0.001	0768 P < 0.001	0.643 P < 0.001	1

used during this pandemic in various population groups are suggested for investigation to maintain and improve health in society.

References

1. **Harapan H, Itoh N, Yufika A,** *et al.* Coronavirus disease 2019 (COVID-19): a literature review. *J Infect Public Health.* 2020;13(5):667-673.
2. **Zu ZY, Jiang MD, Xu PP,** *et al.* Coronavirus disease 2019 (COVID-19): a perspective from China. *Radiology.* 2020;296(2):E15-E25.
3. **Vellas C, Delobel P, Barreto PDS, Izopet J.** COVID-19, virology and geroscience: a perspective. *J Nutr Health Aging.* 2020;24(7):685-691.
4. **Jiloha R.** COVID-19 and mental health. *Epidemiol Int.* 2020;5(1):7-9.
5. **Fu W, Wang C, Zou L,** *et al.* Psychological health, sleep quality, and coping styles to stress facing the COVID-19 in Wuhan, China. *Transl Psychiatry.* 2020;10(1):1-9.
6. **Brinkman A.** Coping with the COVID-19 virus. *Kai Tiaki: nursing New Zealand.* 2020;26(3):25-35.
7. **Chew NW, Lee GK, Tan BY,** *et al.* A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun.* 2020;88:559-565.
8. **Kishk RM, Nemr N, Aly HM,** *et al.* Assessment of potential risk factors for coronavirus disease-19 (COVID-19) among health care workers. *J Infect Public Health.* 2021;14(10):1313-1319.
9. **Robinson P.** *The vital role of nursing associates.* MA Healthcare London; 2019.
10. **Nemati M, Ebrahimi B, Nemati F.** Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. *Arch Clin Infect Dis.* 2020;15:e102848.
11. **Liu Q, Luo D, Haase JE,** *et al.* The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *Lancet Glob Health.* 2020;8(6):e790-e798.
12. **Tsay S-F, Kao C-C, Wang H-H, Lin C-C.** Nursing's response to COVID-19: lessons learned from SARS in Taiwan. *Int J Nurs Stud.* 2020;108:103587.
13. **Ying Y, Ruan L, Kong F,** *et al.* Mental health status among family members of health care workers in Ningbo, China, during the coronavirus disease 2019 (COVID-19) outbreak: a cross-sectional study. *BMC Psychiatry.* 2020;20(1):1-10.
14. **Shahyad S, Mohammadi MT.** Psychological impacts of COVID-19 outbreak on mental health status of society individuals: a narrative review. *J Mil Med.* 2020;22(2):184-192.
15. **Skapinakis P, Bellos S, Oikonomou A,** *et al.* Depression and its relationship with coping strategies and illness perceptions during the COVID-19 lockdown in Greece: a cross-sectional survey of the population. *Depress Res Treat.* 2020;20(2)1-11.
16. **Barghi Irani Z, Bagiyan Kulehmarz MJ, Sharifi F.** The social skills training on emotional adjustment increasing, mental health and self-esteem of students with physical–mobile disability. *Biann J Appl Couns.* 2016;6(1):37-58.
17. **Kar N, Kar B, Kar S.** Stress and coping during COVID-19 pandemic: result of an online survey. *Psychiatry Res.* 2021;295:113598.
18. **Jungmann SM, Witthöft M.** Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: which factors are related to coronavirus anxiety? *J Anxiety Disord.* 2020;73:102239.
19. **Panayiotou G, Panteli M, Leonidou C.** Coping with the invisible enemy: the role of emotion regulation and awareness in quality of life during the COVID-19 pandemic. *J Context Behav Sci.* 2021;19:17-27.
20. **Chew QH, Wei KC, Vasoo S,** *et al.* Narrative synthesis of psychological and coping responses towards emerging infectious disease outbreaks in the general population: practical considerations for the COVID-19 pandemic. *Singapore Med J.* 2020;61(7):350.
21. **Solomou I, Constantinidou F.** Prevalence and predictors of anxiety and depression symptoms during the COVID-19 pandemic and compliance with precautionary measures: Age and sex matter. *Int J Environ Res Public Health.* 2020;17(14):4924.
22. **Nguyen HC, Nguyen MH, Do BN,** *et al.* People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: the potential benefit of health literacy. *J Clin Med.* 2020;9(4):965.
23. **An Y, Yang Y, Wang A,** *et al.* Prevalence of depression and its impact on quality of life among frontline nurses in emergency departments during the COVID-19 outbreak. *J Affect Disord.* 2020;276:312-315.
24. **Baghjari F, Esmaeilinasab M, Shahriari-Ahmadi A.** Predicting posttraumatic growth based on coping strategies in women and men involving with advanced cancer. *Int J Cancer Manag.* 2017;10(8):1-6.
25. **Shirvani M, Heidari M.** Quality of life in postmenopausal female members and non-members of the elderly support association. *J Menopausal Med.* 2016;22(3):154-160.
26. **Dadfar M, Kalibatseva Z, Lester D.** Reliability and validity of the Farsi version of the Patient Health Questionnaire-9 (PHQ-9) with Iranian psychiatric outpatients. *Trends Psychiatry Psychother.* 2018;40(2):144-151.
27. **Shamblaw AL, Rumas RL, Best MW.** Coping during the COVID-19 pandemic: relations with mental health and quality of life. *Can Psychol/ Psychologie Canadienne.* 2021;62(1):92-100. https://doi.org/10.1037/cap0000263.
28. **Wang H, Xia Q, Xiong Z,** *et al.* The psychological distress and coping styles in the early stages of the 2019 coronavirus disease (COVID-19) epidemic in the general mainland Chinese population: a web-based survey. *PLoS One.* 2020;15(5):e0233410.
29. **Dawson DL, Golijani-Moghaddam N.** COVID-19: psychological flexibility, coping, mental health, and wellbeing in the UK during the pandemic. *J Context Behav Sci.* 2020;17(4):126-34.
30. **Kar SK, Yasir Arafat S, Kabir R,** *et al. Coping with mental health challenges during COVID-19. Coronavirus disease 2019 (COVID-19).* Springer; 2020:199-213.
31. **Greer JA, Jacobs JM, El-Jawahri A,** *et al.* Role of patient coping strategies in understanding the effects of early palliative care on quality of life and mood. *J Clin Oncol.* 2018;36(1):53.