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Investigating the Association Between Stress Coping Strategies and Social Support in COVID-19 Survivors

Bahareh Fallah [1], Khadijeh Nasiriani [1], Akram Mehrabbeik [2], Hossein Nazmiah [1], Elnaz Sheikh Pour [3], Fatemeh Ghanizadeh [3], Majid Hajimaghsoudi [4] and Najmeh Baghian [5, *]

[1] Department of Nursing and Midwifey, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[2] Diabetes Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[3] Hematology and Oncology Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[4] Trauma Research Center, Shahid Rahnemoon Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[5] Clinical Research Development Center, Shahid Rahnemoon Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

[*] *Corresponding author*: Clinical Research Development Center, Shahid Rahnemoon Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Email: n.baghian@yahoo.com

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Abstract

Background: The global spread of COVID-19, due to its pathogenesis and high mortality rate, has caused high levels of stress among various levels of societies. Hence, it is necessary to investigate social support interventions concerning their effectiveness and accessibility.

Objectives: The study aimed to determine the association between coping strategies and social support in survivors of COVID-19.

Methods: Following a descriptive-correlational design, using the census method, 158 discharged cases with a definitive diagnosis of COVID-19 in 2020 were recruited. Data collection tools included the demographic characteristics questionnaire, CISS-48 stress-coping methods, and Wax's social support questionnaire. Data were analyzed using descriptive and inferential statistics of Pearson correlation coefficient and multivariate regression in SPSS version 22.

Results: The most and least frequent stress coping strategies used by patients were problem-oriented (48.49 ± 9.99) and avoidance-oriented stress strategies (24.48 ± 4.11), respectively. Family support (39.02 ± 4.20) was the major source of support. There was a significant correlation between the score of social support and the total score of stress, problem-oriented, and avoidance-oriented stress. According to the regression analysis, there was a significant association between the score of coping strategies and educational level.

Conclusions: By increasing the awareness of COVID-19 patients about problem-based coping strategies, their stress can be reduced. Also, due to the high level of social support provided by the family, planning for family-centered nursing interventions and engaging family members in the care of COVID-19 patients are important.

Keywords: Coping Strategies, COVID-19, Social Support, Stress

1. Background

Despite the great advances in the medical sciences, there are still diseases that affect many people and threaten their lives (1). Novel coronavirus (nCoV-2019) has spread as a pandemic. In late December 2019, the new coronavirus triggered the spread of pneumonia from Wuhan (Hanan seafood market) throughout China (2) and other countries, which turned into a major health problem worldwide (3, 4).

According to global reports, the mortality rate of this disease is 4.3%, although researches on the 2019 novel coronavirus have been started and continue in various countries, including Iran, no definitive vaccine or treatment has been clinically confirmed yet (3).

Patients with COVID-19 suffer from many physical problems such as respiratory symptoms, fever, muscle aches, fatigue, and even gastrointestinal symptoms (3). Moreover, people who are quarantined or hospitalized experience severe stress along with other problems (4). High morbidity and mortality of COVID-19 have caused mental health consequences that may persist for many years (5).

Since the identification of first cases, most governments have tried to slow the spread of the virus. In many parts of the world, restrictions were imposed on travel, social isolation was implemented, and work-from-home

was expanded rapidly (6). School closures, job insecurity, and changes in social behaviors may have caused negative effects on mental health and the ability to cope with problems. According to the Centers for Disease Control, everyone needs to manage stress and protect their mental health during this very uncertain period because increased stress may lead to maladaptive behaviors to cope with stress and anxiety (7).

Several studies investigated the psychological impact of an outbreak on people and examined a wide range of psychological effects (8). People are more likely to experience emotional feelings such as worrying about getting infected or getting sick, increased self-blame, disability (9), fear of stigma, and discrimination (10). As more evidence and research becomes available about COVID-19 as a new disease, many facts are constantly changing. Nevertheless, fake news may cause more fear, confusion, and anxiety (11).

Due to imposed restrictions, face-to-face communications and previous social interactions have decreased significantly, which may translate into stressful events (12). Furthermore, quarantined people are at increased risk of feeling loneliness and anger and there are serious worries about death among patients (4). Mechili et al. mentioned the quarantine during the coronavirus (COVID-19) pandemic as a reason for depression and stress (13).

According to health psychology, since any change in human life requires some kind of readjustment (14), coping and identification of methods to deal with stress are considered important factors that affect the health and psychosocial status of patients (15). As a result, methods chosen to cope with changes and stressful life events vary from one person to another. Coping strategies are a set of cognitive and behavioral efforts to interpret and modify a stressful situation and to cope with problems. They also play a fundamental and decisive role in physical and mental health (16). Effective coping strategies can reduce a person's response to high levels of stress and eliminate its detrimental effects (17). In addition, to deal with stress, which depends on how patients perceive their illness and how to adapt to it, a number of different factors, such as environmental factors (social support), can predict the use of coping strategies (14, 18, 19). However, during crises, seeking social support is often one of the most adaptable ways to cope with stress (20).

Social support is the support that others provide to the individual in order to feel important, especial and loved, and be able to cope well with stressors (21, 22). Social support has a positive effect on patients' mental health. For instance, as evidenced by several studies, the level of psychological vulnerability of people with high social support is lower compared to people with low social support (23, 24). Also, physiological stress reactions depend on the availability and level of social support, and the intensity of reactions to stressful life events is different (i.e., less) in the presence of friends and acquaintances (25, 26). It is important to consider mental health issues as one of the most important health concerns during the COVID-19 pandemic. Hence, it is essential to study how to deal with such a catastrophe and to have a proper understanding of mental health status (4).

2. Objectives

Due to the advent of SARS-CoV-2 and the lack of definitive treatment for it as well as the need for quarantine of patients who do not need hospitalization, the present study was conducted to determine the association between coping strategies and social support in COVID-19 patients.

3. Methods

3.1. Participants and Data Collection

This descriptive-correlational study was conducted from March to April 2020. Of 160 patients with a definite diagnosis of COVID-19 who were discharged from Shahid Sadoughi Hospital in the city of Yazd after receiving treatment during the study period, 158 patients completed the questionnaires. These participants were supposed to be quarantined at home for two weeks after discharge. It is worth mentioning; According to COVID-19 diagnostic and treatment protocols, patients who do not need to receive medication at the hospital must be quarantined at home for at least 14 days. Study participants were selected by purposive sampling method, based on the following inclusion criteria: (1) age $\geq$ 18; (2) being on the recovery phase according to the diagnosis of an infectious disease specialist; and (3) ability to read and write in Persian.

After obtaining verbal consent from participants, the questionnaires were filled using telephone interviews by two trained questioners.

3.2. Questionnaires

Data were collected by three questionnaires as follow: (1) demographic characteristics (including age, sex, marital status, level of education, employment status, history of other illness, and length of hospital stay); (2) Coping

Inventory for Stressful Situations questionnaire (CISS-48); and (3) Wax's social support questionnaire.

CISS-48 is a 48-item questionnaire developed by Endler and Parker (1990) that contains three dimensions of task-oriented, emotion-oriented, and avoidance-oriented strategies. It is scored on a five-point Likert scale ranging from 5 ("always") to 1 ("never"). The range of changes for each variable is from 16 to 80.

Each coping method includes 16 items. The individual's dominant coping style is determined by his/her score, and the strategy with the highest score was considered as the coping strategy (27). The validity and reliability of the Persian version of this questionnaire are confirmed by Shokri et al. in Iran. Reliability was calculated using the test-retest correlation coefficients for dimensions of task (0.64), emotion (0.60), and avoidance orientation (0.61) (28). The Wax Social Support Questionnaire is a 23-item questionnaire developed in 1986. It contains three subscales of family support (8 items), friend support (7 items), and significant others (8 items). Based on their score, participants will be categorized into three groups of poor, average, and good. Thus, individuals with scores below 50% were categorized as poor, between 50 - 75% as middle, and above 75% as good. This scale is scored on a five-point Likert scale, ranging from 5 ("very high") to 1 ("very low"). The lowest and highest scores are 23 to 115, respectively. Hence, the higher the score, the higher the social support and vice versa (27).

The internal consistency of this questionnaire is evaluated by Safavi, quoted by Voux et al., who reported a range of 0.83 to 0.90 (27). In Iran, Ebrahimi et al. reported satisfactory reliability for the Persian version of this questionnaire (Cronbach's alpha coefficient of 0.90 and test-retest of 0.81) (29).

In the present study, initially, the objectives of the study were explained to potential participants, and if agreeing, written informed consent was obtained. Then, they filled the self-report questionnaires.

3.3. Statistical Analysis

Data were analyzed using descriptive (mean and standard deviation) and inferential statistical methods. Pearson correlation coefficient and multivariate regression test were used to analyze the data in SPSS version 22.

All authors completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. In addition, this study is approved by the Ethics Committee of Shahid Sadoughi University of Medical Sciences in Yazd (IR.SSU.REC.1399.007).

4. Results

4.1. Participants

Of 159 patients with a definitive diagnosis of COVID-19, one did not fill the questionnaire; hence, the sample size was reduced to 158 subjects. Based on descriptive analysis, 88 (55.3%) participants were male, 137 (86.2%) were married, and 58 (36.5%) were educated up to primary or lower. The mean age of participants was 52.43 $\pm$ 8.22 years.

Also, 26 (16.4%) participants were diabetic, and 20 (12.5%) had a history of cardiovascular disease. The mean duration of hospitalization was 4.9 days, and 52 (32.7%) patients reported infection among one of their family members.

According to the findings, younger people, men, people with higher education, and those with better economic status had a higher tendency towards task stress strategies, while older people, women, people with higher education, and people with better economics status benefited from more social support from the family (Table 1).

4.2. Stress Coping Strategies & Social Support Domains

Based on the results, the mean score of task-oriented, emotion-oriented, and avoidance-oriented strategy was (48.49 $\pm$ 9.99), (33.31 $\pm$ 9.34), and (24.48 $\pm$ 4.11), respectively. Also, the mean total score of the coping strategy was (15.45 $\pm$ 113.32). In addition, the mean score of support from family, friends, and others was (39.02 $\pm$ 4.20), (21.68 $\pm$ 6.05), and (26.28 $\pm$ 4.42), respectively. And, the mean score of total social support was (12.77 $\pm$ 87.00) (Table 2).

4.3. Correlation of Stress Coping Strategies and Social Support Dimensions

The Pearson correlation coefficient test showed that social support score had a positive and significant correlation with total stress and task-oriented and avoidance-oriented stress, but was negatively correlated with emotion-oriented stress, which was not statistically significant ($r = -0.029$, $P = 0.715$). Furthermore, coping strategies had a positive and significant correlation with social support and its dimensions (support of friends: $r = 0.866$, support of family: $r = 0.834$, support of others: $r = 0.910$, $P < 0.01$) (Table 3).

Table 1. The Association Between Stress Coping Strategies, Social Support, and Demographic Characteristics

Variables	Stress Coping Strategies				Social Support			
	Task-Oriented	Emotion - Oriented	Avoidance-Oriented	Total	Support (Friends)	Support (Family)	Support (Significant Others)	Total
Age								
≤ 35	49.33 ± 12.56	33.33 ± 1.092	24.80 ± 5.73	14.46 ± 24.82	2.76 ± 6.53	27.66 ± 6.18	25.26 ± 6.16	75.70 ± 17.06
36 - 45	49.87 ± 9.98	32.63 ± 6.80	24.72 ± 3.74	114.51 ± 13.68	20.54 ± 4.69	28.51 ± 3.58	26.39 ± 3.50	75.45 ± 9.63
46 - 55	48.34 ± 9.29	34.68 ± 11.62	23.79 ± 3.93	114.37 ± 13.15	21.82 ± 6.72	29.38 ± 3.70	56.34 ± 3.97	78.34 ± 11.37
> 55	47.49 ± 9.08	33.04 ± 8.68	24.52 ± 3.54	111.77 ± 11.59	21.70 ± 6.13	30.17 ± 3.01	26.67 ± 4.10	77.76 ± 12.63
Sex								
Male	49.42 ± 8.47	32.14 ± 8.74	24.45 ± 3.73	113.22 ± 11.43	22.42 ± 5.51	28.40 ± 4.62	26.54 ± 3.95	78.48 ± 11.61
Female	47.33 ± 11.57	34.76 ± 9.90	24.52 ± 4.57	113.45 ± 19.45	20.77 ± 6.58	29.52 ± 3.79	25.97 ± 4.95	75.15 ± 13.95
Educational level								
Primary & middle school	44.75 ± 7.86	33.34 ± 11.59	24.24 ± 4.80	113.35 ± 19.04	20.85 ± 6.64	29.13 ± 5.81	25.83 ± 5.61	74.86 ± 11.98
High school	51.47 ± 8.15	32.68 ± 6.72	26.02 ± 3.02	117.45 ± 9.91	22.02 ± 6.16	29.43 ± 3.66	26.72 ± 4.28	79.32 ± 8.64
B.Sc.	53.07 ± 9.47	31.64 ± 7.67	24.10 ± 4.06	116.57 ± 17.04	24.03 ± 4.14	29.03 ± 3.32	26.25 ± 3.28	78.18 ± 12.04
Higher education	55.40 ± 7.45	34.70 ± 10.97	24.40 ± 5.01	123.00 ± 10.46	25.20 ± 5.26	29.92 ± 3.50	28.70 ± 3.19	84.40 ± 7.84
Income								
< 300 million Rials [a]	47.22 ± 8.10	33.97 ± 8.81	24.70 ± 3.62	112.8 ± 10.30	20.74 ± 5.59	25.20 ± 5.26	25.60 ± 3.33	75.00 ± 9.94
300 - 700 million Rials [b]	55.61 ± 7.77	32.50 ± 7.46	24.80 ± 3.64	120.77 ± 11.52	22.83 ± 5.30	22.02 ± 6.16	27.11 ± 3.04	79.44 ± 10.10

[a] 120$.
[b] 120 - 200$.

Table 2. Mean Score of Stress Coping Strategies and Social Support Among Participants

Variables	Mean ± SD	Minimum Score of Questionnaire	Maximum Score of Questionnaire
Stress coping strategies			
Task-oriented	48.49 ± 9.99	16	80
Emotion - oriented	33.31 ± 9.34	16	80
Avoidance- oriented	24.48 ± 4.11	16	80
Total	113.32 ± 15.45	48	240
Social support			
Support (family)	39.02 ± 4.20	8	40
Support (friends)	21.68 ± 6.05	7	35
Support (significant others)	26.28 ± 4.42	8	40
Total	87.00 ± 12.77	23	115

Table 3. Pearson Correlation of Stress Coping Strategies and Social Support Dimensions

Variables	1	2	3	4	5	6	7	8
Task-oriented	1							
Emotion oriented								
r	0.223 [a]	1						
P value	0.005							
Avoidance-oriented		0.265 [a]						
r	0.356 [a]		1					
P value	0.000	0.001						
Coping strategies		0.520 [a]	0.680 [a]					
r	0.685 [a]			1				
P value	0.000	0.000	0.000					
Support (friends)		-0.092	0.371 [a]	0.265 [a]				
r	0.312 [a]				1			
P value	0.001	0.000	0.249	0.000				
Support (family)		0.370 [a]	0.035	0.479 [a]	0.502 [a]			
r	0.491 [a]					1		
P value	0.000	0.000	0.000	0.662	0.000			
Support (significant others)		0.008	0.451 [a]	0.463 [a]	0.654 [a]	0.772 [a]		
r	0.464 [a]						1	
P value	0.000	0.000	0.000	0.000	0.917	0.000		
Social support		-0.029	0.454 [a]	0.444 [a]	0.866 [a]	0.834 [a]	0.910 [a]	
r	0.470 [a]							1
P value	0.000	0.000	0.000	0.000	0.000	0.715	0.000	

[a] Significant at the 0.01 level.

4.4. Regression Analysis of Stress Coping Predicted by Social Support

As shown in Table 4, according to the results of the regression analyses, for every one unit increase in score of friend's support the score of coping with stress decreases by 0.16, and also by one unit increase in the score of significant others and family support, the score of coping strategies rises by 0.95 and 1.1 units, respectively. Hence, significant others and family support are the most important predictors of coping strategies score. According to the R^2 measures, it can be argued that 25% of changes in coping with stress can be predicted by social support.

4.5. Regression Analysis of Stress Coping Predicted By Demographic Characteristics

There is a significant association between the scores of stress coping strategies and variables of economic status, gender, and age (Table 5).

5. Discussion

The aim of this study was to investigate the association between stress coping strategies and social support in COVID-19 survivors. As the virus is still spreading and the number of cases and deaths is on the rise, the pandemic will likely cause a great deal of stress and anxiety among people.

Based on the results, younger people, men, people with higher education, and those with better economic status have a higher tendency towards task stress strategies. In addition, older people, women, people with higher education, and those with low economic status received more social support from their families. It seems that older people, because of having more children, and women, because of emotional mood, people with higher education, because of wider communication, and patients with better financial status, because of having an extra chance in attracting others' attention, benefit from higher levels of family support. Park et al. reported that financial worries caused the greatest stress. They also noted that women and young people experienced more stress (7).

The results showed that the most and the least frequent coping strategies used by patients, were task-oriented and avoidance-oriented, respectively. Hence, it can be argued that despite the public fear of the COVID-19 pandemic, participants of the current study had a higher tendency towards problem-oriented strategy. According to Umucu and Lee, perceived stress in patients

Table 4. Regression Analysis of Stress Coping Strategies Predicted by Social Support in Patients [a]

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	P
	B	SE	B		
Constant	59.67	7.57	-	7.88	0.001
Support (friends)	-0.16	0.23	-0.06	-0.7	0.48
Support (family)	1.10	0.4	0.3	2.74	0.007
Support (significant others)	0.95	0.43	0.27	2.19	0.03

[a] $R^2 = 0.25$; Adjusted $R^2 = 0.23$.

Table 5. Regression Analysis of Stress Coping Predicted by Demographic Characteristics [a]

Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	P
	B	SE	B		
Constant	109.2	5.23	-	20.8	0.001
Age	0.034	1.7	-0.362	-7.31	0.001
Sex	0.224	4.21	0.216	2.64	0.003
Socio-economic status	2.8	0.92	0.36	3.04	0.003
Education	1.83	2.29	0.08	0.8	0.42
Duration of hospitalization	-0.04	0.25	-0.01	-0.17	0.86
Quarantine period	-0.15	0.17	-0.07	-0.83	0.4

[a] $R^2 = 0.22$; Adjusted $R^2 = 0.18$.

with COVID-19 is associated with coping strategies such as self-distraction, denial, substance use, behavioral maladaptation, and self-blame (30). In this respect, if patients be able to deal with their disease rationally and focus on the issues using the problem-oriented coping method, instead of denying the problem, they would consider the prescribed treatment as a logical solution (31). Park et al. (7) showed that the most common strategies for stress management included distraction, active coping, and seeking emotional social support (7). Concerning the importance of preventive strategies regarding the transmission of COVID-19, using emotion-oriented and avoidance-oriented methods is not effective because in these situations, following an emotional-based strategy is not a logical solution.

This study demonstrated that the support provided by family members has an effective role in the patient's social support. Family members, especially the patient's spouse, are the most important supporting factor in the course of the disease to avoid feelings of loneness and stress. Social support protects individuals against stressful stimuli by playing a mediating role between stress and illness (32). According to the findings of the present study, among the components of social support, family support and significant others support obtained the highest (73%), and lowest (65.7%) means, respectively. It could be considered as the nature of Eastern life and especially the key role of the family in Iranian culture. El-Zoghby et al. mentioned that only 24.2% of participants reported increased support from their friends, while increased support for family members was reported in 40.6% of cases. Furthermore, 46.5% shared their feelings with family members, and 34.5% shared with others. Family care was increased in 64.7% of cases (33).

It seems that when people received no support, they feel lonely and subsequently become vulnerable to the problems related to the disease. Family, friends, colleagues, and significant others help patients to calm down. Family members' caregiving can help patients to cope with the disease, which in turn translates into better outcomes. Rosa et al. emphasized the importance of social support, particularly the role of family support in taking care of patients with COVID-19 (34).

Another finding of this study was the positive and significant correlation between the mean score of social support and the mean score of total coping strategies, task-oriented, and avoidance-oriented stress strategies. In addition, this correlation was negative and non-significant for emotion-oriented stress. Social interactions appear to reduce negative emotions such as stress and anxiety and be associated with improved mood. Yu et al. also showed that pregnant women with higher social support had less anxiety related to the coronavirus than others. In the problem-

oriented style, a person assesses the stressful situation at first, then, s/he tries to control negative emotions and to focus on solving the problem. Afterward, s/he makes decisions in a real setting and seeks help from others if necessary (35).

In fact, individuals experience lower levels of stress in the presence of others compared to when they are alone, and if these patients benefit from external support, especially from their family and significant others, they will experience lower levels of stress. Consistent with the hypotheses, social support can improve the health of individuals by protecting them from the negative effects of high stress and interfering with stressful situations (36). Social support improves the task and avoidance-oriented strategies in coping with anxiety, so it is effective for faster recovery of patients.

In a study on COVID-19 patients in China, Yu et al. mentioned positive coping strategies and increased social support as factors that were significantly associated with declined psychological anxiety. They argued that these factors may serve as a basis for psychological interventions. People with higher psychological distress spent more time on searching for information about COVID-19, had a history of contact with epidemic areas, had a more negative approach, and reported less social support than people with low psychological distress (37). On the other hand, social support makes people feel cared for, loved, and valued. Moreover, they consider themselves as a part of a wider network of communication and finally, empowers them to cope well with stressors. Providing family guidance packages about communication and social support at the time of hospital discharge can be helpful in this regard (38).

This study demonstrated that social support affects psychosocial risk factors such as stress and by reducing these factors, provides the basis for better recovery. Social support seems to promote certain types of coping behaviors that, in combination with dimensions of the support, translates into the modified stress response.

5.1. Limitations

Despite efforts to make the study accurate, there were some limitations that should be considered in generalizing the results. The most mentionable limitation is that in the present study, participants were selected from one hospital, hence the findings should be generalized with caution. Moreover, cultural factors probably have influenced the findings. Another limitation of the present study is the inability of patients to directly communicate with their families and friends due to the specific conditions of the disease.

There are several factors that affect the mental health of survivors of COVID-19, so it is recommended that these factors be investigated. To promote the mental health of society, it is necessary to carry out interventions related to increasing awareness about coping strategies and how to seek social support as well as reducing patients' concerns about social stigma, which translates into declined sensitivity to social labels. Psychologists should communicate with hospitalized COVID-19 patients to help them solve their cognitive, marriage, and family-related problems.

5.2. Conclusion

This study demonstrated that stress and strain of the COVID-19 can be significantly reduced by improving coping skills, particularly problem-based coping techniques. Due to the high contagiousness and unknown complications of COVID- 19, stress might be considered as a common response to unexperienced situations, but patients and their families must learn how to manage stress logically. Family Support and not leaving patients alone, as well as understanding their worries and feelings, make it easier for them to cope with their problem and accept their condition.

Focusing on the type of coping strategy, as well as emphasizing family support for COVID-19 survivors, have a significant impact on reducing their vulnerability to the disease.

Footnotes

Authors' Contribution: All authors made substantial contributions to the design of the work. BF and KhN drafted the work. AM, HZ, & FGh and NB analyzed the data. All authors contributed to the interpretation of the data. MH, ESH and KHN substantively revised the work. All authors read and approved the final manuscript.

Conflict of Interests: The authors declare no conflict of interest.

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