



Relationship between Social Support and Mental Health of Novice Nurses during Coronavirus Epidemic

Sara Mohammadi ¹ , Nasrin Kamali ^{2*} , Yousof Jamshidbeigi ¹ , Seyed Salman Zakariaee ³ , Aghil Rostami ⁴ , Azra Kenarkoohi ⁵

¹ Department of Operating Room, School of Allied Medical Sciences, Ilam University of Medical Sciences, Ilam, Iran

² Department of Operating Room, School of Nursing, North Khorasan University of Medical Sciences, Bojnurd, Iran

³ Department of Medical Physics, School of Allied Medical Sciences, Ilam University of Medical Sciences, Ilam, Iran

⁴ Student Research Committee, School of Allied Medical Science, Ilam University of Medical Sciences, Ilam, Iran

⁵ Department of Parasitology, School of Allied Medical Sciences, Ilam University of Medical Sciences, Ilam, Iran

*Corresponding author: Nasrin Kamali, Department of Operating Room, School of Nursing, North Khorasan University of Medical Sciences, Bojnurd, Iran. E-mail: n.kamali@nkums.ac.ir

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Abstract

Introduction: Coronavirus has created a confusing and stressful situation around the world. In these circumstances, health care workers are most prone to vulnerability. The goal of this study was to investigate the relationship between social support and mental health of novice nurses during the outbreak of COVID-19 to provide basic information for intervention measures.

Methods: The present descriptive-analytical, cross-sectional study was conducted in the spring of 2020. The study population included all nurses working in teaching hospitals of Ilam University of Medical Sciences to fulfill their commitments who were enrolled in the study by census method. Data were collected using general information questionnaire, General Health Questionnaire (GHQ) and Phillip's Social Support Questionnaire and analyzed by SPSS software, as well as descriptive and inferential statistics. Significance level was considered <0.05.

Results: The total score of GHQ and social support was 24.58±12.063 and 70.77±9.761, respectively. There was a statistically significant inverse relationship between social support and mental health of participants (P=0.01). Among the demographic variables, there was a significant correlation between work experience, hospital, direct contact with COVID-19 patients and the number of working days in coronavirus ward with mental health and social support.

Conclusions: The findings of the present study add to our knowledge obtained from previous studies by discovering the impact of social support on mental health of health care providers with special attention to novice nurses at the forefront. Ongoing monitoring of psychological consequences associated with COVID-19 outbreak and social support of them require further attention.

INTRODUCTION

In December 2019, an infectious disease of unknown etiology was detected in Wuhan, China that was characterized by symptoms of acute pneumonia and designated as Coronavirus 2019 (COVID-19) [1]. The disease spread rapidly throughout China and elsewhere and became a global health emergency [2] and eventually the COVID-19 was declared a pandemic on March 11, 2020 by WHO [3]. The prevalence of disease is still evolving [4].

The outbreak of COVID-19 has already caused considerable fear among the people. This high level of anxiety may inhibit us from following effective preventative behaviors to control the infection, which also predisposes to a wide range of unhealthy coping behaviors (to deal with stress) that will have long-term consequences [5].

In this framework, front-line health care workers, who are directly involved in the diagnosis, treatment and care of patients with COVID-19, are at greater risk of contracting the infection and spreading it to others (including loved ones) than the general public, causing psychological distress and other symptoms in them [1, 4, 6]. Moreover, increasing number of suspicious and approved cases, high mortality rates and workload, reduced personal protective equipment, widespread media coverage, lack of specific drugs and inadequate support can increase the psychological burden on these health professionals [4]. The challenges and stresses they experience can lead to common mental disorders, including anxiety, depressive disorders and post-traumatic stress disorder (PTSD), which in turn can cause more risks than the consequences of COVID-19 epidemic itself [7].

Early evidence from Wuhan reports indicated to what extent this unprecedented situation affected the mental health of frontline health care workers who reported psychological health problems such as anxiety, depressive symptoms, anger and fear [3].

WHO, CDC, and other health authorities around the world are currently focusing on curbing the spread of COVID-19 pneumonia by recommending measures like social distancing and quarantine. However, there is less emphasis and intervention on the effect of disease on mental health [8].

Previous studies have suggested that social support may be a powerful strategy to reduce the negative consequences on psychological status of medical staff confronted with infectious disease [9]. Effective social support can protect people from mental health problems when faced with stress [10].

Based on literatures employees who had a close contact with COVID-19 patients were more prone to depression than other medical staff and ordinary citizens and that the perceived social support in these individuals was significantly and inversely related to anxiety and depression [9]. Also, increased perception of social

support led to improved self-efficacy and sleep quality among medical staff in direct contact with COVID-19 patients [11].

The current response to COVID-19 crisis will be defective unless we consider the mental health component [5]. The findings of a study in China showed that the mental health of novice nurses was poorer than the general population [12]. Whereas novice nurses naturally experience some degree of stress and anxiety due to the process of transition from student to professional nurse, start of work and taking responsibility [13], exposure to the current situation can contribute to this issue. Therefore, in this study, we decided to examine the mental health status of novice nurses and evaluate the impact of social support on it.

METHODS

Design and Sampling

The present descriptive-analytical, cross-sectional study was conducted in the spring of 2020. The study population included all nurses working in teaching hospitals of Ilam University of Medical Sciences to fulfill their commitments (based on the number of such nurses registered in hospital nursing services office) who were enrolled in the study by census method. Inclusion criteria were working as a nurse to fulfill commitments, work experience of less than two years and informed consent to cooperate in the research. Those fulfilling their commitments whose mandate was extended for more than two years were excluded from the study. Due to the limited population, the information was collected by census. The questionnaires were distributed among the nurses of different wards through provincial nursing office as well as subgroups (matrons, supervisors and head nurses) by observing ethical considerations.

At the beginning of the questionnaire, full explanations were given about the purpose of the study and informed consent was obtained from nurses to participate in the study who were also assured that their information remained confidential. Participants were explained about the mode to answer the questionnaires. In all stages of the research, utmost confidentiality was observed in keeping personal information and the anonymous questionnaires were completed as self-report by research units in presence of the researcher. Questionnaires were collected after completion and the data collection lasted 12 days.

Data Collection Tools

Three questionnaires were used to collect data as follows.

General information questionnaire including demographic characteristics [age, gender, marital status, field of study, place of work (hospital), ward, work experience per month] as well as questions related to coronavirus (history of direct contact with COVID-19

patients, history of the disease, the number of working days in the coronavirus ward.

GHQ (General Health Questionnaire): This questionnaire was developed by Goldberg and Hillier in 1989 and has 28 questions and 4 subscales (physical symptoms, anxiety and insomnia, social dysfunction, and depression). Each questionnaire item is based on Likert scale, in which the answers to the questions are scored as follows: the first option: 0 points; second option: 1 point; third option: 2 points; fourth option: 3 points. Finally, the overall score of the subject will be 0-84. If the scores of the questionnaire are 0-21, the probability of mental disorder in this community is low. If the scores are 21-42, the likelihood of mental disorder is moderate and there is suspicion of psychological disorder. If the scores are >42, the probability of mental disorder is very high. In general, the lower a person's score, the better his/her mental health, and the higher their scores, the lower their mental health. The validity and reliability of the Persian version of questionnaire has been confirmed in various studies. The reliability of total coefficient was 0.96 and the subscales of depression, anxiety, physical and social disorder were calculated as 0.94, 0.90, 0.89 and 0.7, respectively [12].

Phillips Social Support Questionnaire: This questionnaire was developed by Phillips et al. in 1986 based on Kobe's definition of social support. The questionnaire has 23 items that measure three areas of social support: family (8 items), friends (7 items), others (8 items). The test is scored in the form of four options: "Strongly agree", "Agree", "Disagree", "Strongly disagree" with scores 4, 3, 2, 1, respectively. Questions 3, 10, 21 and 22 are inversely scored. Minimum and

Table 1. Frequency Distribution of People According to Demographic Variables & Corona Virus Questions and Relationship between Mental Health and Social Support with Them

Variable / Item	Number (Percent)	Mental Health	Social Support
Gender			
Female		33.91	38.50
Male	42 (57.5)	38.69	31.73
Test*	31 (42.5)	Z=-.969, P=.336	Z=-1.385, P=.168
Age			
20-24		30.69	42.45
25-29	22 (30.1)	39.18	33.35
30-34	42 (57.5)	33.89	28.83
Test**	9 (12.3)	P=.298	P=.144
Marital status			
Single		34.57	34.39
Married	56 (76.7)	40.91	38.97
Test*	17 (23.3)	Z=-1.081, P=.284	Z=-.809, P=.424
Work experience (Month)			
>6		42.22	27.39
7-12	38 (52.1)	26.71	42.63
13-18	17 (23.3)	22.42	41.40
19-24	6 (8.2)	37.29	48.54
Test**	12 (16.4)	P=.023	P=.004
Workplace (Hospital)			
Vali Asr		18.53	42.07
Mostafa	16 (21.9)	46.86	20.13
Imam Ali	23 (31.5)	25.00	50.00
Imam Reza	12 (16.4)	46.33	34.33
Imam Khomeini	3 (4.1)	39.60	45.30
Taleghani	15 (20.5)	65.17	16.83
Test**	4 (5.5)	P=.000	P=.000

maximum scores of this scale are 23 and 92, respectively. A higher score indicates more social support. This tool has been standardized in Iran and its validity has been found to be equal to 0.75 by Cronbach's alpha method. Using Cronbach's alpha, the validity for social support of family was 7.12, friends 7.18, others 7.80 and total social support scale 7.00 [13].

Statistical Analysis

After collecting data and feeding into SPSS software, analysis of data was performed using descriptive (frequency distribution, mean and standard deviation) and inferential statistics (Spearman, independent t-test, ANOVA and non-parametric Mann-Whitney and Krusal-Wallis tests). Significance level was considered <0.05.

RESULTS

In the present study, there were 73 participants with gender distribution of 57.5% female (42) and 42.5% male (31). The research units were in the age range of 20-34 years. Most participants (76.7%) were single and a majority of them (52.1%) had less than six months of work experience. Most subjects had a degree in nursing and worked in the emergency department (Table 1).

Our findings show that more than half of the subjects were in direct contact with COVID-19 patients. About half of the participants (46.6%) were not present in coronavirus ward and only 1.4% of them contracted the disease (Table 1).

The results of Table 2 show that the total score of mental health and social support was 24.58 ± 12.063 and 70.77 ± 9.761 , respectively.

Department			
CCU-ICU		38.65	37.13
POST ICU	17 (23.3)	30.42	19.00
Emergency	7 (9.6)	32.71	40.17
Operation room(OR)	22 (30.1)	29.10	35.70
Internal-Surgical	10 (13.7)	44.95	30.59
Pediatrics	11 (15.1)	40.67	40.00
Test**	6 (8.2)	P=.464	P=.305
Field of Study			
Nursing		38.74	33.44
OR technology	57 (78.1)	27.06	39.78
Anesthesia	9 (12.3)	26.00	45.86
Test**	7 (9.6)	P=.120	P=.257
Direct contact with a patient with COVID-19			
Yes		42.54	31.22
No	39 (53.4)	28.47	40.89
Test*	34 (46.6)	Z =-2.867, P=.004	Z=-1.977, P=.048
Number of working days in coronavirus ward			
0		28.47	40.89
<30	34 (46.6)	37.73	47.05
31-60	11 (15.1)	44.63	28.35
61-90	20 (27.4)	44.19	16.63
Test**	8 (11.0)	P=.024	P=.001
History of COVID-19 disease			
Yes		18.00	69.00
No	1 (1.4)	36.26	35.01
Test*	72 (98.6)	Z =-.879, P=.535	Z =-1.660, P=.057

*T-Test or Mann-Whitney Test

**ANOVA Test or Krusal-Wallis Test

Table 2. Mean and Standard Deviation of Mental Health and Social Support of Nurses and Frequency Distribution of Mental Health Dimensions of Nurses

Variable /Mean (SD)	Number (Percent)
Mental Health (N=71)	24.58(12.063)
Physical Symptoms	5.15 (3.239)
	Lacking 52(71.2)
	Low 16(21.9)
	Medium 5(6.8)
	High 0(0)
Anxiety/Insomnia	5.03(4.425)
	Lacking 43(58.9)
	Low 25 (34.2)
	Medium 2 (2.7)
	High 2(2.7)
Social Dysfunction	10.83(3.171)
	Lacking 8(11.0)
	Low 23 (31.5)
	Medium 38 (52.1)
	High 2 (2.7)
Depression	3.54(3.916)
	Lacking 51 (69.9)
	Low 17 (23.3)
	Medium 3 (4.1)
	High 0 (0)
Social Support (N=70)	70.77(9.761)
Family support	25.41(3.732)
Friend support	21.74(3.391)
Significant other support	23.61(3.589)

N= Number

Most participants (71.2%) had no physical symptoms, 58.9% lacked symptoms of insomnia and anxiety and 69.9% showed no symptoms of depression. 52.1% of subjects had moderate levels of social dysfunction symptoms (Table 2).

Among the demographic variables, work experience and place of work had a statistically significant relationship with mental health of people. There was also a significant correlation between direct contact with

COVID-19 patients and the number of working days in this ward with mental health of individuals. Thus, the people who were in direct contact with these patients reported higher total scores of questionnaire with the increase in the number of working days in this ward; in other words, they had a poorer mental health (Table 1). From among the demographic variables, work experience and place of work had a significant relationship with social support of individuals. Also,

there was a significant inverse relationship between direct contact with COVID-19 patients and the number of working days in this ward with social support. Hence, people who were in close contact with these patients had lower social support scores and also reported less social

support as the number of working days in this ward increased (Table 1).

The results of Table 3 indicate a significant inverse relationship between social support and mental health of participants, which means that increasing social support improves mental health of people.

Table 3. Spearman's Correlation Coefficients among Mental Health and Social Support

Factors	1	2	3	4	5	6	7	8	9
Social Support									
Family Support	1								
Friend Support	.665**	1							
Significant other support	.644**	.698**	1						
Mental health									
Physical Symptoms	-.356**	-.193	-.273*	1					
Anxiety/Insomnia	-.290*	-.198	-.290*	.818**	1				
Social Dysfunction	-.282*	-.241*	-.321**	.356**	.401**	1			
Depression	-.522**	-.371**	-.472**	.717**	.687**	.535**	1		
Total Social Support	.879**	.881**	.863**	-.320**	-.277*	-.301*	-.510**	1	
Total Mental health	-.499**	-.355**	-.439**	.853**	.859**	.667**	.890**	-.486**	1

*P=0.05

**P=0.01

DISCUSSION

In the present cross-sectional study, the first goal was to describe the mental health status of novice nurses and the extent of social support for them during COVID-19 outbreak. Our findings show that people are in an average level of mental health, although most people had no physical symptoms nor depression, and more than half of them report no significant symptoms of anxiety or insomnia, but 50% of them have impaired social functioning.

In Saltzman's study, immediately after the viral epidemic, 36.9% of Chinese medical staff including nurses and physicians had no symptoms, 34.4% showed mild disorders, 22.4% moderate and 6.2% severe disorders [14]. In a study in New York, more than half of health care workers were positive for acute stress (symptoms of PTSD within one month of onset), nearly half of them were positive for depression, and one-third were positive for anxiety. Approximately 75% of participants reported minimal symptoms of moderate insomnia [15]. Evidence suggests that a significant proportion of health care providers have experienced mood and sleep disorders during the early months of the outbreak [16]. In Wang's study of early-stage COVID-19 in China, over half of respondents rated moderate to severe psychological impact and about one-third of them reported moderate to severe anxiety [17].

In our study, nurses with the least work experience (<6 months) were at a moderate to high level in terms of mental disorders. In addition, those who were in direct contact with COVID-19 patients had a similar level of mental health. On the other hand, nurses working in the ward of patients with COVID-19 showed a lower level of mental health during the first two months and the increase in the number of working days in this ward decreased their mental health status; however, in the

third month, this change was almost stable and no significant difference was observed in their mental health scores in the second and third months. A study by Ning showed that young age is a risk factor for possible depression among health care workers [18]. A study conducted in China in February 2020 found that nurses, frontline medical staff, and younger medical staff were more anxious and depressed than physicians, non-frontline medical staff, and older medical staff, respectively [19]. Depression and anxiety have been reported to be predominant conditions among health care providers [20]. In the study of Lai, frontline health care providers involved in the diagnosis, treatment, and direct care of patients with COVID-19 were associated with an increased risk of depressive symptoms as well as a higher risk of mental distress and other psychological health symptoms. Increasing number of confirmed and suspected cases, cumbersome workload, reduced personal protective equipment, extensive media coverage, lack of specific drugs, and the absence of adequate support can all contribute to psychological burden of these individuals [6]. In the study of Sampaio, the rates of depression, anxiety and stress were significantly higher in nurses who did not consider the quantity and quality of personal protective equipment to be sufficient [21]. In addition, various sociodemographic variables such as gender, occupation, age, workplace, job sector as well as psychological variables such as poor social support are associated with increased stress, anxiety, depressive symptoms, and insomnia in health care providers [22].

In our research, the mean of social support of individuals was 70.77±9.761 and the support was mostly reported to be expressed by their families. In other studies, medical staff and nurses received more social support from their families [9, 23].

In the present study, nurses with less work experience (<6 months) reported the lowest level of social support. Those who were in direct contact with COVID-19 patients experienced less social support, and in addition, as the number of working days in this ward increased, their mean social support score decreased significantly. The present investigation showed that there is a significant inverse relationship between mental health and social support. In this way, with the increase of social support, the mental health was improved and the related psychological disorders were reduced. In other words, social support affected all subscales of mental health. In this regard, a number of studies have also addressed the role of social support in mental health of individuals and related disorders during COVID-19. Evidence from previous studies suggests that health care workers enjoying higher levels of social support are more likely to exhibit better mental health status [9, 11, 23-28]. The research by Rana et al. showed that depression and anxiety were negatively associated with perceived social support in medical staff who were in close contact with COVID-19 patients. Moreover, psychological and general health, physical pain and vitality were positively associated with support from family, friends and other significant backings in the medical staff [29]. Lv et al. identified the lack of social support as a risk factor for psychological symptoms of medical staff during COVID-19 outbreak [30]. In other words, social support is mentioned as a protective element for psychological health of health care workers during COVID-19 outbreak [30] and increasing perception of social support increases their psychological resilience [31].

In addition, a negative relationship has been observed between the level of social support of medical staff with their stress and anxiety during COVID-19 outbreak [11]. The study of Fang found that social support for health care workers was negatively correlated with depression and loneliness scores and that social support was particularly important for a comprehensive understanding of mental health status. In the absence of social support, they tend to choose negative coping styles such as self-attack and retreat; therefore, social support affects the mental health status of medical staff [23]. Thus, social support can serve as a basis for psychological interventions [10].

Literature shows that novice nurses report high levels of stress and stress-related diseases [32]. Emotional support for newly graduated nurses helps reduce stress and anxiety and increase self-confidence [33]. According to the findings, for people who are subject to stress, social support as an external source can act as a

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buffer to improve psychological conditions [10]. As previously reported, adequate support has a positive effect on people's psychological health, reducing anxiety and stress, improving self-efficacy, and leading to greater understanding, respect, encouragement, courage, and a sense of professional success [11]. In confirmation of previous studies, it can be concluded that social support could protect a person against anxiety and mental disorders.

CONCLUSION

Higher social support appears to be a protective factor against mental disorders during COVID-19 outbreak and those who perceive higher social support have better mental health. Novice nurses, especially those in direct contact with COVID-19 patients, have a higher incidence of mental disorders and hence need more attention and social support. Follow-up of mental health symptoms of health care providers, especially novice nurses, requires longitudinal research studies. It is suggested to take preventive measures and psychological intervention programs to improve mental health of health care workers with special attention to novice nurses.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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ETHICAL CONSIDERATIONS

The present study was a research project approved with IR.MEDILAM.REC.1399.242 code from the ethics committee of Ilam University of Medical Sciences.

AUTHORS' CONTRIBUTION

Conceptualization: SM. Data curation: YJ, AR. Formal analysis: SSZ. Funding acquisition: Ilam University of Medical Sciences. Methodology: SM. Project administration: SM. Visualization: SM. Writing-original draft: NK, SM, AK. Writing review & editing: SM, NK, YJ, AR, AK, SSZ.

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