

Comparison of the Effect of the Person-Centered and Family-Centered Training via Telenursing on the Quality of Life in COVID-19 Patients

Abstract

Background: Education of the patients with Coronavirus Disease 2019 (COVID-19) and their families is necessary to improve the quality of life. This study investigated the effect of person and family-centered training via telenursing on the quality of life in patients with COVID-19. **Methods:** This interventional study was performed on 88 patients with COVID-19 18--65 years and 44 family members referred to the Bank Melli Hospital, Tehran, Iran. The samples were randomly assigned into two groups person-centered and family centered. A cyberspace group including patients and their families was created. Four educational sessions planned (15--30-min-every day) and three sessions planned for completing the questionnaires via phone. The data were collected using demographic characteristics form and the 12-item Short-Form Health Survey version 2 before and 6 weeks after the intervention and were analyzed in SPSS 22 using Chi-square test, paired *t*-test, and independent *t*-test. **Results:** The mean scores of quality-of-life increased significantly in the person-centered group from 26.81 ± 5.15 to 34.4 ± 4.39 before and six weeks after intervention, respectively ($p < 0.001$). The means scores of quality-of-life increased significantly in the family-centered group from 28.11 ± 4.79 to 35.86 ± 3.85 before and 6 weeks after the intervention, respectively. ($p < 0.001$). **Conclusions:** The person and family centered methods increase the mean scores of quality-of-life of patients with COVID-19. The family centered method can be more effective to improve the quality of life of these patients.

Keywords: COVID-19, family nursing, quality of life, telehealth

Introduction

Coronavirus is one of the main pathogens that primarily targets the human respiratory system.^[1] Since the outbreak of this infectious disease in Asia (Wuhan, China) late 2019, the disease has occurred on every continent except for Antarctica.^[2,3] Given that until March 1, 2020, no vaccine has been available and successfully developed to prevent and reduce coronavirus 2019- (COVID-19) related injuries, the prevention, and control of infection, observance of hygienic principles by the general public, and restriction of travel are among the priorities. Educating people to observe all the principles of health and inducing and maintaining peace are also of significant importance to deal with this disease.^[4,5] The best way to deal with the COVID-19 epidemic is to control the sources of infection, early detection, reporting, isolation, and quarantine, as well as supportive and protective measures,

including personal hygiene.^[6] Quarantining people is effective in reducing the rate of disease transmission and preventing the peak outbreak of COVID-19. In general, telecommunications should also be aimed at establishing personal and professional communication in the community through virtual tools and technology, including devices, such as mobile phones.^[7] Staying in quarantine and keeping a large population at home will not be without psychological, social, and economic effects. In addition, misinformation about the pandemic, travel bans, and quarantine orders affect people's mental health and quality of life.^[8,9] Clinical trials have shown that the quality of life can be considered a sign of the quality of health care and part of the disease treatment plan; moreover, its measurement in diseases can provide more information about the state of health and disease. It can also be a helpful guide to improve the quality of care.^[9]

The outbreak of COVID-19 has now become a clinical threat to the general

Mehrbanoo Heidari^{1,2},
Meimanat Hosseini³,
Parvaneh Vasli³,
Malihe Nasiri⁴,
Sima Hejazi⁵
Mohammad Fasihi⁶

¹Student Research Committee, Department of Community Health Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, ²Department of Research, School of Nursing, Bank Melli Iran, Tehran, Iran, ³Department of Community Health Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, ⁴Basic Sciences, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, ⁵Department of Nursing, Bojnurd Faculty of Nursing, North Khorasan University of Medical Sciences, Bojnurd, ⁶Department of Mathematics and Computer Science, Faculty of Statistics, Amirkabir University of Technology, Tehran, Iran

Address for correspondence:
Dr. Meimanat Hosseini,
Vali Asr Ave., Niayesh Cross
Road, Niayesh Complex, Tehran,
Iran.
E-mail: m_hoseini@sbmu.ac.ir;

Access this article online

Website:
www.ijpvmjournal.net/www.ijpvm.net

DOI:
10.4103/ijpvm.ijpvm_522_21

Quick Response Code:



How to cite this article: Heidari M, Hosseini M, Vasli P, Nasiri M, Hejazi S, Fasihi M. Comparison of the effect of the person-centered and family-centered training via telenursing on the quality of life in COVID-19 patients. *Int J Prev Med* 2023;14:12.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

population and healthcare professionals worldwide. However, knowledge about this new virus is limited, and given that definitive treatment for the disease has not yet been discovered, and since quarantine is one of the most important treatment measures, the patient's role is very important in self-care.^[7,10] On the other hand, in some cases, the family is responsible for caring for the patient, and due to the weakness of traditional education in terms of the main role and participation of patients and families in the treatment and care process, and the lack of studies in this field, this study was conducted to compare the effect of person-centered and family-centered training through telenursing on the quality of life of patients with COVID-19. The results of the present study help choose an effective educational method for patients and families at the community level.

Methods

Study design and setting

This study was conducted based on a quasi-experimental research method. The research setting was the Emergency Department of Bank Melli, a general public Hospital in Tehran, Iran.

Study population and sampling method

All patients and their main family members referred to Bank Melli Hospital's emergency department, Tehran, Iran, were the study population. The inclusion criteria were: (1) willingness to participate in the study, (2) positive Polymerase Chain Reaction (PCR) test results, (3) a need for home quarantine due to clinical symptoms, (4) age between 18 to 65 years, (5) being aware of the time and place (be alert and awake), and (6) be able to answer the questionnaire questions and use a mobile phone as well as WhatsApp. The inclusion criteria for the main family member are similar to those listed above except for a positive. On the other hand, the patients and family members who did not answer the phone calls (no answer after three phone calls), along with inaccessible patients or main members of the family (due to displacement, death, or any other reasons), and patients whose condition worsened in quarantine and needed to be hospitalized were excluded from the study. The samples size was calculated according to this formula, based on the data from Maghsoudi's study^[11]:

$$n \geq 2 \frac{(z_{\alpha/2} + z_{\beta})^2 \sigma^2}{(\mu_1 - \mu_2)^2}$$

$$n = 2(1.96 + 0.85)^2 \left(\frac{1}{0.65} \right)^2 = 37$$

Finally, considering 20% of sample attrition, 44 samples were considered for each group. The sampling was done according to the convenience sampling method. The

selected patients were then randomly divided into two groups of person-centered and family-centered each containing 44 cases by block randomization method. Totally, 88 patients in both groups and 44 main family members of the patients in the family-centered training group were investigated in this study.

Data collection and interventions

After sample selection, they were contacted by phone, and two questionnaires were sent to them via WhatsApp, including the "Demographic-Clinical Profile Questionnaire" and version 2 of the short form of the health-related quality of life questionnaire (SF-12V2).

Demographic-Clinical Profile Questionnaire included 15 items seeking general and clinical information (e.g., age, gender, educational and occupational status, family income, comorbidities, and history of COVID-19) of the patients and family members participating in the study.

The SF-12V2 consists of 12 questions that measure eight health domains [physical functioning (2 items), role limitations due to physical problems (2 items), bodily pain (1 item), general health perceptions (1 item), vitality (1 item), social functioning (1 item), role limitations due to emotional problems (2 items) and mental health (2 items)]. Although the SF-12 version 2 provides estimates of all eight domains, there is a greater interest in focusing on two distinct general concepts of physical and mental health known as the Physical Component Summary (PCS) and the Mental Component Summary (MCS).^[12] The scores are calculated using the transformed scores (range: 0-100).^[12,13] Montazeri *et al.*^[12] have translated this tool and evaluated its psychometric properties in the Iranian population. In this study, the reliability of this questionnaire was assessed by calculating the Cronbach Alpha for Physical Component Summary (0.77) and Mental Component Summary (0.71). So, the outcome variable of this study was quality of life.

The data were collected by telephone call, and the researcher filled out the questionnaires. For this purpose, a group in which the patient and the main family member (in the family-centered group) were present was created in cyberspace with a number of prototypes (15 cases per group) to upload the educational contents, videos, and slides, make more interactions among members, and ask questions by members to be answered by the researcher. It should be noted that the samples which were daily included in the study were added to the WhatsApp group to reach the size of the research sample (44 cases per group). This course lasted up to a week. The same content was sent individually to both groups, and four training sessions were provided for 15-30 min based on the protocol of the Ministry of Health through telenursing. Educational content included: definition of the disease, its signs and symptoms, isolation, how to use drugs, side effects of drugs, time of use and recovery

process, methods of bud lip and diaphragm breathing, nutrition, and how to manage psychological issues during quarantine. After 6 weeks, SF-12V2 was completed by the samples. The data were then analyzed. In addition, to keep the medical information confidential, both groups were asked to put the first letter of their first and last names on the WhatsApp profile. The sampling took 2 months.

Data analysis

Statistical analysis was performed using SPSS software (version 22). Statistical tests, such as Shapiro-Wilkes's test (to check the normality of data), Chi-square test and independent *t*-test and analysis of covariance (to compare the two groups), and paired *t*-test (to compare changes in each group before

and after training) were also employed in this study. A *P* value less than 0.05 was considered statistically significant.

Ethical consideration

This study was approved by Ethics Committee of school of Nursing and Midwifery,... University of Medical Sciences, Tehran, Iran (...REC.1399.272). Written informed consent was obtained from all participants.

Results

Demographic

In total, 44 cases were included in each group in this study without any drop-out. Shapiro-Wilkes's test showed that the

Table 1: Demographic-clinical characteristics of patients and family members (Original)

Variables	Person-Centered *n (%) Patient	Family-centered n (%)		**P
		Patient	Family member	
Gender				
Male	19 (43.2)	28 (63.6)	8 (18.2)	0.22
Female	25 (56.8)	16 (36.4)	36 (81.8)	
Age (years)				
<20	1 (2.3)	1 (2.3)	—	0.60
20-30	8 (18.2)	9 (20.45)	6 (13.6)	
31-40	11 (25)	9 (20.45)	15 (34.1)	
41-50	14 (31.8)	15 (34)	14 (31.8)	
51-60	8 (18.2)	7 (16)	8 (18.2)	
>60	2 (4.5)	3 (6.8)	1 (2.3)	
Marital status				
Single	8 (18.2)	12 (27.2)	4 (9.1)	0.10
Married	34 (77.2)	30 (68.2)	39 (88.6)	
Others	2 (4.6)	2 (4.6)	1 (2.3)	
Occupational status				
Employed	28 (63.6)	24 (54.5)	14 (31.8)	0.47
Housewife	11 (25)	5 (11.4)	27 (61.4)	
Retired	5 (11.4)	6 (13.6)	2 (4.5)	
Unemployed	0	9 (20.5)	1 (2.3)	
Level of education				
High school	3 (6.8)	2 (4.5)	23 (52.3)	0.83
Diploma	14 (31.8)	17 (38.6)	3 (6.8)	
Postdiploma and bachelor's	21 (47.8)	18 (41)	14 (31.8)	
master's and higher	6 (13.6)	7 (15.9)	4 (9.1)	
Income				
Sufficient	29 (65.9)	31 (70.5)		0.76
Not enough	15 (34.1)	13 (29.5)		
History of COVID-19 in the family				
Yes	33 (75)	26 (59.1)		0.28
No	11 (25)	18 (40.9)		
Comorbidities				
Yes	8 (18.2)	8 (18.2)		0.73
No	36 (81.8)	36 (81.8)		

*n (%): frequency (percentage), ** Chi-square test

data have a normal distribution. According to the results, the majority of the participants in the person-centered and family-centered groups were females (56.8%; $n = 25$) and males (63.6%; $n = 28$), respectively. In addition, the majority of the family members were female (81.8%; $n = 36$). The Median age of participants in the person-centered and family-centered groups were 42.5 and 42 years, respectively. Other demographic variable results are shown in Table 1.

Effect of person-centered and family-centered training on quality of life

Before the intervention, the quality-of-life scores (SD) were 41.20 (14.27) and 44.72 (12.89) in the person-centered and family-centered groups, respectively. There was no significant difference between the two groups regarding the preintervention quality of life score ($p = 0.235$). However, after six weeks following the intervention, the person-centered and family-centered groups obtained scores (SD) of 62.11 (10.31) and 65.46 (10.76) in the quality of life, respectively ($p = 0.005$). The paired t -test showed that the mean score of quality of life in both groups increased significantly after intervention, and this increase was greater in the family-centered group ($p < 0.001$). In addition, both groups were on average in terms of quality of life before and after training [Table 2].

The results of the paired t -test indicated that the mean score of the physical health dimension of quality of life increased

significantly in both groups after intervention ($p < 0.001$). Therefore, the analysis of covariance showed that this increase was higher in the family-centered group ($p < 0.039$) [Table 3]. The paired t -test also indicated that both groups' mean score of psychological health dimension of quality of life increased significantly after intervention ($p < 0.001$). The results of the analysis of covariance revealed that the family-centered group had a higher mean score, compared to the person-centered group ($p < 0.041$) [Table 3].

Discussion

COVID-19 can be a limiting condition with many adverse effects on the patient's quality of life in terms of physical and psychological aspects. Therefore, improving the quality of life of such patients as part of the disease control programs is a goal, and it requires measuring the quality of life-related to the health of patients with COVID-19.^[14,15] For this reason, this study was conducted to compare the effect of person-centered and family-centered training on patients' quality of life with COVID-19. This study is the first to examine the quality of life in patients with acute illness. Results showed that the mean quality of life score in the patient (person)-centered group increased by 7.59 points at the end of the study. Since no specific study has been conducted on the effects of quality-of-life scores in patients with COVID-19, there is a shortage of information.

Dealing with the spread of the coronavirus requires preventive and self-care measures by individuals. On the other hand, studies have shown the effectiveness of person-centered education in improving patients' quality of life. In line with these results, a study was conducted by Bairami *et al.*^[16] in 2017. Their findings showed a positive and significant correlation between self-care behaviors and three dimensions of quality of life, including physical function, mental function, and feeling of pain and discomfort. It is worth mentioning that a positive and significant correlation was observed between the general scores of quality-of-life and self-care behaviors.

The present study results also showed that the quality of life of patients with COVID-19 was increased in both patient-centered and family-centered groups after the intervention; however, this increase was significantly higher

Table 2: Comparison of quality of life in the person-centered and family-centered groups before and 6 weeks after intervention (Original)

Group	Before the intervention	After the intervention	Mean changes
Person centered			
Mean (SD)	41.2 (14.27)	62.11 (10.31)	
Minimum	14	42	20.91
Maximum	69	86	
* P	0.235	0.005	
Family centered			
Mean (SD)	44.72 (12.89)	65.46 (10.76)	
Maximum	22	33	20.74
Minimum	69	89	
* P	0.235	0.005	

*Independent t -test

Table 3: Comparison of physical and psychological health dimension of quality of life in the person-centered and family-centered groups before and 6 weeks after intervention (Original)

Quality of life Dimensions	Group	Mean (SD) before intervention	Mean (SD) after intervention	Mean changes	* P
Physical health	Person-centered	28.81 (17.58)	65.11 (13.41)	36.1	0.039
	Family-centered	33.02 (19.04)	70.18 (14.29)	37.16	
Psychological health	Person-centered	49.02 (16.22)	65.69 (14.21)	16.67	0.041
	Family-centered	51.88 (13.09)	68.9 (11.36)	17.2	

*Independent t -test

in the family-centered group. In this regard, a study was performed on children with hemophilia using a family-based training program. However, a significant difference was observed after the empowerment program regarding the total quality of life score.^[15] Another study conducted in the family-centered method by Ghavidel *et al.* (2015)^[17] also examined the effects of family-centered training on the quality of life of patients who underwent heart surgery. The results showed that in the postintervention stage, the mean score of quality-of-life dimensions increased significantly, compared to that in the control group. These findings indicate an improvement in the patients' quality of life after the family-centered intervention.

Since in the present study, family-centered training had a positive effect on increasing the total mean score of quality of life and the two dimensions of physical health and mental health quality of life, the results were consistent with the above study's findings. These findings suggest that involving family members in caring for and empowering them through education is a low-cost option that can improve the patient's health and ultimately improve their quality of life. The results of Katebi *et al.*^[18] study showed a significant difference among the patients before and after the intervention regarding general health, physical function, social function, mental problem, energy and fatigue, physical problem, and the total quality of life score. Family-centered training as person-centered training could effectively improve the quality of life of diabetic patients. Furthermore, in the present study, the family-centered training method increased the total mean score of the quality of life.

In the same line, Zand *et al.*^[19] study showed that family-centered education was more effective in reducing heart irregularities than patient-centered education. In this regard, the health care team and family members of these patients can work together to resolve the problematic aspects of Covid-19 and, if patients experience multiple problems, prioritize and address them.

The strength of this study was the novelty of the interventions on the patients with COVID-19. Another strength of this study was training via "telenursing" compared to previous research delivered conventionally before the COVID-19 pandemic, but we have limitations. One of the limitations of this study was the low sample size; another limitation of this study is a one-time follow-up postintervention.

Conclusion

This study provides helpful information about the effect of person-centered and family-centered training. Health care providers should consider individual and family support to improve the quality of life; moreover, opportunities can be provided for patients to make them able to deal with the disease.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Shahid Beheshti University of Medical Sciences.

Conflicts of interest

There are no conflicts of interest.

Received: 16 Dec 21 **Accepted:** 15 Jun 22

Published: 25 Jan 23

References

1. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun* 2020;109:102433.
2. Acter T, Uddin N, Das J, Akhter A, Choudhury TR, Kim S. Evolution of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as coronavirus disease 2019 (COVID-19) pandemic: A global health emergency. *Sci Total Environ* 2020;730:138996.
3. Zhang H-W, Yu J, Xu H-J, Lei Y, Pu Z-H, Dai W-C, *et al.* Corona virus international public health emergencies: Implications for radiology management. *Acad Radiol* 2020;27:463-7.
4. Farnoosh G, Alishiri G, Zijoud SH, Dorostkar R, Farahani AJ. Understanding the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease (COVID-19) based on available evidence-A narrative review. *J Mil Med* 2020;22:1-11.
5. Sardar T, Nadim SS, Rana S, Chattopadhyay J. Assessment of lockdown effect in some states and overall India: A predictive mathematical study on COVID-19 outbreak. *Chaos Solitons Fractals* 2020;139:110078.
6. Ghotbi B, Navkhasi S, Ghobadi S, Shahsavari Z, Kahrizi N. A review of the novel Corona virus disease (2019-nCoV). *Health Res J* 2020;5:180-7.
7. Jannat Alipoor Z, Fotokian Z. COVID-19 and the elderly with chronic diseases: Narrative review. *J Mil Med* 2020;22:632-40.
8. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TT, Pham KM, *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;9:965.
9. Rahnavard Z, Zolfaghari M, Kazemnejad A, Hatamipour K. An investigation of quality of life and factors affecting it in the patients with congestive heart failure. *J Hayat* 2006;12:77-86.
10. Mehraeen E, Hayati B, Saeidi S, Heydari M, Seyedalinaghi S. Self-care instructions for people not requiring hospitalization for coronavirus disease 2019 (COVID-19). *Arch Clin Infect Dis* 2020;15:e102978.
11. Sharif Zadeh Maghsoodieh S. Comparing the Effects of Patient-Centered and Family-Centered Methods on the Quality of Life in Patients with Back Pain due to Lumbar Spinal Disc Herniation. Tehran, Iran: Teheran University of Medical Sciences; 2016.
12. Montazeri A, Vahdaninia M, Mousavi SJ, Asadi-Lari M, Omidvari S, Tavousi M. The 12-item medical outcomes

- study short form health survey version 2.0 (SF-12v2): A population-based validation study from Tehran, Iran. *Health Qual Life Outcomes* 2011;9:12.
13. Rohani C, Abedi HA, Langius Eklof ANN. The Iranian Sf-12 health survey version 2 (Sf-12v2): Factorial and convergent validity, internal consistency and test--retest in a healthy sample. *Iran Rehabil J* 2010;8:4-14.
 14. Ferreira LN, Pereira LN, da Fé Brás M, Ilchuk K. Quality of life under the COVID-19 quarantine. *Qual Life Res* 2021;30:1389-405.
 15. Leibovitz T, Shamblaw AL, Rumas R, Best MW. COVID-19 conspiracy beliefs: Relations with anxiety, quality of life, and schemas. *Pers Individ Dif* 2021;175:110704.
 16. Bairami S, Fathi Y, Mohammadasab S, Barati M, Mohammadi Y. Relationship between self-care behaviors and quality of life among hypertensive patients visiting comprehensive health centers in Hamadan, Iran. *J Educ Community Health* 2017;4:20-7.
 17. Ghavidel A, Farokhnezhad-Afshar P, Bakhshandeh H, Ghorbanpour F. Effect of family-centered education on the quality-of-life patients after coronary artery bypass graft surgery. *Iranian J Cardiovasc Nurs* 2015;4:6-13.
 18. Katebi MS, Moudi A, Dehghan F, Ghalenoei M. Comparing the effects of family-center education with person-center on the quality of life in patient with type 2 of diabetes. *J Sabzevar Univ Med Sci* 2020;26:755-61.
 19. Zand S, Asgari P, Bahramnezhad F, Rafiei F. The effect of two educational methods (family-centered and patient-centered) multimedia software on dysrhythmia of patients after acute myocardial infarction. *J Health* 2016;7:7-17.