Tabari Biomedical Student Research Journal

OPEN ACCESS

ORIGINAL: Evaluation of the Effect of Patient Education and Telephone Follow-Up on Self-Care, Self-Efficacy, and Admission Rate of Heart Patients with COVID-19

Fereshteh Araghian Mojarad Traditional and Complementary Medicine Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
Hamid Salehiniya Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran.
Lotfollah Davoodi Microbial Resistance Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
Masoumeh Ghasemian Fatemeh Zahra Hospital, Mazandaran University of Medical Sciences, Sari, Iran.
Nahid Nazari Fatemeh Zahra Hospital, Mazandaran University of Medical Sciences, Sari, Iran.
Abolfazl Ebrahimzadeh Student Research Committee, School of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran.
Kobra Abdi Fatemeh Zahra Hospital, Mazandaran University of Medical Sciences, Sari, Iran.

ARTICLE INFO

Submitted: 26 Jan 2022
Accepted: 21 Aug 2022
Published: 04 Sep 2022

Keywords:
COVID-19;
Education;
Self-Care;
Self-Efficacy;
Telephone follow-up;
Triage

Correspondence:
Kobra Abdi, Fatemeh Zahra Hospital, Mazandaran University of Medical Sciences, Sari, Iran.
Email: abdi.kobra94@gmail.com
ORCID: 0000-0001-8600-9580

Citation:
Araghian Mojarad F, Salehiniya H, Davoodi L, Ghasemian M, Nazari N, Ebrahimzadeh E, Abdi K. Evaluation of the Effect of Patient Education and Telephone Follow-Up on Self-Care, Self-Efficacy, and Admission Rate of Heart Patients with COVID-19. Tabari Biomed Stu Res J. 2022;4(3):9-15.

doi 10.18502/tbsrj.v4i3.10513

ABSTRACT

Introduction: Telephone follow-up is known for sharing information, providing health education, diagnosing complications quickly, managing symptoms, and providing quality aftercare services. The aim of this study was to investigate the effect of patient education and telephone follow-up on self-care and self-efficacy as well as readmission rate of heart patients with COVID-19.

Material and Methods: In this interventional study, 64 heart patients with COVID-19 admitted to a training center in northern Iran during the period from June 1 to September 22, in 2020 were intervened. Data collection tools included demographic and clinical questionnaires, Scherer self-care and self-efficacy questionnaires. After completing the questionnaires and teaching self-care about corona disease and heart disease to patients during six sessions over the phone (10-20 minutes), the researcher again completed the self-care and self-efficacy questionnaires on the fourteenth day. For data analysis, paired t-test and independent t-test were used using SPSS software version 21.

Results: The mean age of participants was 59.53±15.32. The results showed that the mean score of self- care after the intervention had a significant increase (P<0.001), so that the mean score of self- care before the intervention was 54 and after the intervention was 60.14, the mean score of self-efficacies after the intervention increased which is not statistically significant.

Conclusion: Education and follow-up of heart patients with COVID-19 is associated with increased self-care in patients every day. Therefore, follow-up programs, especially telephone follow-up, are recommended to improve the health status of patients.

Introduction

Continuous care is a regular and continuous process to establish effective, interactive and continuous communication between the patients and the health care provider in order to identify the needs and problems to sensitize them to accept and perform continuous health behaviors that maintain recovery and promote

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

their health. The main purpose of the follow-up care model is to design and formulate a program that is effective in controlling the disease and its possible complications (1).

Many of the problems at home are due to lack of knowledge and skills in self-care in the field of personal hygiene, poor nutrition and other health care which not having access to the center to obtain guidance and answer questions and follow up on nursing care. Successful education increases the patient's efficiency and more adherence to treatment and more patient satisfaction (2, 3).

One of the communications and follow-up methods by the nurse is the use of telephone (4). Tele-nursing is the use of telecommunication technology in nursing to increase patient care. Reducing costs and easy access to the most appropriate specialized skills and comprehensive increase in quality in the provision of health services to patients (5). In the last two decades, considerable attention has been paid to telephone counseling to prevent readmission. Post-discharge phone calls are helpful in identifying and correcting care gaps that may occur after discharge from the hospital (6). Women define self-care as the ability to promote the health of individuals, families, and communities, prevent disease, maintain health, and combat illness and disability with or without the support of health care workers (7).

Self-care behaviors in this disease include: following a diet, healthy lifestyle, mobility and physical activity, controlling risk factors such as:(high blood pressure, smoking, stress) See a doctor if there are any side effects and do tests on time (8). Improving self-care behavior gives a person more control over their life and social functioning, which will ultimately lead to improved quality of life (9). The results of Oxel and Kesink study showed that patients with heart failure had poor self-care (10, 11). Telephone follow-up of patients after discharge has been investigated in several studies. In a study by Najafi et al., nursing colleagues had a significant effect on the quality of life of patients with atrial fibrillation referred to educational centers in Qazvin (12). "Self-efficacy" was first introduced by Bandura as one of the main concepts of social cognitive theory. Self-efficacy means the belief that a person has in himself to perform a certain behavior successfully and to expect the results (13).

On the other hand, self-efficacy beliefs in the field of disease management refer to patients' confidence in their ability to successfully perform specific behaviors related to their health (14). It also predicts better treatment outcomes by following appropriate physical activity and exercise recommendations (15).

Outbreaks of new coronavirus (SARS-CoV-2) have become a worldwide epidemic. The disease is transmitted by respiratory droplets, contaminated surfaces, and is transmitted through respiration to another person. In addition, the virus can survive on surfaces for up to several days (16-18). The World Health Organization recommends that all people with suspected COVID-19 who have an acute respiratory infection should be treated at the first point of contact with the health care system, and that emergency treatment should be initiated based on the severity of the illness (19, 20).

Telephone follow-up calls are increasingly used for patients who need additional support after discharge and to prevent readmission to the hospital (21). A study has shown that nurse-supervised telephone follow-up is cheap and effective for post-discharge education (22).

Given that telephone follow-up is recognized as one of the branches of telemedicine for the purpose of information exchange, providing health education, rapid diagnosis of complications, symptom management and providing quality after-care services, this low-cost method can be used. Used to track the status of the underlying disease or mental factors associated with the disease after discharge (23). Now, considering the importance of self-efficacy and self-care in COVID-19 patients and the lack of studies in this regard in the country, the present study aimed to investigate the effect of patient's education and telephone follow-up on self-care and self-efficacy and admission of heart patients with

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

COVID-19 in northern Iran.

Methods

The present study is an interventional study (before and after). The researcher after approving the plan in the Vice Chancellor for Research and the University Ethics Committee and after receiving a letter of introduction from the Deputy of Research and Technology and presenting it to the relevant centers as well as obtaining informed consent from the heart patients with COVID-19 are being discharged from Fatemeh Zahra Educational and Medical Center in Sari by using available and objective sampling, The sample size (64 people) included all heart patients with COVID-19 patients admitted to Fatemeh Zahra Hospital in Sari during the period of June 1 to September 22, in 2020.

Inclusion criteria were: heart patients with COVID-19, age 18 and older, ability to speak and understand Persian, access to the telephone at home, having a minimum literacy. Unwillingness to participate in the study and patient death were considered as exclusion criteria.

Before starting the research, patients were given information about the research and informed consent was obtained in writing, and they were assured that all information would be confidential, also, if they did not wish to cooperate in the research, a change in their treatment process will not occur. Completion of demographic and clinical questionnaires, self-care questionnaire and self-efficacy questionnaire were performed on the first day after discharge. After self-care training (regarding corona disease and heart disease), the researcher made telephone calls to patients for about 10-20 minutes on the first, second, third, fifth, seventh and fourteenth day after discharge during six sessions. And re-filled the self-care questionnaire and the self-efficacy questionnaire on the fourteenth day. Data collection tools include demographic and clinical information questionnaire, self-care questionnaire and self-efficacy questionnaire. Patient demographic information questionnaire (age, sex, marital status, level of education, employment status, residence). The patients' clinical questionnaire included (duration of hospitalization, family history, duration of illness, frequency of hospitalization, underlying disease), self-care behaviors questionnaire and Scherer self-efficacy questionnaire.

- Self-care questionnaire: This was a researcher-designated questionnaire on self-care required for patients with COVID-19 presented by the Ministry of Health and the validity of which was approved by 8 faculty members as a qualitative content analysis. Cronbach's alpha method was used for reliability which was 89%.
- Scherrer self-efficacy questionnaire: Includes 17 questions. Questions 11, 13, 9, 8, 3, 1 are inverted. 5 answers are suggested for each item of this scale. Which is given a score of 1 to 5 for each item. These 5 answers are: strongly disagree, disagree, no comments, agree and strongly agree. Higher scores indicate stronger self-efficacy and lower scores indicate weaker self-efficacy. The highest score is 85 and the lowest score is 17. In the global study of 2009 using Cronbach's alpha coefficient, the reliability coefficient was 74% (24). Scherer in 1982 cites 76% of the validity calculated using Cronbach's alpha for general self-efficacy. The validity of this scale was obtained through the validity of the structure (25).

Obtaining permission from the university authorities and obtaining a conscious commitment from the participants in the research, as well as observing the information confidentiality framework were among the ethical considerations observed in this research. Independent test and paired t-test were used for analysis using SPSS software version 21.

Results

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

In this study, 64 people were intervened and followed up, which was finally analyzed. The mean age of the participants was 59.53 with a standard deviation of 15.32. Among the subjects, 59.4% were male and the rest were female. In terms of marriage, the majority of individuals (79.7%) were married, in terms of occupation, the main occupants were housewives (34.4%) and then retired (26.6%) and the readmission rate of patients was about 9.8% (***Table 1***).

Table 1. Status of demographic and contextual variables in the subjects

Variable		Number (%)
Sex	Male	38 (59.4)
	Female	26 (40.6)
Marriage status	Single	3 (4.7)
	Married	51 (79.7)
	Divorced	10 (15.6)

The results showed that the mean score of self- care after the intervention increased significantly (P<0.001) so that the mean score of self- care before the intervention was 54 and after the intervention was reported as 60.14, the mean score of self-efficacies after the intervention has increased, but this increase is not statistically significant (P=0.07) (***Table 2***).

Table 2. Mean score of self-care and self-efficacy before and after the intervention

Variable	Before	After	P-value
	Mean (SD)		
Self-care	54.22 (4.61)	60.14 (4.16)	<0.001
Self-efficacy	55.63 (6.05)	55.82 (6.12)	0.07

Discussion

The aim of this study was to investigate the effect of patient education and telephone follow-up on self-care and self-efficacy and readmission rate of patients with COVID-19 who admitted to Fatemeh Zahra Hospital in 2020. The results of the study showed that the mean score of self- care after the intervention had a significant increase, so that the mean score of self- care before the intervention was 54 and after the intervention was reported to be 60.14. The results of a systematic review study showed that the self-care behavior of patients who received nursing education was significantly improved and training program patients with heart failure considered as a part of their comprehensive care program (26).

The mean score of self-efficacies has increased after the intervention, but this increase is not statistically significant (p= 0.07). Self-care is closely related to the concept of self-efficacy. It is a process that requires progress towards independence and ability to perform. Daily activities are as much as possible. Various studies indicate the effect of training on improving patients' self-efficacy (27-29). Miri et al. in their study reported that although the self-efficacy score increased in the education group, it did not show a statistically significant difference between the two groups (30).

Lack of patient awareness of self-care, especially following treatment regimens, has negative consequences for the patient's health and frequent hospitalization (31). According to a study by Chen et al. out of 1,087 patients in Wuhan, China, 7.6% were re-admitted after discharge (32). Xian et al. found that 27 of 285 patients with COVID-19 admitted to Guangdong, China tested positive again (33). In a study by Somani et al., Which examined 2,864 COVID-19 patients admitted to five New York hospitals, 103 patients (3.6) tested positive again after discharge and were re-admitted to hospitals (34). In this study, the readmission of patients was 9.8%. Consistent with the results of a systematic review study, the findings showed that after the implementation of the educational process, there was no significant reduction in readmission, hospitalization and mortality of patients with heart failure (26).

Among the limitations of this study, individual differences in response to health care as well as psychological and psycho-logical support and care provided by family members in each heart patient with COVID-19 can be different, which can affect the results of the study. Based on the findings of the present study, it is hoped that a self- care program for COVID-19 will be considered an intervention with easy, low cost and effective

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

implementation in the treatment program of patients with heart disease.

Conclusion

Education and follow-up of heart patients with COVID-19 is effective on the self-care status of patients. It is recommended that in hospitals, educational programs be developed for patients with Covid-19 and their families and their telephone follow-up. Due to the lack of increased patient self-efficacy, it is necessary to further examine patients and provide solutions to increase self-efficacy.

Acknowledgement

Researchers consider it necessary to thank the Research Council of Mazandaran University of Medical Sciences, study participants and others who have contributed in some way to the implementation of this research project.

Ethical standards statement

This project was performed with the approval and financial support of the Research Council of Mazandaran University of Medical Sciences with ethics code IR.MAZUMS. REC.1399.298.

Conflicts of interest

The authors declare no conflict of interest.

Authors' contributions

All authors have participated in the design, implementation, and writing of all sections of the present study.

References

1. Moosavinasab SM, Vahedian-Azimi A, Salesi M, Vahedi E, Zarchi AA, KhoshFetrat M, Bashar FR. A review of 17 years of application of a continuous care model on the consequences of acute and chronic diseases: describing and assessing the quality of methodology of papers. Journal of Military Medicine. 2018;20(1):27-55.
2. Spelis MJ. Are health care professionals ready to teach? The knowledge, skills and attitudes of hospital health care professionals related to patient and family teaching. California: University of California, Davis; 2012.
3. Mohammadi N, Soleymani R, Omidi A, Roshanae G. The effect of telephone nursing follow-up on self-efficacy of females with type 2 diabetes mellitus. Avicenna Journal of Nursing and Midwifery Care. 2017;25(2):61-8.
4. Sadeghmoghadam L, Delshad Noghabi A. Comparing the effectiveness of telenursing with in-person follow up on the feeling of loneliness among the elderly in community health centers in Ahvaz in 2017. Journal of Gerontology. 2017;2(3):58-65.
5. Forouzesh M, Sanagoo A, Vakili MA, Jouybari L. The effect of telenursing (telephone follow up) after discharge on readmission due to complications after coronary artery bypass graft surgery. Nursing And Midwifery Journal. 2017;15(8):584-94.
6. Harrison JD, Auerbach AD, Quinn K, Kynoch E, Mourad M. Assessing the impact of nurse post-discharge telephone calls on 30-day hospital readmission rates. Journal of general internal medicine. 2014;29(11):1519-25.
7. World Health Organization. Self-care interventions for health. 2020; Available at: https://www.who.int/health-topics/self-care#tab=tab_1. Accessed 2020 DEC.
8. Ahyana A, Kritpracha C, Thaniwattananon P. Cardiac rehabilitation enhancing programs in patients with myocardial infarction: a literature review. Nurse Media Journal of Nursing. 2013;3(1): 541-56.
9. Adib-Hajbaghery M, Maghaminejad F, Abbasi A. The role of continuous care in reducing readmission for patients with heart failure. Journal of caring sciences. 2013;2(4): 255.
10. Oksel E, AkbiyIk A, Kocak G. FP32 Self-care behaviour analysis of patients with chronic heart failure. European journal of cardiovascular nursing. 2009;8(1_suppl):22.
11. Kessing D, Denollet J, Widdershoven

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

J, Kupper N. Fatigue and self-care in patients with chronic heart failure. European Journal of Cardiovascular Nursing. 2016;15(5):337-44.
12. Najafi M, Shahrokhi A, Mohammadpoorasl A. Effect of telenursing on quality of life of patients with atrial fibrillation referred to the teaching hospitals in Qazvin. The journal of Qazvin university of medical sciences. 2016;20(1):56-62.
13. Gholami M, Tarrahi MJ, Hossein Pour AH, Valiniaei S, Bazgir Z. The relationship between health literacy and perceived self-efficacy in cardiovascular patients hospitalized in Khorramabad educational hospitals in 1396. Journal of Nursing Education. 2018;7(3):14-21.
14. Jafari Sejzi F, Morovati Z, Heidari R. Validation of the cardiovascular management self-efficacy scale. medical journal of mashhad university of medical sciences. 2018;61(4):1112-21.
15. Steca P, Greco A, Cappelletti E, D'addario M, Monzani D, Pancani L, Ferrari G, Politi A, Gestra R, Malfatto G, Parati G. Cardiovascular management self-efficacy: psychometric properties of a new scale and its usefulness in a rehabilitation context. Annals of Behavioral Medicine. 2015;49(5):660-74.
16. Yeo C, Kaushal S, Yeo D. Enteric involvement of coronaviruses: is faecal–oral transmission of SARS-CoV-2 possible?. The lancet Gastroenterology & hepatology. 2020;5(4):335-7.
17. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. Journal of hospital infection. 2020;104(3):246-51.
18. Sobouti F, Moallem Savasari A, Aryana M, Mesgarani A. Coronavirus as a new challenge for infection control in dentistry: A literature review. Journal of Mazandaran University of Medical Sciences. 2020;30(186):185-94.
19. World Health Organization. Home care for patients with COVID-19 presenting with mild symptoms and management of their contacts: interim guidance, 17 March 2020. World Health Organization; 2020.
20. Sobouti F, Dadgar S, Aryana M, Sobouti B. A to Z Steps of In-person Screening, Treatment, and Caring Procedure in Orthodontic Clinics During COVID-19 Pandemic: A Rapid Mini-review. Journal of Pediatrics Review. 2022;10:411-8.
21. Lewis E, Samperi S, Boyd-Skinner C. Telephone follow-up calls for older patients after hospital discharge. Age and ageing. 2017;46(4):544-6.
22. Stolic S, Mitchell M, Wollin J. Nurse-led telephone interventions for people with cardiac disease: a review of the research literature. European Journal of Cardiovascular Nursing. 2010;9(4):203-17.
23. Farazmand J, Nasiripour AA, Raeissi P. The effect of telephone follow-up programs after hospital discharge on hope and the quality of life in patients admitted to the coronary care unit (CCU). Journal of Babol University of Medical Sciences. 2017;19(2):41-6.
24. JahanMalki S. The relationship between the levels of awareness of life skills whit self confident believes in the students of Shahid Beheshti University (Doctoral dissertation, Thesis of MA University of Shahid Beheshti).
25. Sherer M, Maddux JE, Mercandante B, Prentice-Dunn S, Jacobs B, Rogers RW. The self-efficacy scale: Construction and validation. Psychological reports. 1982;51 (2):663-71.
26. Kollia ZA, Giakoumidakis K, Brokalaki H. The effectiveness of nursing education on clinical outcomes of patients with heart failure: a systematic review. Jundishapur Journal of Chronic Disease Care 2016;5(2):35881.
27. Golmohamadi F, Aghakhani N, Khadem Vatan K, Alinejad V. The Effect of Self-Care Education on the Self Efficacy in Myocardial Infarction Hospitalized Patients in Seyeid Al-Shohada Educational & Treatment Center, Urmia, 2017. Nursing and Midwifery Journal. 2018;16(6):412-22.
28. Baljani E, Salimi S, Rahimi J, Amanpour E, Parkhashjou M, Sharifnejad A, Poyan S. The effect of education on promoting self efficacy in patients with

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]

cardiovascular disease. Journal of Kermanshah University of Medical Sciences. 2012;16(3):227-35.
29. Mohamadinejad FP, Pedram Razi S, Aliasgharpour M, Tabari F, Kazemnejad A. Effect of patient education program on self-efficacy in patients with diabetes. Iranian Journal of Nursing Research. 2015;10(1):35-41.
30. Naderipour A, Miri J, Rashidi AA. The effectiveness of chronic disease self-management program on self-efficacy in patients undergoing CABG surgery.. Journal Of Clinical Research In Paramedical Sciences. 2015;3(4):271-8.
31. Dickson VV, Buck H, Riegel B. A qualitative meta-analysis of heart failure self-care practices among individuals with multiple comorbid conditions. Journal of cardiac failure. 2011;17(5):413-9.
32. Chen J, Xu X, Hu J, Chen Q, Xu F, Liang H, et al. Clinical course and risk factors for recurrence of positive SARS-CoV-2 RNA: a retrospective cohort study from Wuhan, China. Aging (Albany NY). 2020;12(17): 16675.
33. An J, Liao X, Xiao T, Qian S, Yuan J, Ye H, et al. Clinical characteristics of recovered COVID-19 patients with re-detectable positive RNA test. Annals of translational medicine. 2020;8(17):1084.
34. Somani SS, Richter F, Fuster V, De Freitas JK, Naik N, Sigel K, et al. Characterization of patients who return to hospital following discharge from hospitalization for COVID-19. Journal of general internal medicine. 2020;35(10):2838-44.

[Downloaded from tbsrj.mazums.ac.ir on 2026-11-07]

[DOI: 10.18502/tbsrj.v4i3.10513]