Telenursing home care and COVID-19: a qualitative study

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ABSTRACT

Background The COVID-19 pandemic has led to many challenges such as increased number of patients and the risk of the disease progress in the world's healthcare systems, especially nursing. The capacity of technology can help nursing in such conditions. The aim of this study was to explore the lived experiences of patients with COVID-19 with home care by using telenursing.

Methods The present study is a qualitative research conducted using the descriptive phenomenological method. The participants were selected using purposive sampling method and considering the inclusion and exclusion criteria. After obtaining ethical approval, data were collected through semistructured interviews. Open-ended questions and follow-up were used in the interviews. The interviews were conducted using Skype application and telephone. All data were recorded, and MAXQDA software was used to manage the data. Data analysis was performed using Colaizzi's seven-step method. Lincoln and Guba's criteria were used to evaluate the trustworthiness of the data.

Results The main themes and their subthemes included 'facilitators' (improvement of relationships, adequate education and counselling, adequate care and support, improvement and promotion of health) and 'barriers' (lack of previous knowledge and experience, infrastructure problems, confusion in hospital programmes and the pressure caused by the COVID-19 pandemic).

Conclusion Given the potential capacity of telenursing, strong field studies are recommended to be conducted in this area. The results of such studies can contribute to the rapid and serious use of telenursing in the area of care, education, support, follow-up and counselling of patients.

Key messages

What was already known?
► Telenursing was one of the most important methods for nursing care. Telenursing can improve quality of care and patient outcomes.

What are the new findings?
► The results of the present study revealed that accurate identification of the facilitators and barriers of telenursing for the home care of COVID-19 patients could contribute to the effective and efficient implementation of this technology

What is their significance?
► Clinical: Caregiving facilitators can facilitate the implementation of nursing care and, consequently, improve the health of patients.
► Research: to apply the results of this research with regard to the use of telenursing as quickly as possible in the field of care, education, patient support, and patient follow-up and counseling through conducting strong field research

BACKGROUND

COVID-19 is a viral disease that causes various respiratory symptoms and other symptoms such as taste problems, nausea and vomiting in patients.[1] As a pandemic, the COVID-19 crisis has given rise to many problems in the health system of different countries.[2] A large number of patients and referrals to hospitals has increased the number of hospitalisations, treatment costs and work pressure on nurses.[3–5] From the outset of the pandemic, nurses as healthcare staffs have always provided a variety of hospital, social and home services.[6 7] Given the various conditions and care needs of patients with COVID-19, continuity of care for these patients is important as it may facilitate the treatment process, improve the condition of the disease and control its complications.[8] Home care is an aspect of continuity of care which can be effective in facilitating the treatment process of the patients who do not need hospitalisation, and their care needs can be managed and

followed at home.[9][10] Continuity of home care is one of the important duties of nurses, which can be done either in-person or in-absentia.[11] In-absentia methods such as remote care through technology are used to provide necessary and fair care services to the patients who are at home and do not have access to some particular services.[12][13] Nurses can use available technologies such as mobile phones, computers and existing communication applications such as Instagram, WhatsApp and Telegram in order to continue care and provide ongoing care services.[10][14] It is also possible to manage and provide care services through using precreated e-learning programmes such as Medscape or creating training programmes which can be installed on electronic devices. Telenursing involves the use of technology tools and facilities for providing remote healthcare services.[15] Nowadays, the use of technology is inevitable in the life of people[16][17] so that it can be used effectively in different critical situations. Telenursing provides access to health services, which can affect the condition of remote patients.[18] Nursing services performed in telenursing include patient triage, symptom management, education and control of using care tools such as oxygen capsules and masks through telephone and at home.[19–22] Counselling, education, diagnosis and record of patients' information are also possible through telenursing.[23] Among advantages of telenursing, mention may be made of continuous equitable care and access to remote services.[10][24][25] Telenursing is also effective for telecommunications and the use of technology for inaccessible regions such as villages.[26][27] Telenursing and the use of technology are increasingly developing in remote nursing care.[28] Understanding the experiences of patients will help us how to use telenursing for investigating the barriers and facilitators of it in patients with COVID-19. Qualitative research is the best way for understanding the experiences of patients with COVID-19 with life as well as care processes, facilitators and barriers.[29] Qualitative research, without intervention, examines the experiences of individuals as they actually happen. The most appropriate method of qualitative research for investigating the lived experiences of patients is a phenomenological method.[30] Phenomenology represents experiences which have occurred in one's life.[31] Descriptive phenomenological method is used to investigate the main structure of people's experiences and explain them as completely and accurately as possible.[32] Given the fact that there was no study examining the lived experiences of patients with COVID-19 with telenursing in home care, the present study was conducted in Iran to explore the lived experiences of patients with COVID-19 with home care through telenursing.

METHODS

The aim, design, and setting of the study

The aim of this study was to explore the lived experiences of patients with COVID-19 with home care by using telenursing. The present study was a qualitative research conducted using descriptive phenomenological method in the period from April to July 2020. The study setting was a hospital in yasuj city in Iran. The study aimed to investigate and determine the lived experiences of patients with COVID-19 with home care through telenursing.

Study participants

In this study, 20 participants were selected using purposive sampling method. Determining no sample size, sampling was continued until data saturation was reached. The samples included patients with COVID-19 who were discharged from the hospital and were continuing their care at home and through telenursing. Inclusion criteria consisted of having a positive COVID-19 test, history of hospitalisation in COVID-19 ward, literacy, ability to use Skype and mobile phone, ability to communicate and having adequate time for interview. Exclusion criteria were the patient's reluctance to participate in the study, limited cooperation caused by the patient's connection to ventilator or other restrictive devices at home.

Data collection procedures

Semistructured interviews were used for data collection. The time of each interview ranged from 40 to 90 min. The following are examples of questions asked in interviews: 'Tell us about your experience of telenursing in home care.' Or 'How has been your daily experience of telenursing in home care?' Follow-up questions were used during the interviews to access more data and deepen understanding of the patients' experiences. In order to maintain social distancing and prevent the transmission of the disease and as it was impossible to attend the patients' home, remote interviews were conducted by Skype application and via mobile phone based on the patients' preferences. The interviewer was experienced in conducting qualitative interviews. With the permission of the patients, all interviews were transcribed and then typed verbatim by the interviewer. In order to manage the information and text of the interviews, MAXQDA V.10 software was used with respect to the principles of confidentiality and privacy.

Data analysis

Colazzi's seven-step method was used for data analysis. The first step was the collection of descriptions based on which the patients' experiences and descriptions of home care were collected in the form of telenursing (video call via Skype, telephone call and recording of interviews). The second step or understanding the depth of the meanings was done by delving deeper into the text of the interviews to discover the meanings (verbatim transcription of the interviews, rereading the transcribed text, delving deeper into the patients' utterances and gaining a general understanding of them). In the third step or extraction of important sentences, very significant statements were

extracted from the participants' utterances (return to the patients' utterances, use of underline to identify more important statements). In the fourth step, or the process of giving meaning to important statements, new meanings/concepts were given to the extracted expressions (extracting explanations and important parts of patients' statements and giving them meaning through specific and new concepts). In the fifth step or categorisation of concepts/meanings and topics, the related concepts were categorised (the resulting concepts were put in similar and specific categories). In step six or the exhaustive description of the intended subjects, the categorised concepts were described and examined in more detail (the intended phenomenon was described clearly and unambiguously). Finally, in step seven, or validation of the findings, the data were validated using the Lincoln and Cuba criteria (including credibility, transferability, dependability, and confirmability).

Trustworthiness

Different methods were used to increase the validity of the study. For instance, the data were coded and classified independently by the researchers, and the extracted codes were reviewed by the research team. For credibility, the researchers frequently contacted patients and read the interviews regularly. For transferability, the researchers used thick description to describe all details of the research, from sampling to data collection and analysis, as well as review and comparison of the data. Also, the participants were selected with maximum variation. For dependability, peer review and review of the encodings were performed by two qualitative research experts. To establish confirmability, the researchers used biased method of questioning (using more than two questions to investigate the phenomenon).

RESULTS

Finally, 20 patients with COVID-19 participated in the study. The mean and SD of the patients' age was 42.15±6.643. Eleven (55%) women and nine (45%) men participated in the study. Fifteen (75%) participants were married, and five (25%) were single. Participants P1, P4, P7, P12, P14 and P18 lived in rural areas and other participants in urban areas.

Four (20%) participants had a history of receiving telenursing, and 16 (80%) participants did not hither to use any telenursing services. The mean and SD of the days of patients' hospitalisation was 12.15±2.254. Also, the mean and SD of the days of receiving home care services through telenursing was 9.95±2.416 (table 1).

A total number of 200 concepts were obtained from the statements of the subjects, from which two main themes and nine subthemes were extracted. The main themes and their subthemes included 'facilitators'

Table 1	Characteristics of the participating patients					
ID	Age	Sex	Marriage	Telenursing history	History of admission in hospital (days)	Telenursing home care history (days)
P1	35	F	Married	No	13	14
P2	39	M	Married	Yes	10	8
P3	35	F	Married	No	14	7
P4	35	F	Married	No	15	7
P5	40	M	Single	No	14	7
P6	42	F	Married	No	14	14
P7	46	M	Married	No	13	10
P8	49	F	Married	Yes	13	11
P9	43	F	Married	No	10	9
P10	32	M	Single	No	9	9
P11	47	F	Married	No	10	14
P12	52	F	Married	No	14	13
P13	50	M	Married	No	14	12
P14	51	M	Single	No	8	11
P15	51	M	Married	Yes	9	10
P16	48	F	Married	No	10	9
P17	36	M	Single	No	14	9
P18	37	F	Married	No	15	10
P19	34	F	Single	Yes	11	8
P20	41	M	Married	No	13	7
M±SD	42.15±6.643	–	–	–	12.15±2.254	9.95±2.416
Total	N=20					

F, Female; ID, Identification; M, Male; M±SD, Mean ± Standard Deviation; N, Number; P, Participant.

Table 2 Concepts, subthemes and themes obtained in the study

Themes	Subthemes	Concepts
Facilitators	Improvement of relationship	Adequate relationship, the establishment of relationship, intimate relationship, mutual trust
	Adequate education and counselling	Effective education, adequate consultation, counselling provision, acceptable education, follow-up and counselling, constant education and counselling, counselling adequacy
	Adequate care and support	Continuous care, effective care, useful care and support, comprehensive support, support and defence of the patient, continuity of care
	Improvement and promotion of health	Rapid recovery, promotion of health and well-being, more health, feeling more better, accelerating the health process
Barriers	Lack of previous knowledge and experience	Low awareness, insufficient experience, insufficient awareness and cognition, lack of previous experience, lack of previous knowledge
	Infrastructure problems	Poor internet, hardware-related problems, the difficulty of working with software, lack of necessary infrastructure, cost-related problems, financial issues, costliness
	Confusion in hospital programmes	Lack of a plan, confusion in the implementation of telenursing programme, no priority of telenursing, lack of proper instructions
	Pressures caused by the COVID-19 pandemic	Problems caused by COVID-19, numerous patients, a high number of hospitalised patients, pressures of the disease, problems of the pandemic

COVID-19, Coronavirus disease 2019.

(improvement of relationships, adequate education and counselling, adequate care and support, improvement and promotion of health) and 'barriers' (lack of previous knowledge and experience, infrastructure problems, confusion in hospital programmes and pressure caused by the COVID-19 pandemic) (table 2).

FACILITATORS

The first main theme extracted from the categorisation of important concepts in the study was 'facilitators.' Findings obtained from the statements of the patients showed that the most facilitating factors effective in the telenursing process for COVID-19 home care included improvement of relationships, adequate education and counselling, adequate care and support and improvement and promotion of health.

Improvement of relationships

It was extracted from the statements of the patients that because of the impossibility of physical presence in the hospital, telenursing had led to a closer and more effective relationship between nurse and patient. In such a situation, the patients have been able to communicate more easily with their nurses. For the patients, communication was a serious and vital matter in gaining access to care, especially remote care, and they believed that through telenursing, the nurse has more time to dedicate to patients. Contrary to the expectations of the patients, remote communication between the nurse and the patient was established correctly, leading to the patient's sense of closeness to and trust with the nurse. The patients opined that tele-communications functioned better than their physical presence in the hospital.

> I think a good relationship was established between the nurse and me…I felt more intimacy. (P3)
> My nurse pays closer attention to me; although there is a distance between us, our relationship is stronger than when I was in the hospital. (P12)

This communication system is much better than going to the hospital regularly, especially in this condition. Our close relationship has somehow led to a mutual trust. (P8)
I was very comfortable and eager; I was no longer shy to ask my nurse any question; she also trusted me a lot. (P2).

Adequate education and counselling

The patients mentioned that all of their questions and concerns were fully answered by the nurse and that they were given adequate education. The nurse provided easy and appropriate education on a variety of needs, such as questions about medication, diet and the use of equipment. The nurses provided their education in simple language as patiently as possible and in line with the needs of the patients. They believed that the nurse had provided adequate counselling in the required areas and had followed the issue. The nurses consulted the patients about any issue occupying their minds, and nurses also provided the required counselling to them with extra motivation and energy.

> I got an accurate and complete answer to every question of mine. (P16)
> When a question was raised, and I asked it, the nurse answered such that I fully understood. (P1)

> Apart from asking her about my issues, she also provided me with good advices. (P9)

> The educations provided by the nurses were simple and understandable; I could easily understand what she meant. (P15)

> Not only did she provide me with consultations, but she also followed my work to be sure I had done it. (P18)

> 'My nurse was very energetic and eager to teach me, and I asked her to give me consultation in most of my works as she taught me accurately and adequately. (P4).

Adequate care and support

According to the patients, remote care and continuous support provided by the nurses were so helpful. Various cares such as health, nutritional, medical and respiratory cares of patients with COVID-19, which were considered very important by the patients, were carefully provided by the nurses. The nurse developed the care plan based on the preferences and values of the family and the individual. The care plan provided the patients with a sense of calmness and reduced anxiety. According to the patients, the nurses followed their care accurately and implemented it completely. Adequate support was provided by the nurses for the patients who were at home in order to implement a care plan and assess the condition by the patients. The patients were supported by the nurses so that in most cases, the support needs and outside the home follow-ups were done by the nurses. In any condition, the nurses emphasised that the patient was right and that the nurse was obliged to defend their rights and resolve their problems. Serious support and ongoing care plans for the patients were acceptable to them and their family members. They were completely satisfied that their care was purposeful and provided in a specific framework.

> I didn't know that there should be a plan for care, and the plans provided by my nurse gave me solace. (P5)
> When the nurse explained to me what to do, I was motivated to perform the care carefully. (P19)
> All my family members participated in my care, and we proceeded according to the nurse's plan. (P4)
> Each time I was to receive care, the nurse asked me questions about my and my family's values. (P6)
> While the necessary care was provided by the nurse, she followed up the implementation of the care and what I had to do; even the outcome was important to the nurse. (P1)
> My counselor was very supportive of me and followed up my works, especially in this situation where I could not do my works in person. (P17)
> My nurse told me that it was her duty to support me completely, and she showed this practically by following up. (P13)
> I didn't really see any difference between home and hospital; the only difference was that I was much more comfortable at home, and my nurse was constantly caring for me. (P3)
> I felt very secure that I was taking care of myself and that I was being cared for. (P18)

Improvement and promotion of health

According to the patients, telenursing created a condition in which their health was improved. Remote care improved the patients' health and made them recover faster. The patients believed that comprehensive and continuous control of them by the nurse and at home accelerated the process of health and relieved the feeling of discomfort. Constant promotion of health is effective when patients are involved in their care. Telenursing helps to identify patients' problems and solve them, thereby improving the patients' condition. Telenursing even contributes to the discovery of health-related strengths and weaknesses and the creation of a supportive path to improve the health of patients.

> Every day I feel I'm getting better. (P2)
> With this kind of remote care and given that I'm constantly receiving attention, I feel that my recovery process is faster. (P7)
> The nurse discovers my problems from the distance and talks to me about them. I participate in the care process. (P10)
> I feel healthier and better since the day I was cared for remotely. (P3)
> My strengths and weaknesses are revealed that helps me regain my health sooner. (P17)
> I thought I would have recovered later if home care had not been continued; by telenursing, I recovered sooner than I expected. (P15)

BARRIERS

Another main theme that emerged from the important concepts extracted from the patients' statements was the 'barriers' to telenursing for home care of patients with COVID-19. This theme included the subthemes of lack of previous knowledge and experience, infrastructure problems, confusion in hospital programmes and the pressure caused by the COVID-19 pandemic.

Lack of previous knowledge and experience

A small number of the patients talked about previous telenursing experiences, emphasising that such experiences were effective in accepting telenursing and preparing them for remote care. According to the patients, the lack of initial knowledge and understanding about the process and the existence of remote nursing care methods was an important challenge for them. Some patients found this method interesting, but they also found it stressful as they were exposed to a new type of care without any prior knowledge in which almost unfamiliar tools were used through an unknown method. Although the necessary educations and guides were provided by the nurses, an unknown perception was created in the minds of patients about the consequences of telenursing, which was due to the lack of prior knowledge. Most patients emphasised that they had no prior knowledge of remote education and care.

> I had no previous familiarity with telecommunication; I didn't know at all that there is a way of taking care of patients at home. (P14)
> The remote method was not so familiar to me. I had heard about it, but had no experience. (P11)
> I had experienced it before. I think anyone who experiences telenursing can accept it better for the next time. (P1)
> I was stressed that what this method would look like or what would be the outcome of using this method.

I was apprehensive about being in this situation or not being able to cope with it. (P16)

As this method is very new and I had never heard of it before; it was interesting to me, but I wish I already knew about and was aware of telenursing. (P20)

I didn't think that patients could be cared for by telenursing. But, I wish patients would be educated and informed about it from the beginning so that there would be no ambiguity about it in the mind of patients. (P7)

I, who was not aware of and did not know enough about this method, was very afraid of participating in it. (P12)

Infrastructure problems

The patients stated that the existence of facilities and tools is very effective in implementing the remote care method. Perhaps the main obstacle to the implementation of this method is the issue of facilities. The internet platform, high-speed internet, financial efficiency and economic issues were emphasised by the patients. Moreover, the hardware through which the patients communicated with the nurse and even how to work with the recommended hardware or software was a challenge for the patients. They emphasised that the use of facilities and time for the telenursing process interfered with their daily activities, causing them to become exhausted and indifferent to telenursing.

I sometimes had Internet problems, and this interrupted the connection process. (P12)

Although I had a cell phone, sometimes working with the applications recommended by my nurse was difficult for me. (P9)

Apart from having Internet problems, it was also costly for me as video call finished my internet package very quickly. (P6)

I had never worked with a laptop before; it was really hard, and I had to ask others to help me. (P13)

You had to spend more time on it, and it prevented you from doing your other activities; I think regular working with mobile and the Internet is boring as well. (P18)

'Constant purchase of Internet packages was costly; working with the related instruments and providing the equipment and facilities was itself also a challenge. (P11).

Confusion in hospital programs

The patients said in their statements that the hospital did not have a precise and coherent plan for the follow-up and continuation of remote care for patients with COVID-19. Existence of basic guidelines and structures developed by the hospital can strengthen telenursing and lead to its better and more scientific implementation. This reflects the hospital's confusion with regard to the current condition of telenursing for patients with COVID-19 at home. Some patients believed that this confusion might have been due to the fact that telenursing and remote home care are not the priorities of the hospitals.

I think the hospital itself was confused and had no specific telenursing program for COVID-19 patients. (P5)

The hospital's program was not coherent; perhaps the program was more nurse-centered. (P4)

No specific guideline or program was offered on telenursing during the hospitalization period. (P2)

A good and complete program can certainly lead to better telenursing. (P19)

Well! The condition of the disease made the hospital more confused about telenursing. (P10)

I feel that telenursing has not been among the hospital's priorities in the current situation. (P16)

I expected the hospital to focus more on providing a clear and concise plan for telenursing and how it is implemented. (P5).

The pressure caused by the COVID-19 pandemic

The results showed that the pressure caused by the pandemic was an important obstacle to telenursing from the patients' point of view. Based on the aftermath of the COVID-19 pandemic, such as numerous hospitalisations, a high number of infected people, and societal challenges, telenursing is not prioritised by the healthcare centres. Accordingly, the patients believed that during this period, telenursing could have a potential capacity to facilitate the care and support of a large number of patients, especially in their homes.

I think the number of patients is so high that there is no time to take care of them by telenursing. (P20)

In this hard condition of pandemic, telenursing is not really a priority, as there is a lot of pressure on the medical staff. (P11)

It seems that there is no time to implement telenursing in the current situation with so much pressure on the staff and the high number of hospitalized patients, but I think the implementation of telenursing is itself a supportive capacity to help the medical staff. (P18)

Although the number of patients is high and hospitals are under pressure, it seems that telenursing can manage and care for so many patients at home. (P12).

DISCUSSION

The results of the study obtained from discovering the experiences of patients with COVID-19 showed that there was a set of facilitators and barriers with regard to the implementation of home care through telenursing. Caregiving facilitators can facilitate the implementation of nursing care and, consequently, improve the health of patients. Promotion of health is one of the important goals of nursing care, which along with improved condition of patients, should always be considered in the field of nursing care. In order to transform traditional nursing into a technology-based and updated nursing, it is necessary to pursue the use of telenursing in the field of

nursing care more seriously and to do so, sufficient resources and support are required.[33] To facilitate the establishment of effective telenursing, patients and the target population should be understood effectively so that we can have a correct understanding of the remote care process.[34] The findings of the study showed that telenursing had a significant effect on improving the relationship between the nurses and patients with COVID-19. In another study, telenursing improved the relationship between nurse and patient and successful communication was one of the achievements of telenursing.[35] According to the patients, adequate education and care support could occur through telenursing. Given that a pandemic can increase the possibility of transmission of infection among individuals, this condition can provide the nurses with the opportunity of providing remote nursing care.[36] In the intervention programme, the group that received remote care was better able to control their disease condition than the control group.[37] The results of a study showed that using remote care increased self-care and reduced fatigue in patients.[38] In some specific conditions, patients need to use remote care.[39] The quality of life of patients can be improved through using remote education and care.[40] Remote care programme can be used because of its cost-effectiveness, availability to follow-up on patient care and its ability to increase patient efficiency and recovery.[41] Given the significant effect of remote care on reducing anxiety in patients with COVID-19, it was recommended in a study to use this technology for home care.[42]

The needs of patients with COVID-19 include educational needs, adherence to medication, control of medical side effects, diet follow-up, psychological counselling, adherence to standards of care, healthcare and follow-up of disease outcomes, which can be facilitated through using telenursing.[7] Another finding of the study was the barriers to effective telenursing for patients with COVID-19, including lack of prior knowledge, the significance of necessary infrastructure, lack of clear hospital guidelines and pressure caused by COVID-19. Severe conditions caused by COVID-19 have challenged the implementation of high-quality remote care.[43] Lack of information of policymakers about remote care and lack of adequate monitoring are the most important challenges of this technology during the pandemic in Iran.[44] Technology-related issues such as lack of instructions, inadequate education, lack of support are among the problems of remote nursing which have led to serious problems for nurses and patients.[45] Although COVID-19 pandemic has been associated with many challenges, the use of remote technology seems to be a necessity during this period.[46 47]

One of the limitations of this study was the difficult cooperation of patients and their family members in interviews and participating in the study, which was removed by explaining the objectives and necessity of the research to them. One of the criteria for inclusion in this study was that the participants had the ability to work with the software in question, and if they did not have this ability, they did not enter the study.

CONCLUSION

The results of the present study revealed that accurate identification of the facilitators and barriers of telenursing for the home care of patients with COVID-19 could contribute to the effective and efficient implementation of this technology. Although the COVID-19 pandemic has led to a complex condition for nursing care systems, this condition can be used as an opportunity to strengthen the application of technology in nursing and improve the health of patients in this critical condition. The results of this study can help us to identify the capacities of telenursing and its progressive use in the area of nursing services in the near future. The reason is that nursing care as a leading profession needs to strengthen itself based on the current needs of society and technology. Given the appropriate access of Iranian people to the internet, telenursing can be used more seriously in remote nursing care. Therefore, it is recommended that more efforts be made to apply the results of this research with regard to the use of telenursing as quickly as possible in the field of care, education, patient support and patient follow-up and counselling through conducting strong field research. Supporting people by providing the necessary facilities to use telenursing is a very good suggestion for future research.

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