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Barriers and facilitators of readiness for hospital discharge in patients with myocardial infarction: a qualitative study: quality improvement study

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Background: Readiness for hospital discharge (RHD) in patients with myocardial infarction (MI) is a key concept in the discharge process. This study was conducted to explain the barriers and facilitators of preparation for discharge in patients with MI.

Materials and methods: A qualitative study was conducted using conventional content analysis from April 2021 to 2022. Data collection was done in a targeted manner through semi-structured interviews until the data saturation stage. Nineteen participants (11 patients, 3 family members, and 5 healthcare team) were interviewed. Data analysis was done in eight steps according to the suggested steps of Graneheim and Lundman. MAXQDA18 software was used for coding.

Results: From the interviews, 348 primary codes, 11 sub-categories, and 5 categories were extracted. Finally, after continuous analysis and comparison of interviews, codes, and categories, two themes including "supporting platform" and "caring atmosphere" were extracted, which were the result of the participants' experience and understanding of the barriers and facilitators of RHD. The supporting platform included "family support" and "social support" and the caring atmosphere included "care gaps" and "professional healthcare team performance".

Conclusion: The results of this study indicate several factors affecting RHD in heart attack patients. According to the results of the study, the participation of the patient, family, healthcare team, and community in creating RHD is recommended. It is also suggested to pay attention to these factors in care and treatment planning to help improve health and control complications and prevent re-hospitalization in these patients.

Keywords: hospitalization, myocardial infarction, patient discharge, qualitative research

Introduction

Myocardial infarction (MI) is one of the most common cardiovascular diseases in developed countries[1–4]. Studies show that there is a possibility of death due to MI even 30 days after the occurrence of a heart attack due to the complications and consequences of the disease[5,6]. The consequences of MI can lead to re-hospitalization and death in these patients. In the prevention of these consequences, in addition to immediate care and treatment of these patients, the implementation of preparation programs for discharge has a helpful and effective role[7–9]. While the results of studies on MI patients show that the readiness for discharge is not at an optimal level[10,11].

Nowadays, due to the importance of minimizing the length of stay in the hospital, most patients are discharged from the hospital with partial recovery, for this reason, the care needs after discharge are the responsibility of the patient and family[12].

HIGHLIGHTS

- After continuous analysis and comparison of interviews, codes, and categories, two themes including "supporting platform" and "caring atmosphere" were extracted, which were the result of the participants' experience and understanding of the barriers and facilitators of readiness for hospital discharge (RHD).
- The supporting platform included "family support" and "social support" and the caring atmosphere included "care gaps" and "professional healthcare team performance".
- The results of this study indicate several factors affecting RHD in heart attack patients.
- According to the results of the study, the participation of the patient, family, healthcare team, and community in creating RHD is recommended.
- It is also suggested to pay attention to these factors in care and treatment planning to help improve health and control complications and prevent re-hospitalization in these patients.

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Therefore, it is important to prepare properly for discharge[13]. Examining readiness for hospital discharge (RHD) is an important part of the discharge planning process[14,15].

RHD is based on the performance of the healthcare team, which is based on the achievement of clinical criteria[15]. Meanwhile, nurses play a significant role in RHD due to their close relationship with patients[16]. The many complications and diversity in the treatment and care process of patients suggest the need to pay attention to RHD. Considering the shortcomings and limitations of health-medical centres in terms of equipment and nursing personnel and emphasizing the need to implement community-based health services, nurses must pay attention to the issue of RHD[17]. Clinical nurses have the duty of preparing the patient, providing healthcare for discharge and post-discharge care, and ensuring the patient's readiness before discharge[16]. RHD is mostly based on whether the patient is ready or not, and in a few studies, it is done from the perspective of health service providers, and often their assessment of the patient's health status has been the only criterion for RHD[18]. Most studies also focus on the mere education of the nurse's discharge and skills in the patient's education for RHD, and the dimensions and barriers, and facilitators of this experience are paid less attention from the viewpoints and health staff[19–21].

In Iran, few studies have been done about RHD and most of the studies have investigated the amount of RHD in mothers and newborns using questionnaires and in the form of quantitative studies[22]. Some studies have also investigated the discharge programs and models available in different patients[17,23,24]. While the measurement of RHD and the barriers and facilitators of this experience from the perspective of patients with MI and their understanding of this condition, based on the experiences and perceptions of people, can be very different[15]. Also, RHD as a complex and multi-dimensional concept can be different in patients with different physical and mental conditions[25,26].

Therefore, identifying the barriers and facilitators of RHD in MI patients is important in the correct implementation of the discharge process and the readiness of the patients. To deeply understand and identify these factors in the experience of RHD, it is necessary to conduct studies with a qualitative approach for a deep and comprehensive investigation of this process. Therefore, considering the limited knowledge available in the field of RHD in patients with MI, it seems that there is a need to conduct studies with a qualitative approach to investigate and discover the experiences of these people in the field of barriers and facilitators of RHD. Therefore, to clarify the nature of this experience, the purpose of this study is to explain the barriers and facilitators of RHD in people with MI based on a qualitative study. Understanding and identifying the facilitators and barriers to preparation can improve the RHD process by formulating the necessary strategies. As a result, the planning and discharge process will be based on a practical model. Therefore, the complications and consequences of inappropriate discharge, re-hospitalization, and subsequent physical and financial costs are avoided and lead to the improvement of the quality of patient care and the development of nurses' professional roles.

Methods

Design and setting

The study is a qualitative study with a naturalistic paradigm[27], that conducted with the qualitative content analysis approach[28]. Qualitative studies are a part of studies that help to produce knowledge in different fields of science[29,30]. Qualitative descriptive designs are common in nursing and healthcare research due to their inherent simplicity, flexibility and utility in diverse healthcare contexts. However, the application of descriptive research is sometimes critiqued in terms of scientific rigour[31].

This study qualitatively and deeply examined the factors affecting Readiness for hospital discharge. This study made a detailed and comprehensive examination of the RHD process by using interviews with patients, family and medical care team. Qualitative studies have a small sample size due to in-depth investigation and conducting open and semi-structured interviews[27,28]. In references and most studies, the number of participants in content analysis study is 10–20 people. Although the number of participants is low compared to the quantitative studies, the interview with each participant is in-depth and deals with different aspects of the subject[27,32].

To achieve the purpose of the study, the qualitative approach of conventional content analysis was used. This study was conducted using a purpose-based sampling method on patients with MI. The location of the study was a heart specialist hospital in the north of Iran, which is the referral centre for MI patients in the entire province of Guilan, located in the north of Iran. The present study was reported in line with the Quality Improvement Reporting Excellence (SQUIRE) criteria.

Participants

In this study, nineteen participants including eleven patients, three family members, and five people from the healthcare team (physicians and nurses) were interviewed from April 2021 to April 2022 to collect data. The inclusion criteria for the study included all patients with a medical diagnosis of MI, the healthcare team working in this centre with at least 1 year of experience in treating and caring for MI patients, and family caregivers who had experience caring for MI patients. Also, the ability to understand and speak Persian, favourable physical, mental and cognitive conditions, and willingness to participate in the study were considered as inclusion criteria.

Procedure and data collection

To access the participants, after receiving the necessary permits to start sampling, the researcher attended the hospital during the morning and evening work shifts, then identified the participants. After explaining the purpose of the study, informed consent was obtained from the participants. According to the agreement and convenience of the participants, most of the interviews were conducted at the patient's bedside in the hospital, at the patient's home, and in the waiting room of the hospital clinic. The interviews with the healthcare team were also at their workplace and restroom in a quiet environment. Before starting the interview, permission to record the audio was obtained from the participants. All interviews were conducted by the first researcher of the study and the privacy of the participants was preserved. Considering that the patients were considered as the key participants of this study, to ensure maximum diversity, the samples of MI patients with different economic, social, and demographic characteristics were selected.

First, five interviews were conducted with the patients, but according to the initial analysis of the data and the identification

of the role of the family members and the healthcare team in the RHD process, an interview was also conducted with them. In total, based on the criterion of data saturation in qualitative research, twenty-two individual interviews were conducted with the participation of nineteen people. The duration of each interview was between 30 and 110 minutes. To observe the maximum variety in the sampling of patients at different times of hospitalization (patient no. 15), on the day of discharge (patient no. 1–5 and 9), one week after discharge when visiting the physician (patient no. 17), and one year after discharge from the hospital (patient no. 13 and 19) were included in the study. Some patients were also interviewed in several stages from the time of hospitalization to after discharge (patient no. 10).

To collect data, at the beginning of the interview with the participants, brief information related to personal characteristics and related to health was completed. The interview started in a semi-structured way with an open question based on the main research question. Gradually, based on the data analysis, exploratory and in-depth questions were asked about the barriers and facilitators of RHD (Table 1). MAXQDA v18 software was used for coding.

Data analysis

The process of data analysis was done simultaneously with data collection. Graneheim and Lundman's proposed steps were used in the data analysis process. The steps of data analysis were as follows: (1) The recorded interviews were typed and the contents were read again to obtain a general and detailed understanding; (2) All information was considered as a unit of analysis; (3) Paragraphs, sentences, and words were considered as semantic units with related concepts and content, and then according to their content, they were summarized and placed next to each other; (4) In the continuation of the process, according to the hidden concept in the units, they were brought to the level of conceptualization and abstraction and named with codes; (5) Taking into account the similarities and differences in the codes, they were compared with each other and they were classified with a more precise and abstract concept; (6) Repeated comparison of the categories with each other was done at the end of the process and the content hidden in the data was introduced as the content of the research[33].

In the present study, sampling continued without any restrictions until the completion of communication between categories. No participant was excluded from the study after entering the study and conducting the interview. After analyzing the last three interviews, the researcher concluded that new data related to the purpose of the study was not obtained and the data are repetitive. Also, the characteristics of the categories have been completed and the relationship between them has been specified. Therefore, due to reaching saturation, data collection was stopped.

To ensure the accuracy and strength of the qualitative data, Lincoln & Guba's scientific accuracy standards including credibility, dependability, transferability, and confirmability were used[32]. In this study, to increase the validity of the data, the researcher had a continuous interaction with the data during the study for 12 months, and all the text of the interviews and the codes and categories were reviewed by other colleagues of the researcher with a history of qualitative research. Also, through the member check process, the initial coding of several interviews was returned to the interviewee in the initial stage of analysis, to determine their accuracy. On the other hand, the confirmability of the data was confirmed by placing the different sections of the categories at the disposal of two faculty members familiar with qualitative research and comparing their opinions and interpretations, which showed a lot of agreement. To audit the research, the researcher accurately recorded and reported the steps and process of the research so that it would be possible for others to follow the research. For the transferability of the findings, the quotes of the participants were presented in the same way as mentioned. Sampling with maximum diversity made the data fit more.

Results

The participants in the study were eleven patients with MI, three family caregivers, two cardiologists (one cardiologist and one resident), and three nurses (working in the internal heart department, responsible for health education, and nursing clinic) (Table 2).

The result of the data analysis was 348 primary codes, eleven sub-categories, and five categories. Finally, two themes were extracted including a supportive environment and a caring atmosphere(Table 3), which were the result of the participants' experience and understanding of "Obstructing and facilitating conditions for hospital discharge" (Fig. 1).

Supporting platform

The supporting platform was one of the barriers and facilitators of RHD, which includes "family support" and "social support". When patients are exposed to MI, they are hospitalized due to life-threatening conditions and during diagnosis and treatment. During the hospitalization until discharge, medical care was carried out, and after discharge, they need to be careful, follow-up and supported. One of the most important issues in life-threatening diseases to improve the patient's condition and the quality of care is the supporting platforms that can be an important factor in the patient's RHD with MI.

Table 1

Questions asked in the interview

Patients	Healthcare team	Caregivers
• What steps were taken from the time of admission to the time of discharge to prepare you to go home? • What factors help you to be more ready to go home? • What factors prevent you from getting ready to go home?	• What steps do you take to prepare your patient from admission to discharge? • What factors help the patient to be more ready to go home? • What factors prevent your patient from getting ready to go home?	• What measures were taken for your patient from the time of admission to the time of discharge to prepare him/her to go home? • What factors help your patient to be more ready to go home? • What factors prevent your patient from getting ready to go home?

Table 2

Demographic characteristics

	Total ($n=19$)	Patients ($n=11$)	Healthcare team ($n=5$)	Caregivers ($n=3$)
Age		54.81 (SD = 7.69)	39.00 (SD = 9.51)	21.00 (SD = 3.60)
Sex, *n* (%)				
Male	11 (57.89)	8 (72.73)	2 (40.00)	1 (33.33)
Female	8 (42.11)	3 (27.27)	3 (60.00)	2 (66.67)
Marital status, *n* (%)				
Single	4 (21.05)	1 (9.09)	1 (20.00)	2 (66.67)
Married	15 (78.95)	10 (90.91)	4 (80.00)	1 (33.33)
Place of residence, *n* (%)				
City	14 (73.68)	7 (63.64)	5 (100)	2 (66.67)
Village	5 (26.32)	4 (36.36)	0 (0)	1 (33.33)
Duration of hospitalization in patients (day) or work history in healthcare team (year)		8.18 (SD = 3.84)	13.60 (SD = 11.71)	N/A

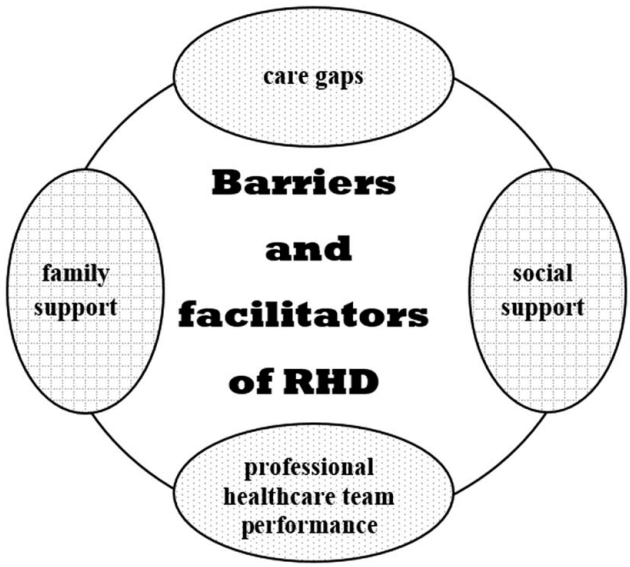

Figure 1. Barriers and facilitators of RHD. RHD, readiness for hospital discharge.

Family support

One of the important sub-categories of patient support is the support that a person receives from his family. This support will continue from the time of the onset of the disease and hospitalization of the patient until after discharge at home. "Persistent family" and "safe family" as facilitating factors of RHD were the concepts that explained the category of "family support".

Persistent family

One of the situations, when patients need the support of their family, is when they are away from home and in the hospital. The occurrence of a sudden and debilitating disease disrupts the normal conditions of a person's life. In this situation, most participants refer to the constant presence of a companion during hospitalization, physician visits, and when receiving training. In many cases, the patient is unable to understand the condition due to the instability of the mental and physical condition and is not ready to receive information and discharge from the hospital, and feels the need for an informed companion. These factors were identified as facilitators of RHD. One of the nurse participants stated about the presence of a companion at the patient's bedside: "Education of the patient is always a priority, he should be in the course of his illness, treatment, and care. If there is a companion next to the patient or if we make sure that he is the main caregiver, it will be very good. He should also be taught." (Nurse No. 6).

Another thing that is important about the presence of the family is the level of involvement of the family with the patient's problems and issues and following up on the patient's condition in the hospital, preparing medicines, and how properly care at home. The caregiver of one of the patients, who was a 20-year-old girl, said the following about her father's medication and diet: "Since he was discharged from the hospital, I give him his medicine. Every time he needs to take medicine, I check one by one and give him medicine… I also take care of his eating." (Caregiver No. 19).

Post-discharge care plays an important role in the patient's recovery process and in reducing complications and disease recurrence. One of the nurses said about this: "The family is very important. If the family is persistent, they take the patient to the physician on time, listen to the physician, and follow the physician's advice. He constantly emphasizes to his patient that if they have a heart attack, you must take these medicines and follow the diet. It does not make the patient greedy so he wants to be mentally and psychologically pressured and do MI. If the patient has financial problems, he helps him." (Nurse No. 12).

Table 3

Barriers and facilitators of RHD in patients with MI

	Sub-category	Category	Theme
1	Persistent family	Family support	Supporting platform
2	Safe family		
3	Social pressures	Social support	
4	Supportive community		
5	High workload of the healthcare team	Care gaps	Caring atmosphere
6	Deficiency in therapeutic communication with the patient		
7	Defects in patient-centred care		
8	Defects in professional communication	Professional healthcare team performance	
9	Medical patriarchy		
10	Incoherent healthcare team		

MI, myocardial infarction; RHD, readiness for hospital discharge.

Safe family

The feeling of peace is one of the most beautiful feelings that a person experiences. When the patient is faced with the fear and tension caused by the disease, he takes refuge in his safe family environment. The interviews that were conducted with patients emphasized that the presence of patients at home and with their families gives them peace. This concept was one of the facilitating factors of RHD. Most of the participants had the desire to

discharge patients to achieve this peace and the availability of facilities at home. One of the patients attributed the peace and comfort at home to its facilities and conditions: "Well, I am more comfortable in my own home. I feel more relaxed. I can sleep and eat whenever I want, and the bathroom and toilet are available to me." (Patient No. 15).

One of the other issues that created a sense of peace in patients after discharge was the conditions of long-term hospitalization. These conditions caused patients to stay away from their families, and this issue was uncomfortable for most patients. Especially the patients who were under observation in the special care units had this problem because the visiting permission was limited and they were not allowed to be accompanied in the department. "After 15 days of hospitalization, I finally went home and felt calm. My family was also relieved. They were in the corridor of the hospital every day. They were not allowed to stay with me in the ward and they always sat outside." (Patient No. 10).

Social support

Another important sub-category of patient support is the support a person receives from their community. Social support is a condition in which persons are supported by the people around them, the work environment, and society. It is a feeling of peace and security that is instilled in people by others, as a result, people consider themselves a part of society and feel valuable. With such spiritual support, the patient is assured that they are not alone in case of problems or danger after discharge from the hospital and some people can help them in these situations. In this study, the supporting platform is one of the factors affecting the RHD process in the patient. Based on the results of data analysis, "social pressure" as an barrier and "supportive community" as a facilitator were the concepts that explained the content of "social support".

Social pressure

The analysis of the interviews showed that the main social pressures that patients suffer from are based on financial issues, earnings, and health insurance that cannot cover the costs of hospitalization, diagnosis, continuation, and follow-up of a treatment and during the recovery process at home. Social pressure is one of the barriers to RHD. With the occurrence of disease, the exorbitant costs of treatment and medicine are imposed on the patients. Now, if the patients provide for themselves and their families living expenses, they lose their ability to work due to hospitalization and physical disability caused by the disease, and they remain in their normal livelihood. Poor financial conditions are one of the important issues that have an important impact on the unpreparedness of patients to be discharged from the hospital. A person who does not have the financial ability to purchase medicines and visits and follow-ups after a discharge increases the possibility of disease complications, relapse, and re-hospitalization. In this regard, one of the patients said: "I have no money and everything I have is from the "Emdad committee", so I was afraid that the longer I stay in the hospital, the more it will cost. I just got busy somewhere, I go to a real estate consultant, I work daily, and I get a commission so that I can make some money. Both I and my wife are sick and we need a lot of money for our treatment." (Patient No. 15).

Inadequate insurance coverage was also one of the concerns of patients. Maintaining health is one of the basic and priority human needs, and according to human rights laws, it is the right of all people to be covered by health programs. One of the supports that people in society are looking for is health insurance coverage. According to what was obtained in the data analysis, one of the main concerns of the patients was not having health insurance and not properly covering the exorbitant medical expenses in the private sector. In this regard, the 61-year-old patient, who was covered by the "Emdad committee", said: "I don't have proper insurance, I have to worry about money and the cost of treatment. Health insurance doesn't help at all." (Patient No. 15).

Supportive community

One of the facilitating factors of RHD that was raised in this study was the existence of supportive facilities and conditions in the workplace and society for patients. Receiving support from the work environment and society is an important part of social support. One of the aspects that are greatly affected after MI and heart damage is the level of activity and working conditions of patients. To control disease conditions and prevent complications, facilitating working conditions according to the patient's physical ability can be considered a sign of receiving favourable support from the work environment. Therefore, one of the effective supports in society is adjusting the working conditions of these patients after returning to society. In this regard, one of the patients said: "I was a construction worker, I kind of did whatever work came my way. But since I had my first heart attack, I couldn't go back to my previous job. One of my employers introduced me to a company and now I have been working there for a while…" (Patient No. 15).

The experiences of the patients indicated that receiving a pension has made them feel more at ease about financial concerns and physical disability after discharge. The existence of a fixed monthly income was one of the important factors in the mental peace of patients. Also, having supplementary insurance is financial support for continuing treatment and follow-up in a hospital with better facilities. One of the patients said: " I have no problem working after discharge from the hospital. Thank God, I am retired. I live alone with my wife. There is a salary that we can live with. Because of this, I don't have to worry about working and I can rest at home… I also had supplementary insurance for hospital expenses, which my son followed up on, and now that we have settled it, it did not cost much. I only need money for the next visit to the physician, which is my salary. God willing, that is enough." (Patient No. 1).

Caring atmosphere

The data analysis showed that patients are placed in a caring atmosphere to obtain RHD, which they face due to hospitalization, from the time of admission to discharge from the hospital, and it provides a basis for the preparation of patients. The care environment is the source of care-treatment events and incidents that occur during hospitalization and are influential in the RHD process. Observing the conditions and facilities of the hospital, the relationship of the healthcare team with the patient and the family, and some personal characteristics, put the participants in a caring atmosphere, which were factors influencing RHD. "Care gaps" and "Professional healthcare team performance" as barriers to RHD were the concepts that explained the theme of the "Caring platform".

Care gaps

One of the sub-categories that were obtained in the caring atmosphere is the care gaps that the participants in the study mentioned. These gaps were extracted from both the patient's and the nurses' experiences. In the observations, gaps in patient care and education by nurses and physicians and inappropriate feedback were evident.

High workload of the healthcare team

One of the things that caused the complaint of many participating patients and were a barrier for RHD is the high workload of the healthcare team. The high volume of work in the department, especially in completing numerous sheets of medical files, and working with the electronic system for recording drugs, tests, etc., in nurses leads to a decrease in their presence at the patient's bedside. Also, the high volume of patients under the treatment of one physician, the simultaneous busyness of physicians in private hospitals and private offices, and the high number of angiography and angioplasty procedures per day lead to a decrease in the presence of physicians at the patient's bedside. This issue has a negative impact on the provision of patient care as well as the relationship between the patient and the healthcare team. Some of the interviews indicated that the physician did not come for a visit and that there was insufficient time to visit the patient and even provide care to the patient. In this regard, one of the patients said: "Most of them have a lot of conflict and busyness. The arrival of the physician is a moment, they visit very soon and leave quickly. Not the main physician, but all of them are like this. They do their work very quickly and in a moment and leave." (Patient no. 10).

Deficiency in therapeutic communication with the patient

One of the negative aspects of the space governing the wards, which led to inappropriate therapeutic communication with the patient, is the condition that was observed in the internal wards of the hospital. Due to the busy work of the staff, the low ratio of nurses to the number of patients, as well as the stable conditions that the patients have compared to the critical care units, it was usually associated with the dissatisfaction of the patients in the provision of care and the communication of the staff with them. Sometimes, patients consider this crowded and routine atmosphere of the departments and the busyness of the staff as a sign of disrespect to their personality. To meet their care, treatment, and educational needs, patients emphasize communication with the healthcare team and consider it as their strength. The nurse also considers communicating with the patient as one of the basic principles of patient education and care. But what is more noticeable in the data analysis is the lack of proper verbal and non-verbal communication, which discourages the patient from even expressing their needs, expectations, and questions. This factor was proposed as a barrier to RHD in this study. One of the patients said in this regard: "It's obvious that they didn't have time or didn't want to answer me and gave me an answer impatiently. It was not convincing for me and I chose not to continue anymore and to search more on the internet about things I don't know. When a question is asked, they don't even look at you and leave without answering. I think it can be a sign of disrespect." (Patient No. 10).

Defects in patient-centred care

When the majority of participants talked about the care provided in the hospital, the evidence points to deficiencies in the provision of patient-centred care. The nurse's complaint about the lack of a complete healthcare team and taking over all the duties of the unit alone, as well as the patient's complaint about the physician not allocating enough time and discharging the patient based on physical evidence, shows the disease-centred care instead of being patient-centred care. These conditions prevent adequate and appropriate preparation for patients to be discharged from the hospital. But some experiences also indicated attention to the individual characteristics of the patient in the matter of care and education. The healthcare team paid attention to the individual, special and unique characteristics of the patient, including age, sex, education level, etc., in the matter of care, which was one of the facilitating factors of RHD. One of the participating nurses said in this regard: "Education is a very long process that requires carefulness and time because the understanding of some patients is really low, their education is low and their age is high. This requires continuous education and more detailed education. It should be taught in simple language." (Nurse No. 12).

In this regard, one of the patients said: "Everyone should be treated as they are. That is, the way you deal with an educated person should be much more reasonable than with an ordinary person, of course, not to treat that person disrespectfully, but a series of issues should be considered according to people's literacy and personality." (Patient No. 10).

Professional healthcare team performance

The lack of personnel, the need to reduce medical errors, and the ever-increasing expectations of patients are some of the things that highlight the importance of a strong healthcare team and teamwork. Teamwork is essential for better patient management and RHD development.

Defects in professional communication

Based on the analysis of data and the opinion of the participants, RHD is achieved under the shadow of the participation of a professional healthcare team consisting of physicians, nurses, nutritionists, social workers, rehabilitation, and psychologists. The need for the presence of a multidisciplinary professional healthcare team can be seen directly and indirectly in patient and healthcare staff interviews. To achieve quality care, the healthcare system needs harmonious and successful relationships between team members, patients, and families. But what was most evident in the experiences of the participants was the inconsistency, inappropriate and inconsistent communication that existed between the members of the healthcare team with each other and with the patient and family. The lack of sufficient multidisciplinary specialists, inappropriate professional communication between team members due to hierarchical communication and patriarchal view, and inconsistency in providing multidisciplinary care to the patient were destructive factors that affected the performance of the healthcare team and hindered RHD.

Professional communication between the members of the healthcare team is one of the most important effective factors in providing quality care and creating preparation for the patient. No one professional alone will be able to meet all care needs.

Inappropriate professional communication and the presence of inconsistency between the healthcare team were negative dimensions of therapeutic communication and barriers to RHD. One of the participating nurses said about her experiences in the field of inappropriate professional communication: "In our working environment, it is operated in a stair-step manner, and the physician is at the top of the stairs and is looking at the patient from above, and the rest are under him. Unfortunately, as long as it is like this, no correct results will be obtained. Unless the group works together in a way that eliminates the difference and hierarchical relationship. "(Nurse No. 11).

Medical patriarchy

One of the dimensions that were evident in both interviews and observations as an barrier to patient preparation is medical patriarchy. Medical patriarchy was achieved by not responding properly to the patient's questions and the physician's harsh behaviour toward the patient, creating fear in the nurses and subordinate physicians of being reprimanded and insulted in the presence of others. Participating nurse number 12 said: "For example, the behaviour of one of our physicians is such that none of the staff can communicate with him at all. He speaks so harshly that sometimes one thinks he is insulting the patient, his family, and even the ward staff…".

Incoherent healthcare team

The nurses participating in this study acknowledged that in the process of discharging MI patients from the hospital, there is a need for a cohesive and coordinated team of physicians, nurses, psychologists, medical assistants, nutritionists, and physiotherapists. Even some patients mentioned the existence of a consultant and a discharge team in their conversations. However, the lack of a complete team or professional inconsistencies between the members of the healthcare team has led to the role of the entire team being the responsibility of the nurse. This issue was considered one of the barriers to RHD. Nurse number 6 said in this regard: "A complete team of physicians, nurses, psychologists, nutritionists, physiotherapists, and assistants is needed for discharge, but the conditions are not ready here… If there is a team, that is very good, but if not, we as nurses will take care of all this."

Discussion

In this study, the main theme from the analysis of the participants' experiences regarding the barriers and facilitators of RHD included the supporting platform and caring atmosphere. The category of supporting platforms included family support and social support. The sub-categories of the caring atmosphere included care gaps and professional healthcare team performance.

One of the facilitating factors of RHD was the presence of family support[34]. Family is the first base of support to provide unconditional care, love, and help when needed. The presence of the patient in a safe house was a sign of mental and physical security to receive care. The presence of a persistent family next to the patient was considered a motivation to control the condition of the disease, improve the conditions and improve the quality of life of the patients[35–41]. The findings of the study of Ezati *et al.*[34] showed that the support of family and important people in patients' lives can help them face and better adapt to the complications and consequences of the disease. Family support has a significant impact on reducing hospitalization, and disease complications, reducing stress, adapting, and providing optimal performance.

In a study, Kaya *et al.*[42] showed that marital status and the presence of a caregiver at home were predictors of RHD. The results of the study by Siow *et al.*[20] also showed that not having a caregiver and lack of family support were negative factors affecting RHD. The study of Yazdanparast and colleagues on heart failure patients showed that the family often plays an important role in helping patients control and treat the disease. Family support leads to improved health and is considered the most important factor in fighting disease. The continuous and effective support of family members to these people in the condition of illness and expressing sympathy and affection to them was expressed in the study[43]. By increasing the amount of family support, patients experience fewer worries about their illnesses. People's satisfaction with family support prevents fear and psychological helplessness, and as a result, better social efficiency and a greater sense of responsibility for health.

Social support is another factor that can affect RHD. The concept of social support deals with receiving support from the environment and relationships with others. Social support can reduce the incidence of adverse physiological effects and have a positive effect on a person's physical performance[44]. But there were circumstances in the study that some factors indicated the absence of a suitable support platform. The existence of economic problems due to the high costs of treatment, not having a stable source of income, and the inability of the sick person to return to work and earn income was among the barriers to RHD. In contrast to economic problems, some analyzes showed the existence of a supportive society for patients with a fixed monthly income and the existence of health insurance and supplementary insurance to go through the treatment process.

The results of the Kosobuka *et al.*[11] study showed that the economic status of MI patients had a significant effect on RHD. Wangui Odoi *et al.*[45] found that the lack of health insurance not only prevented timely access to cardiac care but also reduced access to preventive and therapeutic care necessary to minimize more diseases in the future. The effective role of society and social support and interactions in the RHD process emphasizes issues that are effective in creating well-being and comfort for patients and their families during illness and hospitalization. With special attention to these cases, the RHD process can be facilitated by creating a favourable and supportive environment.

In this study, the caring atmosphere played an important role in the RHD experience. With the occurrence of illness and admission to the hospital, the patients were placed in a caring atmosphere that affected their physical and mental health and the way of treatment and care. The high workload of the healthcare team, defects in treatment communication, and inappropriate performance of the professional team were important barriers to the RHD of MI patients.

The existence of a coherent healthcare team and interprofessional cooperation is a type of communication that refers to the interaction of professionals with each other and the division of responsibilities. Professional communication between members of the healthcare team is one of the most important factors in providing quality care. Effective nurse-physician communication is a key need for collaboration and a challenge in the healthcare

system. Effective interprofessional cooperation can bring many benefits to physicians and nurses and improve the quality of medical care, increase the knowledge and skills of nurses, increase the efficiency of physicians, improve patients' conditions, reduce hospitalization time, and reduce patients' treatment costs. A study shows that improper communication between physicians and nurses has caused a decrease in the quality of care, an increase in medical errors, a decrease in patient safety, and prolongation of patients' stay in the hospital[46].

Regarding the therapeutic relationship between the healthcare team and the patient, the results of the Olaisen and colleagues study showed that the improved relationship between the physician and the patient was associated with the improvement of the functional health of the patient, while the bad relationship was associated with the deterioration of the patient's health and physical performance. Therefore, the quality of the physician-patient relationship is positively related to the health of patients[47]. Defects in professional communication between the members of the healthcare team were also one of the characteristics of communication in the caring atmosphere prevailing in the study. The criterion of interaction in interprofessional cooperation is the existence of mutual respect for professional values, and individual abilities, benefiting from each other's knowledge and experiences, as well as seeking opinions and consultation in the decision-making process. Effective communication between nurses and physicians is a key need for cooperation and a challenge in the healthcare system[48]. Improper communication between physicians and nurses reduces the quality of care, increases medical errors, reduces patient safety, and prolongs patients' stay in the hospital[49].

Patient-centred care based on the characteristics and individual preferences of the patient was an important facilitating factor in promoting health and RHD. Providing care and education based on the patient's understanding, age and education provide the basis for patient-centred care based on the patient's needs. Such conditions have a positive effect on RHD and self-care and health promotion. While not paying attention to these conditions, it provided disease-oriented care and prevented adequate RHD in patients. Kaya *et al.*[42] showed that age, educational status, and duration of hospital stay were predictors of RHD. The individual social conditions of the patients were a field that attention to in providing care to the patient is a facilitating factor for RHD. Patients who were older and had lower education had unfavourable conditions to achieve RHD. Therefore, it is necessary to provide unique care according to the individual characteristics of the patient.

The analysis of data and concepts shows that factors such as personal and family characteristics of a cardiovascular patient, the caring atmosphere in the hospital, and finally social support are barriers and facilitators of preparation for RHD. This present qualitative study provided a real basis for the diagnosis of barriers and facilitators of RHD in patients with MI based on Iranian culture. These findings show that from the point of view of the patient, caregivers, and healthcare team, there are many factors affecting RHD and it is not limited to the patient and the hospital. In addition to the patient and the healthcare environment, the patient's family, members of the healthcare team, and the community are also involved.

Limitations

One of the limitations of this study is the occurrence of the COVID-19 pandemic, which caused problems in accessing patients and conducting interviews, which was tried to be controlled by observing social distance and health protocols during the interview.

Another limitation of the research was that some nurses and doctors did not want to record the interview due to the fear of ethical and legal issues that might be raised during the interview about the RHD process. The researcher obtained the satisfaction of the participants by providing explanations and assuring them of the confidentiality of the interviews. Also, after finishing the interview and turning off the recorder, the researcher would raise and take notes on the questions that he felt the participant might not have addressed deeply due to the audio recording.

Recommendations for future research

It is suggested to carry out qualitative studies about the barriers raised in this study, to examine RHD more closely and to provide suitable solutions to remove the existing barriers. It is also recommended to design and conduct interventional studies using factors that facilitate preparation to improve RHD of heart patients.

Clinical implications for health managers and policymakers

As a member of the healthcare team, nurses play an important role in the diagnosis, treatment, and care of patients and coordination between other healthcare members. Also, they play an important role in RHD due to their communication and presence at the bedside of patients. Therefore, by identifying the results of this study, they can provide a suitable clinical environment and provide quality care.

According to the findings of study can recommend the implications:

with regards to supporting platform: structured education programs for families in Hospitals, community awareness programs, robust health insurance system, legislations to modify working conditions of MI patients after their discharge.

As for the caring atmosphere: multidisciplinary rounds, involvement of social workers in the care process, training healthcare providers about patient communication, home visits or home care programs for discharged patients.

Conclusion

The results of this study showed that favourable family support in a safe family environment is a positive factor in promoting RHD. Economic problems were one of the barriers to RHD, which is considered in the field of social support in front of the supportive society. One of the barriers and facilitators of RHD in the hospital environment was the caring atmosphere, which was one of the barriers to RHD. Unique care according to the individual conditions and needs of the patient was one of the positive and effective factors in creating RHD. Therefore, considering the close involvement of the patient, family, healthcare team, and society in causing RHD in patients with MI, it is recommended to pay attention to these factors in care and treatment planning to help promote health and control complications in patients. The findings of this study help to control the barriers to the RHD of

MI patients. Also, by identifying the factors that facilitate RHD, appropriate solutions can be developed to deal with barriers and achieve RHD. Therefore, establishing a favourable caring atmosphere, providing unique care, receiving sufficient support from the family and society, and having favourable economic conditions should be considered in the design and implementation of discharge programs. Also, the importance of the study is that it fills the demographic gap regarding RHD of MI patients in Iran, especially in Guilan province, which was the research area of the study.

Ethical approval

The current research was approved by the ethics committee of Guilan University of Medical Sciences, Iran.

Consent

The researchers visited the research setting and explained the research objectives to the participants. After obtaining verbal informed consent from the participants, the researchers asked them to complete the questionnaires in a private room, without the researchers present.

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Author contribution

Study concept and design by all authors; Data acquisition by all authors; Data interpretation by all authors; drafting the manuscript by all authors; Revision of the manuscript by all authors; the final version of the manuscript is approved by all authors.

Conflicts of interest disclosure

The authors declare no conflict of interest.

Research registration unique identifying number (UIN)

We could not register our manuscript in the Research Registry UIN: www.researchregistry.com due to internet access restrictions and international sanctions. we live in Iran. We hardly even meet the basic needs of our daily life. We do not receive any funding for our research and we cannot pay for our research. Please excuse us from registering this manuscript in the Research Registry UIN: www.researchregistry.com.

Guarantor

Nazila Javadi-Pashaki and Fateme Jafaraghaee.

Data availability

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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References

[1] Hinkle JL, Cheever KH. Brunner & Suddarth's Textbook of Medical-surgical Nursing. LWW18th ed: Wolters Kluwer 2022.
[2] Zipes DP, Libby P, Bonow RO, *et al*. Braunwald's Heart Disease E-Book: A Textbook of Cardiovascular Medicine. Elsevier Health Sciences; 2018.
[3] Ghorbani Vajargah P, Salari A, Ahmadnia Z, *et al*. Comparison of the characteristics of coronavirus disease 2019 (COVID-19) in dead and survived patients with heart failure: a retrospective study from northern Iran. J Nursing Rep Clin Pract 2023:1–7.
[4] Karkhah S, Salari A, Ahmadnia Z, *et al*. COVID-19 among heart failure patients: a retrospective study of 294 patients at a referral cardiac center in northern Iran. J Nursing Rep Clin Pract 2023:1–6.
[5] Sarrafzadegan N, Mohammadifard N. Cardiovascular disease in iran in the last 40 years: prevalence, mortality, morbidity, challenges and strategies for cardiovascular prevention. Arch Iranian Med (AIM) 2019;22: 204–10.
[6] Zevallos JC, Yarzebski J, González JA, *et al*. Incidence, in-hospital case-fatality rates, and management practices in Puerto Ricans hospitalized with acute myocardial infarction. Puerto Rico Health Sci J 2013;32: 138–45.
[7] Salzwedel A, Jensen K, Rauch B, *et al*. Effectiveness of comprehensive cardiac rehabilitation in coronary artery disease patients treated according to contemporary evidence based medicine: Update of the Cardiac Rehabilitation Outcome Study (CROS-II). Eur J Prev Cardiol 2020;27:1756–74.
[8] Shahbazi Deh Sokhteh A, Pishkar Mofrad Z, Yaghoubinia F. The effectiveness of rehabilitation-education program on risk factors in patients with coronary artery disease. Iranian J Rehabil Res Nursing 2019;6:1–10.
[9] Zand S, Kohestani H, Baghchechi N, *et al*. Assessing effectiveness of a cardiac rehabilitation program on outcomes of myocardial infarction. Iranian J Nursing Res 2011;6:25–30.
[10] Hydzik P, Kolarczyk E, Kustrzycki W, *et al*. Readiness for discharge from hospital after myocardial infarction: a cross-sectional study. Int J Environ Res Public Health 2021;18:6937.
[11] Kosobucka, Kasprzak A, Michalski M, *et al*. Relation of the Readiness for Hospital Discharge after Myocardial Infarction Scale to socio-demographic and clinical factors. An observational study. Med Res J 2018;3:32–7.
[12] Heine J, Koch S, Goldie P. Patients' experiences of readiness for discharge following a total hip replacement. Australian J Physiother 2004;50: 227–33.
[13] Kosobucka A, Michalski P, Pietrzykowski Ł, *et al*. The impact of readiness to discharge from hospital on adherence to treatment in patients after myocardial infarction. Cardiol J 2020;29:1–17.
[14] Smith-Johnson B, Davis BL, Burns D, *et al*. African American Wives and Perceived Stressful Experiences: Providing Care for Stroke Survivor Spouses. . ABNF J 2015;26:39–42.
[15] Weiss ME, Piacentine LB, Lokken L, *et al*. Perceived readiness for hospital discharge in adult medical-surgical patients. Clin Nurse Specialist 2007; 21:31–42.
[16] Weiss ME, Bobay KL, Bahr SJ, *et al*. A model for hospital discharge preparation: from case management to care transition. JONA J Nursing Administr 2015;45:606–14.
[17] Baghaei R, Khalkhali HR, Aghakhani N, *et al*. The effect of ideal discharge plan model on anxiety levels in patients with myocardial infarction in Shahid Madani Hospital In Khoy, Iran, 2016. Nursing Midwifery J 2016;14:775–82.
[18] Dalton CC, Gottlieb LN. The concept of readiness to change. J Adv Nursing 2003;42:108–17.
[19] Qian J, Qian M, Ren Y, *et al*. Readiness for hospital discharge and influencing factors: a cross-sectional study on patients discharged with tubes from the department of hepatobiliary surgery. BMC Surg 2021;21:1–10.
[20] Siow E, Lo SM, Yeung KL, *et al*. Factors and post-discharge outcomes associated with patients' readiness for discharge from the emergency medicine ward: A prospective study. Int Emerg Nursing 2019;46:100773.
[21] Zhao H, Feng X, Yu R, *et al*. Factors influencing readiness for hospital discharge among patients undergoing laryngectomy. International J Nursing Pract 2020;26:e12875.

[22] Dashti E, Rassouli M, Khanali Mojen L, *et al*. Correlation between discharge preparation and rehospitalization of premature newborns. J Health Promot Manag 2014;3:37–45.
[23] Babaei M, Mohammad Khan Kermanshahi S, Alhani F. Influence of discharge planning on anxiety levels in patients with myocardial infarction. Koomesh 2011;12:272–8.
[24] Laal N, Shekarriz-Foumani R, Khodaie F, *et al*. Effects of patient education and follow up after discharge onhospital readmission in heart failure patients. Pejouhesh dar Pezeshki (Res Med) 2017;41: 24–30.
[25] Bobay KL, Weiss ME, Oswald D, *et al*. Validation of the registered nurse assessment of readiness for hospital discharge scale. Nursing Res 2018; 67:305–13.
[26] Fålun N, Fridlund B, Schaufel MA, *et al*. Patients' goals, resources, and barriers to future change: a qualitative study of patient reflections at hospital discharge after myocardial infarction. Eur J Cardiovasc Nursing 2016;15:495–503.
[27] Polit DF, Beck CT. Nursing Research: Generating and Assessing Evidence for Nursing Practice, Eleventh edition ed. Wolters Kluwer; 2021.
[28] Kyngäs H. Qualitative research and content analysis. In: Kyngäs H, Mikkonen K, Kääriäinen M., editors. The Application of Content Analysis in Nursing Science Research. Springer, Cham. 2020. https://doi.org/10.1007/978-3-030-30199-6_1
[29] Gray JR, Grove SK, Sutherland S. Burns and grove's the practice of nursing research-E-book: Appraisal, synthesis, and generation of evidence. Elsevier Health Sciences; 2016.
[30] Holloway I, Galvin K. Qualitative research in nursing and healthcare. John Wiley & Sons; 2016.
[31] Doyle L, McCabe C, Keogh B, *et al*. An overview of the qualitative descriptive design within nursing research. J Res Nursing 2020;25:443–55.
[32] Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative 5th ed. Lippincott Williams & Wilkins; 2011.
[33] Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004;24:105–12.
[34] Ezati N. The effect of family support presence on the recovery of female patients with heart disease. Women Fam Studies 2018;11:121–36.
[35] Amiri M, Jafari H, Jafari MH, *et al*. Self-care behaviors and related factors in cardiovascular patients: a cross-sectional study. J Nursing Rep Clin Pract 2023;1:10–5.
[36] Emami Zeydi A, Karkhah S. Nursing the future: how artificial intelligence empowers critical care nurses to revolutionize intensive care unit rehabilitation. J Nursing Rep Clin Pract 2023;2:1–2.
[37] Nazari AM, Zare-Kaseb A, Esmaeili S. Moral courage: a suitable solution for reducing nursing error reporting. J Nursing Rep Clin Pract 2023:1–2.
[38] Osuji JC, Karkhah S. The central role of practice in nursing research: beyond the modern versus postmodern discourse. J Nursing Rep Clin Pract 2023;1:1–3.
[39] Saeidi S, Hamidi F. The relationship between religiosity and spirituality with death anxiety among nurses: a systematic review. J Nursing Rep Clini Pract 2023:1–7.
[40] Yaghobi Y, Pouy S, Hosseinzadeh Siboni F, *et al*. Effect of Orem's self-care model on the quality of life in adolescents with diabetes type 1: a randomized clinical trial. J Nursing Rep Clin Pract 2023:1–7.
[41] Zabihi MR, Rashtiani S, Akhoondian M, *et al*. The role of nursing care in the management of post-burn epidermal cancer: a narrative review. J Nursing Rep Clin Pract 2023:1–6.
[42] Kaya S, Sain Guven G, Aydan S, *et al*. Patients' readiness for discharge: Predictors and effects on unplanned readmissions, emergency department visits and death. J Nursing Manag 2018;26:707–16.
[43] Yazdanparast E, Davoudi M, Ghorbani SH, *et al*. Evaluation of the association between family social support and disease-related concerns of patients with heart failure hospitalized in public hospitals in Birjand, Iran in 2018. J Clin Nursing Midwifery 2019;8:402–13.
[44] Schultz BE, Corbett CF, Hughes RG, *et al*. Scoping review: social support impacts Hospital readmission rates. J Clin Nursing 2022;31:2691–705.
[45] Wangui Odoi E, Nagle N, Zaretzki R, *et al*. Sociodemographic determinants of acute myocardial infarction hospitalization risks in Florida. J Am Heart Assoc 2020;9:e012712.
[46] Lacoste SR. How to Effectively Improve Nurse-Physician Communication: The University of Southern Mississippi, Honors College; 2017.
[47] Olaisen RH, Schluchter MD, Flocke SA, *et al*. Assessing the longitudinal impact of physician-patient relationship on functional health. Ann Fam Med 2020;18:422–9.
[48] Pasyar N, Sharif F, Rambod M. Nurses and physicians' collaborative behaviors in intensive care units. Sadra Med J 2017;5:239–50.
[49] Moaddab F, Javadi N, Ghanbari A, *et al*. The Status, Challenges, and Solutions of Professional and Inter-professional Communications in Nursing in Iran: A Review Study. 2021J Nurs Midwifery Paramedical Faculty. 2021;6:48–57