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The Process of Inefficient Self-Management in Patients With Myocardial Infarction in Prehospital: A Grounded Theory

Farzaneh Maghaminejad[1] | Shokoh Varaei[2] | Nahid Dehghan-Nayeri[3]

[1]Department of Nursing, Kas.C Islamic Azad University, Kashan, Iran | [2]Department of Nursing and Midwifery, Bab.C, Islamic Azad University, Babol, Iran | [3]Department of Medical Surgical Nursing, School of Nursing & Midwifery, Tehran University of Medical Science, Tehran, Iran

Correspondence: Nahid Dehghan-Nayeri (nahid.nayeri@gmail.com)

Received: 9 November 2024 | **Revised:** 29 March 2025 | **Accepted:** 4 April 2025

Funding: The present study was financially supported by Tehran University of Medical Sciences, Tehran, Iran (no. 9713199001).

Keywords: grounded theory | inefficient | myocardial infarction | qualitative study | self-management

ABSTRACT

Introduction: Myocardial infarction (MI) is a cardiovascular emergency that needs immediate diagnosis and treatment. utilizing incorrect strategies during a MI may lead to adverse consequences and complications. This study was conducted to explore the process of prehospital management of patients with MI.

Methods: This study was conducted using the grounded theory design. fifteen patients with MI and six family members were purposefully and theoretically selected from a leading hospital in Kashan, Iran. Data were collected using unstructured and semi-structured interviews and were analyzed through the constant comparison method proposed by Corbin and Strauss (2015). The length of the interviews was 40–60 min and data collection were kept on to reach data saturation.

Results: The patients' mean age was 70.06 years, and 53.3% of them were male. The findings were categorized into three major categories and nine subcategories. The three major categories of "fighting between awareness and preference," "taking problematic arbitrary measures," and "consulting lay people" emerged from the participants' experiences, along with the theme of "inefficient self-management."

Conclusion: Complex situation, unfamiliarity with MI and its management makes MI management very difficult for patients and family members. Therefore, MI-specific educations are needed to improve patients' self-management abilities.

1 | Introduction

Cardiovascular disease (CVD) is a major health problem and the first leading cause of death in many countries [1]. The World Health Organization estimates that in 2019, CVD led to 17.9 million deaths, accounting for 32% of all deaths in the world [2]. Around 87% of these deaths occurred in developing countries and the age of CVD-induced deaths in these countries was less than developed countries [3]. More than four out of five CVD deaths are due to myocardial infarction (MI) [2].

MI is a cardiovascular emergency that needs immediate diagnosis and management [4]. The outcomes of MI management largely depend on the time interval between the onset of MI symptoms and the onset of MI treatment [5]. MI symptoms include chest pain radiating to the neck, jaw, shoulder, or arm [6]. The National Health Survey Interview reports indicate that the prevalence of MI among the adults in the United States was 3% in 2016 [7]. In Iran, the incidence rate of MI is 73.3 cases per 100,000 people [8]. The risk of sudden death among patients with MI is 4–6 times more than other people [9, 10].

The American College of Cardiology and American Heart Association recommend that the time interval between patient's call for help and the onset of the first therapeutic interventions for MI should be less than 90 min. Late patient transfer to healthcare settings can reduce the effectiveness of MI management [11]. More than 50% of older adults who experience this ultimately succumb before reaching the hospital due to delayed treatment-seeking [12], while reduction of this time can reduce mortality rate [13, 14].

Despite the importance of early onset of MI treatment, many patients with MI postpone medical help seeking. A study in China showed that the time interval between the onset of MI symptoms and medical help seeking was 4 h [15], This time interval in Iran is about 4 h [16] and patients usually postpone medical help seeking for MI at least 4–6 h [17, 18]. Some studies showed that at least one-third of patients with MI die before referring to hospital and 40%–50% of them die at the time of hospital admission [16, 19, 20].

Many different socio-demographic factors, such as personal evaluation of symptoms, can influence medical help-seeking and self-management behaviors among patients with MI [21, 22]. A study used media and educational interventions to improve patients' knowledge about MI symptoms and management but reported that these interventions alone did not significantly reduce delay in medical help seeking for MI [23]. Similarly, some studies showed that although educational and community-based interventions may improve patients' knowledge about the importance of early medical help seeking, they are less likely to significantly modify their help-seeking behaviors [24, 25]. Therefore, studies are needed to determine the reasons for late medical help seeking for MI through exploring patients' direct experiences of MI self-management.

Some studies into the experiences of patients with MI in England and Turkey solely explored their experiences of symptom onset or the process of decision making for MI symptom management and did not provide in-depth data about the reasons for patients' ineffective self-management of MI [26, 27]. Moreover, given the effects of sociocultural factors on health-related behaviors, the results of studies in a given context may not be transferable to other contexts [28, 29]. Therefore, context-based studies are needed to provide in-depth information about patients' MI self-management. This study was conducted to explore the process of inefficient self-management in patients with myocardial infarction in pre-hospital.

2 | Methods

This study was conducted using the grounded theory design. Grounded theory is an organized approach to create an interpretive understanding of individuals' experiences and is appropriate when there are limited data or theory to establish relationships among the different aspects of the intended phenomenon [30]. The basis of grounded theory is symbolic interaction which holds that instead of showing simple responses to events, individuals respond to events based on their personal perceptions [31].

2.1 | Participants

Participants were hospitalized patients and their family members in the emergency department (ED) and coronary care unit (CCU) of a leading hospital in Kashan, Iran. Inclusion criteria were affliction by MI (with or without previous MI history), ability to establish verbal communication, and consent for participation. Participants who were not willing to stay in the study were excluded. In total, twenty-one participants were selected for interviews, including 15 heart patients and six family members of patients. There were no patients or family members who refused to participate in this study or dropped out during the interview process. Sampling was performed with maximum variation in terms of participants' gender, geographical area, and type of transfer to hospital. Table 1 shows participants' characteristics.

2.2 | Sampling

Both purposeful and theoretical sampling methods were used in this study. Sampling was started with purposeful sampling to recruit eligible patients and family members. Participants were purposefully chosen in such a way that the first and second were chosen after a search of headnurses and supervisors in CCU and ED. The interviews were conducted at least 1 day after the participants' heart attacks, ensuring that they were physically and mentally prepared to answer the questions. The next participants were chosen based on the information obtained from the first interview, and the theoretical sampling process continued gradually. Theoretical sampling is one of the key components of grounded theory studies and aims at refining the categories, determining their attributes, and identifying the context [30]. For example, the concept of incorrect interpretation of symptoms was developed during the analysis of the third interview where the intended participant had no appropriate understanding of the nonspecific symptoms of MI. Therefore, we interviewed patients who had better understand of MI symptoms and asked them questions to further clarify the concept of incorrect interpretation of symptoms. Examples of these questions were “What factors helped you find that your problem was MI?” and “What symptoms can indicate MI?” Theoretical saturation was used to determine sampling adequacy. In other words, sampling was kept on until the different aspects of the theory were adequately developed and no new data were obtained from the interviews. In total, fifteen patients and six family members participated in this study.

2.3 | Data Collection

The main data collection method was in-depth interview. Interviews were initially unstructured and then semi-structured. The research team is comprised of three female members, two of whom are nursing professors with extensive qualifications and experience in qualitative research (N.D.N. and Sh.V.). The third member (F.M.) holds a PhD in nursing and has also completed courses specifically on qualitative research. The first author conducted 16 interviews with patients in their inpatient rooms. In the cardiac care unit, the door was closed, and in the

TABLE 1 | Participants' characteristics.

No.	Gender	Age	Occupation	Educational level	Marital status	Living arrangement or kinship with the patient	Number of children	MI onset place	Underlying diseases	Place of residence	Transfer method
1	Male	75	Retired	Guidance school	Married	With spouse	3	Out of home	Diabetes mellitus, CVD	Rural area	Private car
2	Female	63	Housewife	Illiterate	Widowed	With son and daughter-in-law	4	At home	Asthma	Urban area	Private car
3	Female	65	Housewife	Illiterate	Married	With spouse	3	At children's home	Diabetes mellitus, CVD	Urban area	Private car
4	Male	69	Farmer	Guidance school	Married	With spouse	1	Out of home	CVD	Rural area	Ambulance
5	Male	73	Retired	Guidance school	Married	With spouse and children	3	Out of home	—	Urban area	Ambulance
6	Female	59	Housewife	Illiterate	Married	With spouse	3	At home	Diabetes mellitus, Cancer	Urban area	Ambulance
7	Male	68	Retired	Guidance school	Married	With spouse	2	Out of home	CVD, Stroke	Urban area	Ambulance
8	Male	74	Farmer	Illiterate	Married	With spouse	3	Out of home	—	Rural area	Private car
9	Male	74	Employee	University	Married	With spouse	3	At home	—	Urban area	Ambulance
10	Female	63	Housewife	Illiterate	Married	With spouse	4	At home	Diabetes mellitus	Rural area	Private car
11	Female	67	Housewife	Guidance school	Married	With spouse	3	At home	Hypertension	Urban area	Ambulance
12	Female	70	Housewife	Illiterate	Married	With spouse	5	At home	Diabetes mellitus, CVD	Urban area	Private car
13	Female	64	Housewife	Guidance school	Married	With spouse	2	At home	Hypertension	Rural area	Ambulance
14	Male	82	Laborer	Illiterate	Married	With spouse	7	At home	Diabetes mellitus, CVD	Urban area	Ambulance
15	Male	85	Self-employed	Diploma	Married	With spouse	1	Out of home	—	Urban area	Ambulance

(Continues)

TABLE 1 | (Continued)

No.	Gender	Age	Occupation	Educational level	Marital status	Living arrangement or kinship with the patient	Number of children	MI onset place	Underlying diseases	Place of residence	Transfer method
The patient's relatives											
16	Female	32	—	University	—	Sister	—	—	—	—	—
17	Female	36	—	Diploma	—	Spouse	—	—	—	—	—
18	Male	22	—	Student	—	Son	—	—	—	—	—
19	Female	20	—	Diploma	—	Daughter	—	—	—	—	—
20	Female	60	—	Guidance school	—	Spouse	—	—	—	—	—
21	Male	43	—	University	—	Son	—	—	—	—	—

emergency department, the partition screen was fully drawn to provide a private and quiet environment for speaking with the patient. Interviews were conducted with family members who were present in the emergency room, in separate rooms. Two family members, whose patient had died of a heart attack, were included in the study. These interviews were conducted at the participants' homes after coordinating via telephone. The time of the interview were determined based on the participants' willingness. First, the interviews with participants covered general questions to facilitate the in-depth description of participants' experiences of MI self-management. An example of the interview questions in the first interviews was, "What measures did you take at the time of chest pain?," "Why did you do it?" "Please explain more about this event and say your experiences."

Then the rest of interviews focused on developing the properties and dimensions of the categories. For example, when some participants described about their arbitrary measures, we asked other participants to define arbitrary measures from their viewpoints. The length of the interviews was 40–60 min and were conducted until data saturation was reached. Saturation refers to the point at which no further conceptual codes can be identified, limiting the ability of researchers to further develop the properties of a category. Interviews were typed in the Microsoft Office Word and were managed using the MAXQDA (v. 10) software.

2.4 | Data Analysis

Data were analyzed using the method recommended by Corbin and Strauss (34). inductive content analysis was used to interpret and identify coding, subcategories, and main categories of the interviews. Initially, two researchers (N.D.N. and F.M.) performed open coding by perusing each interview several times and coding key sentences and words. Frequent perusal and review of the interview transcripts enhanced our theoretical sensitivity. Questions that guided data analysis included, "What are these data?," "What category does this event refer to?," and "What is actually happening in the data?" The generated codes were constantly compared with each other and were grouped into mutually exclusive categories according to their conceptual similarities. This helped develop clearer and more precise concepts. Next, third researcher (Sh.V.) joined to discuss the codes in an iterative way, up to consensus was reached. Afterwards, similar codes were grouped into subcategories, and main categories. In fact, constant comparisons enabled us to determine whether the codes or categories support each other. We also focused on the conditions and the contexts for the intended phenomenon and participants' strategies to manage it to determine the core category of the study. Frequent review of the data, codes, categories, and memos and writing the storyline of the study also helped us determine the core category.

2.5 | Trustworthiness

Credibility of the data was ensured through member checking by participants, prolonged engagement with the data and

participants, and sampling with maximum variation (participants' gender, geographical area, and type of transfer to hospital). Confirmability was ensured through impartiality, consensus over the codes and categories, and peer checking by two qualitative researchers. Dependability of the findings was also maintained through concurrent data collection and analysis, external peer checking, and frequent review of the data and the findings. Moreover, the transferability or fittingness of the findings was maintained through maximum variation sampling and provision of direct quotations from participants' interviews [30–32].

2.6 | Ethical Considerations

The Ethics Committee of Tehran University of Medical Sciences, Tehran, Iran, approved this study (code: IR.TUMS.FNM.REC.1398.123). The study was found to be in accordance to the ethical principles of the Declaration of Helsinki [33]. All participants were informed about the study process and its objectives, and the written informed consent was obtained from them. The permission to audio-record the interviews was also obtained, and participants were assured about confidentiality and anonymity of the collected data. Participants had the right to withdraw from the study at any stage. However, no participants refused to participate in the study or dropped out of the study after enrollment.

3 | Results

The findings of this study were resulted from 21 interviews with 15 patients and 6 family members. Eight of the patients (53.3%) and 33.33% of family members were male. The mean age of patients was 70.06 years and the mean age of family members was 35.5 years. Regarding educational level of patients, 46.66% were illiterate. In addition, more than half of patients had an MI onset place at home but only 60% of them were transferred by ambulance. Table 1 lists the participants other characteristics (Table 1).

When the study's data were analyzed, three major categories emerged: "fighting between awareness and preference," "taking problematic arbitrary measures," and "consulting lay people" all of which revolved around the theme of " inefficient self-management" (Table 2).

In general, the participants' experiences demonstrated the "fighting between awareness and preference," "taking problematic arbitrary measures," and "consulting lay people" have been used as strategies to reduce symptoms and maintain survival after a heart attack (Table 2).

3.1 | Fighting Between Awareness and Preference

With the onset of MI symptoms, patients had felt unpleasant feelings but had not paid careful attention to their symptoms. Inappropriate understanding about symptoms and their incorrect interpretation made participating patients neither take any appropriate measure nor seek medical help until the aggravation of their symptoms or development of obvious cardiac symptoms. Even patients with previous history of heart problems had not attributed their symptoms to heart problems. Despite their awareness of symptoms, they had preferred to deny the existence of any heart problem and avoid attributing their symptoms to serious problems such as MI. The subcategories of this category were ignoring symptoms, concealing symptoms, continuing activities, and waiting for spontaneous recovery.

3.1.1 | Ignoring Symptoms

Ignoring symptoms was one of the most prevalent strategies of participants. They highlighted that they had ignored their symptoms and had taken no measure if their symptoms were not severe or their pains were in areas other than the chest.

> *I only had pain in the left side of my face and a radiating pain to my left hand. However, my symptoms were not the symptoms of MI and I thought that there would be no serious problem. I never thought that I was experiencing an MI (P. 14).*

TABLE 2 | The categories and subcategories of the study.

Subcategories	Main categories	Theme
Ignoring symptoms	Fighting between awareness and preference	Inefficient self-management
Concealing symptoms		
Continuing activities		
Waiting for spontaneous recovery		
Reusing previously prescribed medications	Taking problematic arbitrary measures	
Taking traditional measures		
Referring to doctor alone		
Inaccurate recommendations	Consulting lay people	
Inappropriate patient transferring		
referring to non-specialty centers		

We were working in the farm land in the village. I was pushing a wheelbarrow that contained woods. Suddenly, I felt that my breath was becoming short and felt a sense of suffocation. I left the wheelbarrow and waited. I disregarded it t and told myself it would disappear spontaneously (P. 4).

3.1.2 | Concealing Symptoms

Participants had also concealed and downplayed their severe pains in order not to disturb their family members' peace. This had caused them to avoid taking any serious measure to manage their symptoms.

Sometimes, my wife noticed that I had chest pain, but I pretended that I had no serious problem. I knew that my wife had great fear over these things and hence, I didn't tell her anything about my recent severe pain and just told her that there was nothing wrong with me (P.13).

3.2 | Continuing Activities

Some participants reported that performing heavy activities had caused them MI symptoms. Nonetheless, they noted that they were inattentive to their activity-induced chest pain and continued their activities. Also, some patients reported that they were alone at the time of MI and hence, they preferred to finish their activities before taking any measure for their chest pain. This had aggravated their symptoms.

I was driving and alone that my pain started. I disregarded it and decided to drive to home. I told myself that I would do something for the pain after arriving home. The pain was intolerable when I arrived home (P.10).

3.2.1 | Waiting for Spontaneous Recovery

Some participants had endured their pain hoping that it would spontaneously disappear. They had waited for spontaneous disappearance of their symptoms while their symptoms had progressively increased, leading to delay in medical help seeking.

I endured my pain for 2 h and told myself that it was not a significant problem. However, when we arrived at hospital, they said why we came to hospital so late and highlighted that MI-related pain should not be endured for more than 2 h (P. 10).

3.3 | Taking Problematic Arbitrary Measures

One of the main strategies of participants for the self-management of MI symptoms was taking problematic arbitrary measures. In this step, participants had intentionally taken arbitrary measures to reduce their symptoms. However, their measures not only had not reduced their symptoms, but also had aggravated their symptoms and had led to delay in medical help seeking in most cases. The subcategories of this category were reusing previously prescribed medications, taking traditional measures, and referring to doctor alone.

3.3.1 | Reusing Previously Prescribed Medications

Some participants with previous history of heart problems had reused their previous medications to manage their symptoms. They had attributed their symptoms to heart problems and attempted to manage their symptoms by reusing their previous medications.

When my pain started, I used my hypertension and heart medications; but they were not beneficial. I felt no reduction in my pain and no change in my conditions (P. 4).

3.3.2 | Taking Traditional Measures

Some participants had used traditional products such as herbal essences or teas to enhance their cardiac function, improve their calmness, and reduce their pain. However, none of these measures were effective in significantly reducing their symptoms.

My husband brought me a glass of rosewater and sugar because rosewater has sedative effects. He also sprinkled some rosewater on my face. But my pain did not change (P. 13).

3.3.3 | Referring to Doctor Alone

Some patients with MI had experienced fear over their symptoms and had found themselves unable to cope with their pain. Therefore, they had decided to seek medical help alone at any cost through walking or driving long distances. This had aggravated their symptoms and put others at risk.

My chest pain became very severe and I had severe dizziness as if my head was not in my control. There was no one with me. I drove car and reached hospital with great difficulty (P. 8).

3.4 | Consulting Lay People

Some participants had been with their family members or friends at the time of MI and hence, had consulted them. However, some recommendations of their family members or friends had negatively affected their MI management. The subcategories of this category were inaccurate recommendations and inappropriate patient transferring.

3.4.1 | Inaccurate Recommendations

Based on their own presumptions and without any professional knowledge, some family members or friends of patients had recommended patients to use some medications. Although they had provided their recommendations to reduce patients' symptoms, the ineffectiveness of their recommendations had led to symptom aggravation.

> *My mother's pain did not reduce whatever we did; rather, it progressively aggravated. We didn't know what to do. We gave her ibuprofen which was ineffective. Her breathing was also becoming very difficult (P. 12).*

3.4.2 | Inappropriate Patient Transferring

Aggravation of chest pain and patients' request for help had required their family members or friends to transfer them to healthcare centers. However, they had limited knowledge about accurate patient transfer and transferred patients to healthcare centers with private vehicles. During such inappropriate patient transfer, some family members or friends even required patients to walk or climb stairs.

> *When my father's pain increased, my brother and I took him to the car and put him on the back seat and transferred him to a physician's office. In the office, there were some stairs. Climbing the stairs caused my father great discomfort (P.17).*

3.4.3 | Referring to Nonspecialty Centers

The early onset of MI treatment is critically important to treatment outcomes and hence, patients need to refer just to specialty centers to immediately receive advanced MI management services from experienced staff. Nonetheless, some participants reported that they had referred to the office of general physicians or to non-specialty healthcare centers with limited equipment for MI management. This made them spend long time on receiving the right diagnosis of MI and receiving MI-specific treatments.

> *First, they took me to the primary healthcare center of our village, where there was an inexperienced doctor who couldn't do anything for a serious problem like a heart problem. He only administered some pills to reduce my pain. However, the burning sensation in my chest was coming to my neck. His pills did not work and he said that I had to go to the city. Then, they took me here by ambulance (P. 1).*

4 | Discussion

This study explored the process of inefficient prehospital self-management of MI. According to the findings of the current study, patients attempt to manage their conditions through taking arbitrary measures such as ignoring symptoms, concealing symptoms, continuing activities, waiting for spontaneous recovery, referring to doctor alone, and consulting lay people. This is while, all of these strategies have caused symptoms aggravation and close encounter with death.

These findings are in agreement with the Individual and Family Self-Management Theory of Ryan and Sawin. That theory defines self-management as a process in which individuals and families use their knowledge, beliefs, skills, self-regulation abilities, and social facilitation to achieve health-related outcomes. In this process, some conditional, physical, or social risk and protective factors challenge or protect self-management. Appropriate self-management strategies can improve individuals' health and quality of life [34].

Study findings showed that the onset of MI symptoms puts patients in unfamiliar conditions because they either have limited knowledge about symptoms or do not consider symptoms worthy enough to take any action. Previous studies also reported the high prevalence of the lack of knowledge about cardiac symptoms [35, 36]. A study also showed that nonspecific cardiac symptoms and intermittent chest pains caused misunderstanding about symptoms and delay in taking appropriate measures [37]. Therefore, education about the specific and nonspecific symptoms of MI is one of the most important needs of patients with cardiac problems [38]. Adequate knowledge about disease enables patients and their family members to take effective measures and has significant role in effective disease management.

Our findings also indicated that most patients had preferred to ignore or conceal their symptoms and continue their activities despite attributing their symptoms to cardiac problems. Some previous studies reported that although limited knowledge may cause individuals to ignore the symptoms of MI, adequate knowledge about MI symptoms may not necessarily hasten the process of decision making for medical help seeking [24, 25]. Another study also showed that some patients with acute MI attempted to continue their daily activities such as household activities, caregiving to significant others, and doing leisure activities with friends and prioritized their family interest over their pain [39].

We also found that patients with no previous history of chest pain denied their symptoms or disregarded them to keep a mental distance from it and its associated complications due to their fear over the aggravation of their conditions. On the other hand, those with previous history of chest pain waited shorter for spontaneous recovery and took effectively measures faster. Previous studies highlighted those patients with good understanding about their disease, its risk factors, and its outcomes more rapidly accept their symptoms and take more appropriate measures for their management [40, 41].

Despite the importance of taking effective measures to reduce the time interval between MI symptom onset and receiving MI treatment, the findings of the present study showed that most patients with MI took ineffective measures such as reusing previously prescribed medications, using traditional medicine products, consulting lay people, and

referring to healthcare centers alone after the aggravation of their symptoms. This is in agreement with the findings of previous studies which reported that patients resort to self-treatment strategies such as using their previously prescribed medications and herbal products to reduce their symptoms or waiting for spontaneous recovery [26, 42, 43]. A study also showed that patients with MI take serious measures only when they feel that their conditions are unusual and life-threatening and they do not have adequate power to manage their conditions [27]. Consulting lay people and referring to healthcare centers alone had further complicated patients' conditions, aggravated their symptoms, and caused delay in medical help seeking in the present study. Similarly, some previous studies reported patients' help seeking from general physicians and their family members' ineffective strategies as the reasons for the delay in effective MI management [18, 44]

We also found loneliness at the time of MI as one of the contextual factors that aggravated patient conditions. In situations where a patient's symptoms become severe and they are unable to take appropriate action, it is important for their family to take them to a medical center. However, if the patient is alone, this can delay their arrival and potentially expose them to additional dangers while en route such as accident or worsening symptoms. In agreement with this finding, a previous study showed relatives appeared to act more appropriate during the chest pain. Momennasab et al., [45, 46].

The purpose of the study was conducted to explore the process of inefficient self-management in patients. However, it was found that very few participants utilized effective self-management techniques. Instead, they resorted to calling an ambulance and seeking medical attention after experiencing symptoms such as chest pain and severe shortness of breath. This finding suggests that implementing effective strategies may be more achievable when patients experience severe symptoms of a heart attack. As highlighted in previous studies, the lack of delay in seeking treatment is the severity of obvious s MI symptoms [18, 38].

5 | Conclusion

Despite numerous efforts, patients with MI are unfamiliar with MI and its risk factors, nonspecific symptoms, essential and futile treatments, consequences, complications, and care measures. Such unfamiliarity makes MI management very difficult for patients. Therefore, MI-specific patient and public educational interventions are needed to improve patients' self-management abilities. Moreover, specific care measures, equipment, and education are needed for patients with special conditions such as those who live alone or in remote areas.

6 | Limitation

This study was conducted in a specific geographical area. gain a more comprehensive understanding, researchers should conduct similar studies in other regions, for more accurate results and to validate the findings.

7 | Recommendations for Further Research

Studies are needed to explore the process of patients' MI self-management in different situations and to evaluate the effects of comprehensive education about MI on patients' self-management at the time of MI. Moreover, studies on patients with special conditions such as those in remote areas are recommended to evaluate the effects of education on their MI self-management.

Author Contributions

Farzaneh Maghaminejad: conceptualization, methodology, software, data curation, resources, project administration, funding acquisition, writing – original draft. **Shokoh Varaei:** writing – review and editing, formal analysis, supervision, investigation, validation. **Nahid Dehghan-Nayeri:** conceptualization, methodology, formal analysis, writing – review and editing, supervision, validation, visualization.

Acknowledgments

This study was a part of the dissertation performed in partial fulfillment of the requirements for the degree of Ph.D. in Nursing in the School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran. The authors gratefully acknowledge all patients and their family members that participated in this study. The present study was financially supported by Tehran University of Medical Sciences, Tehran, Iran (no. 9713199001). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Ethics Statement

The Ethics Committee of Tehran University of Medical Sciences, Tehran, Iran, approved this study (code: IR.TUMS.FNM.REC.1398.123). The study was found to be in accordance to the ethical principles of the Declaration of Helsinki [33]. All participants were informed about the study process and its objectives, and the written informed consent was obtained from them. The permission to audio-record the interviews was also obtained, and participants were assured about confidentiality and anonymity of the collected data. Participants had the right to withdraw from the study at any stage. However, no participants refused to participate in the study or dropped out of the study after enrollment.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author (NDN), upon reasonable request.

Transparency Statement

The lead author Nahid Dehghan-Nayeri affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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