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Support network: the challenges of ensuring myocardial infarction patients comfort in the critical care unit: a qualitative study

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Abstract

Introduction Myocardial infarction (MI) is a critical emergency condition that affects all aspects of health. Patients with MI need specialized care in the Coronary care unit (CCU). The main goal of care is to ensure their comfort, which can be significantly affected by their illness and hospitalization. This study aims to explore MI patients' perceptions of support network challenges to ensure comfort in the CCU.

Methods A qualitative approach was adopted, and semi-structured interviews and notes were used for collecting data between 2020 and mid-2021. The participants were 27 MI patients in our country who had been hospitalized in the CCU of the University Heart Hospital. They were selected using purposive sampling. The data were analyzed using conventional content analysis by Graneheim and Lundman.

Findings The results of this research were revealed in the form of a "support network" theme comprising five categories: "Physical support", "Mental occupations", "Presence of peers", "relatives support "and "Spiritual strategies".

Conclusion The study results showed that MI patients, in critical condition, receiving care, and hospitalized in the CCU require continuity in their support network to ensure comfort. The inconsistency between the components of each dimension leads to the challenge of ensuring comfort.

Keywords Comfort, Myocardial infarction, Support network, Coronary care unit, Qualitative research

Introduction

Coronary artery disease is the primary cause of death globally. It typically presents as myocardial infarction (MI) and ischemic cardiomyopathy due to atherosclerosis [1]. The incidence of acute MI has risen in the past decade [2], affecting nearly three million people worldwide [3]. Notably, there has been an increase in acute MI cases among younger patients, making it the leading cause of cardiac death [4]. In our country, The age-standardized incidence rate of MI was 73.3 per 100,000 people [5], and acute MI accounts for nearly 46% of all deaths, making it a significant health concern and a common reason for hospitalization [2].

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Acute MI occurs due to myocardial necrosis caused by acute and stable ischemia and hypoxia in the coronary arteries [6]. Restoration and acceleration of blood flow are the keys to treatment [3]. It is recommended that patients be treated immediately in the Coronary care unit (CCU) [7].

Hospitalization in the CCU focuses on the patient's treatments for critical cardiovascular disease [8]. The conditions of MI and staying in the CCU affect patient comfort [9]. Hospitalization, although necessary to restore health, can cause anxiety, fear, and discomfort and can be an unpleasant experience for the individual because of separation from the family environment and confrontation with the illness [10]. At the same time, the main goal of care is to provide comfort to patients [11]. Many Nurses and other medical team members believe that comfort care begins too late in the disease course [12].

Comfort, in a comprehensive view, is a dynamic and interdisciplinary concept that results from the integration of various processes and experiences [13, 14]. It is a fundamental need for people throughout their lives, in both health and sickness. This concept is an important part of the history of nursing care and reflects the evolution of the nursing profession [15]. Several nursing theorists have addressed this concept [15, 16]. Kolcaba defined comfort as an immediate experience for those receiving care, associated with the fulfillment of individual needs across four dimensions: Physical, psycho-spiritual, sociocultural, and environmental, and on three levels: relief, facilitation and transcendence [10, 17].

Based on available evidence, comfort is influenced by various factors. Several studies have emphasized the influence of support on comfort. By providing effective patient support, nurses can uphold the patients' values, benefits, and independence and enhance their safety, self-control, quality of life, and comfort [18]. The patient's psychosocial support is crucial, and the supportive behaviors of nurses and family members vary among different societies [19]. The patients' perception of this support is linked to their culture, race, and ethnicity, and understandings of support vary across societies [20]. To achieve this goal, patients' experiences must be taken into account. Researchers often overlook the things that are important to patients [21]. They may not fully understand the patients and their expectations, and may not evaluate them from the patient's perspective [22].

Various studies on comfort in different groups have been examined from the subject of this study and in other contexts. Some of these studies are based on Kolcaba's theory. However, there is a lack of in-depth quantitative studies. While, comfort with illness and support is a continuous concept that arises after treatment and care, environmental factors, the experience of an illness crisis, and its alleviation are some of the CCU nurse's challenges. When care is appropriately adapted to the physical and psychological patients' discomfort in the CCU, suffering is reduced and comfort is increased [23]. One study shows a low comfort level of cardiac patients hospitalized in the CCU [9].

The first researcher, with more than two decades of clinical and educational experience in the CCU, noted that despite adherence to medical MI patient management guidelines, including medical follow-up, percutaneous coronary intervention (PCI), and coronary artery bypass graft, support to ensure their comfort remains a significant challenge.

The critical nature of MI and the use of advanced technologies in the CCU [24], on the one hand, Comfort is a comprehensive, complex, subjective, and specific concept for each person. It is changeable and related to the art of nursing [9]. Therefore, qualitative research is needed to clarify the dimensions of this concept in diseases and special hospitalization conditions. According to the above content and to produce knowledge as part of the nursing field, This study aims to explore MI patients' perceptions of support network challenges to ensure comfort in the CCU.

Methods

A qualitative research method was employed for data collection and analysis from late 2020 to mid-2021. The COREQ (Consolidated Criteria for Reporting Qualitative Research) guidelines were adhered to in reporting this qualitative study.

In this research, the first author used purposive sampling to select 27 participants from the CCU of Cardiovascular University Hospital, located in the western part of the country. The inclusion criteria required participants to be conscious, able to complete an interview, diagnosed with MI by a cardiologist, have spent at least 24 h in the CCU, speak the country's official language, be willing to cooperate and participate in the study, and not have obvious mental disorders requiring treatment. The only exclusion criterion was the unwillingness to cooperate and participate in the interview and research. The participants' sex, age, marital status, and educational level were taken into account in the selection process (Table 1). Interviews were conducted for this research, and one of the interviews in English is attached.

To collect data, the first researcher used an interview guide to conduct open-ended, semi-structured, one-on-one interviews in Persian with the participants. After selecting the desired participant, the researcher reviewed the interview setting and patient conditions. The participants were briefed on the study objectives, and their informed consent was obtained before scheduling the interviews. Initially, three pilot interviews were

Table 1 Characteristics of the myocardial infarction patients participating in the study (*N* = 27)

Characteristic	*N*	%
Sex		
Male	22	81.5
Female	5	18.5
Level of education		
Primary	9	33.3
Secondary and diploma	13	48.2
University	5	18.5
Marital status		
Married	24	88.9
Widow	3	11.1
Working status		
No job	7	25.9
Having job	20	74.1
Chief complaint		
Chest pain	25	92.6
Other	2	7.4
Management		
Medical	7	25.9
PCI	17	63
Waiting for CABG	3	11.1

conducted. Three additional authors (2, 3, and 5) evaluated the integrity and accuracy of these interviews. These three interviews were not used in the final analysis. Some example questions asked during the interviews were: "Could you talk about how comfortable you feel in the CCU?" and "Can you describe the situations in the CCU that make you feel most and least comfortable?" Further, questions were asked to elicit detailed responses based on the initial answers, such as "Could you provide an example?" or "Can you further explain?", and "Give an example."

Each interview lasted 45–60 min and was digitally recorded with the participants' consent. The interviews were transcribed verbatim on the same day. Data collection continued until 24 interviews were conducted, at which point saturation was reached. Three additional interviews were conducted to ensure data saturation, bringing the total to 27 interviews with MI patients. All participants were followed until the end of the study. Some of the participants' speech and written words were translated into English, and these translations were reviewed and approved by a native linguist before being included in this article.

A qualitative content analysis approach was used in this study. It is a common systematic research method for the intensive and comprehensive description of multidimensional and sensitive phenomena in nursing, which conceptually aims to analyze the concepts or categories describing the phenomenon [25]. The data were analyzed according to the 5 steps of Graneheim and Lundman's conventional content analysis: First, interviews typed were read several times to obtain a general understanding of the content. Then, primary codes were generated and classified based on similarities and differences. Then, categories with conceptual similarities were defined into larger classes and major themes based on the larger empirical and theoretical context. The first author conducted and coded the interviews. Four other members of the research team supervised the data coding. The collected data were analyzed using MAXQDA 10 software. (An example of the analysis process is in Table 2). The examples of sentences expressed by the patients during the interview are included in the results section, marked with the letter "P" followed by the sequential number assigned to that patient.

Throughout data collection and analysis, the researcher made note of any reflections or remarks related to the data for use in future interviews.

Trustworthiness is a measure of the rigor of qualitative studies. Credibility, confirmability, dependability, and transferability describe different aspects of trustworthiness [26]. To ensure credibility, a long interaction with the data and a review of the participating members were conducted. After extraction of the primary codes, some transcripts were provided to the participants so that

Table 2 Sample of the qualitative content analysis process

Category	Subcategory	Open code	Meaning units
Mental occupations	Worry about the end of the illness	Worried about the recurrence of chest pain in the future	I was in a lot of pain. They did an angiography. I felt like my vein was starting to open up. Do you think these chest pains may come back? What should I do if they come back? (p8)
	Worry about treatment and medical costs	The trouble of family members from my hospitalization. Worrying about the process of doing insurance work for the cost	I don't mind staying here, my bed was comfortable here. But it's hard for my family. Now, after discharge, we have to look for some medicines and get insurance approval, and that's a lot of hassle for others. I also think about the family members and their work. The procedure is hospitalization and discharge, and there is no other way. (p19)
	Hospital clothes	Discomfort with clothes	The clothing is not very distinctive and is made of plastic. It burns the human body. But it is compulsory and we have to wear it. We have to have the same color as the community. It is not comfortable clothing. If we want something better, we have to bring better clothes from home. So we have to wear them. (p23)

they could correct or confirm the meanings and primary codes. To confirm the findings, a peer check was conducted by two external researchers with experience in qualitative research confirmed multiple interviews, relevant codes, categories, and the accuracy of the data analysis. The dependability of the data analysis was ensured by the supervising professors (the second, third, and fifth researchers in the study), who shared their findings and agreed on the data analysis in several face-to-face and online meetings. Finally, to ensure transferability, samples with the greatest possible diversity were drawn, the characteristics of the participants were described, and the results of the study were compared with those of other studies.

Results

Participants in this study consisted of 27 patients with MI, with an average age of 59.25 ± 11.5 years. (Table 1).

Based on the data analysis, the main theme identified was the "support network," which significantly impacts the comfort of MI patients in the CCU. This overarching theme encompassed five categories (Table 3).

Physical support

The physical dimension is one of the most crucial aspects of comfort, consisting of three subcategories.

A. Chest pain: The most common complaint of MI patients is chest pain. The medical team uses various measures to relieve the pain and improve comfort.

"I experienced chest pain and went to the hospital. I also had pain in the CCU. It felt like something was pressing on my chest. The pain spread to my shoulders and back, and I started sweating, soaking my clothes. Initially, the pain was intense, but after receiving medication, a shot, and pills, I started feeling better":(P6).

B. Pain relief from compression bandages: Among the most common procedures in cardiac patients are coronary angiography and angioplasty. To prevent the common complication of bleeding, the site where the catheter enters is managed with a pressure bandage and immobilization.

"The first night my hands were firmly tied. The pain was oppressive and I called out to nurses. I kept saying, "Nurses, reach out to me." The pain in my hand was very strong. I was confused and couldn't rest in bed. I couldn't hold still because it hurt a lot. The few hours when my hand was tied with a pressure bandage were very annoying. I endured the pain but time passed very slowly": (P27).

C. Problems caused by needle and vascular catheter insertion: The discomfort stemmed from the angiocath site, venous blood sampling needles, and bruised injection sites.

They injected slowly and accurately. However, they tested me multiple times, which was painful. It's just human resilience. My hands and the area around my navel are bruised. The pain has subsided now. I felt uneasy and uncomfortable when I looked at them.":(P25).

Table 3 The category and subcategory related to the patient's experiences of myocardial infarction

theme	Category	Subcategory
Support network	Physical support	Chest pain relief
		Pain relief from compression bandages
		Problems caused by needle and vascular catheter insertion
	Mental occupations	Worry about the end of the illness
		Worry about treatment and medical costs
		Hospital clothes
	Presence of peers	Seeing the hardships and suffering of other patients
		Discomfort from being hospitalized next to other patients
	Relatives support	Greeting and meeting
		Companion presence
		Difficulties in presence
	Spiritual strategies	Belief in God
		Religious rituals

Mental occupations

Many external factors affect the comfort of hospital patients. The mind repeatedly thinks about these items, leading to worry and anxiety in the absence of enough support and resolution, including three subcategories.

A. Worry about the end of the illness: Several patients were concerned about the end of their heart disease and the possibility of recurrence of pain in the future.

"Having a stroke can be scary, especially since the heart is so vital. Can the pain return when I go home?": (P20).

B. Worry about treatment and medical costs: This item includes both non-financial and financial costs.

"I can't stop thinking about the kids. What will happen to them? It's an unsettling feeling. I'm so worried. I had a stroke and I know I could die at any moment. What will become of my family? My kids would be left without parents, and my wife would be a widow. It's all very distressing.": (P15).

"I don't have a salary or insurance. I work as a driver, transporting passengers, but there are around three months when I don't work. Despite this, life moves forward. My hospital expenses are covered so far. However, I haven't been able to afford the medicines prescribed for me yesterday as the price was too high for me. Being in a hospital bed brings not only physical illness but also many other problems that make a person sad. The hospital costs add to these challenges. Let's see what bills await me upon leaving.": (P14).

C. hospital clothes: Hospital patients receive uniforms and reusable clothes as hospital covers, which are provided after washing. While many felt comfortable with the cleanliness, some expressed concerns about other cover conditions.

"The clothes are clean, but they don't fit very well. The garments worn in the operating room are made of plastic and nylon. Due to their shape, looseness, lack of form, and material, people do not feel comfortable in hospital clothing. However, we still have to endure wearing them. Changes need to be made to improve the situation":(P26).

The presence of peers

Communication with peers plays an important role in comfort. However, the conditions of hospitalization in the CCU the separation of beds by a curtain, and sometimes the placement of unwell patients lead to discomfort. This included the two subcategories.

A. Observing the hardships and sufferings of other peers: Patients felt uncomfortable witnessing the hardships and suffering of other patients.

"The patient at my bedside became ill that night. They announced a recovery code for him. Many people came to him to help him. But he didn't survive. For me, who came to the hospital for the first time, when someone dies next to me, stress automatically comes, it's a kind of discomfort. Now, I remember exactly the old man's face": (P22).

B. hospitalized next to other patients: According to the culture of people in this country, the presence of a same-gender peer at the bedside and communication with him brings more comfort. In this case, the male participant said, "The patient at the bedside was a woman, it is difficult to be a man and a woman, it is even more difficult for women, I don't feel comfortable either. What else can we do?: (P24).

Relative support

Any kind of relative support, whether in the form of greetings on the phone, in a virtual space, short-term presence in the form of a visit, or constant presence as a companion, is one of the factors that influence comfort. This included three subcategories.

A: greeting and meeting: Presence and greeting lead to encouragement and fulfillment of the sense of belonging.

"My children always came. It was good to have a change of mood, you didn't have the feeling of absolute loneliness. If I needed something, they prepared it for me. The staff wrote down medications and got them from the pharmacy. There were a few visits with other patients that did not bother us. When the family and friends call and ask how you are, you are finally happy that they remembered you":(P13).

B. companion presence: some patients expect a relative to be at their bedside full-time.

"The presence of a companion calms not only them but also us, we want to do something, ask for a glass of water, or have a conversation, and we never get bored. The companions sit at the bedside and are busy with their patients": (P23).

C. Companion presence Difficulties: The lack of welfare facilities for the companion also caused concern for patients.

"I told the doctor to give me leave because my daughter has nowhere to go at night. She is tired and can't sleep. Companion presence is good for me as a patient because I'm not alone and it helps me. But the companion is annoyed and I am also sad because of her, that she doesn't get sick": (P25).

Spiritual strategies

Spiritual strategies play an important role in well-being and comfort. This included two subcategories.

A. Belief in God: Belief in God focuses on how people perceive in relationship with a higher power, which impacts recovery, hope, and comfort.

"Hope in god is rooted in us and helps to preserve us, and this has an impact on our comfort. Of course, this issue depends on the personality of the person. It is an aspect of grasping God's rope. A faith that attracts people's attention and hope affects my comfort": (P17).

B. Religious rituals: Performing religious rituals are measures to adapt to stress in connection with a higher power, which may be performed in a hospitalization different from normal conditions.

"I can't pray here with my clothes and condition. I'm sorry I didn't read it, but God is kind. At that time, I was going to angiography, I prayed to God, I prayed that nothing would happen, that my vein would be opened, and I made a vow. My son also made a vow. Whenever you have difficulties, you get hope by believing in God and doing these things":(P25).

Discussion

The current study's findings indicate that a support network is the most crucial requirement for MI patients hospitalized in the CCU. Adequate support makes patients feel more comfortable in new conditions. Health systems aim to provide high-quality care that cannot be provided without support [27]. Acute coronary syndrome patients also need support to manage the disease and prevent progression to complications [28]. Additionally, one of the challenges faced by patients with congestive heart failure in adjusting to the disease is the lack of supportive resources [29].

In the current study, the support network, particularly physical support, plays a vital role in ensuring patient

comfort. Physical discomfort, particularly pain and other symptoms has a significant impact on patient comfort [21, 30]. Pain relief is crucial for providing comfort [14], especially for patients experiencing chest pain, which is the most common symptom for those with MI. Managing pain in MI patients is not only important for humane reasons but also because it can lead to vasoconstriction and increased cardiac workload due to the activation of the sympathetic nervous system [31]. Managing pain after surgery is also important for a patient's comfort [21].

The current preferred treatment for MI is PCI [4]. Hospitals are facing increased burdens due to issues and dissatisfaction with post-PCI patient treatment. There's a need for structured follow-up and an expanded role for nurses in post-PCI management to enhance healthcare quality [1]. Bleeding is the most common complication of PCI [32], so measures to prevent bleeding should be implemented during the stay in the CCU [33].

Another subcategory of issues involved problems caused by needle and vascular catheter insertion. This problem has been highlighted in other qualitative studies. One obstacle to patient comfort is the lack of proficiency of the nurse in venipuncture [34]. Venipuncture skills were identified as one of the technical skills of nurses in the hemodialysis unit, and bruising caused by poor nurse skills was mentioned as one of the factors affecting patient comfort [22]. Cardiovascular patients hospitalized in the CCU identified technical and physical behavioral skills as the most important nursing care skills for nurses [24].

Comfort can also be influenced by discomfort or psychological concerns, anxiety, and other emotional factors. External factors such as the patient's physical and social environment, access to care, and the cost of health care may also play a role in comfort [21]. Various mental occupations and worry about the uncertain future in hemodialysis patients were among the factors affecting comfort. Kolcaba also discussed "what will happen in the future" in the general comfort questionnaire [35].

The financial costs associated with cardiovascular disease include expenses related to hospitalization, medical procedures performed in the hospital, and the provision of prescription medications. Generally, public insurance covers the costs of hospitalization and medical procedures, while supplementary insurance covers prescription medications for some patients. Indirect costs of cardiovascular disease are significantly higher than the direct costs, contributing to the overall rising costs of the healthcare system [36]. Given the substantial cost of cardiovascular disease, it is crucial to ensure adequate insurance coverage and prioritize interventions aimed at preventing the progression and severity of the disease. A prevention-focused approach is essential in addressing this issue [37].

In this study, patients expressed dissatisfaction and discomfort with hospital clothing due to its appearance, inappropriate size, and material. However, they were satisfied with the cleanliness of the clothes. This is different from a previous study where hospitalized patients were dissatisfied with the cooperation of nursing staff in changing clothes and considered their clothes unclean for religious rituals [38]. Another study found that mothers were moderately satisfied with their children's clothing, consistent with the Ministry of Health standards [39]. Kolcaba also assigned a question to the lack of clothing in the general comfort questionnaire [35]. Hospital-patient clothing is made of different materials and can vary in quality and comfort. The general form of patient clothing is determined under the supervision of the hospital director and human resources management [39].

In this study, the presence of peers was identified as an important aspect of the support network. Other clients are a source to strengthen patients' positive sense of comfort [30]. Interacting with other hemodialysis patients, especially those of the same sex, helped strengthen positive feelings of comfort [22]. Patients expressed satisfaction and comfort when conversing with fellow patients. However, they also experienced sadness when witnessing the pain and suffering of others and feeling unable to assist them. Additionally, most patients felt more at ease when placed next to a patient of the same sex in the hospital. It was suggested that patients of the same sex should be accommodated together under normal circumstances, while patients with critical conditions should be cared for in a separate room.

Relative support was another item of the support network. Understanding the family's supportive behaviors can help improve counseling and planning for quality care of CCU patients [19]. Support from family and friends is crucial for hemodialysis patients. When a nurse is not available, family and friends provide comfort and inspiration by talking to and caring for the patient. However, hospital policies regarding visitor access vary. Some centers completely restrict visits due to overcrowding, the need for emergency procedures, respecting patient privacy, and minimizing noise and infection. In contrast, other centers allow family members to assist and support patients, create a friendly environment, and provide family education [22]. A study has shown that the presence and support of family and significant others are key interpersonal needs for understanding the comfort needs of elderly patients [10]. Family members also play a significant role in enhancing positive feelings of comfort [30]. In another study, a significant relationship was found between the companion presence and the comfort of patients in the CCU [9].

Spiritual strategies have been recognized as a valuable aspect of the support system. Spiritual strategies are

crucial for reducing suffering, increasing adaptive capacity, and promoting health [40]. Understanding of the comfort needs of hospitalized elderly in the psycho-spiritual dimension, spirituality, and religiosity, which directly relates to the health/illness process through the relief of emotional tension, relaxation, comfort, search for meaning, intimacy, social interaction, self-understanding, and search for the sacred [10]. Patients with chest pain mentioned that hope and trust in God led to mental peace and then physical peace. Religious rituals such as praying, giving thanks, turning to saints, and making vows were important in relieving their pain [41]. Cancer patients also found relief from their suffering through religion. Their belief system strengthened their spiritual well-being, and a strong spiritual belief helped alleviate their suffering from illness. They gained spiritual support through their religious beliefs and were interested in participating in religious activities [42].

Conclusion

The study results showed that MI patients, in critical condition, receiving care, and hospitalized in the CCU require continuity in their support network to ensure comfort. This support network should include physical, mental support, the presence of peers, Relative support, and spiritual strategies. The inconsistency between the components of each dimension leads to the challenge of ensuring comfort. Since culture significantly influences patients' comfort during hospitalization, we suggest conducting research in other communities and among other patients in need of care.

Limitations

The interviews were conducted in the country's official language, so the results may not be generalizable to other ethnicities and countries, as MI patients of different ethnicities and countries may have varied comfort experiences.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-024-11450-w.

Supplementary Material 1

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Author contributions

All authors (SH, SRB, RN, ARS, and AS): Study conception and design. SH: Data collection. SH, SRB, RN, AS: Data analysis and interpretation. All authors (SH, SRB, RN, ARS, and AS): Drafting of the article. AS: Critical revision of the article.

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Data availability

The datasets generated and/or analyzed during the current study, including interview files and data analysis with MAXQDA, are not available to the public due to the large volume of files and the official language of the country, but upon reasonable request from the corresponding author in are available.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics and Research Committee of Hamadan University of Medical Sciences (number: IR.UMSHA.REC.1399.714) according to the Declaration of Helsinki. Written and oral consent was obtained from each participant to participate in the study and conduct the interview, and they were told that they could withdraw their consent at any time. But consent for Publication is 'Not Applicable' in this study. The audio files are stored by the Personal Data Processing and Medical Research Act. The telephone number and e-mail address of the first researcher were provided to the participants for communication.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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