## Original Article

# Causes of nonadherence to treatment in people with myocardial infarction: Content analysis

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**Abstract:**

**BACKGROUND:** Nonadherence with the medication regimen in patients with heart disease can lead to treatment failure. The purpose of this study was to identify the causes of nonadherence in people with myocardial infarction.

**MATERIALS AND METHODS:** This study is a qualitative conventional content analysis. Data were collected through semistructured interviews. Thirteen individual interviews and a focus group were conducted with nurses, patients, and doctors. Data were analyzed using conventional content analysis.

**RESULTS:** Four main themes were identified, which are organizational-managerial causes and factors (drug-related problems, educational system-related problems, weak performance of hospitals, and problems related to insurance companies); sociocultural causes and factors (factors related to cultural problems and factors related to social problems); causes and factors related to care providers (skill problems of care providers and functional problems of care providers); and causes and factors associated with caregivers (factors related to social characteristics of the patient, factors related to patient characteristics, and factors related to the patient's belief).

**CONCLUSIONS:** Many individual and organizational factors affect nonadherence, which can be reduced by fundamental changes.

**Keywords:**
Adherence, causes of nonadherence to treatment, content analysis, myocardial infarction, qualitative study

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## Introduction

Cardiovascular diseases are the most common disease in human societies.[1] It is the leading cause of death in Western societies.[2] Myocardial infarction (MI) is the leading cause of death in Iran.[3] There are many therapeutic approaches for treating heart patients with MI.[4] Among these, medication regimen is one of the most important therapeutic approaches in these patients. The most important step in treating heart disease is the treatment regimen prescribed for the patient.[5] However, the rate of adherence to treatment in heart patients is very low, and after discharge from the hospital, it gradually decreases.[6] Although a lot of time and money is spent on diagnosing and treating the disease, the treatment fails because it does not continue.[7] In other words, many patients do not follow the prescribed medication regimen and non adherence. It depends on many factors.[8] Many people are involved in the process of patient adherence to treatment.[9] These people include the patient, the patient's family, and the health-care providers. Moreover, nurses have a valuable role to play because, of the long time, they spend with patients.[10]

Adherence is a key concept in nursing practice.[11] It can be defined as the extent to

which patients follow the instructions; they are given for prescribed treatments.[12] Poor adherence can lead to suboptimal effectiveness of treatment regimens. Finding the causes of nonadherence to treatment in people with heart disease can be a useful guide for researchers and decision-makers to provide a new approach to improve adherence to treatment.[13] Identifying the causes of the patient's nonadherence to treatment is very important.[14] Studies have been conducted in this regard in Iran.[9,15-17] However, we thought that there is a need for a qualitative study in this area. Therefore, this study, which is a conventional content analysis to identify the causes of nonadherence with the treatment regimen in cardiovascular patients, was performed.

## Materials and Methods

This research is conventional qualitative content analysis. Content analysis is a widely used qualitative research technique. Rather than being a single method, current applications of content analysis show three distinct approaches: conventional, directed, or summative.[18] Qualitative content analysis is one of the numerous research methods used to analyze text data. Conventional content analysis is generally used with a study design whose aim is to describe a phenomenon. This type of design is usually appropriate when an existing theory or research literature on a phenomenon is limited. Researchers avoid using preconceived categories.[19] Qualitative content analysis reduces data and gives data structure and order.[18] Participants in this study were selected by purposive sampling method with maximum diversity. Targeted sampling means selecting knowledgeable individuals who have experience with the process or phenomenon being studied and provide the researcher with the necessary information about the phenomenon being studied.[20] To access rich data, key informants were identified and included in the study. Therefore, patients, physicians, and nurses of the cardiac care unit of Shahid Dr. Gholipour Hospital, Bukan, were invited to participate. To conduct the study, a license was obtained from Urmia University of Medical Sciences, and after coordination with the officials of Shahid Dr. Gholipour Bukan Hospital, the participants were selected. Informed consent was obtained from the participants.

In this study, semistructured interviews and a focused group were used to collect data. A total of 13 interviews and a focus group were conducted. The interviews took place in a calm atmosphere and lasted about half an hour. At the beginning of the interview, two general questions were asked: "What are the causes of nonadherence in patients with MI? and what are the dimensions of these causes?" To obtain samples with maximum differences, participants with different ages

and different job positions were selected. Variety in the choice of participants increases the confirmability of data.

To increase the credibility of the data, members check, peer check, inversion, and the prolong engagement with the data were used. All interviews were recorded with the permission of the participants and were implemented word for word in a short time. To ensure the accuracy of the data, the text of the interviews was reviewed several times with audio files. Each interview was coded shortly after implementation by conventional content analysis, and the concepts were extracted. Max QD software was used to analyze the data. Ethical considerations – this study has ethical approval code IR.IUMS.REC.1398.253 from Iran University of Medical science.

## Results

The study was conducted with 16 men and women aged 30–50, including 12 nurses, 2 doctors, and 2 patients. Participants' education varies from bachelor's degree to doctorate. By analysing the data, four main themes were identified, which are organizational-managerial causes and factors; sociocultural causes and factors; professional causes and factors related to care providers; and causes and factors associated with caregivers, which are shown in Table 1.

### Organizational-managerial causes and factors

One of the major causes that lead to nonadherence to a medication regimen is the organizational-managerial causes and factors, which include drug-related problems, educational system-related problems, weak performance of hospitals, and problems related to insurance companies.

#### *Drug-related problems*

Some factors, such as drug insurance and drug distribution, affect the patient's access to a medication, and these problems can passively decrease treatment adherence. A patient told us: "*some drugs does not include insurance or pharmacies do not have a contract with this insurance,*" (p2). Lack of knowledge about the side effects of the drug is also one of the problems in this area; One of the doctors (D2) told us: "The drug will likely have a variety of side effects, such as rash, headache, dizziness, weakness, and lethargy. This will make it a little harder to accept treatment."

#### *Educational system-related problems*

Participants have repeatedly pointed to the weakness of the education system. The main problems that the participants expressed in this regard were lack of coordination of training given with clinical needs and insufficient nursing education. "Our training is superficial and introductory," says one clinical nurse (N5). Another

**Table 1: Open codes, categories, and subcategories of the causes and factors of the patient's nonadherence in cardiovascular disease**

| Categories | Subcategories | Open code |
|---|---|---|
| Organizational-managerial causes and factors | Drug-related problems | Lack of contracts between pharmacies and insurance companies, weak communication between pharmacist and patient, lack of providing drug information to patients in pharmacies, problems in the drug distribution cycle, lack of clinical pharmacists, discontinuation of medication due to side effects |
| | Educational system-related problems | Lack of coordination of training given with clinical needs, insufficient nursing education |
| | Weak performance of hospitals | Lack of communication channel between the patient and the treatment team after discharge, improper behavior with patients in hospitals, lack of facilities in hospitals |
| | Problems related to insurance companies | Poor insurance coverage for paraclinical actions, lack of insurance coverage for poor people, poor insurance coverage in the pharmaceutical sector |
| Sociocultural causes and factors | Factors related to cultural problems | Fear of stigma of heart disease, refrain from taking medication, accepting the recommendations of nonexperts by patients |
| | Factors related to social problems | Lack of access to medical facilities in deprived and disadvantaged areas, lack of social support, lack of family support |
| Causes and factors related to care providers | Skill problems of care providers | Lack of nurses 'knowledge, poor work conscience in care providers, lack of motivation and lack of interest in care providers, incompatibility of treatment regimens with the patient's living conditions, insufficient nurses' knowledge of patients, weak communication of care providers with the patient |
| | Functional problems of care providers | Insufficient training of physicians to patients, insufficient training of nurses to patients, fading of the educational and other roles of nurses, poor role of nurses in patient compliance with treatment |
| Causes and factors associated with care givers | Factors related to social characteristics of the patient | Lack of adherence because of interference of the drug with the patient's life cycle, low level of patient education, lack of adherence to treatment due to the patient's job problems |
| | Factors related to patient characteristics | Not taking medication until complications, stubbornness of the patient, sacrifice the patient to help the family, aging, lack of patient knowledge, poor patient memory, the tendency to noncompliance with treatment, male gender, patient personality type, probability of heredity, reluctance to take medication |
| | Factors related to the patient's belief | The patient's mental health problems, the patient's lack of belief in medical advice, the unwillingness to continue treatment due to the reduction of pain and the feeling of recovery, the patient's reluctance to recover, the patient's lack of belief in the knowledge of doctors and nurses, noncompliance due to disease denial, patient's wrong beliefs about treatment acceptance, lack of life expectancy, noncompliance due to lack of trust in the doctor and the treatment team, noncompliance due to lack of confidence in the drug, wrong belief of the patient about the drug |

nurse says " Nurses who have to train the patient do not have enough skills themselves" (N4).

*Weak performance of hospitals*
During their interviews, the participants emphasized the importance of the role of hospitals and mentioned the following: lack of communication channel between the patient and the treatment team after discharge, improper behavior with patients in hospitals, and lack of facilities in hospitals. "There are too many patients. There are no facilities. There is no nurse," says one nurse (N5). "Most nurses have knowledge and are interested in teaching, but they don't have enough time" says another nurse (NF1).

*Problems related to insurance companies*
Insurance issues include the following: poor insurance coverage for paraclinical actions, lack of insurance coverage for poor people, poor insurance coverage in the pharmaceutical sector. "drugs are very expensive," says one nurse (N4). "Low-income people cannot afford to pay. In particular, these people live in deprived areas and are illiterate and often do not have insurance."

## Sociocultural causes and factors
The patient has a very high impact on cultural and social factors. In this study, the interviewees referred to the impact of these factors, which were classified into two subcategories: factors related to cultural problems and factors related to social problems.

*Factors related to cultural problems*
The participants in this study repeatedly mentioned the role of cultural issues in adherence. Cultural problems include fear of stigma of heart disease, refrain from taking medication, and accepting the recommendations of nonexperts by patients. People do not like to be seen as a heart patient, this is especially common in men, to hide this, and they refuse to take medicine in public. "If I take medicine, I feel sick, but when I'm not taking medicine

and going to the club, I'm feeling better mentally and I think I'm healthier," says one patient (P1).

### Factors related to social problems

These factors include lack of access to medical facilities in deprived and disadvantaged areas, lack of social support, and lack of family support. "*Some patients live alone*," says another nurse (N2). "Most of these people are just old people. These people need help to take medicine, provide medicine, and do other things, and in our society, there is no social support for these people."

## Causes and factors related to care providers

Some of the causes of patients' nonadherence are related to care providers, and these causes include skill problems of care providers and functional problems of care providers.

### Skill-based problems of care providers

Skill-based problems include lack of nurses' knowledge, poor work conscience in care providers, lack of motivation and lack of interest in care providers, incompatibility of treatment regimens with the patient's living conditions, insufficient nurses' knowledge of patients, and weak communication of care providers with the patient. The skill of nurses in providing care is very important. "Staff don't have the skills to teach patients to take care of themselves," says one nurse (N8). "A skilled nurse can pass on his skills to a patient," says another nurse (N7).

### Functional-based problems of care providers

Nurses perform poorly in helping patients to follow treatment, and participants noted some of the nurses' functional problems, including insufficient training of physicians to patients, insufficient training of nurses to patients, fading of the educational and other roles of nurses, and poor role of nurses in patient compliance with treatment. "Sometimes doctors discharge a patient with a phone call, and the patient does not have a prescription at all during the discharge. The patient may think that no medication is needed at all," says one nurse (N8). Another nurse says, "If the patient does not follow the medication, the service providers are to blame" (N5).

## Causes and factors associated with caregivers

Caregivers include patients and their families. Some causes of treatment inconsistency are related to service recipients. These causes include factors related to employment and social characteristics of the patient, factors related to patient characteristics, and factors related to the patient's belief.

### Factors related to social characteristics of the patient

The participants in this study referred to cases of occupational and social characteristics of the patient,

which include lack of adherence because of interference of the drug with the patient's life cycle, low level of patient education, and lack of adherence to treatment due to the patient's job problems. "Some patients take the medication correctly in the beginning, but then stop taking it because the drug may not be compatible with their life cycle," says one doctor (D2). In some cases, the patient does not follow the prescribed medication regimen due to occupational problems. "Sometimes a patient may not be able to take the medication they need three times a day because of their job (NF1)," said one nurse in the focus group.

### Factors related to patient characteristics

Patients have different personality traits. Accordingly, they can have different functions in the field of drug use. Some of these personality traits include not taking medication until complications, stubbornness of the patient, sacrifice the patient to help the family, aging, lack of patient knowledge, poor patient memory, the tendency to noncompliance with treatment, male gender, patient personality type, probability of heredity, and reluctance to take medication. "People with the least follow-up are usually people who are stubborn, or people who are indifferent to everything," says one nurse (N1). The patient's personality type affects the patient's behavior, and participants in this study point to the effect of personality type on the patient's adherence: "Here we hospitalized the patient with a heart attack, and as soon as he regained consciousness, the first thing he said was, 'Where is my cigarette?'" (D2).

### Factors related to the patient's belief

Some causes are inconsistent with patients' beliefs, opinions, and views, which include the patient's mental health problems, the patient's lack of belief in medical advice, the unwillingness to continue treatment due to the reduction of pain and the feeling of recovery, the patient's reluctance to recover, the patient's lack of belief in the knowledge of doctors and nurses, noncompliance due to disease denial, patient's wrong beliefs about treatment acceptance, lack of life expectancy, noncompliance due to lack of trust in the doctor and the treatment team, noncompliance due to lack of confidence in the drug, and wrong belief of the patient about the drug.

The most important thing about adherence in patients after MI is that patients feel better after going through an acute period and severe heart pain, and despite being prescribed a medication regimen, feelings of relative well-being refuse to continue treatment. One patient says, "Well, for the first two months, I used to do the whole thing as prescribed by the doctor, according to the prescription. I didn't even let the exact time go by, because I was scared. The reality lasted for another two months." When I set off and I was fine, I stopped '(P2). Most heart patients deny their

illness, especially after going through the acute phase. This denial of the disease is strongly associated with nondrug use and noncompliance with medical, nursing, and pharmaceutical recommendations. "Usually some patients enter the stage of denial by reducing the complications of the disease," says a pharmacist (D1). There are some prerequisites for a patient to follow medical advice, and one of these prerequisites is to trust the doctor and the medical team. "Well, believing in a doctor is very important, because if he doesn't accept your illness, he will definitely not follow your medication and instructions," says a cardiologist (D2).

## Discussion

The findings of this study showed that organizational, individual, cultural, and social factors play a role in following the treatment of patients. Identifying these factors is invaluable and can improve treatment adherence. If health-care providers, care providers, and patients and their families perform well, adherence to treatment will be good. However, in most cases, some factors cause the patient's behavior to lead to noncompliance with the medication regimen.

The present study showed that the organizations in charge of providing patient care have weaknesses and shortcomings that reduce the patient's compliance with treatment. Lack of postdischarge follow-up system, lack of adequate content to provide the patient with self-care, and other issues cause the patient not to follow the correct path of self-care after discharge from the hospital. These findings are in line with another study conducted on diabetic patients that indicate poor performance of the treatment team.[21]

Another cause of inconsistency in treatment is sociocultural and economic factors. Some cultural factors, such as fear of being stigmatized, cause the patient to abandon treatment. In his study, Mousavizadeh points to this issue and calls it a social impasse.[21] In her study, McQuaid emphasized the importance of cultural issues in following a therapeutic regimen.[22] Some social causes, such as lack of access to medicine, physicians, and medical facilities in underprivileged areas, make it impossible for the patient to access treatment and make it impossible for the patient to continue treatment. There are many scientific articles on the impact of social factors on treatment adherence, including Taher's *et al.* study, which states that patients with good social support follow-up treatment better than people with poor social support, and this difference is statistically significant.[23]

The present study showed that the role of care providers in following treatment in patients is very significant. Some factors, such as lack of knowledge, skills, and motivation

in the health-care staff, make it difficult for the patient to gain sufficient self-care and follow-up treatment. Studies have shown that the knowledge and skills of caregivers provide an impact on patient follow-up. Among them, Sadeghian's *et al.* study states that there is a statistically significant relationship between drug therapy training and adherence to the drug regimen.[24] The role of care providers in patient compliance with treatment is highly emphasized. Therefore, care providers must have sufficient skills and knowledge to be able to have a positive impact on patient adherence. In this regard, Reach points out, in her study, the importance of the amount of training provided to nurses and says that the patient's adherence to treatment is related to the training provided to nurses.[25]

Based on the results of this study, the caregivers have an important role in treatment adherence. Some characteristics of patients, such as knowledge, beliefs, individual characteristics, and personality type, are related to patients' adherence to treatment. Not believing in medicine, or denying the disease, causes the patient to abandon treatment. In Asayeshi *et al.* study, the results showed that patients' drug beliefs were significantly statistically consistent with their treatment.[26]

Some patients find recovery after discharge from the hospital and refuse to take medication. Patients' personal characteristics are related to treatment follow-up; Rich found in his study that patients with more conservative individual characteristics were more likely to follow a treatment regimen. These people usually follow more protective advice.[25]

### Limitations and suggestion
Because the studied sample consisted of the doctors, nurses, and patients, the need for previous coordination and arranging an appointment to conduct interviews with them was one of the study limitations. To overcome this limitation, the researchers tried to make appointments with them a few days before the interviews. However, in many cases, it was difficult to gain access to them and interview them again. One of the most important innovations of this study was that, due to the high knowledge of nurses about the causes of cardiovascular patients' nonadherence, more interviews were conducted with nurses to make more use of their information. Finally, it is suggested that, studies should be conducted about patient errors and patient nonadherence in all areas, to help better understanding of patients' perception.

## Conclusions

There are many causes for nonadherence to treatment regimen. Some of these causes are related to individual

characteristics that can be reduced by awareness. Some of the causes of nonadherence are related to health-care organizations, which require reviewing and finding appropriate solutions to reduce and minimize these causes. Knowing more about these causes can be helpful. Therefore, further studies in different contexts and in more participants are recommended.

## Conflicts of interest
There are no conflicts of interest.

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