



Dealing with Coronary Artery Disease in Early Encountering: A Qualitative Study

Mohammad Mojalli¹, Hossein Karimi Moonaghi^{2,*}, Shahla Khosravan³, Ali Mohammadpure³

¹ Department of Postgraduate, Mashhad University of Medical Sciences, Mashhad, IR Iran

² Department of Medical-Surgical Nursing, Faculty of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, IR Iran

³ Faculty of Nursing and Midwifery, Gonabad University of Medical Sciences, Gonabad, IR Iran

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ABSTRACT

Background: The prevalence of cardiovascular diseases is rising in industrial and developing countries. Coronary Artery Disease (CAD) is the most common cardiovascular disease. Thus, understanding the signs and risk factors of CAD from the patients' perspective and their ways of dealing with this disease is of vital importance.

Objectives: This qualitative study aimed to explore the Iranian patients' viewpoints about CAD and how they dealt with it in their first encounter.

Patients and Methods: This study was a qualitative content analysis conducted on 18 patients with CAD. The data were collected through semi-structured interviews. Initially, purposeful sampling was performed followed by maximum variety. Sampling continued until data saturation. Then, all the interviews were recorded and transcribed verbatim. After all, the data were analyzed by constant comparative analysis using MAXQUDA2010 software.

Results: The themes manifested in this study included "invasion of disease" with subthemes of "warning signs" and "risk factors" and "confrontation strategies" with subthemes of "seeking for information", "follow-up", and "control measures".

Conclusions: The results of this study described the patients' perceptions of CAD and how they dealt with this disorder in early encountering. Based on the results, physicians and nurses should focus on empowerment of patients by facilitating this process as well as by educating them with regards to dealing with CAD.

► Implication for health policy/practice/research/medical education:

The results of the current study can be useful in designing programs for empowerment of patients with CAD in early encountering. They can also provide the basis for further studies. In medical education, this study can be used in education of students for paying more attention to the most common signs and symptoms of CAD. In health policymaking also, the results can be used for preparation of guidelines for diagnosis and treatment of CAD.

1. Background

Cardiovascular diseases are among the main causes of mortality in the modern world, being the main reason of death in over 16 million people annually. Over 80% of these deaths occur in second- and third-world countries (1).

Among cardiovascular diseases, Coronary Artery Disease (CAD) is one of the major causes of death and based on estimates, approximately 1.25 million infarctions annually occur in the United States, 50,000 of which culminate in

death. Besides, 4 million deaths resulting from Myocardial Infarction (MI) occur around the world annually (2).

In Iran, the rate of mortality resulting from cardiovascular diseases increased from 27% in 1989 to 37% in 2006 (3).

The hospitalization rate of the patients with CAD has also increased in the recent years, indicating the increasing incidence and recurrence rates of this disease. Despite hopes in reduction of mortality, the sharp increase in patients admission is becoming a growing concern (4).

Evidence suggests that some preventive measures can reduce the prevalence rate and risk of mortality, but most patients do not receive any advice about suitable lifestyle

*Corresponding author: Hossein Karimi Moonaghi, Faculty of Nursing and Midwifery, Faculty of Medicine, Ibn-Sina Ave., Mashhad, IR Iran, Tel: +98-5138591511, E-mail: karimih@mums.ac.ir

and medications after a heart attack (5).

Lifestyle has a profound impact on the recurrence and progression of common diseases, such as CAD, stroke, diabetes, and cancer (6). Progress of science, technology, and health in communities has changed the pattern of diseases from acute to chronic. Moreover, medication regimens are highly complicated and patients are responsible for managing their disease without supervision of healthcare teams (7).

Many patients willingly give information about their disease status, while others try to assume complete control of their medical decisions. Empirical evidence suggests that patients, who were active and involved in their healthcare, had more desirable outcomes (8). In order to improve patient outcomes and make this improvement constant, it is essential to understand the patients' perception of their disease (9).

In general, when the healthcare personnel are trained to deal with patients suffering from a heart attack, the treatment and pathological processes are intentioned (10).

2. Objectives

Because the knowledge of dealing with CAD is important for decreasing healthcare costs and increasing the quality of life, the present qualitative research aims to determine the patients' perception of their disease and how they dealt with it.

3. Patients and Methods

This study was a qualitative content analysis conducted on the patients admitted in the hospitals of Mashhad and Gonabad Universities of Medical Sciences, Iran in 2013 – 2014. First, the participants were selected through purposeful sampling and then maximum variation sampling was continued until data saturation. In qualitative studies, sample size is variable and researchers must continue the sampling process up to a point where no new ideas can be obtained (11, 12).

The inclusion criteria of the study were having CAD, including angina pectoris and/or MI, and not suffering from other diseases and mental disorders. The participants were selected by considering the maximum of variety in terms of gender, age, previous experiences in family, type of treatment, duration of disease, education level, and job background. The participants had to be willing to express their experiences and speak coherently. Overall, 6 females and 12 males whose age ranged from 45 to 80 years were recruited into the study. Participants with different characteristics were selected by a variety in sampling.

The study data were collected through in-depth and semi-structured interviews which are suitable for qualitative researches because of their depth and flexibility (13). The principal investigator performed all the interviews and transcribed them under the supervision of expert supervisors. The time and place of the interviews were selected with the consent of the participants. The interviews were conducted in private places, such as workplace or home, where the participants were convenient.

The interview was begun with questions, such as "Please tell me about the beginning of your disease" and "I want to hear your story". It was then continued by probing questions, such as "Please explain about it in more details". Each

interview lasted for 45 - 90 min, with an average duration of 60 min. All the interviews were recorded, reviewed for several times, and transcribed in a Microsoft Office Word 2003 file. Afterwards, qualitative content analysis was performed. This method is used for subjective interpretation of the text data and identifies codes and themes through categorization. Content analysis is more than just extraction of objective context from text data. Using this method, hidden themes and patterns can be revealed from the participants' data (14).

In this study, analysis was carried out based on Graneheim and Lundman approach. After repeated listening, reading, and immersion in the data, a general picture was achieved. Then, the data were transcribed and the meanings were extracted. After that, the key ideas of the concepts were highlighted and different codes were categorized based on their relationships.

According to Lincoln and Guba (1985), the criteria for enhancing the rigor of qualitative researches include credibility, transferability, dependability, and confirmability (15). In the present research, the researchers allocated sufficient time for data collection and maintained close communication with the participants. In addition, the interviews' codes were returned to the participants, as member checking, in order to verify the accuracy of the results and validate the congruity of the findings. Then, the data were coded and categorized and the emerged themes were compared. Ideas of experts and two PhD candidates of nursing regarding data analysis were also used as peer checking. Considering rigor, the research team discussed and interpreted the findings until agreement was achieved. These all enhanced the credibility of the data. To increase the dependability of the data, the principal investigator collected and analyzed the data and the others checked and verified the results. Considering transferability, the participants were selected according to the maximum of variety in terms of gender, age, history of disease in family, type of treatment, duration of disease, education level, and occupational background.

The study protocol was approved by the Ethics Committee of Mashhad University of Medical Sciences (No. 900569). The interviews were carried out after the research objectives were explained to the participants and they were ascertained that participation/non-participation in the study was voluntary. They were also assured about anonymity of the information. Then, written informed consents for recording the interviews were obtained from all the participants.

4. Results

The deep and rich descriptions given by the participants revealed two main themes, namely "invasion of disease" and "confrontation strategies". "Invasion of disease" included subthemes, such as "warning signs" and "risk factors", while "confrontation strategies" had subthemes, such as "seeking for information", "follow-up", and "control measures." These themes and subthemes give insight to how CAD is dealt with in Iranian patients (Table 1).

4.1. Invasion of Disease

It refers to the sudden onset of symptom of disease that

Table 1. Themes, Categories, and Subcategories

Subcategories	Categories	Themes
Chest pain or heaviness in the chest, hand pain, shoulder pain, feeling of fatigue, chilling, dyspnea	Warning signs	Invasion of disease
Stress, heavy activity, improper diet, imagination of non-cardiac pain, hypertension, smoking, snoring	Risk factors	
Signs and risk factors of disease, nature of disease, diet, medication	Seeking for information	Confrontation strategies
Giving priority to follow-up, go to the doctor, decision making about the disease	Follow-up	
Medication, follow the physician's order to rest, limiting conflict leading to discomfort, compliance with diet, control of blood pressure	Control measures	

occurs in the context of risk factors.

4.1.1. Cautionary Warning Signs

Warning signs are defined as the early signs of the disease. According to the experiences of the participants, these signs included chest pain and heaviness in chest, hands pain, feeling of fatigue, dyspnea, shoulder pain, and feeling of chill.

With regards to chest pain, one participant said:

“I was at a party in a hotel. I had a feeling of hypertension. When the party ended and I was coming out, I felt a chest pain at the door. I couldn't go home and they transferred me to hospital...” (p. 5).

Another participant referred to pain in the hands, saying: “I was feeling a dull pain in my left arm; I felt this pain might be related to my heart...” (p. 7).

With respect to the feeling of fatigue, chill, and heaviness in the chest, one subject stated:

“I was sitting in my house, I felt a little tired. I didn't know I had a heart disease, I had never had, you see. Although I had hypertension, I did exercise when in fact I should have rested. So, instead of helping myself, I was triggering my disease. After 10 minutes, I felt a chill, I sat near the heater and then I felt a growing pain in my chest...” (p. 3).

One participant pointed to shoulder pain, feeling of fatigue, and dyspnea, saying:

“I faced a shoulder stinging pain; it wasn't intense at times but was sometimes unbearable. When I went up and down stairs, I felt dyspnea...” (p. 4).

4.1.2. Risk Factors

Risk factors are defined as the factors causing the disease. Based on the patients' experiences, the risk factors included stress, high activity, hypertension, inappropriate diet, neglecting chest pain, smoking, and history of snoring.

In this regard, one of the participants mentioned: “Stress is very bad; it is equal to lifting 100 kg weight. I feel that stress is bad for the heart; relaxation is better. If a person stays in a calm environment, he won't have any trouble. Working is not a problem, but in fact stress is a problem...” (p. 8).

Another participant indicated high activity as a risk factor and stated:

“Many people with heart problems think that doing activities is no big deal. Doing agriculture is no problem. I know people who farm though they have a bad heart. They receive many suggestions but never listen to them...” (p. 2).

One other participant pointed to hypertension as a risk factor, saying:

“Before I became sick, my blood pressure was 15 - 16

mmHg. I had to donate blood. The blood bank personnel asked me whether I had hypertension and if I had taken any drugs. I answered no. They told me to go and come back after 2 - 3 hours, but I didn't listen to them ...” (p. 12).

One participant stated inappropriate diet as a risk factor: “A fatty diet is not good for the heart. Fatty food cannot be easily digested; so, it will be heavy on the stomach and press the heart ...” (p. 15).

In general, many patients do not guess they have a heart problem in the early stages of the disease and attribute the symptoms to other problems, such as gastric diseases. They also tend to overlook the important signs. The participants of the current study mentioned imagination of non-cardiac pain as a risk factor. For instance, one participant said:

“At the beginning of the disease, I felt that I had acid indigestion. It didn't seem a lame reason because when I went on a journey, it got better and if I had less stress, I would have less indigestion. My family asked me to go to a doctor. I went to a physician. He told me to get an ECG done after which, he sent me to CCU...” (p. 18).

Another participant considered snoring as a risk factor, stating:

“Many years ago, I heard on TV that anyone snoring at night should refer to a doctor as they may have a heart disease. But I didn't pay attention to it...” (p. 13).

4.2. Confrontation Strategies

Confrontation strategies are defined as the measures the patients take to deal with their disease.

4.2.1. Seeking for Information

This refers to searching for information about the disease. Based on the patients' comments, the following subdivisions were found: awareness of the signs and risk factors of the disease, awareness about the nature of the disease, and awareness about diet and medication.

Regarding the signs and risk factors of the disease, a participant stated:

“After a heart attack, the patient gets dyspnea; he has problems in breathing, the heart beat is low, and pumping of blood is low, too. I try to get less involved in things. Stress is inevitable, but I try to control it because stress has an adverse effect on heart disease...” (p. 17).

One participant also mentioned the nature of heart disease: “The heart isn't a small thing. The heart is the motor of the body. When the heart is diseased, the motor of the body is disturbed ...” (p. 14).

With regards to diet and medication, that participant continued:

“A fatty diet isn’t good for heart disease for two reasons: the food doesn’t get digested, it puts pressure on the stomach, and the person gets fat; so, it’s detrimental for the heart ...”. He continued with medications for heart disease, saying: “I should use an aspirin to dilute my blood; if I don’t use an aspirin, my blood doesn’t get diluted ...” (p. 14).

4.2.2. Follow-up

This includes follow-up of the disease which, based on the patients’ experiences, involved three subcategories, namely giving priority to the disease, referring to physicians, and performing treatment interventions.

Pertaining to disease follow-up, another participant stated:

“One should deal with the disease assertively, not simply. We shouldn’t say I will follow- up tomorrow, next week, or next month. One should know what one wants to do. One should take one’s heart disease seriously and consult with physicians for getting medication or angioplasty ...” (p. 16).

4.2.3. Control Measures

Control measures are defined as the patient’s interventions for controlling the disease. These measures included using medications, resting, following a diet, management of stress, and control of blood pressure.

With regards to taking medications, one participant said: “I have a special side table with my tablets in view. I take my drugs regularly, and I advise others to do the same ...” (p. 13).

Considering following the physician’s order to rest, following a diet, and stress management, one participant said:

“When I was admitted in the CCU, I followed the physician’s order regarding dieting and resting. I complied with the rules. I did stress management. I am less bothered now, and I don’t get easily troubled by noise. For example, if I face annoying problems, like the ones I had before, they won’t disturb me as much. Or if I have any conflicts at home, I speak softer ...” (p. 1).

With regard to control of blood pressure, one participant said:

“I didn’t usually control my blood pressure, but I try to control my blood pressure regularly now...” (p. 11).

5. Discussion

The present study aimed to explore CAD from the patients’ perception and determine how they dealt with this disorder in early encountering. The results revealed two themes; i.e., “invasion of disease” and “confrontation strategies”. Invasion was selected because the signs of CAD occur suddenly. “Invasion of disease” also included “warning signs” and “risk factors.” After the invasion of the disease, patients try to confront with it using “confronting strategies” which included “seeking for information”, “follow-up”, and “control measures”.

Considering the signs and symptoms of CAD, Omran and Al-Hassan concluded that chest pain was a common sign of CAD in both males and females. Besides, four most common signs reported by both males and females were weakness, sweating, nausea, and fatigue (16).

In another research, National Heart, Lung, and Blood

Institute reported angina as a common sign of CAD. Angina is defined as a pain or discomfort in the chest that is created when oxygen-rich blood does not reach the heart muscle. Angina may feel like a pressure or tension on the chest. It could also be felt on the shoulders, arms, neck, jaws, or back. This pain is directly related to the amount of activity done or not having sufficient rest. It is also directly related to emotional stress. Another sign of ischemic heart disease is dyspnea (17).

Cheek, Cesan, Wilson et al. highlighted the risk factors of CAD, including hypertension, smoking, hyperlipidemia, stress, age, heredity, and race, and stated that the basic factors of heart disease were similar in males and females (18, 19).

In agreement with the current study results, Isakson et al. mentioned imagination of non-cardiac pain as a risk factor, too. They concluded that the patients began to take the symptoms seriously only when the chest pain became continuous. In other words, when the chest pain becomes intolerable, they decide that they need medical treatment (20).

Furthermore, Zerwic et al. focused on individuals’ general knowledge about CAD, saying although some people have recognized risk factors, they vastly neglect them, thus lengthening the course of the disease (21).

Regarding seeking for information, Jackson et al. emphasized the need for creating opportunities for patients to communicate with healthcare personnel for questioning, consulting, and searching for information (22).

Moreover, Afrasiabifar et al. discussed the theme of “follow-up” in CAD patients and found that locus control was an important variable in decision-making for seeking for treatment. This variable had five categories, including awareness of physical signs, personal appraisal, self-manipulation, feeling of threat, and consultation with others, resulting in searching for treatment. At first, they continued, the patient may want to decrease the signs and begin interventions, such as self-treatment, which lead to a delay in suitable medical treatment (23).

In the same line, Ruston et al. mentioned that the most influential factor lying between the onset of cardiac symptoms and seeking for professional medical help is that people do not tend to perceive their illness to originate from their heart (24).

With respect to control measures, Keristoferson et al. reported that these patients managed problems by negotiation with themselves, relying on their capacities, and changing their attitudes, behaviors, decisions, and actions (25).

After facing with CAD and finding warning signs, when patients see serious signs, they embark on a search to obtain information about this disease and its risk factors. They also search for diagnostic interventions to reassure them of the diagnosis done and even do complementary tests and consult different specialists. After confirmation of diagnosis, they try to control the risk factors through management of stress, blood pressure, diet, and activity. We must help patients to easily acquire information regarding the disease and how to deal with it. The results of this study can be useful for healthcare personnel, nurses, and physicians to positively empower the patients with ways of caring for themselves.

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Authors' Contribution

All authors had equal contribution to this research.

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References

- Vahedian Azimi A, Alhani F, Ahmadi F, Kazemnejad A. Effect of family-centered empowerment model on the life style of myocardial infarction patients. *Iran J Crit Care Nurs*. 2010;2(4):1-2.
- Woods SL, Froelicher ESS, Motzer SA, Bridges EJ. *Cardiac nursing: Wolters Kluwer Health/Lippincott Williams & Wilkins*. 2010.
- Afzali S, Masoudi R, Etemadifar S, Moradi M, Moghaddasi J. The effect of progressive muscle relaxation program (PMR) on anxiety of patients undergoing coronary heart angiography. *Journal of Shahrekord University of Medical Sciences*. 2009;11(3):77-84.
- Cheng Y, Chen KJ, Wang CJ, Chan SH, Chang WC, Chen JH. Secular trends in coronary heart disease mortality, hospitalization rates, and major cardiovascular risk factors in Taiwan, 1971-2001. *Int J Cardiol*. 2005;100(1):47-52.
- Anderson RM, Funnell MM. Patient empowerment: myths and misconceptions. *Patient Educ Couns*. 2010;79(3):277-82.
- Segal L. The importance of patient empowerment in health system reform. *Health Policy*. 1998;44(1):31-44.
- Mansur Ghanaee R. Patient education after myocardial infarction. *IRANIAN HEART JOURNAL 14th Congress of Iranian Heart Association In Collaboration with British Cardiac Society*. 2004:213-5.
- Wahlin I, Ek AC, Idvall E. Patient empowerment in intensive care--an interview study. *Intensive Crit Care Nurs*. 2006;22(6):370-7.
- Fors A, Dudas K, Ekman I. Life is lived forwards and understood backwards--experiences of being affected by acute coronary syndrome: a narrative analysis. *Int J Nurs Stud*. 2014;51(3):430-7.
- Thompson DR, Ersser SJ, Webster RA. The experiences of patients and their partners 1 month after a heart attack. *J Adv Nurs*. 1995;22(4):707-14.
- Polit DF, Beck CT, Hungler B. *Essentials of Nursing Research, Methods, Appraisal and Utilization*. 2006. Lippincott Williams & Wilkins, Philadelphia. 2:11-23.
- Speziale HS, Streubert HJ, Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative*. Lippincott Williams & Wilkins; 2011.
- Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res*. 2005;15(9):1277-88.
- Polit DF, Beck CT. *Essentials of nursing research: Appraising evidence for nursing practice*. Lippincott Williams & Wilkins; 2013.
- Denzin NK, Lincoln YS. *The SAGE handbook of qualitative research*. Sage; 2011.
- Omran S, Al-Hassan M. Gender differences in signs and symptoms presentation and treatment of Jordanian myocardial infarction patients. *Int J Nurs Pract*. 2006;12(4):198-204.
- National Heart LABI. What Are the Signs and Symptoms of Coronary Heart Disease? 2014 [cited 2014 4/1] Available from: Available from: <http://www.nhlbi.nih.gov/health/health-topics/topics/cad/> <http://www.nhlbi.nih.gov/health/health-topics/cad/> <http://www.nhlbi.nih.gov/health/health-topics/cad/>
- Cheek D, Cesan A. What's different about heart disease in women? *Nursing*. 2003;33(8):36-42. quiz 42-3.
- Wilson PW, D'Agostino RB, Levy D, Belanger AM, Silbershatz H, Kannel WB. Prediction of coronary heart disease using risk factor categories. *Circulation*. 1998;97(18):1837-47.
- Isaksson RM, Brulin C, Eliasson M, Naslund U, Zingmark K. Older women's prehospital experiences of their first myocardial infarction. *J Cardiovasc Nurs*. 2013;28(4):360-9.
- Zerwic JJ, King KB, Wlasowicz GS. Perceptions of patients with cardiovascular disease about the causes of coronary artery disease. *Heart Lung*. 1997;26(2):92-8.
- Jackson D, Daly J, Davidson P, Elliott D, Cameron-Traub E, Wade V, et al. Women recovering from first-time myocardial infarction (MI): a feminist qualitative study. *J Adv Nurs*. 2000;32(6):1403-11.
- Afrasiabifar A, Hassani P, Fallahi Khoshkenab M, Yaghmaei F. Decision making process of seeking medical help among myocardial infarction patients at the onset of symptoms. *Iran J Nurs*. 2008;2(7):83-95.
- Ruston A, Clayton J, Calnan M. Patients' action during their cardiac event: qualitative study exploring differences and modifiable factors. *BMJ*. 1998;316(7137):1060-4.
- Yu DS, Thompson DR. Commentary on Kristofferzon M-L, Lofmark R & Carlsson M (2007) Striving for balance in daily life: experiences of Swedish women and men shortly after a myocardial infarction. *Journal of Clinical Nursing* 16, 391-401. *J Clin Nurs*. 2008;17(8):1105-6.