



## Health Workers' Perceptions of the Risk of Heart Disease: A Content Analysis Study

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### Abstract

**Introduction:** People's perception of the risk of heart disease is effective in their response to disease, potential risks, decision making, and reduction of heart disease and is an important predictor of adopting healthy lifestyle behaviors. Accordingly, this study aimed to analyze health workers' perception of the risk of heart disease.

**Methods:** The present study was conducted using a conventional content analysis method. The participants were selected using purposive sampling with maximum variation. To this end, 18 health workers were selected from the medical staff of Tehran University of Medical Sciences. The data collection process continued until the data saturation point, and the collected data were analyzed simultaneously with the sampling procedure.

**Results:** Three main categories including an "incentive to search for more information", "guidelines for health promotion", and "a warning to avoid risks" were identified from the data, and were divided into nine subcategories that were conceptually named based on their nature. The majority of participants believed that not perceiving the disease risk factors is due to lack of knowledge because of limited access to new sources of information.

**Conclusion:** Individuals' perception of the risk of heart disease promotes the adoption of appropriate strategies to prevent the disease. In contrast, inadequate perception may prevent adults from considering the need for early preventive behaviors or seeking early life-saving interventions in the presence of coronary heart disease symptoms.

**Keywords:** Content analysis, Perceived risk, Heart disease, Health workers

### Introduction

Heart disease is the leading cause of death in the world with 17 million deaths per year (1). It is estimated that by 2020, heart disease will be the most serious disease

that reduces the efficiency of individuals (2). More than 19.4% of the Iranian population suffers from heart disease (3). Cardiovascular diseases accounting for 93.3% of all deaths are considered the leading cause of death (4). Currently, 360



out of about 800 daily deaths in Iran are caused by heart disease, and this rate is predicted to increase to account for 44.8% of the total deaths by 2030 (5).

By changing the lifestyle, 80 to 90% of premature deaths due to heart disease can be prevented (6). Changing an inactive lifestyle to an active one reduces the risk of heart disease by 30% (6). People's awareness and perception of heart disease risk factors and their motivation to reduce the risk factors can encourage them to change their lifestyle and engage in health behaviors to prevent the disease (7). However, an important thing is an individual's perception of the risk of the disease that affects his or her health-related functions. To take preventive actions against heart disease, people must first feel threatened by a problem, i.e. heart disease, and then perceive the depth of this risk and the severity of its side effects in the physical, social, psychological, and economic aspects of their life and use positive signs received from their surroundings or inside themselves as a guide to action (8).

Health workers play an important role in educating the population to adopt healthy behaviors and to get aware of risks and diseases. To change behavior, health educators must have a good understanding of the health and social characteristics of individuals, their beliefs, attitudes, values, skills, and past behaviors (9), and they must also use this information to promote their health and prevent diseases. World Health Organization reports show that the number of patients with heart disease is increasing day by day, and since the perception of the risk of heart disease is positively related to the tendency to change high-risk behaviors, addressing this issue

can contribute to making more comprehensive planning to prevent this disease (10).

Given that health workers face many risks that threaten their heart health in their daily lives and many of these risks can be prevented by having a correct understanding of the risks, and considering that the perception of the risk of heart disease has not been studied qualitatively so far, the present study aims to explore health workers' perception of heart disease risk factors to provide useful information and insights to be used by policymakers, planners, and senior executives to take effective measure so as to increase health care workers' perceptions of risks and the action they can take to mitigate risks to heart health.

## Methods

This study was conducted using a descriptive qualitative research design and via a conventional content analysis method in 2017. The participants were selected using purposive sampling from among health workers working in colleges and hospitals affiliated to Tehran University of Medical Sciences based on three main criteria: having at least an associate's degree, the willingness to participate in the study, and the ability to describe their experiences. The participants' in the research sample represented the maximum variation. The sampling process continued for eight months until the data saturation point. The data were saturated after the fourteenth interview. However, four further interviews were conducted to ensure the sampling adequacy.

The data were collected using semi-structured individual interviews and the

interviews were continued until the data were saturated. The interviews were conducted by appointing a time and place upon the participants' agreement. At the beginning of the interview, the objectives of the study were explained to the participants, and the interviews were recorded upon their consent. The following questions were asked in the interviews:

- What does lifelong heart health mean to you?
- How long are people healthy?
- How do you define health risks?
- How do you perceive the threats to your health?
- How do you define the risk of heart disease?
- What symptoms do you perceive as heart risk factors?
- Describe your experiences in cases where you perceived heart disease risk factors.
- How did you feel after perceiving the risks? Share your experience.

Finally, the follow-up questions (e.g. Any additional comments?) were asked. The interviews were conducted at one or more sessions depending on environmental factors, time, conditions, the participants' tolerance, and willingness. Each interview lasted between 30 and 60 minutes.

The collected data were analyzed simultaneously with the sampling procedure using a five-step qualitative content analysis method (Graneheim & Lundman, 2004): (I) Transcribing the recorded interviews, (II) Reviewing the transcripts to come up with a general understanding of the content, (III) Identifying meaningful units and primary codes, (IV)

Classifying the primary codes into broader categories, and (V) Specifying the latent concepts (11).

In this study, the recorded interviews were immediately transcribed word-by-word. In the second step, the transcripts were carefully reviewed, and a decision was made to divide the text into meaningful units. In the third step, the meaningful units were abstracted and they were coded using MAXQDA software (version 2007). Considering the participants' experiences and statements, explicit and implicit concepts were specified in the form of sentences or paragraphs from the words and signifying codes. Then, the outputs were coded and summarized. In the next step, the codes were classified into subthemes based on comparisons of their similarities, differences, and relevance. In the final step, themes were formulated as the expression of the latent content of the text.

To ensure the robustness of the data, Lincoln and Guba's four criteria (credibility, dependability, confirmability, and transferability) were used (12). The credibility of the data was ensured by confirming the accurate recording of the participants' statements in the manuscripts, long-term involvement of the researcher with frequent attendance in hospitals affiliated to Tehran University of Medical Sciences (the research population), establishing good communication with the participants and gaining trust, and understanding their experiences by the researcher. To check the confirmability of the data, some parts of the transcripts and the emerged codes and themes were reviewed by several reviewers, and their comments were used in data analysis. The dependability of the findings was ensured by transcribing the interviews immediately and having the transcripts reviewed by the

participants. Besides, the participants were selected with the maximum variation to guarantee the transferability of the findings (13).

The requirements for ethical considerations were observed by obtaining a permit for conducting the research project, obtaining informed written consent from the participants, ensuring the confidentiality and anonymity of the data, ensuring the participants' freedom to leave the study at

any stage they wished, and providing the results of the study to the participants per their request.

## Results

As it was mentioned, the participants were 18 persons from the medical staff of Tehran University of Medical Sciences. Table 1 presents the participants' demographic characteristics:

**Table 1. The participants' demographic data**

Code	Occupation	Education	Age	Sex	History of heart disease	Family history of heart disease	Heart health periodical checkup
1	Nurse	Master's degree	42	Female	No	Yes	Yes
2	Service provider	Bachelor's degree	52	Male	No	Yes	No
3	Educational expert	Bachelor's degree	47	Male	No	No	No
4	Nurse	Bachelor's degree	39	Male	Yes	Yes	Yes
5	Social worker	Master's degree	29	Female	No	No	No
6	Secretary	Bachelor's degree	37	Female	No	Yes	No
7	Faculty member	Ph.D. in midwifery	42	Female	No	Yes	Yes
8	Head nurse	Bachelor's degree	45	Male	No	Yes	Yes
9	Faculty member	Ph.D. in nursing	37	Female	No	No	No
10	Instructor	Master's degree	50	Female	No	Yes	Yes
11	Service provider	Associate's degree	46	Male	No	Yes	No
12	Nurse	Bachelor's degree	39	Female	No	Yes	No
13	Security guard	Bachelor's degree	47	Male	Yes	Yes	No
14	Anesthesia Technician	Bachelor's degree	29	Female	No	No	No
15	Anesthesiologist	Ph.D. (Board degree)	46	Male	No	Yes	Yes
16	General practitioner	Ph.D.	36	Female	No	No	Yes
17	Physiotherapist	Bachelor's degree	28	Male	No	Yes	No
18	Lab technician	Bachelor's degree	24	Female	No	Yes	No

The majority of the participants agreed that they had overlooked physical activity (such as walking or regular exercises) and all acknowledged that they needed to change their lifestyle. Although all participants were health workers, periodic heart health checks (such as tests, blood pressure checks, periodic heart rate measurement, and ECG) were not among their priorities. Moreover, the participants stated that they need to follow a healthy diet containing recommended

amounts of salt and fat as well as fresh food and vegetables.

Using a conventional content analysis method, the transcripts of the interviews with the participants were analyzed. A total of 1004 primary codes were extracted. The extracted codes were reduced to three main categories (an incentive to search for more information, guidelines for health promotion, a warning to avoid risks) and nine subcategories as displayed in Table 2:

**Table 2. Categories and subcategories identified in the study**

Main categories	Subcategories
An incentive to search for more information	Understanding the importance of heart health
	Understanding the possibility of developing heart disease
	Understanding the lack of information
	Understanding the need to seek new sources of information
Guidelines for health promotion	Understanding the power of control over risk factors
	Understanding the impact of lifestyle on developing heart disease
	Understanding the need for rethinking behavior
Warning to avoid risks	Understanding situations threatening heart health
	Understanding the need for taking effective measures in a health-threatening situation

## 1. An incentive to search for more information

Human tries to increase his/her ability to adapt to a new situation by acquiring special knowledge and skills. Accordingly, having an incentive to learn and seek new information about the risks threatening the heart plays a very important role. Sometimes this motivation is induced due to the observation of heart disease in others, friends, and relatives, which leads people to recognize and then avoid risk factors. Sometimes this perception is formed after the person develops heart disease. This category was divided into some categories including understanding the importance of heart health, understanding the possibility of developing heart disease, understanding the lack of information, and understanding the need to seek new sources of information.

### 1.1. Understanding the importance of heart health

The heart in anatomical terms is a piece of poplar-shaped flesh located on the left side of the human body. In the present study, the heart was conceptualized as the king of the body and the part whose health is important in maintaining the health of the whole body. One of the participants stated,

*“They say the heart is the king of the body and that’s exactly right. The heart survives*

*without the brain, but the opposite is not right. Heart health is necessary for the health of the whole body, any risk that threatens the heart threatens the health of the whole body”* (Participant 8, a 45-year old male head nurse).

### 1.2. Understanding the possibility of developing heart disease

The belief that the heart disease is developed only in the elderly and genetic history is necessary for the disease or other misconceptions whereby a person considers himself or herself to be immune to heart disease can affect the progression of the disease. For instance, one of the participants stated,

*“Assuming that everybody is at the risk of developing heart disease makes us look for a way to prevent it from happening”* (Participant 15, a 46-year old male anesthesiologist).

### 1.3. Understanding the lack of information

Perceiving the lack of information about the disease and its symptoms encourages people to look for new diagnosis, prevention, and treatment techniques. According to one of the participants,

*“The best way is to look for information when we are healthy. Prevention works best as the first thing to do. It means that the disease does not occur at all, or if it does, at least we know how to avoid further*

*complications. The lack of information and perceiving that we need to learn about the disease to remain healthy is very important”* (Participant 5, a 29-year old female social worker).

#### **1.4. Understanding the need to seek new sources of information**

Given the advances in teaching aids and media and the regular change and upgrading of health information, the need to access new resources of information to promote health, as well as the need to abandon past misconceptions, is one of the issues highlighted by the participants. One of the participants believed,

*“There is still a set of old beliefs that can affect the understanding of symptoms and illness. Providing new information to people and helping them access updated information to internalize them and turning this information into beliefs require professional efforts and planning for many years to get the desired results”* (Participant 9, a 37-year old female with a Ph.D. degree in nursing)

## **2. Guidelines for health promotion**

The formation of habits from an early age and its persistence and effect on lifestyle in adulthood is another reason for making lifestyle changes to prevent diseases at adulthood. The perception of heart disease risk factors acts as a guide to recognize risk factors and change them since childhood. Guidelines for health promotion as a theme emerged in this study that was subdivided into two subcategories: Understanding the power of control over risk factors and understanding the impact of lifestyle on developing heart disease.

### **1.2. Understanding the power of control over risk factors**

The perception that some heart risk factors

are modifiable and that some factors, such as poor eating patterns and physical activity, can be completely corrected helps people come to the belief that they have the power to control risk factors and strive to keep and strengthen this power.

*“The environment of the hospital and medical center, in general, is an environment that is potentially and actually full of stress. Seeing people's suffering, their problems, and facing patients' deaths are stress factors that show their effects after a while. Meanwhile, some work-related problems make us angry and get on our nerves. These are all risk factors. If stress and anger are not controlled they can be dangerous for heart health. Having management and control over ourselves automatically prevents many cardiac problems and risks”* (Participant 16, a 36-year old female general practitioner).

### **2.2. Understanding the impact of lifestyle on developing heart disease**

Lifestyle as an important factor has always been the focus of health education and health promotion. Given that many heart diseases can be directly attributed to risk factors such as hypertension, obesity, diabetes, and smoking, which can be prevented through lifestyle changes, people can be encouraged to control their heart risk factors by changing their lifestyle.

*“We are always teaching patients to follow a healthy diet. The definitions are different. For example, many of them believe in consuming animal fat to gain strength but it's really harmful to them. People have a sedentary lifestyle these days. Everybody uses a car even for a very short distance. This allegedly modern lifestyle model that we are following will result in a sick heart and a sick body in the long run”* (Participant 6, a 37-year old female secretary).

### 3. Warning to avoid risks

Having an understanding of heart disease risk factors is a wake-up call for people who are or will be at risk for heart disease to seek prevention and treatment. Understanding the need for rethinking behavior, understanding situations threatening heart health, and understanding the need for taking effective measures in a health-threatening situation were the subcategories related to warning to avoid risks.

#### 3.1. Understanding the need for rethinking behavior

Although the right lifestyle should be founded from childhood, it is never too late to change our lifestyles and develop healthy habits. Furthermore, adaptation to a heart attack is a dynamic process and requires modification of some of the patient's behaviors and lifestyles. Accordingly, one of the participants stated,

*"Understanding that there is always a risk makes us change some of our behaviors to mitigate the risk"* (Participant 17, a 28-year old male physiotherapist).

#### 3.2. Understanding situations threatening heart health

Considering the inevitability of some stressors among health care professions and the need to prevent the psychological and behavioral effects of stress, managers of health care organizations are required to take some measures to improve the quality of working life and hold training programs on coping strategies to their medical staff.

*"The hospital environment is not pleasant. Seeing wounds, bleeding, and pain hurts you. Add management problems to these issues. The patient is in pain but there are no facilities to relieve his/her pain. This results in additional stress both for the patient and*

*for me working in this system. Imagine that you have to face this stressful situation for many years. We don't get accustomed to it. Actually, we are tolerating it. But we do not have too much tolerance. We cannot leave the workplace. We must try to reduce stress and at the same time increase our tolerance threshold"* (Participant 4, a 39-year old male nurse in the urology ward).

#### 3.3. Understanding the need for taking effective measures in a health-threatening situation

An important question for many people, especially those with a family history of heart disease, is how to prevent heart disease. They are also interested in the best course of action to be taken for a person at risk so that his/her health is not endangered anymore.

*"We all know almost what we should do, but it is more important to know what is the best thing to do and how to do it"* (Participant 13, a 47-year old male security guard).

## Discussion

The present study showed that the perception of heart disease risk factors is effective in monitoring heart health. Knowledge of risk factors for heart disease is associated with behaviors preventing the disease including performing relevant tests, measuring weight and blood pressure, doing physical activity, and engaging in healthy eating behaviors. Therefore, raising people's awareness and taking effective interventions can contribute to preventing heart disease (14). According to the participants, sometimes having a misunderstanding of the disease and denying the risk of this disease lead to subsequent risks and problems. A survey by the American Heart Association found that only 13% of American women believe that

cardiovascular disease poses a serious threat to their health (15).

Health workers' perception of heart disease risk factors helps them follow a healthy diet and promote preventive behaviors. Imanipour et al. surveyed teachers and showed that 71.6% of the participants had a moderately healthy diet concerning cardiovascular disease risk factors (5). Besides, a study by Moshki et al. showed that the staff of Khuzestan Health Center had a moderate assessment of behaviors preventing cardiovascular diseases (16). Mehri and Moghadam showed that students performed an average of 65% of heart disease prevention behaviors (diet and exercises) (17). Poor nutrition and unhealthy diet were factors pointed out by the participants. In their qualitative study, Ramezani et al. showed that women living in Tehran considered poor education and culture, inadequate access, and personal taste and interest as the most important barriers to healthy nutrition (18). Promoting a healthy food regimen among health workers was considered as one of the issues to promote health. A study on Isfahan women from 2000 to 2007 showed a decreasing trend in the average consumption of solid oil by employed and non-employed women and an increase in the consumption of liquid oil by them (19).

Another issue highlighted by the participants was doing physical activities and stopping a sedentary lifestyle. Exercise is important as a preventative factor for cardiovascular diseases. Accordingly, Ahmadi showed that in Iran, the activity of individuals varies between 22% and 48%, which is lower than the average standard (20). Another study on the role of physical activity and physical fitness in the prevention of cardiovascular diseases showed that physical fitness has an important

role in reducing cardiovascular diseases. The authors also reported that the engagement of young people in useful physical activity may prevent the development of risk factors for heart and coronary heart diseases such as hypertension, obesity, and overweight (21). Participation in training programs has a positive effect on the experience of understanding heart disease risk factors. Mosca's study on 125 women without a history of cardiovascular disease showed that older people had a better perception of the risk of developing the disease as older people participate more frequently in training programs (22).

Lack of knowledge and the need to access new resources of information was one of the issues highlighted by the health workers to promote heart health. Adequate knowledge is one of the important factors in controlling modifiable risk factors and symptoms. In a similar vein, Jeon et al. considered the search for health information as a key factor in the successful management of heart failure (23). Hence, attention to issues such as access to information, the focus on self-management and self-care, and re-focus on disease prevention lead to more attention to the search for health information (24). These information needs which induce searching for information can be a strategic behavior to achieve goals such as participation in decision-making, strengthening self-efficacy, and regaining a sense of control (25). The results of a study suggested that lack of knowledge has a negative effect on the pursuit of ongoing care and quality of life of heart patients (26). Furthermore, people's interpretations of information needs are shaped in the history-dependent context and practices. In other words, conscious awareness of the need for health information arises from the interaction between health status and social context (27). Many factors

including the actions of the mass media and health organizations in different communities are involved in informing people about the risk factors for cardiovascular diseases and their performance. The most important and basic educational principle to reduce the risk of cardiovascular diseases is to consider behaviors related to lifestyle (28). Social health inequality, the quality of health care received, and an individual's ability to modify lifestyle-related behaviors for management affect risk factors (29). Besides, to change behavior, a person must be aware of the potential negative consequences of his/her current behaviors. Awareness of heart disease risk factors helps a person make informed decisions about adopting or stopping certain behaviors such as smoking, sedentary lifestyle, or eating high-fat foods that may increase the risk of cardiovascular diseases (30).

Moreover, the lifestyle of Iranian society is dangerous for cardiovascular diseases. On the other hand, cardiovascular diseases, in addition to high mortality, impose huge costs on the health systems of countries. For instance, more than half of the government's health budget is spent on cardiovascular diseases (31). As a result, having an understanding of heart disease risk factors and consequently adopting a healthy lifestyle and reducing risk factors can help prevent the disease and its costs.

Caution in the generalizability of the findings is one of the limitations of qualitative studies including the present study. Therefore, maximum efforts were made to increase the robustness of the data. Besides, it is suggested that similar studies be conducted in other regions with different organizational, cultural, and individual characteristics. Since this study surveyed only health workers, it is recommended that future studies explore

opinions and experiences of other service providers as well as ordinary people in the community to provide a more complete definition of the perception of heart disease risk factors. The results of this study lay the foundation for other quantitative and qualitative studies.

## Conclusion

Since sources of health information for people at different age and gender groups may be different and varied, the type of information sources should be taken into account by health planners to promote health-related behavior. Besides, the most effective source of information must be selected and used for offering preventive behavior services. Accordingly, it is necessary to provide information and necessary training through mass media, health system staff, physicians, and health volunteers to prevent cardiovascular diseases. Moreover, effective planning for educational interventions must be made to increase awareness as one of the necessary conditions for the implementation of various strategies to prevent cardiovascular diseases.

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