

## **EXECUTIVE SUMMARY**

Coronary Heart Disease (CHD) is one of the major concerns all over the world. CHD accounts for almost 50% of all deaths and the largest number of days of hospitalization. The impact of this disease on an economy of the country is also very large as well. Although, CHD patients' rehabilitation activities exist all over the world, in Armenia the follow-up and rehabilitation of CHD patients is not done on a regular basis.

Qualitative research was conducted from July 14 to September 5 in Armenia with CHD patients who had experienced myocardial infarction. A total of twenty eight informants participate in this research study. Purposive (judgement) sampling was used for selection of the informants. The information was collected using the key informant interviews, free listing and pile sorting techniques.

This study was conducted in order to obtain information regarding the attitudes, behaviors and knowledge of CHD patients in Armenia. Analysis of the data uncovered the extent of the patients' rehabilitation and follow-up activities, specifically, factors which positively and negatively influence patients health after MI. Behavioral patterns of CHD patients and the psychological aspects of their health before and after MI are described. The information gained from this research will help to clarify the needs and preferences of MI patients with respect to follow-up care. This will be very important and helpful in reorganization of the rehabilitation service in Armenia.

## **INTRODUCTION**

### ***Background information***

Coronary Heart Disease (CHD) is one of the major concerns all over the world. It remains the leading cause of deaths and disability [1,2]. CHD accounts for almost 50% of all deaths and the largest number of days of hospitalization [3,4]. The impact of this disease on an economy of the country is also very large as well [2,5]. Trends of CHD in the past 20 years were different in different countries. In North America, Australia, wealthy countries of Europe and Japan the rates of CHD are falling. Conversely, CHD rates are increasing in many countries of Central and Eastern Europe. Such differences

in trends of CHD between and within the countries can be explained only taking into consideration the complex of the social, cultural and economic characteristics of those countries [2,6].

CHD is one of the leading causes of death and disability in Armenia as well. According to Ministry of Health/Armenia (MOH) data, the prevalence of the CHD in Armenia in 1995 was 5587.9 per 100, 000, and the incidence rate was 734.8 per 100, 000. The absolute number of death from CHD in 1995 was 13, 456 (357.88 per 100, 000). The number of myocardial infarction (MI) in Armenia is high as well. For 1995 the prevalence rate of MI was 54.3 per 100, 000, the incidence rate was 37.5 per 100, 000 and the number of deaths due to MI was 2342 (62.28 per 100, 000). These data are not adjusted for gender and age, that is why it can not be compared with international data.

According to literature CHD term includes several conditions, particularly, myocardial infarction, post infarction cardiosclerosis, chronic ischemic illness, heart failure, angina pectoris, and arrhythmia [7].

### ***CHD Rehabilitation***

CHD patients' rehabilitation activities exist all over the world [8]. The purpose of these rehabilitation activities is to improve the health status of patients who have had any kind of CHD problem, to help them to cope with the problem, to support them psychologically and with the help of some exercises, to improve their physical condition in order to enable them to return to their usual daily activities and live a normal lifestyle. According to WHO, cardiac rehabilitation is defined as "the sum of activities required to ensure patients the best possible physical, mental and social conditions so that they may resume and maintain as normal a place as possible in the community" [9]. Taking this guideline as a reference the U.S. Public Health Service defines the cardiac rehabilitation as a long-term comprehensive service program which involves medical evaluation, prescribed exercise, cardiac risk factor modification, education, and counseling and learning ways to live a healthier life. Conducting the program parallel with treatment the main purpose of this program is "to limit the physiological and psychological effects of cardiac illness, reduce the risk of sudden death or reinfarction, control cardiac symptoms, stabilize or revise the atherosclerotic process, and enhance the psychosocial and vocational status of patients. This combination of strategies is termed multifactorial intervention" [10].

Cardiac rehabilitation services are prescribed to patients with certain CHD problems such as myocardial infarction, chronic stable angina pectoris or recent coronary bypass surgery [6].

The outcome of rehabilitation service is the reduction of unhealthy lifestyle behaviors of the patients, improvement of their physical and psychological condition, reduction of stress and increased confidence in the future. Potential benefits include improvement in exercise tolerance, in symptoms, in blood lipid levels, in psychosocial well-being and reduction of stress and reduction in cigarette smoking [10].

### ***Rehabilitation Service in Armenia***

According to preliminary conversations with medical personnel from cardiological departments of different hospitals in Yerevan, the follow-up and rehabilitation of CHD patients is not done on a regular basis [11]. In many cases this lack of follow-up is due to the patients, who seek care their doctors only when they face some complication from their condition. This problem is exacerbated by the absence of a trained rehabilitation teams, consisting of therapists, nutritional specialists and psychotherapists, which can provide the patients with needed materials and advice.

There is, however, one rehabilitation center in Armenia which is located in Arzni, a city 18 km north of Yerevan. Arzni is a city of 3600 population and is located on Hrazdan river. There are four resorts in Arzni: pediatric; general; gastro enterological and cardiologic, where various types of patients are treated. The cardiological resort served an average of 450 CHD patients per year. The main contingent of this resort are patients with post MI conditions, rheumatism and post infarction cardiosclerosis. Following preliminary rehabilitation in the hospital, buses were used to transport patients straight to the resorts. MOH representatives reported that, previous to the dissolution of the Soviet Union this rehabilitation department received financial support from the government of the former Soviet Union and the patient did not pay for the treatment. Initially there were 30 beds, later increased to 60 free of charge. Now, due to the dissolution of the former USSR, the Arzni resort has to be financed from the governmental budget of Armenia. Because of the economic condition of the republic this is currently impossible. Currently, only the general and cardiological resorts are working, and these are only partially

open. According to conversations with former patients from this rehabilitation unit, the treatment was “effective” and they “feel themselves healthy for a long period of time” after treatment. Patients who want to pass rehabilitation services have to pay \$10 per day out of pocket. Very limited amount finances are provided by government for World War II veterans. The resort provided his services only three months (June, July and August) per year. The Arzni resort is in need of repair, but the financial means to do it are not available. This is the currently the only rehabilitation facility in Armenia.

### ***The Objective of the Study***

The purpose of this study was to conduct preliminary qualitative research regarding the attitudes, behaviors and knowledge of CHD patients in Armenia. Specific focus was placed on the extent of the patients’ rehabilitation and follow-up activities, specifically, exploration of the factors, which according to MI patients, influence their health positively and negatively after MI. One of the goals of this study was to clarify the attitude of MI patients towards re-establishment or reorganization of rehabilitation activities in Armenia and to identify what kind of support they expected to get there. Behavioral patterns before and after MI and the psychological aspects related to the condition after MI among CHD patients were also addressed. The information gained from this research can help to clarify the needs and preferences of MI patients with respect to follow-up care. This will be very important and helpful in reorganization of the rehabilitation service in Armenia.

## **METHODS**

### ***Background Information***

There are currently no published studies which investigate the rehabilitation activities for coronary heart disease patients in Armenia. Taking this into consideration the author chose to conduct exploratory qualitative research in order to understand the issues surrounding this topic. The methodology used includes specialized qualitative research techniques - ethnographic interviews, semi-structured interviews, free listing and pile sorting - for obtaining in-depth responses about what people

think and how they feel [12], in order to understand the attitudes, values, motivations and beliefs of the population under investigation [13].

### ***Study Population***

In this qualitative research the main source of information are informants. Informants are people who face the problem and whose information can be referred to [14]. Informants are people to whom easily can contacted interviewer, who catch the point of the information that interviewer sought, and who is glad to share his opinion with interviewer [15]. In appropriate understanding of the cultural language and making contacts with defined population the key informant's role is very important.

Purposive (judgment) sampling was used for selection of the informants. During this type of sampling informants are purposively selected based on individual criteria of the informants. According to literature purposive sampling is used in life history research and qualitative research on special populations [15]. In this investigation the population under study was patients who have experienced an MI.

A total of twenty eight informants participate in this research study. The inclusion criteria for the selection of informants were 1) experienced a MI in the period of January 1 - May 31, 1997 (regardless of being the first, second or third attack), and 2) having been hospitalized for this MI at any cardiological department in Yerevan.

General demographic information was collected for all informants. The age of informants ranged from 47 to 70, with a mean age of 58. All informants live in Yerevan except one who is from Armavir. None of the informants were currently working due to their heart condition (either on sick leave list, quit their jobs, or were already retired.)

### ***Data Collection***

The data collection was conducted during the period from July 14 to July 31 in Yerevan by five students from the American University of Armenia. The data collectors were trained in qualitative research theory and methodology. A list of potential informants was obtained from the cardiologic

departments of Yerevan Cardiologic Center, Erebuni Hospital, and Hospital #3 in Yerevan. A separate list of additional potential informants was obtained by telephone from Polyclinic #2 in Yerevan.

### Key Informant Interview

In order to get a better understanding of informants' experiences from their point of view, ethnographic interviews were conducted with eleven key informants who met the stated criteria. Preliminary contact with informants was done either by phone or directly. If the contact was done by phone the time and day was arranged for conducting the interview. Before starting the interview the consent form (see appendix 1) was presented to the informant, and after the agreement to participate, the interview was conducted. For conducting the interviews an ethnographic field guide was developed. In this field guide were topics and example questions to be covered in in-depth interviews. There was also an introductory statement and a form for demographic information. The questions were related to the MI event, to psychological aspects of the condition, to barriers and motivators for the follow-up and rehabilitation of CHD patients, and behavior - related questions (see appendix 2). Five initial ethnographic interviews were conducted at homes of the informants. Following these exploratory interviews, the field guide was revised in order to obtain more detailed information on certain key topics. Six additional semi-structure interviews were conducted using the revised guide in homes and polyclinic/hospitals. For some questions probing and iteration was used in order to get more complete responses. Each interview was conducted for approximately one hour. The interviewers took extensive notes during the interview. Interviews were conducted in Armenian and translated into English.

After each conducted interview the field notes were expanded into detailed reports with description of the interview, place and informant. Reports were entered in English on microcomputer. For data reduction all interviews were coded according to a coding system developed by the researchers and revised as needed [see appendix 3]. Preliminary domain analysis of key informants' interview data was conducted, followed by more in-depth analysis of specific codes that represented research questions posed by the investigators. Quotes were used to illustrate the ideas of the informants more clearly.

### Free Listing

The technique of free listing is a first step prior to the use of other systematic data collection techniques. Free listing was used in order to determine the items in a cultural domain from the point of view of the informant [16]. Free listing was conducted among fifteen informants. After analyzing key-informant interviews, two domains were selected for further investigation. The selected domains were 1) good things for health after MI, and 2) bad things for health after MI.

The informants were asked two primary questions 1) “In your opinion, in general, what can help you to feel good after the MI?” and 2) “In your opinion, in general, what things make a person feel bad after the MI?”

Responses of the informants were recorded on special forms. In order to clarify the answers of respondents a supplementary question was asked for each primary question. For the first question regarding good things after a MI, was asked the supplementary question, “Is this something you are able to do?”. For the second question regarding bad things after a MI, we asked the supplementary question, “Is this something that affects you?”

Tabulation and analysis of free list results was done using the Anthropac computer software program. Items are ordered by the number of respondents that mentioned the item [16], in order to determine the most significant items which influence the patient after MI. Data from free listing was further used for pile sorting. Items included were chosen based on the criteria that 20% of informants mentioned the item as good/bad for their health and heart condition.

### Pile Sorting

For further exploration of these two domains, the technique of pile sorting was used [16]. In order to get the informants’ point of view of the relationship between terms, and to understand the system for classification of free list items, single/free pile sorting was conducted among six informants. For pile sorting, items were selected which, according to free listing tabulation results, are the most salient for this group of respondents (twelve items for good things for health after MI and eleven items for bad things for health after MI). Special cards were prepared with the selected items mentioned on each. Each card had

a unique number on the back which was used for recording and further analysis of data. These cards were distributed to informants for sorting into piles. The informants were asked to sorted out good and bad things independent from each other (i. e., each informant did two separate pile sorting exercises, one with “good” factors and the other with “bad” factors). Before the informant began the pile sorting, the interviewer gave initial explanations of the procedure.

After pile sorting each informant explained the criteria according to which he sorted the piles. The results were recorded on special forms and used for further analysis.

The analysis of the results of pile sorting data was done using the Anthropac computer software program.

## RESULTS

From key informant interviews, we gathered information regarding different aspects of the topic under investigation. This information was grouped into domains using content analysis. This analysis revealed two major domains: factors that either negatively or positively influence the patients’ health condition after a MI. These factors are shown in Table 1.

**TABLE 1. Factors That Influence Health After MI**

Negative Factors For Health After MI	Positive Factors For Health After MI
<ul style="list-style-type: none"> <li>• Changes in lifestyle</li> <li>• Difficulties after the attack               <ul style="list-style-type: none"> <li>- carrying loads</li> <li>- abrupt movement</li> <li>- controlling of emotions</li> <li>- more irritable</li> <li>- being out of work</li> </ul> </li> <li>• Eating</li> <li>• Financial problems</li> <li>• Heat</li> <li>• Smoking</li> <li>• Alcohol</li> </ul>	<ul style="list-style-type: none"> <li>• Family members, relatives and friends support</li> <li>• Exercising</li> <li>• Work</li> <li>• Recovering in resort</li> </ul>



The results of the analysis of each item in these domains is reported below, in the order in which the items appear in Table 1.

In order to verify the information regarding these two domains and gain additional information as well, free list and pile sort exercises were also conducted. Results from these exercises are also presented below.

## ***Factors That Influence Health After MI***

### **Negative Factors**

When discussing difficulties that they face after the MI many informants responded that they were not the same person as before. They describe how their lifestyle changed after the MI.

I began to consider myself as an incomplete person.

Nothing was easy for me, I mean neither physically nor psychologically. I think that MI and, maybe many other diseases are stressful things. I began to consider myself as an incomplete person. I was thinking about death.

Informants mentioned different tasks or activities that, after the attack, became difficult for them to do, including carrying loads and abrupt movements (bending down, standing up from the bed, etc.). The major part of the day they spent sitting or lying down.

Before I used to lift heavy things. Now even 10 kg is heavy for me. I get tired easily. The doctor told me not to lift heavy things. I did not pay attention to that. I lifted a heavy thing and felt that it was not good for me. Everything was easy for me before the attack. Now the contrary. My life changed. I am not the same any more.

Before I enjoyed walking now I cannot. It is difficult for me to go up and down the steps.

The abrupt movements are not good for me.

Before I used to work from 6 a.m.-10 p.m. Now I am lying. Before I could make dough from two sacks of flour and bake a bread. And never felt myself bad. I always worked and now it is difficult for me not to, but now I am not able to work. I am disabled. I cannot even bend forward to take anything from the floor even if that anything is a piece of gold. When I bend forward it affects my heart.

I spend most of the day sitting or lying here (she shows the bed on which she is sitting). I can hardly walk. I am getting tired to walk or to do any homework.

Different people described different changes that occurred in their lives but this phrase sums up their psychological condition.

I am not the same person anymore.

There are no easy things for me.

Easier?- Nothing is easier.

All informants mentioned one psychological change that occurred: difficulties in controlling their emotions. Usually they realized that they had to be calm and not should get irritated but they were unable to control themselves. All informants mentioned that they became more irritable after the attack. The reasons for it were different. It could be noise made by children playing in the yard or family members who did not do things the way that they prefer, etc..

I become angry very often, even a little thing makes me nervous. I can not be calm. I have become very nervous. I live with my wife and younger daughter. They try not to make me nervous but even a little thing makes me nervous. What can a child do to me, but when even my little daughter plays in the room I try to go to the next room in order not to become nervous.

I am getting angry easily and much. We are living in a general yard and I get nervous from every little thing. Children's noise, neighbor's buckets everything annoys me. After the attack I have become more irritable.

The fact that they are not the same person, feeling the inability to do things that they used to do, makes them irritable and they become nervous about their current condition. Each respondent mentioned his/her own reason for being irritable, but the fact is the same; they all become nervous from things whereas before they did not or now they become nervous more often than before.

All of the informants, without exception, mentioned that the most negative impact on their health is the fact that they lost their ability to work. For people who have had active lifestyles, who worked before the attack, it became very difficult to stop working because of their condition. These people felt themselves useless and it caused irritation of their nervous system.

Mostly, I become nervous because I can not work. I always worked and always had great ideas to implement. I always was busy and now I can't work and it makes me nervous.

I felt very bad. I could not move. The fact is, I can not work normally. And it was very shocking for me, because I am still young and I would like to work as before. I was stressed.

I got accustomed to working and now this inactivity is suppressing me. I used to work near the computer for 8-9 hours a day.

I feel myself as if I am an "incomplete person". I enjoy hard working. I am not afraid of working, I feel myself uncomfortable without a work. I have been a healthy person and now I have lost the possibility to work. And all these are making me nervous, uncomfortable, irritable. I know that there are things which are forbidden, but for ex. I try to smoke, to drink coffee, even sometimes to hold heavy things and I do all these things in order to feel myself a complete person.

Some informants were in a very depressed condition and spent all day occupied with bad thoughts, others tried to keep a healthy psychological condition and overcome these problems by involving themselves in home activities.

Before I used to go to the market every morning. Now after this heart problem I am prohibited to go out. But I want to go back to my old habits gradually. I go out with the help of a stick, slowly, but my grandchild follows me immediately. You have to earn your everyday bread. When you came in I was busy chopping carrots for the soup. Since I am useless for outside activities I try to be helpful at home.

At present I am not working and that makes me feel miserable. Instead negative emotions fill my mind. I usually like to repair shoes and engage myself in shoe repairing. Sometimes I repair my grandchild's bicycle.

Some of the informants mentioned eating as a negative influence on their heart condition. The informants mentioned that after the MI they lost their appetite and felt themselves uncomfortable after they ate something.

My stomach aches and presses my heart. I am getting worse right after eating.

When I eat something I feel something pressure on my heart.

Right after MI I could not eat or drink anything. It was very difficult for me and, besides, I just was not hungry.

These informants preferred not to eat or drink in order to avoid uncomfortable feelings that they had after eating a meal. They tended to eat less food than before. Other informants mentioned that no changes occurred in their daily diet. They were allowed to eat everything if they were able. Doctor provided limited advice regarding diet. Specifically advises are about the increasing intake of fruits. Most informants responded that they did not follow this advice. Some increase their intake of fruits.

I eat everything. Nothing was changed in my diet as before and after the attack. Nothing was forbidden to eat. I was told to eat everything in little amounts, but frequently, and eat apricots a lot.

Almost all informants mentioned financial problems as a negative influence that each of them faced both in the hospital and after discharge. One respondent's quote can summarize all responses connected with financial problems.

First of all it is issue of money. Each procedure costs money. Only one injection costs 500 drams. And you can imagine what are the costs of other procedures.

This respondent was unconscious when he was brought to the hospital and when he regained his consciousness he said:

I immediately got into trouble; That is I began to think about my financial possibilities.

Another negative impact mentioned by informants was heat. All interviews were conducted in July, and most of the respondents mentioned that they felt themselves uncomfortable from heat.

I cannot sit in the sun. It seems to me that it takes my energy, that is why I always sit in the shade.

It is difficult to breath when the weather is hot.

Particularly heat is bad for my heart. It is very hard to breath when the weather is hot.

In response to the question “what things have a negative impact on your heart”, all respondents mentioned that they were informed that smoking and alcohol were bad for their condition, but not all of them were ready to change their behavior. Some of the informants, right after the attack, quit smoking and stopped drinking and have not started again. But the others continued the same lifestyle, even though they realized the harm that they were doing to their health. Some informants that had changed their lifestyle after the attack started to smoke and drink again after a short period of time.

After the MI I felt that it is harmful for my heart and I quit smoking immediately. It was my own decision, nobody forced me to quit smoking. Now I do not smoke and even hate the smell of cigarettes.

I never liked to smoke and now I do not smoke so much, but I smoke. After first MI I did not smoke for one year, but when I become nervous it made me a hard smoker. I started to smoke a lot but of course it does not soothe, but the first cigarette makes me better. In the last six months I smoked very much, about 40 cigarettes per day. After this MI the same situation. I do not have a need. If I stay at home I smoke so much because of nervousness. If I am alone at home I do not smoke I sleep.

### **Positive Factors**

Informants were asked to describe factors that positively influenced their health after the MI. They mentioned that the most positive factors for them has been the presence of their family members, relatives and friends. Some of the informants mentioned conversations with their neighbors as well. The presence of someone who was close to them helped them to cope with the condition and detracted them from bad thoughts, which most of the informants had after the attack. Overall, the presence of family can be considered as both a positive influence and a necessary kind of psychological support that informants needed after the event.

I liked when my neighbors or relatives visited me in the hospital or after discharge. I felt myself better talking with them. Children were visiting me every day and I was always very glad to see them. I liked to talk with neighbors to tell them about my problem and listen to their problems. I like to communicate with them.

Their kind attitude towards me, the quiet environment, when they ask about my health, how I feel, when my friends visit me, when I understand that they are interested in myself, about my health, when they show willingness to help. In this case I feel myself not alone, I feel that people need me, love me, wait me and this gives me energy to survive, to recover.

I always loved my relatives and wanted to see them. Whenever I see them I felt myself happy no matter how severe my heart aches.

These responses were similar to the responses obtained from informants when they were asked what kind of support they would like to get and from whom after the attack.

My children were always with me. My son-in-law supported me very much. They helped me to cope with my problem. In the hospital I thought that I would not recover. But my children's support helped me. They brought drugs and did everything that was necessary. Besides, they supported me psychologically. I felt then how they needed and loved me. They were always by my side willing to help, doing what doctor was saying to them. They were saying that everything would be fine, that I will recover. It was helping me.

The second factor that informants described as a positive influence on their health condition was exercising. However, although some of them walk or do limited movement of their hands most of the respondents do not engage in complicated exercises. The source of knowledge of the role of exercise on health was varied ( professional, doctor, literature), but most informants said that exercise would improve their health status.

We were instructed to walk 10 meters every morning there. But since I felt very healthy myself from nature I was walking 200 meters. Gradually I sped up my pace of walk and started to run. I was doing them on my own initiative. When a patient feels himself sick then he is lost. The most important thing is not to feel yourself a patient.

In the Intensive care unit I was prohibited to go to the toilet myself which was 12m far from my bed. I know from the foreign literature that walking is good for my condition. I was enjoying walking slowly, even 10 m.

I always do not do complicated exercises. I move my hands, legs, and arms always and it makes me feel better.

Some of the informants mentioned that work influences positively on their health condition. This issue appears to be one of the most important issues for them.

Work used to influence me positively. Now I cannot work.

I always prefer active work. I always like to repair something. I like to move. And work helps me.

Work helps me much. If I stay at home, I will get nervous.

The other thing that informants mention would influence them positively the was recovering from their condition. The way of recovering from their condition some of informants mentioned the attendance of the resort in order to have a rest and relax. The main CHD rehabilitation center in Armenia is in Arzni, which is a resort city. The additional question was asked to informants if they would attend the health groups for rehabilitation. "Would it be helpful for them and would it improve their health condition?" The majority mentioned the necessity of such activities in the recovery process. There are responses from people who have had attack before and pass this rehabilitation activities. According to the information got from them their the health condition after the rehabilitation course was improved for a long period of time and they were very satisfied from the attendance of this service.

I think it is necessary. Some of informants have had heart problems before and pass this rehabilitation activities. If such center will be established here it will be a great psychological support for such patients. It will increase self-confidence in the patients, you can feel that you are "under supervision" and will feel yourself more protected. I will suggest to have psychologists in this center, in order to bring these people into the same psychological condition as before the attack, to make them a "complete person" again.

I think, I would attend. But it would be more helpful for me after my first MI when I could walk. Now it would be a problem for me. I think that people like me would be pleased with this special "heart groups". I could talk to them and feel myself more supportive and complete.

I was in the physiotherapeutic hospital once and I felt myself well. I was in Arzni resort and again felt myself well for a long time.

Let me tell you a thing. I suffered three MIs. The first one was on 20 January 1980. The second was in August 1994. I never felt bad within those 15 years because right after the first attack I went to Arzni. I was very well and satisfied. The location and weather of Arzni is very good. If I had a course of treatment in Arzni that would be very good. I am missing Arzni

### ***Results from Free Listing Exercise***

Results from the free list exercise show a number of items that, according to informants, help them to feel good after the MI. Items mentioned by at least 20% of the informants were considered to be the most salient, and were used for further pile sort exercises. The results of the top twelve items are presented in Table 2.

The informants were also asked to mention bad things for health after the MI. The responses were tabulated and the top eleven most significant factors, which were mentioned by at least 20% of the informants, are presented in Table 3.

Complete lists from both free list exercises are included in the appendix (see appendix 3 and 4).

### ***Results from Pile Sorting Exercise***

The pile sort results for “bad things for the health after the MI” show basically 4 subdomains. These are shown in Diagram 1.

Explanations from the informants were given regarding their reasons for sorting cards into these specific piles. The items of pile sorting, which were represented in four groups are:

**Subdomain 1.** *“Things that are bad for health for everyone”*. This group includes alcohol and smoking as things that all respondents mentioned are definitely negative influences on the health condition of all people whether or not they are affected by MI.

**Subdomain 2.** *“Dangerous things that I stopped doing”*. This group include in it activities that MI patients feel makes their condition worse when they do it. Some of the informants mentioned that they know that these things are dangerous for their health after the MI and stopped doing them. These factors include going upstairs, raising heavy things and a long walk.

**Subdomain 3.** *“Problems that patients always face ”*. This group consists of difficulties in getting drugs and financial problems. These are described as very significant problems that all informants faced. Before the attack they faced this problem as well, but after the attack it became more severe, because all of the informants, with one exception, do not work currently and are unable to change their financial situation. This negatively influences their psychological condition and makes them suffer from it.

**Subdomain 4.** *“Directly caused by MI”*. Approximately all respondents mentioned that stress, becoming nervous and becoming angry are things that influence their health due to MI and before the attack they did not have such problems. These are major negative factors that influence them.

Results from pile sorting exercise about “good things for the health after the MI” (see diagram 2), show two major subdomains:



**Subdomain 1.** *“Healthy for everyone”*. This group contains diet, non-smoking, and medication.

According to our respondents these are things that are related to healthy behavior for all people and are important things for CHD patients after MI. But within this group non-smoking and diet are connected with lifestyle and for some respondents are not so easy to follow.

**Subdomain 2.** *“Good influence after MI”*. This second group contains the remaining nine items, which according to our respondents have a good impact on CHD patients after MI and are also important for them. Some subgroups could be seen within this subdomain. These include:

- 1) *“Keeping in motion”*- exercising, being in motion,
- 2) *“Things that required little effort”*- walking, fresh air,
- 3) *“Good financial condition”*.

Respondents separated out this last item, because they felt that it was something they can not change or influence in spite of the fact that it is very important for them.

## **DISCUSSION AND RECOMMENDATIONS**

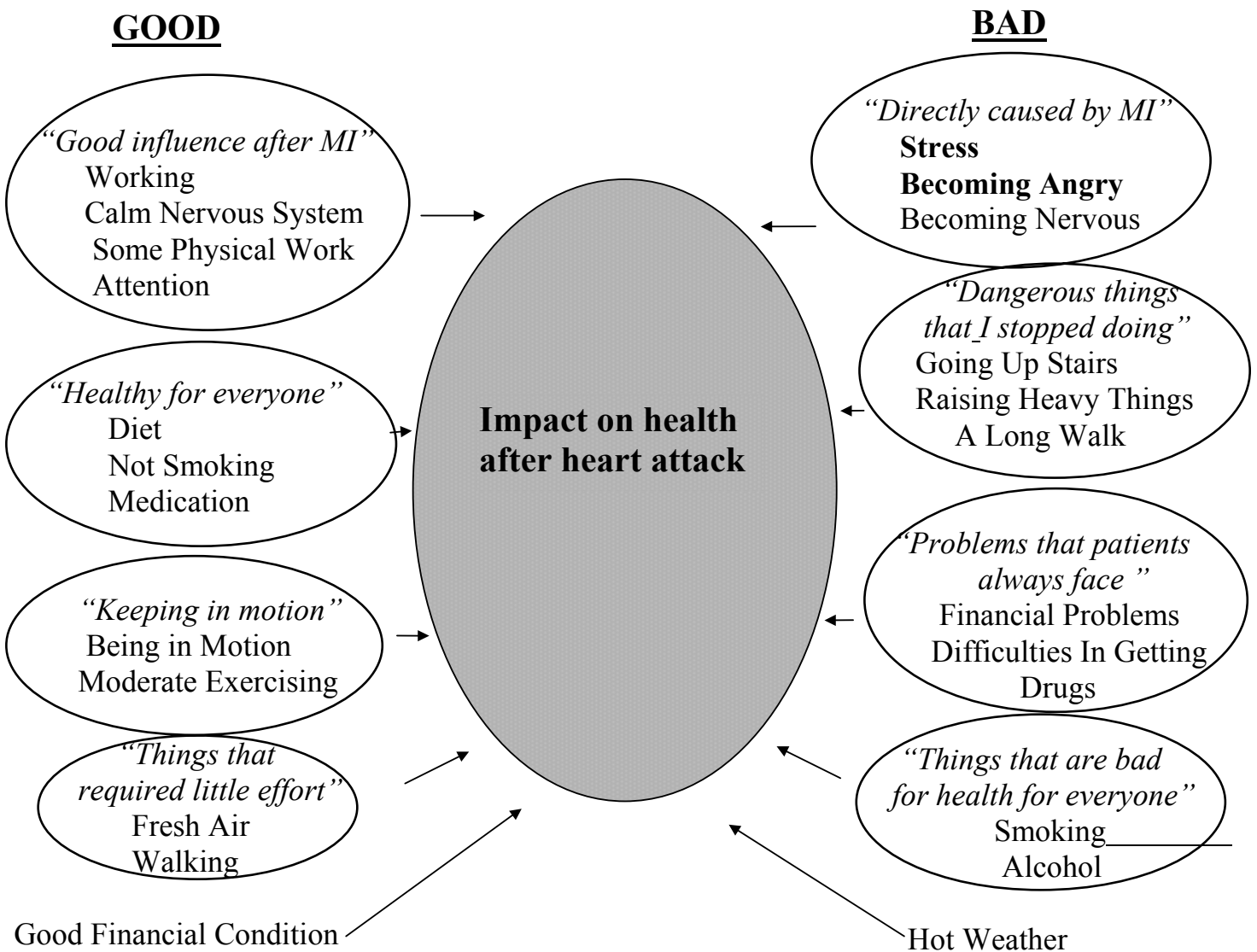
The results of this preliminary research provide a better understanding about the extent of MI patients rehabilitation activities in Armenia. The data suggest that a reorganization of rehabilitation activities is necessary and give ideas regarding which aspects should be focused on for follow-up care. Additional information was obtained about the behavioral patterns before and after the MI as well as psychological aspects related to the condition after the MI. Factors which, according to MI patients, influence their health positively and negatively after MI were explored. This information can help us to understand the needs of MI patients and can aid in planning the reorganization of the rehabilitation services for CHD patients.

Diagram 3 shows a summary of the results regarding factors that influence health after MI. These data are taken from key informant interviews, free list and pile sort exercises. According to the diagram, “good” factors that positively influence patients after MI are grouped by informants into the following subdomains: “good influence after MI”, “healthy for everyone”, “keeping in motion”, and “things that required little effort”. Informants also grouped into subdomains “bad” factors which negatively influence their health after MI. These subdomains are: “directly caused by MI”, “dangerous things that I stopped doing”, “problems that patients always face”, “things that are bad for health for everyone”. In “good” factors patients mentioned good financial condition and in “bad” factors hot weather as factors influencing their health but these items were not put into a specific subdomain.

There are definite things that have a positive psychological impact on informants, such as attention and support of family members, friends, relatives and neighbors. This point is very important and should be taken into consideration during the reorganization of rehabilitation services. For example, one of the family members could be present during the rehabilitation course in the rehabilitation center. In addition, the family members should be provided with some information about

DIAGRAM 3

### Factors That Influence Health After MI



the MI, factors that will improve the health condition after MI, and the rehabilitation activities which will help the MI patient to return back to the usual lifestyle.

Most of the informants mentioned difficulties connected with motion, such as raising heavy things, a long walk and going up stairs. They mentioned that after MI these things are particularly difficult for them to do. However, respondents also realized that they need some activities in order to keep them in good physical shape. As “good things for their health after MI” patients mentioned being in motion and moderate exercising, and some even performed simple exercises in order to add some physical activity into their passive lifestyle. Informants who from a previous MI had the opportunity to receive rehabilitation services in the Arzni rehabilitation center, mentioned that they did some physical exercises, but that these exercises did not take into consideration the individual’s needs. Data from the literature indicates that exercising increases the physical fitness of a cardiac patient. For heart patients, exercise lessens the risk and severity of another attack [17, 18]. The above -mentioned demonstrates the need to increase the role of exercise in Armenia cardiac rehabilitation programs. Although patients’ exercising behavior can be the most difficult behavioral patterns to change [19], it is one of the most important parts of rehabilitation, and can be performed in rehabilitation services in Armenia.

Factors such as stress, becoming angry and becoming nervous were perceived by respondents as having a great impact on their health after MI. They all become very irritable, and as one of the respondents mentioned “even my small daughter, when she play in the room makes me angry without bothering me at all”. All of the informants mentioned that after the MI they became very irritable. According to their responses, they are unable to control their emotions. This suggests the need for support from a trained specialist. In addition to this most of the informants currently do not work and have a passive lifestyle. Several described themselves as “incomplete”. Informants had no idea about the range of support activities that are used for CHD patients to cope with their emotional condition. The presence of a psychologist in a CHD rehabilitation team could potentially help to alleviate some of the emotional distress they described.

Informants mentioned that financial problems and difficulties in getting drugs influenced them negatively. Unfortunately, financial problems are common in the population of Armenia over the last 7-

8 years due to the economically unstable condition of the republic. Because of recent reforms in the health care system this situation will only become more severe in the next few years. Financial problems are one of the major reasons given by respondents, that follow-up care is not done on a regular basis. Patients will usually only apply to the doctor when there are problems connected with their health condition. Patients do not even consider further rehabilitation in special resorts such as Arzni because of financial constraints.

All of our informants said that smoking and alcohol are harmful for their heart. However, some of them do not quit smoking, but only decrease the amount of cigarettes smoked per day after the MI. These respondents describe no intention of quitting smoking or lowering alcohol use. This is a possible area for intervention in order to change the behavior of MI patients regarding these issues. The intervention can be through advice from doctors, or providing some educational printed materials regarding healthy lifestyle for MI patients. These printed materials could include not only smoking and alcohol consumption, but healthy diet, necessary exercises and other issues which will help MI patients to improve their health condition after the MI.

An important objective of rehabilitation is to increase the patient's quality of life [7]. It seems, from informants' responses that the quality of life of the people who have had MI is in very poor condition, not only financially, but psychologically as well. Most of these people have lost their jobs and confidence in the future. During free list and pile sort exercises all of the informants, with one exception, mentioned that working is good for their health condition, but none of them are working now. To address both of these issues - financial problems and lack of work - rehabilitation activities could include teaching some traditional craft work such as stone sculpting, woodwork and weaving. On the one hand, these kind of activities do not require much effort to do, so will not affect the health condition of MI patients. On the other hand, it could help the patients to feel themselves useful. Another important potential aspect of this will be improvement of the financial conditions of the patients.

### ***Recommendations***

One of the goals of this study was to clarify the attitude of MI patients towards re-establishment or reorganization of rehabilitation activities in Armenia and to identify what kind of support they expected to get from rehabilitation activities. As mentioned above, in Armenia the cardiac rehabilitation and follow-up care of MI patients is not provided on a regular basis. Currently there are not rehabilitation teams in Armenia. There are some nutritional specialists, therapists in different Yerevan hospitals and physiotherapeutic institute. This is similar to reports from the literature which say that only eleven percent of CHD patients were estimated to have participated in formal cardiac rehabilitation programs. The existence of the rehabilitation activities does not mean regular or appropriate use of it by the patients and physicians [18]. Likewise, the re-establishment of the rehabilitation service is not enough. There is need for a system for bringing patients who need rehabilitation services together with the particular services they require [10, 18].

Recommendations for the reorganization of rehabilitation activities in Armenia that are presented in this study can be summarized as follows:

- formation of rehabilitation teams to work at cardiac center. Teams should include a psychologist for providing emotional support;
- inclusion of activities that are supportive to families of MI patients;
- individually - designed exercise programs for MI patients;
- development and distribution of printed material to MI patients;
- emphasis on MI patients to work craft works.

The economic cost of having the rehabilitation centralized resort in Arzni will be very high and current financial situation of the republic and financial problems of population will not allow them to pass the rehabilitation activities there. So it will be not feasible. It will be more feasible to have these rehabilitation teams in the hospitals which have cardiac departments. It is recommended that the developed printed materials and advice to CHD patients will be distributed in the hospitals before discharge.

## **LIMITATIONS**

One of the limitations of this study is the generalizability of the data. However, generalizability is not the purpose of qualitative research. Qualitative research methodology is used in order to get an idea of the range of perceptions about existing rehabilitation activities in Armenia and patients' concepts about it. Another limitation of the study is the fact that for free listing and pile sorting, the number of people that were interviewed is low. Again this was done basically to give us an idea about how people categorize items in a domain.

## **CONCLUSION**

This is the first qualitative study in Armenia looking at this topic of the existing attitudes, behaviors and knowledge of CHD patients in Armenia. This qualitative information will help to focused further intervention follow-up of CHD patients. Specifically, the formation and training of a qualified rehabilitation team, consisting of a physician, nurse, physical therapist, psychotherapist, and nutritional specialist would be major part of this intervention. In addition, it is important to develop and distribute printed materials to CHD patients in order to increase the knowledge of patients and their family members.

Taking into consideration the responses of informants who have had passed the rehabilitation treatment these teams have to be allocated in the hospitals in order to increase the access of the patients. But as informants stated the barriers are not only the invalid condition of the rehabilitation center and low quality of rehabilitation services, but the financial issues as well. Taking into consideration the high prevalence of CHD problem and the harm that society gets from it becomes very important to find the financial support for solving the MI rehabilitation problem on governmental level.

As this was only the first step of investigation of CHD rehabilitation activities in Armenia, further exploration is necessary. Specifically, it is important to focus on the results of this , and conduct quantitative research in order to obtain generalizable data.

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