

The Emergence of New Cycles of Marital Adjustment Following the Myocardial Infarction: A Qualitative Study

Mahdiah Sarhadi

Kerman University of Medical Sciences

Ali Navidian

Zahedan University of Medical Sciences

Roghayeh Mehdipour Rabori

Kerman University of Medical Sciences

Esmat Nouhi (✉ e_nuhi@kmu.ac.ir)

Kerman University of Medical Sciences

Research Article

Keywords: Marital adjustment, myocardial infarction, spouses

Posted Date: September 7th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-765278/v1>

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Abstract

Background: Living with cardiovascular diseases can make significant changes in continuing marriage and marital adjustment. Therefore, the present study examines the effects of myocardial infarction on couples' relationships and aims to explain how to create new cycles in couples' marital adjustment following infarction.

Methods: To this end, in-depth semi-structured interviews were conducted with six patients with myocardial infarction and seven spouses with a mean age of 54 years in two teaching hospitals located in southeast of Iran in 2020-2021. Interviews were immediately transcribed and content-analysed on a contractual basis. MAXQDA2020 was used to classify the data, and data analysis was performed using the proposed Lundman & Graneheim method.

Results: The results showed that couples began to redefine marital interactions, re-evaluate life, optimize decision-making processes, and better manage their marital conflicts after the disease.

Conclusion: The present study showed how the disease breaks down the structures and interactions of couples. Couples create new changes and cycles in their marital life to maintain and survive together after passing the acute stage of the disease to develop their marital adjustment process. Therefore, considering the positive cycles created, the present study results can be used in health education, nursing caring, organizing consultations, and designing supportive interventions for patients with myocardial infarction and their spouses.

Background

Coronary heart disease is known as the most deadly cardiovascular disease(1). About five million people have these diseases every year, and every minute, one person dies from myocardial infarction (2).

As the prevalence and complications of myocardial infarction increase, more patients may experience disability(3). However, these complications are limited to the patient and affect social relations, occupation, and family income level (4, 5). Thus, couples experience the effects of this chronic disease throughout their relationship(6). Today, the quality of marital relationships has been considered as one of the main areas of quality of life (7).

The quality of the marital relationship is a measure of the spouses' mental awareness of satisfaction, happiness, and stability in the marital relationship and a general sense of relationship effectiveness. It is described by concepts such as satisfaction, compatibility, marital bliss, integrity and commitment, intimacy, and trust(7, 8).

Marital adjustment is a changing process and a set of four aspects of the couple's performance in married life. It includes the couple's satisfaction with the current state of the marital relationship and

commitment to its continuation, the couple's union, agreement on arranging essential life and marital relationships, and expression of emotions in the family environment (9, 10).

A review of the concept of marital adjustment shows that this concept is consistently used to refer to the necessary processes to achieve a harmonious and functional marital relationship(11). Each member of the family, especially the couples, is ready to change themselves in some aspects and give up some of his wishes to meet the demands of the other party(12). Marital adjustment means accepting marital duties and managing to perform tasks assigned to the spouse, allowing couples to play their role according to socio-economic background, emotional stability in marriage, sexual adjustment, value system changes, Communicate, etc(13).

Tajik Safa, quoting from Halford, Markman & Kelly (1997), describes the features of couples with marital adjustment as follows:

These couples usually increase their positive marital interactions, communicate effectively, and manage their marital conflicts well. In addition, they pay special attention to their spouse and have a common and positive understanding of their relationship(14).

Reviewing marital adjustment studies from the 1920s to the 1970s, researchers found that this phenomenon is a dynamic process that can be evaluated at any point in time on a continuum from fully compatible to incompatible. Thus, marital adjustment is a multidimensional concept that considers the individual and his relationship with his spouse and has more objective features than marital satisfaction(15, 16). Accordingly, the success of couples' lives lies in managing to adjust to each other, and the couple's incompatibility can lead to conflict and tension(17).

For this reason, in the current decade, marital satisfaction and adjustment and its relationship with various aspects of human life have been extensively studied by psychologists(18). These studies show the association of marital adjustment and life satisfaction with marriage duration(19), marital satisfaction(20), quality of life, and family functioning(21).

This phenomenon is one of the most critical factors necessary to achieve a desirable life(22) and affects the survival, durability, and better development of relationships in the family(23).

However, some studies found that myocardial infarction can severely affect intimate relationships between couples, and the patient's spouse may be positively or negatively affected by the disease(10, 24). For example, part of the results of Arenhall et al.'s study (2011) showed that the duration after the disease, some women experienced a closer and more intimate relationship with their husbands; they understood each other more than before and were satisfied. In contrast, two-thirds of the women surveyed reported less concern and expression of intimacy with their husbands(25). In this regard, the results of Sarhaddi et al.'s study showed an adverse effect of myocardial infarction on the relationship quality, sexual excitement, and love between couples(26).

Further, studies have confirmed the association of marital adjustment with income, hope for treatment, and spouse companionship during treatment with different clinical outcomes and longevity(27). In this regard, we can refer to the study of Latifnejad Rudsari et al (2012)(28). Mostafa et al. (2012) showed a relationship between better marital adjustment and declining disease progression(29).

On the other hand, understanding the relationship between marital adjustment and illness reveals the importance of spouses' presence with patients in therapeutic interventions(17).

Therefore, all family members, especially spouses, should provide favourable conditions for the patient and promote hope to continue living, express their feelings towards each other and try to have an excellent relationship to accelerate the recovery process(12).

Therefore, considering the importance of marital relationships, couples relationships, and disease's impact on different aspects of couples' lives, effective methods should be used in patients with myocardial infarction and their spouses. Thus, as Ganong & Coleman (2014) emphasize, qualitative study is the best way to investigate the dynamics of family relationships and provides extraordinarily more prosperous data than the quantitative approach. It goes beyond the quantitative approach to achieve some research goals; because, in the qualitative approach, the phenomena are not considered objective and fixed. They are different based on their context(30, 31). Therefore, considering the wide range of impacts of myocardial infarction on various aspects of couples' lives and especially their marital adjustment following illness, the present study aims to explain how to create new cycles in the marital adjustment following myocardial infarction.

Methods

Study designs

The present qualitative study was performed in the hospitals affiliated with the University of Medical Sciences located in southeast of Iran in 2020-2021. The marital adjustment was assessed following myocardial infarction. Conventional content analysis is a suitable method for obtaining valid and reliable results from textual data. This method seeks to collect data from participants who have sufficient information and experience in the field of study. Therefore, in the present study, using this method and in-depth analysis of experiences and behaviors in the real world, the desired phenomenon has been explained.

the characteristics of participants :

Participants of the present study included spouses and patients with myocardial infarction. In this way, after obtaining the necessary permits by referring to the centre's mentioned above and reviewing the patients' files, couples with a history of myocardial infarction were selected. The researcher was well aware that marital adjustment is a changing and evolving process between couples. After the acute phase of the disease and referring to the hospital for further treatment and annual check-up's, the

researcher asked them to participate. These individuals were selected from those who had at least the following features: they were able to communicate verbally, were diagnosed with myocardial infarction, were over 18 years old, were married at the time of the study, and were living with their spouse and at least six months have passed since the myocardial infarction of themselves or their spouse (husband or wife). After selecting the participants, informed consent (written and oral) was obtained from the patient and his wife for the interview. Interviews were conducted where couples felt relaxed (whether in a hospital room, nursing school, or after discharge from a participant's home). A total of 13 participants, including six patients (M=4, F= 2) and seven sick spouses (F=5 and M=2) with a mean age of 54 years, were interviewed for six months. Attempts were made to select a wide range of couples with different features in sex (female, male), education, medical history, and duration of the marriage, the severity of the disease, and having or not having a child. The sampling continued until the information saturation, i.e., until the completion of all codes and categories, and the new interviews did not add any new data to the previous ones.

Data collection procedure:

The main method of data collection in this study was semi-structured and individual interviews with each of the participants. In addition to semi-structured interviews, observation, field notes and Memos were also used. Before starting the sampling and after reviewing the important points that should be considered in the interview, the design of the consent form was based on the latest recommendations for preparing the consent form in qualitative studies. After designing the consent form, data collection began with obtaining a reference letter for hospitals affiliated to Zahedan and Kermn University of Medical Sciences. Then it continued with the permission of officials and participants and filling out the consent form by them. After explaining the purpose of the research to the participants, the interviews were conducted through two-way dialogue.

In this study, interview with the first participant were conducted in a non-structured manner. The researcher tried to have the least involvement in the interview process. At the same time, the researcher used the interview guide to master the situation and keep the questions relevant for the purpose of the study, the interview progress and analysis. Subsequent interviews based on the interview guide, which was designed based on the first interview, continued in a semi-structured manner.

Therefore, two guides for interviewing patients and for interviewing spouses were designed. The questions of these two guides explain the meaning of marital adjustment and couples' experiences to achieve marital adjustment after myocardial infarction. The interview started with general and straightforward questions to start the discussion and communication. Questions about background information, diagnosis, and treatment were asked. The interview continued with a few open-ended questions for the participants to express their feelings, thoughts, and experiences with their words and expressions. These questions included the problems in life after the diagnosis and spouses' experiences in solving these problems?

How did you deal with this disease and with your spouse after being diagnosed with myocardial infarction? To what extent have you agreed on primary duties and marital tasks (such as division of labour, leisure time, participation in important life decisions, child marriage or shopping, marital relationships and privacy, type of interaction with family and friends) after the incidence of myocardial infarction in your spouse?

Then, the following questions were asked to continue and complete the interview and access richer data based on the type of answers of the participants. Also, as needed in the continuation of the interview, exploratory questions such as "can you explain more? What do you mean?" At the end of the interview, participants were asked to comment if anything was missed. The interviews were conducted in one or more shifts depending on the time limit and patience of the participant, the obtained information, and the participants' willingness. The interview took 45-90 minutes, depending on the circumstances and tolerance of the participant. All interviews were recorded with written and oral consent and then transcribed verbatim 24 hours later. MAXQDA2020 was used to store, manage and reconstruct the data. The initial data were analysed and coded before the following interview.

Data analysis procedure

Data were analysed based on the method proposed by Graneheim & Lundman, who suggested the following five steps for qualitative data analysis: 1) writing the whole interview immediately after each interview, 2) reading The whole text of the interview to get the gist of its content, 3) determining the units of meaning and primary codes, 4) classifying similar primary codes into more comprehensive classes and 5) determining the content hidden in the data(32, 33). The study was immediately handwritten and typed word for word immediately after each interview, then the written texts were reviewed several times, and the initial codes were extracted. After that, the related layer codes were merged and classified based on the similarities, which finally extracted the concepts hidden in the data. Obviously, during the analysis, many codes were replaced and namely classified.

Four validity indices were used to validate the research data (Goba and Lincoln (1989). These criteria included: validity (acceptability), dependability (reliability), validity, and transfer, which are explained below how to comply and achieve them(34).

Researchers used specific qualitative research methods such as ongoing involvement with the subject and data and review by participants (Member Check) to ensure data credibility. The researcher established a long-term relationship with the participants that helped them gain their trust. In addition, after forming primary codes, participants' feedback was used to assess the accuracy of the codes, and interpretations and if the codes contradicted the participants' opinions, they were modified. The researchers used continuous data comparison, code review, and sampling with maximum diversity among participants.

For dependability, the opinions of an external observer were used; all the codes and themes of the present study were provided to other professors (External check, peer check) to investigate further and increase

their strength. Any existing contradictions and defects could be reviewed and amended to reach a final consensus.

For Conformability, all activities were recorded, and a report of the research process was prepared. Finally, for transferability, the results were shared with two patients and two patients' spouses outside of the study and had the same conditions as the participants. They confirmed the data. In addition, the confidentiality of all interviews was observed. It should be noted that MAXQDA2020 was used to analyse the data.

Results

The results of this qualitative research were divided into four main themes and 19 sub-themes, which are described below. (Table No. 1).

The main category	Sub category
Revaluation of life	<ul style="list-style-type: none"> Accepting a sick spouse Understanding each other Lowering couple expectations Assigning and cooperating in tasks
Redefining couples interactions	<ul style="list-style-type: none"> Disregarding some issues Prioritizing and replacing important issues The emergence of some values
Optimization of the decision process	<ul style="list-style-type: none"> Participating in financial decisions Participating in family decisions Lifestyle upgrading decisions Having secret agreements
Effective management of marital disputes	<ul style="list-style-type: none"> Expressing issues and problems to prevent conflicts in the family Expressing fears and worries Apologizing to each other Providing alternative solutions Increasing empathy and sympathy Accepting mistakes and forgiving each other Focusing on the realities of life Avoiding reacting and increasing the flexibility of using politics and resolving marital conflicts

Redefining pair interactions:

The first central theme was the redefinition of couple interactions consisting of sub-themes (accepting the patient's spouse, understanding each other, lowering the couple's expectations, assigning tasks), which are described separately below.

a) Acceptance of the patient's spouse:

Couples need to re-assess their couple interactions after the illness to achieve adjustments. For this reason, in the first place, a healthy couple makes every effort to accept their sick spouse and believe that their spouse is no longer a healthy person and may have physical and spiritual problems. In this regard, one of the participants said:

"... I have admitted that my husband is ill from now on" (Patient's wife, F= 54y, I=7). This kind of acceptance and attitude to couples help accept the existing realities so that the disease leaves positive effects despite its inherent adverse effects. For instance, it increases the tolerance of couples and makes them accept each other with all defects.

b) Understanding each other:

The couple tried to understand each other better. In this regard, one of the participants said: "He gets angry, he gets upset, he loses his temper, and then calms down (Patient, F=41y, I=6)

Participant No. 7 stated in the field of patient perception: "... I understood him and then So was I" (Patient's wife, F= 54y, I=7).

c) Lowered couple expectations:

Illness can also make unexpected differences in couples' expectations before and after the disease. So, the couples try to lower their expectations to an acceptable level. In this regard, one of the participants said: "... Expectations before the disease were utterly different from those after the disease. Before the illness, our least expectation was to make ends meet and have a relatively luxurious life, but then I lowered my expectations (Patient's wife, F= 50y, I=5)

d) Assignment of tasks and cooperation:

Other changes that took place with positive trends between the couples and somehow improved the interactions between the couples include the division of tasks and cooperation with each other. In this regard, participant No. 11 stated: "... I do the work of the shop, but he does the shopping for the shop[...]. After the illness, we helped each other more than before. (Patient's wife, F= 35y, I=11)

Participant No. 12 stated, "we had divided the tasks among ourselves, and we did not have conflicts and disputes ..." (Patient's husband, M=66y, I=12).

Revaluation of life:

Couples began to re-evaluate life after illness and in the process of creating new cycles to achieve marital adjustment. In this complex and tortuous process, couples jointly examined the inner values of their lives. So, what used to be valued for couples lost its value after the illness, and couples tried to have another alternative. So other issues become valuable.

a) Disregarding some issues:

Having sex is one of the issues that lose its value after the disease, especially in couples who have been living together for several years. Couples tried to overlook the shortcomings due to illness. This case was more common in couples that the husband had the disease and the wife had decreased sexual desire due to frequent births and menopause. In this regard, one of the participants said: "... we had already sexual relationship frequently, but it loses its importance after a certain age (Patient's wife, F=50y, I=5). Participant 9 stated in this regard: "... sexual intercourse becomes a routine and repetitive work ..." (Patient's wife, F=50y, I=9).

The reduction of the couple's sensitivities and the insignificance of some issues were related to sexual intercourse and many other issues that were earlier important for the couples and sometimes even caused conflicts between the couples after the disease. Another participant said: "He used to inform me after making a decision, and it caused conflict, but now I disregard it» (Patient's wife, F=47y, I=3)

b) Prioritizing and replacing more important issues.

Couples began to prioritize and replace important issues in the process of revaluation in life. Thus, to maintain and sustain their lives, they replaced the less important issues with more valuable and important ones.

The marital relationship is one of the main issues whose priority and importance in the couple's life had changed and replaced with emotional attachments. In this regard, one of the participants said: "... Well, after 30 to 40 years of partnership, you get used to being with whose absence is annoying. So it brings love, no matter sex exists or not" (Patient's wife, F=50y, I=5). In this regard, another participant said: "... I try to entertain myself, because when a person is alone at home, he may think more about these issues. Now I found a part-time job, working as an accountant. Doing so will take my mind off this issue to some extent ..." (Patient's husband, M=62y, I=13)

c) Emergence and prioritization of some values

In the process of re-evaluating life after the illness, some issues had been highlighted and bold for couples. In this way, the couples thought about issues and cases after the disease they had never regarded before. However, the couple's presence and absence became important after the incidence of disease, especially in confrontation with death and the problems of the disease. They were concerned about what would happen to the other if one of the couples was not there. One of the participants in this

regard said: "... We think about issues that we did not care about before, what would happen if one of us was not there (Patient's wife, F=50y, I=9)

The couples realized the value and importance of their spouse's presence in their married life and considered it more important and valuable than anything else. In this regard, another participant said: "... after the illness; he figured out that just his wife accompanies with him, not sisters and brothers..." (Patient's wife, F= 50y, I=5). Participant 4 said in this regard: "... until the incidence of the illness, we were constantly trying to interfere in each other's work, but the illness made me value him at least" (Patient, M= 57y, I=4).

Optimization of the decision process:

Other results of this qualitative study include the optimization of decision-making processes in couples after illness, which is described in the following sub-themes.

a-Participation in financial decisions:

After the illness, due to the disruption of the family structure, changing roles and responsibilities, financial and economic problems, and the decision-making processes in the family had changed. In this way, the couple made changes in their financial decisions. They included reducing unnecessary living costs, participating in financial decisions, and considering patient treatment costs. In this regard, one of the participants said: "... I had to reduce family expenses, spend less, wear less and eat less" (Patient's wife, F= 50y, I=5). Another participant said: "... I often reduced the costs so that we would not have difficulty in paying for the treatment costs" (Patient's wife, F=47y, I=3)

b- Participation in family decisions:

After myocardial infarction, couples changed their decision-making styles and began to involve each other in family decisions. In this regard, participant No. 11 stated: "... we usually make decisions with each other, previously he made his mind alone..." (Patient's wife, F=35y, I=11)

c- Lifestyle upgrade decisions:

The couples began making decisions that improved their lifestyles. They began to observe health issues and change some habits in life. In this regard, one of the participants said: "... Well, we tried hard to make life last; you have to change lost of habits, first of all, living habits. You try to be less greedy, less angry ... "(Patient, M=57y, I=4) Or participant number ten said: "... if I did not observe a healthy lifestyle, I would lose my life ..." (Patient, M= 75, I=10).

d- Having secret agreements:

The couples sometimes made secret agreements to optimize their decision-making processes; they acted at the family level based on these agreements. In this regard, participant No. 13 stated: "...We made the

decisions together, but the lady has the last say" (Patient's husband, M=62y, I=13)

Effective management of marital conflicts:

The present study showed that couples managed and resolved their marital conflicts more effectively to achieve marital adjustment after the illness. The conflicts are rooted in the past of couples' lives. Thus these conflicts were managed effectively after the disease. Although functioning and resolving conflicts varied from couple to couple, but in some cases, there were similarities between the methods used by the couple, which are as follows:

a)Expressing issues and problems to prevent conflict in the family:

One of the things couples did after the illness was beginning to express problems because of feeling intimate. Some cases were rarely seen among couples before the disease but became more pronounced after the disease. It is worth noting that expressing problems and discomforts at the beginning of disputes reduces the misunderstandings between couples and, on the other hand, makes couples get closer and increases marital intimacy between them. Couples used different ways to express problems. For example, one of the participants in this regard said: "... Whenever there was a problem, my lady would express the reason for her sadness directly in a not and give it to me..." (Patient's husband, M=66y, I=12).

b) Expressing fears and worries:

Couples showed a strong desire to share their fears and anxieties after illness so that they could respond to their inner need to get comfort and relief from their spouse. In this regard, participant 7 stated: "... My husband said that what would I do if he died? I asked him to stop thinking about him ..." (Patient's wife, F=54y, I=7).

c) Apologizing

The apology was another method that couples used to manage marital conflicts and solve their marital problems effectively. In this way, they no longer looked at everything through their lens, and sometimes they looked at their interpersonal problems through another lens. So, if they felt that they were judging unilaterally or the viewpoint of another party was better than theirs, they accepted the truth, improved the relationship, went further, and apologized. However, this case was more common among couples where the dominant person never admits their mistakes or even did not consider their spouse's opinion in many cases before the illness. In this regard, one of the participants said: "... I'm upset now, he guesses from my facial expression that I was upset, if he understands that I'm upset by his actions, he will apologize ..." (Patient's wife, F= 50y, I=5)

Participant 14 said: "... Later that he returned to life; he apologized because I was upset [...] We have not had many fights and conflicts since that day ..." (Patient's wife, F= 35y, I=11).

d) Providing alternative solutions:

Another problem that has continually arisen between couples was that one of the couples played a pivotal and dominant role in making the decisions. Sometimes the husband did not ask his wife's opinion on the issues, which would cause problems after the other person understood the issue. For this reason, couples tried to make changes in their behaviour and attitudes after the illness. One of the main changes in the couple's relationship increasing advice and consultation. In this regard, participant 7 stated: "He lets me know about everything he wants to do, he asks my opinion and consults with me ." (Patient's wife, F= 54y, I=7)

e) Increase empathy and sympathy:

Couples always tried to accompany each other in marital problems, settle life's difficulties, always count on each other and support like two loyal friends. They tried to explore their common concerns appropriately and find a solution for each other. Couples were sensitive to each other's feelings and emotions, so if one of them was upset and worried, the other person would do his best to withdraw the grief, sadness, and worry. In this regard, one of the participants said: "...I did not feel well so that my wife was worried about me ... " (Patient's husband, M=62y, I=13)

f) Accepting mistakes and forgiving each other:

In addition to empathizing with marital problems, couples have used other strategies to resolve marital disputes effectively. When there is a problem between couples, they usually try to inspect the aspects of the issue and take the blame if they have misunderstood part of the problem. For this reason, the couples had given up their false pride and consider their partner right in addition to accepting their mistakes, an issue that was rarely observed at the beginning of married life and the couple's lack of acquaintance with each other. He says, "Yes, you are right. You helped me with financial issues I was wrong" (Patient's wife, F= 50y, I=5)

g) Focusing on the realities of life:

To effectively resolve marital conflicts, couples sometimes found the only effective way to overcome marital conflicts is to focus on the realities of their lives and thus make their spouse informed of their mistake. In this regard, one of the participants said: "I told him that I was not your captive; I am your wife, not your servant..." (Patient's wife, F=50y, I=5). Participant No. 14 also commented: "... Early in my life, we lived in my father in law' s house, and I was upset about it. I wanted to be independent. I told my husband and he conveyed it to his parents, they got upset, Now were are detached but adjacent to them" (Patient's wife, F=35y, I=11)

h- Avoiding rush reaction and increasing the resilience:

The couples tried to increase their tolerance level after the illness and did not show emotional and rush reactions due to the increased tolerance in marital conflicts. In this regard, participant No. 11 stated: "... they stand and tolerate, even though it is difficult" (Patient's wife, F=35y, I=11)

i- Using politics and resolving marital conflicts:

The use of politics was another thing that couples used to resolve their marital disputes. In this regard, the participant of number thirteen stated: "... Thank God, my wife is a tactful woman, if there was a conflict between her family and me, she settled it tactfully" (Patient's husband, M=62y, I=13)

Discussion

The results of the present qualitative study showed that myocardial infarction could excel the relationship between couples, despite the many adverse effects it has on various aspects of couples' lives. Emotional shock and the possibility of losing a partner's life caused constructive cycles in couples' relationships and thus marital adjustment. In the present study, the four main themes of redefining marital interactions, revaluing life, optimizing the decision-making process and effective management of marital conflicts were discussed.

Redefining marital interactions

Couples have used various strategies and solutions to achieve marital adjustment in proportion to the changes that have taken place in multiple aspects of their personal and social lives, including the changes they have made in each other's interpersonal interactions. It should be noted that interaction is an integral part of the marital relationship, like any human relationship, and marital adjustment is one of the criteria for the success of couples' interaction(31).

(2016) Moran et al.'s study concluded that adaptation results from the ability to interact with others(35). Therefore, relationships that lack the necessary conditions provide incompatibility between couples(36, 37).

This qualitative study showed that a healthy person makes every effort to accept his spouse despite all the defects and disabilities developed after the illness. This issue is so crucial that encouraging mutual acceptance and teaching realism are included in discussing training appropriate communication skills to spouses(12, 38). Carl Rogers believes that unconditional acceptance from others develops the personality of that person.

The findings of this part of the qualitative study are consistent with the study of Namvaran et al. They showed that, in an effective marital relationship, couples accept each other as they are and do not try to change each other's characteristics(31).

On the other hand, couples began to understand each other after the illness. Studies suggested that understanding the spouse is one of the main factors in marriage success(39, 40). Thus, many marital problems and disputes are rooted in the lack of mutual understanding in couples and the lack of cognitive coordination between husband and wife(15). The findings of this part of the qualitative study are consistent with those of Salminen-Tuomaala et al. (2013), who showed that illness, as an individual experience, can consist of the ability to understand, manage, and give meaning to life(41). Hammond et

al (2011) showed that spouses that perceive each other might cause gravity or separation between couples(42).

Another finding of this qualitative study was lowering couples' expectations after myocardial infarction, which played an influential role in achieving marital adjustment. Marital expectations affect marital adjustment (43). They include the standards and mental hypotheses, predetermined frameworks, and don'ts that couples have about their spouse and married life, which may or may not be based on reality(44).

Pirsaghi et al (2019) showed that spouses who optimally developed their intellectual and cognitive abilities could make correct judgments about life, their demands and expectations from their spouse are reasonable, and can drive away negative thoughts because of positive thinking(45). Mousavi and Dehshiri (2015) reported in their study that the greater the distance between expectations and the reality of the marital relationship, the lower the marital satisfaction of men and women are(46). In a study entitled "The role of personality, conflict settlement styles and marital expectations in predicting marital adjustment, Jafari et al. (2015) concluded that marital expectations have a significant association with marital adjustment and can predict it (47). Further, Omrani showed that the effect of marital expectations on marital adjustment is due to cognitive and emotional mechanisms, of which we can refer to marital conflicts(48). The findings of this part of the qualitative study are consistent with those of Bakhshoodeh & Bahrami (2012)(49) and Ali Bekian et al. (2020)(44).

The findings of this qualitative study an increased extent in cooperation and division of tasks between couples increased after the illness. Studies in this field show that concerning the current situation of today's families, sharing complex tasks with family members is important. The involvement of family members reduces the burden of responsibilities and stress(9, 41). Kumar Panda's study (2011) showed that men's participation in home affairs increases women's perception of fairness and marital satisfaction. Thus couples experience less marital conflict and stress(50). Rahimi et al. (2020) pointed to the distribution of roles, responsibilities, and power in their study. They stated that this distribution is fair in skilled couples and unfair in non-skilled couples (51).

Moreover, Salminen-Tuomaala et al. (2013) showed in their study that the division of labor and cooperation of couples leads to changes in couples' lifestyles(41).

Pirsaghi et al (2017) showed that strengthening the spirit of participation in couples brings them psychological security(9). The results of this part of the present study are consistent with those of Khorashadizadeh et al. (2012) and Khatibi et al(2018)(10, 24).

Revaluation of life:

This part of the present qualitative study showed that some issues, especially sexual issues and marital conflicts between couples, lose their importance after the disease. On the other hand, the importance of some issues such as sexual intercourse is replaced with other emotional attachments between couples

and entertainments. The results of this part of the study are consistent with those of Salminen-Tuomaala et al.'s study (2013). They showed that myocardial infarction could reduce the importance of early life values and restrict couples' social participation more than before. They showed that for these spouses, working is a kind of relief and a symbol of self-adjustment. Working is perceived more than other values in most families and is a natural way to adapt to them(41). Pirsaghi et al (2019) showed that the equality and harmony of couples in beliefs, attitudes , and values after illness reduce communication tensions and increase the quality of life(45).

Optimization of the decision process:

Other results of the present study include:

- Optimization of the decision-making process at the family level, manifesting the involvement of couples in financial and family decisions.
- Lifestyle-enhancing decisions.
- Secret agreements.

Explaining this finding, we can say that financial issues are one of the most common sources of stress for couples. Couples plan to solve their financial struggles and formulate financial goals in their life together using mutual points of view in economic matters(9). The results of the present study are consistent with those of Asoudeh et al (2010) (52) and Namvaran et al (2017) They showed that participatory decision-making through consultation and coordination with the spouse is one of the couples' understanding components (31). However, Hammond et al.'s study (2011) showed that a lack of understanding or ability to control financial situations causes additional stress in the relationship(42).

The results of the present qualitative study suggested that couples change their lifestyle after the incidence of disease and replace their previous habits with new ones, which include nutritional changes. The results of this part of the study are consistent with those of Garcia et al (2013), showing that nutrition is the main modifiable item by families (53) Pretter et al (2014) showed that disease conditions could cause changes in patients' lifestyles. Daily routines may vary to comply with medication, exercise and dietary guidelines, and some tasks such as medical appointments(54).

In a marital relationship, none of each couple agrees with one another's opinions. However, they usually look for a solution approved by both parties(40) and secret agreements between the couple allow it. The results of the present qualitative study show that sometimes couples make joint decisions on an issue and reach a kind of secret agreement that other family members are unaware of. In the Namvaran et al's study (2017), understanding is considered a part of marital adjustment dimensions and means mutual understanding and reaching agreement(31). The results of the present study are consistent with those of some studies (Pirsaghi et al. (2017)(9) Dastan et al (2015)(55) and Aghaei et al. (2019)(56). The results of some other studies (Leggett, Roberts-Batman, Bizek, & Morse, (2012) show that marital conflicts occur when spouses disagree on shared activities(57), and the whole family will be disrupted if a couple fails to settle. This will lead to many negative consequences for each couple(58).

Effective management of marital conflicts:

This part of the qualitative study showed that couples manage their marital conflicts more effectively after myocardial infarction. Numerous studies in this field show that marriage and married life can be problematic and conflicting for many different reasons. Conflict in relationships usually occurs when a person's behaviour does not match their expectations and methods of satisfying them. Other causes include Egocentrism, differences in demands, behavioural patterns, and irresponsible behaviour toward marital relationships, differences in financial, moral, and cultural issues(40, 59).

Further, studies show that the greater the extent of marital conflict, the lower the rate of marital adjustment. Shweta (2017) concluded that marital conflict has an influential role in marital adjustment(60) .

The study of Wisrich and Dalawi (2013) showed that the quality of marital relationships in the future life of couples depends a lot on how they use conflict resolution patterns in marital relationships(61).

Rahimi et al Also showed in their study that couples usually use constructive ideas and patterns of conflict resolution such as couple negotiation, fair argument, and adaptive conciliation, which is consistent with the results of this part of the qualitative study(51). The present study suggested that couples share issues and problems after myocardial infarction to prevent conflicts in the family and express their fears and concerns consistent with those of (2013) Salminen-Tuomaala et al.'s study. They showed that having a close relationship and mutual trust between family members makes it easier for them to talk about their illness, thoughts, feelings, and fears(41).

Garcia et al.'s study (2013) showed that concerns occurred due to myocardial infarction of one of the family members and finding a solution in the shortest possible time, deepening the lifestyle of family members(53).

Pir Saghi et al showed that couples understand their duties and roles better over time and prefer conversation to reach an agreement(45).

This qualitative study showed that couples use other strategies after myocardial infarction, such as apologizing to each other, thanking and appreciating each other to resolve their marital conflicts. These results are consistent with those of Namvaran et al. They showed that intrepid conflict resolution is another component in resolving conflict between couples. Many participants mentioned them in the form of indicators such as peaceful expression of grief, negotiation, and apologizing to each other(31).

Mollai et al. showed that not apologizing to each other weakens the marital relationship of couples and intensifies conflicts between them(62).

Pirsaghi et al (2017) showed that thanking and appreciating each other is an indicator of an effective marital relationship. They appreciate their spouse for their efforts in making a living and apologize if they make a mistake instead of considering that it is their duty(9).

This qualitative study showed that couples use strategies such as consulting with each other, negotiating, and offering alternative solutions to resolve marital conflicts effectively. Numerous quantitative studies showed that couples would cooperate in an integrated style, and people participate and express themselves using this style. In addition, couples use openness, information exchange, reviewing differences, and finding acceptable solutions to both parties. For this reason, conflict is resolved constructively despite differences and the search for new solutions(63, 64). Rahimi et al. showed that working couples are usually constructive models of conflict resolution, including problem-solving, persuasive reasoning, and arguments(51). This part of the present qualitative study results is consistent with those of Beyrami (2013)(65) ,Ali Bokian et al.'s study (2020)(44).

In addition, most of the participants in the present study believed that they accompanied each other in dealing with marital issues and problems, and this empathy and examining issues from different perspectives had helped resolve marital conflicts between them effectively. Various studies in this field show that disclosing emotions, having conversations to reach an agreement, consolidating ideas, expressing grief and empathy when resolving conflict improves couples' understanding and helps them improve and deepen relationships(64). The results of this part of the present qualitative study are consistent with those of some other studies Gaur et al. (2015)(66), Namvaran et al (31), and Karami Beladji et al (2014)(64).

The present study results showed that couples forgive and accept each other's mistakes more than before after myocardial infarction. Concerning marital relationships and the couple's closeness, it is sometimes possible for couples to intentionally or inadvertently cause resentment. Therefore, more power exists to forgive and ignore the couple. Marital relations will be more compatible. In this regard, Pirsaghi et al. showed that couples who keep their emotional control in difficult situations and as a result of such domination could establish a more peaceful and compatible relationship. They will maintain their relationship with forgiveness in times of conflict and unhappiness and show kindness, gentleness, and compassion in the face of their spouse's abusive behaviour(9). The results of this part of the present qualitative study are consistent with those of other studies (Qaisari, Aman Elahi, and Khajeh (2016)(67), Rahimi et al(51),Fatemeh Nik et al(68) and Namvaran et al(31) ,Gaur et al (2015)(66).

According to this qualitative study, couples focus on the realities of life and society to better resolve their marital conflicts after myocardial infarction and always addressed issues such as having a balanced family hierarchy and power structure between men and women and gender justice. The results of this part of the study are consistent with other studies (Namvaran et al(31) Dolatabad et al(69), and Sanford et al (2013)(70).

The present study showed that the couple's tolerance level increased after myocardial infarction, and they no longer reacted quickly to the problems. PirSaghi et al.'s study (2017) showed that if the relationship between couples is effective, they try to increase their tolerance level and express their anger appropriately when they are angry. They can cope with such situations and show less aggressive and harmful behaviors(9). Asgharzadeh et al (2020) showed that not jumping conclusions for problems, the

skill of expressing love, and attention to the interests, needs, and desires of the spouse are essential points in resolving conflicts. They showed that the tolerance threshold is effective on marital disputes between couples(71). The results of this part of the present study are consistent with those of other studies (Fatemeh Nik et al (68) Namvaran et al(31), Gholizadeh et al(72), Ashrafi et al(73) ,Rezaei et al(74) ,Ghoshchi et al(75) Kazemi et al (2019)(76), Masoudinia et al (2015)(77).

This qualitative study showed that couples could settle marital disputes after the incidence of myocardial infarction based on mutual cognition and resolve marital conflicts correctly. These couples are equipped with skills and policies that can be used to solve problems. The results of this part of the present study are consistent with those of Asgharzadeh et al (2020)(71) and Rahimi et a's study. They showed that working couples are skilful at resolving marital conflicts, including spending time with each other, time management, couple love map, talking hours, shared decision making, communication skills, anger control, and couple tricks(51).

Conclusion

Myocardial infarction as a chronic disease can change the structures and the way couples interact. But sometimes, the transformation caused by the disease can lead to the maturity of the relationship, which is characterized by increased attention, communication, and more excellent compatibility of couples in married life so that these couples will be able to effectively deal with marital challenges and conflicts in the long run. They were able to deal with unexpected problems and issues and gain the ability to help each other in the healing process. In addition, they changed the decision-making and counselling processes at the family level and tried to use each other's views to improve the indicators of marital life. However, since this process takes a long and faces many trials and errors, and many couples leave it halfway due to physical and mental exhaustion caused by the disease and the burden of care, they do not achieve the level of marital adjustment.

Thus, it is recommended that in educational programs, counselling, and rehabilitation programs related to cardiovascular patients, the effects of the disease on various aspects of couples' lives be considered, and interventions be implemented as standard protocols in hospitals and cardiac rehabilitation canthers. In addition, the results of the present study provide a clear understanding of how couples adjust to a chronic and long-term illness that can be used to educate nurses and nursing students. As the present study focuses on finding the positive aspects of marital adjustment of couples after myocardial infarction, in the meantime, some cases may not be reached to this level of adjustment after the myocardial infarction It is recommended to focus on the causes and factors affecting the occurrence of marital conflicts following myocardial infarction or any other chronic disease that affects the couples' relationship and explore the role of the disease in exacerbating these conflicts.

Abbreviations

F= female

M= male

Y=years old

I= interview

MI= myocardial infarction

Declarations

Ethics approval and consent to participate :

The project was approved by the institutional review board of Kerman University of Medical Sciences (Coded IR.KMU.REC.1399.417). When recruiting participants, the purpose of the study was clearly explained. Then, informed consent (written and oral) was obtained. We granted the right to the participants to decline or cease participation at any time. They were assured of the confidentiality of all the gathered data and also of sharing the results with them upon their request. To ensure the anonymity of the participants' identity, we used abbreviations.

Consent for publication:

The participants have given permission in the consent form regarding publishing some of their experience-related information

Availability of data and material:

The datasets used and analysed in the current study can be made available by the corresponding author upon reasonable request.

Conflict interests:

The authors declare that they have no conflict interests.

Funding:

No funding

Authors' contributions:

MS, AN, RMR and EN designed the project. MS managed the project and collected all the interviews and field notes. MS and AN analysed the qualitative data. MS, AN, RMR and EN

Were responsible for manuscript preparation. All authors contributed towards reviewing the paper before submission. The author(s) read and approved the final manuscript

Acknowledgments:

Kerman University has approved this study of Medical Sciences. The authors thank the Vice Chancellor for Research of Kerman University of Medical Sciences and the staff nurses working in the Heart wards hospitals associated with Kerman & Zahedan University of Medical Sciences and patients with myocardial infarction.

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