

*Full Length Research Paper*

# Perceived positive effects of illness following acute myocardial infarction

Parkhideh Hassani<sup>1\*</sup>, Ardeshir Afrasiabifar<sup>2</sup>, Masoude Fallahi Khoshknab<sup>3</sup> and Farideh Yaqhmaei<sup>4</sup>

<sup>1</sup>Faculty of Nursing and Midwifery, Shaheed Beheshti University of Medical Sciences, Tehran, Iran.

<sup>2</sup>Shaheed Beheshti University of Medical Sciences, Academic Staff Member, Yasuj University of Medical Sciences, Yasuj, Iran.

<sup>3</sup>University of Social Welfare and Rehabilitation Sciences, Department of Nursing, Tehran, Iran.

<sup>4</sup>Faculty of Nursing and Midwifery, Shaheed Beheshti University of Medical Sciences, Tehran, Iran.

Accepted 10 June, 2009

**Myocardial infarction (MI) is a traumatic health event in most patients' lives and their families. Posttraumatic responses to life-threatening events are not necessarily negative rather they may result in positive changes. The negative psychological reactions following myocardial infarction are well documented; however, little attention was paid to the positive effects of the illness. The aim of this study was to explore the perceived positive changes following acute myocardial infarction. This report is part of a larger grounded theory study. Eighteen patients, 4 women and 14 men with first time myocardial infarction ranging in age from 45 - 78 years participated in this study based on purposive and theoretical sampling. Data collection included semi-structured interviews. Strauss and Corbin approach (1998) was chosen for data analysis. The findings show that patients attribute positive meanings to their illness with one or more positive effects. The positive effects of illness following an acute heart attack were categorized as healthy lifestyle, appreciating of life/health, and improved social/interpersonal relationships. Based on the meanings attributed to their illness by the patients, there may be positive changes to enhance better health outcomes. Some implications were discussed.**

**Key words:** Benefit finding, grounded theory, positive effect, posttraumatic growth, myocardial infarction.

## INTRODUCTION

Life-threatening medical conditions such as myocardial infarction have the potential to be stressful. Myocardial infarction is a traumatic health event in most patients' lives and their families. Patients deal with a number of experiences, including side effects of medical treatment and changes in their lifestyles. Patients may show negative psychological reactions such as fear, anxiety, and depression (Ginzburg, 2006; Al-Hassan and Sagar, 2002).

Posttraumatic responses to life-threatening events are not necessarily negative rather they may result in positive changes (Barakat et al., 2006). Evidences also suggest that the struggle to deal with negative experiences can also result in positive changes in patient's life and his/her attitude about oneself and the world which, in turn, can

facilitate the process of adjustment to illness (Linley and Joseph, 2004; Farber et al., 2003). The positive changes are called "posttraumatic growth", "Stress-related growth", or "Benefit finding" referring to the positive changes an individual may experience after a traumatic event (Tedeschi and Calhoun, 2004).

The manner in which patients perceive positive or negative implications of their illness can influence psychological outcomes (Currier et al., 2009). Traumatic experiences will not elicit positive change, unless they are perceived as adequately threatening to one's life and challenge to his/her basic beliefs. Individual, who actively thinks about and process his /her experience and its implications, if not ruminative thoughts, most likely will find posttraumatic growth (Greenberg, 1995; Janoff-Bulman, 1989).

So far, most researches have focused on the negative psychological aspects of chronic illnesses. Recently,

\*Corresponding Author. E-mail: [hassanipar@gmail.com](mailto:hassanipar@gmail.com)

ever, research has given emphasis to the notion that trauma can also produce specific psychological benefits (Garnefski et al., 2008). For example, Bouthillette (2001) documented behavioral changes, religious and spiritual growth, changes in the self and in the value of life and goals among women with HIV/AIDS.

A review of the literature showed that the benefit-findings are typically investigated in diseases such as cancers, spinal cord injury, multiple sclerosis, and rheumatoid arthritis with only a few studies conducted among myocardial infarction patients (Helgeson et al., 2006). Petrie et al. (1999) reported that 60% of the patients with Myocardial infarction have reported a positive change in their life with healthy lifestyle being the most important one. Another study has shown that Myocardial infarction can have a positive effect in lifestyle among one-third of the patients 2 - 4 years after myocardial infarction (Laerum et al., 1991).

Available literature is based on studies conducted in western societies that differ in terms of cultural and social backgrounds from the Iranian society. Moreover, the studies have shown that socio-cultural context and belief systems could influence patients' experiences in coping with the illness (Daly et al., 2002; Murray et al., 2000). The question that raises here is whether afflicting with myocardial infarction is considered a completely negative event in patients' lives or accompanied with some positive effects. More information was needed to understand how myocardial infarction patients perceive the effects of their illness for themselves? The aim of this study was to explore myocardial infarction survivors' experiences of positive changes following a heart attack among the Iranian population.

## METHOD

### Design and setting

The present study is a qualitative research with the grounded theory method. The grounded theory approach is a method to do qualitative research and uses a systematic set of procedures to develop an inductive theory about a phenomenon (Strauss and Corbin, 1998). The grounded theory approach was originally developed by Glaser and Strauss in 1967. However, Strauss and Corbin's model was developed in 1987. Strauss and Corbin's version of the grounded theory methodology is selected for this study. The reasons of selecting this methodology were that its coding procedure is more explicit in detail, as well as its popularity in many fields including nursing.

### Participants

Eighteen patients, (14 men and 4 women, age 45 - 78 years), participated in this study in Tehran during 2007 - 2008. All participants had experienced a first time myocardial infarction none of the participants had undergone surgery for coronary artery bypass graft (CABG) and had no other chronic diseases other than myocardial infarction. Three participants had experienced cardiac arrest during hospitalization. Two participants were widowed, one was divorced and the others were living with families.

### Ethical issues

Following the approval by the Ethics Committee and coordination with hospital directors, informed consents were obtained from all participants who had inclusion criteria of study. All participants were assured that their personal data would remain confidential. The interview time and location were chosen by the agreement of the participants.

### Data collection

The data collection included a semi-structured interview. The interviews were conducted 3 - 18 months after falling ill. The interviews had guide questions prepared based on the study goal. Questions were not asked in any fixed order. Indeed, incoming information raised by the interviewee could be followed up in more detail by probing questions. All interviews were digitally recorded. The study began with purposive sampling and was followed by theoretical sampling in data collection. Initially, the first researcher interviewed with two accessible participants who have the inclusion criteria of the study. Then participants were selected based on theoretical sampling that is a fundamental feature of grounded theory. That is, the next participants were selected based on concepts derived from data. In fact, the emerging concepts directed the researcher on what data have to be collected next, where to find it, and who should be interviewed. The purpose of this kind of sampling is to collect data from places, people, and events that will maximize opportunities to develop concepts in term of their properties and dimensions (Corbin and Strauss, 2008). Sampling had continued till data saturation had really occurred. That is, data collection had gone on up to when no new data comes out concerning a category, the category is enough developed, and relationships between categories are adequately identified.

### Data analysis

Data were analyzed using three level of coding of Strauss and Corbin's method (1998); open, axial, and selective coding. All audiotape interviews were transcribed verbatim immediately after each interview. In open coding that involves breaking down, comparing, conceptualizing, and categorizing data in term of properties and dimensions (Strauss and Corbin, 1998), the concepts related to the study were clarified, and each was assigned a special code. The assigned codes were the patient's words and/or implicit codes constructed by the researcher. The main codes were then compared and contrasted, and those with the same concepts were clustered in the same category. In axial coding, making connection between a category and its sub-categories is established by utilizing a coding paradigm involving conditions, context, action/interaction strategies, and consequences (Strauss and Corbin, 1998). Analyses were constantly compared to each other throughout data collection in order to identify similarities and differences of the emerged concepts. Constant comparative analysis is another fundamental characteristic of grounded theory that guides data generation and coding procedure. On the other hand, it is the analytic process of comparing different pieces of data for similarities and differences (Corbin and Strauss, 2008). Since the present research has been part of the findings of a grounded theory approach, the categories here are of open and axial coding. Selective coding that involves the identification of core category had been followed in the main study.

During the data collection and analyses, issues related to the present study were recorded as memos. Lincoln and Guba criteria including credibility and confirmability were used for trustworthiness of the data (Streubert and Carpenter, 1999). In addition to having close communication with the participants on the part of the researcher, the credibility of the findings was determined by member

checks, and external checks familiar with the grounded theory methodology. The external checks and maximum variation in sampling all show the confirmability of the findings. The activities of coding procedure were also clearly described for other individuals to follow it.

## FINDINGS

The results of the study show that based on the meanings each of the participants attributed to their illness, they had experienced some positive effects of the illness in their life which can be classified as: healthy lifestyle, appreciating of life/health, and improved social/interpersonal relationships.

**Healthy lifestyle:** The participants considered myocardial infarction as the agent in changing risky behaviors, and in following a healthy lifestyle. The category has three sub-categories: behavioral change, family harmony in Prevention, and reordering goals/ expectations.

a) Behavioral change: Myocardial infarction was seen as an agent in changing the modifiable risk factors which had had roles in the onset of the disease. Although the participants had been aware of the risks of behaviors such as cigarette smoking, a sedentary lifestyle, and intake of fatty foods, they were unable to change them. The affliction with myocardial infarction encouraged them to change these risk factors with further will and determination post myocardial infarction. One of the participants expressed it this way:

“I had been tired of smoking, it had become a habit for me, my fingers were always on my lips, I smoked even in Ramadhan (the fasting month in Islamic nations). After the myocardial infarction, I said to myself “I have to cease it and I stopped it. Why did I have to smoke when I was suffering that severe chest pain?” (Male age: 55).

b) Family harmony in prevention: The illness had had a positive impact on the other members of the family. In fact, the myocardial infarction in one of the family members made the other members aware of the risk of the developing myocardial infarction; so, they also decided to eliminate the modifiable risk factors of coronary heart disease from their life. One of the participants said:

“Since the day I have become ill, my family has reconsidered its meals. In fact, my illness had been an alarm for the family. Although they had been scared, and were so sad about it, yet this had been an alarm for them to be more careful and follow a healthy nutrition, do regular exercise, and prevent daily stresses as much as possible” (Male age: 57).

c) Reordering goals and expectations: The participants had reconsidered their life goals and expectations after myocardial infarction. This had brought about a stress-free lifestyle. One of the participants noted:

“Before Myocardial infarction, I had decided to change my 100 m<sup>2</sup> home to 150 m<sup>2</sup>, or change my car, after the myocardial infarction, I thought about it. I said to myself that I am all running around for a better life, if I am to be bed-ridden, does it really make any difference if my home is 100 or 150 m<sup>2</sup>, or if my car is a Peugeot, or an Elegance Mercedes Benz” (Male age: 47).

**Appreciating life/health:** The participants considered a healthy heart as a healthy life. Compared to before myocardial infarction, the illness was seen as a factor for paying more attention to health, the life, and spirituality. One of the participants noted:

“The life has no meaning when you are sick, let alone having a painful heart. Nothing will have a meaning in life when my heart has a problem. You will value life when you get sick, even if you have the world, it will be valueless” (Female age: 70).

a) A second chance for living: Myocardial infarction was seen an unexpected event by participants. They believed that survival from myocardial infarction would be a second chance God offers to them. One of the participants said:

“I never thought I would go down with myocardial infarction. I thanked God for His second chance to me. If He had willed, I would have been dead by now. I am always appreciative of him” (Male age: 65).

b) Paying more attention to health: The participants were paying more attention to their health following myocardial infarction. They believed that health was an invaluable gift for which their illness had forced them to pay more attention to. One of the participants expressed in this regard:

“I ate a lot of salt, a lot of fat. I never cared. Following myocardial infarction, I understood the values of God’s gifts. He had offered me health, but I did not care for it. With myocardial infarction I understood that health is the best thing in my life” (Male age: 65)

c) Paying attention to spirituality: The participants were paying more attention to the spirituality following their myocardial infarction. They believed that more relations with God and spirituality could make them tolerate better the illness. One of the participants noted:

“The illness causes I to pay more attention to spirituality. With this myocardial infarction, I have come to a point where I see that God is my only savior. The more relations you have with God, the illness will be more tolerable” (Male age: 45).

Improved social/interpersonal relationships: The illness has also had a positive effect on the participants' social/interpersonal relationships. This category has three sub-

categories.

a) Closer relationship: Though the illness had caused tension in the family members, the participants considered it as a factor for bettering the closer relationships among the family members. One of the participants expressed it this way:

"The illness caused us to love each other more, support each other more, with better emotions" (Female age: 63).

Another participant expressed that:

"Some of the relatives whom we rarely met before myocardial infarction visited us following the myocardial infarction, we visit them too" (Male age: 47).

b) Enhanced empathy of co-patients: In addition to exchange of information with co-patients as a secondary source for gathering some information, myocardial infarction has improved a feeling of empathy for the co-patients. One of the participants noted:

"I never understood when I heard someone had had myocardial infarction. Following my illness, I emotionally sense what a painful condition they are experiencing. I could not understand it before my illness. But now, when one has a painful heart, I can feel how hard it is" (Male age: 50).

c) Training the others: Some of the participants considered affliction with myocardial infarction as an opportunity for educating others especially those at risk of developing coronary artery disease. One of the participants noted:

"I could never say to any one when I myself used to smoke in the past. After myocardial infarction, when I see someone smoking, I do everything to stop him from smoking. I talk to him. I ask him not to smoke. I tell him about the pain myocardial infarction has. I tell him about its expenses such as angioplasty" (Male age: 53).

## DISCUSSION

The present study shows that the participants have found one or more positive changes following myocardial infarction depending on what meaning they have attributed to it. The studies on the effects of the life threatening events, such as severe physical diseases show that patients' attempts to cope with the illness may be accompanied with positive changes (Linley and Joseph, 2004; Frazier et al., 2001). The positive changes following the illness result from a cognitive process which the patients try to find a positive meaning in their illness. This process will result in positive changes in the self, relations, and life's philosophy (Tedeschi and Calhoun, 1996).

One of the positive effects of the illness, in the present study, was developing a healthy lifestyle, and changing the risk factors of disease. The results are in line with the

findings in other studies where all participants (Hutton et al., 2008) or the majority of them (Petrie et al., 1999) were male. In the study by Norekvål et al. (2008) that studied perceived positive effects of myocardial infarction among the female patients, appreciating life were considered the most important. Male and female differences in the effects of the illness may be a result of different explanatory models for the causes of the illness. Due to the protective role of the sex hormones, and more prevalence of the risk factors among males, females are afflicted 10 - 20 years later than the males to the coronary heart disease (Svedlund et al., 2001). Therefore, the modification of the risk factors may be considered as an important change for males. Because of the qualitative nature of the present study, no judgment may be made on the differences of the effects among males and females. However, the study by Petrie et al. (1999) has showed that there had been no significant differences among males and females with myocardial infarction on the positive impacts of the illness.

Affliction with myocardial infarction may not only influence the patients to change their risk factors, but may also affect the family members in order to participate in the primary prevention. That is, it may cause a change among the other family members as a motivation to work on the preventive measures against the illnesses. Similar findings by Mosca et al. (2004) were reported. The family members have usually common risk factors, and affliction of one of the members to myocardial infarction can develop group perspective to change their risk factors of disease (Burke et al., 1997). The appreciating of life/health was also another positive impact the participants expressed. The life-threatening nature of myocardial infarction makes some to reorder their goals and expectations. Svedlund et al. (2001) noted that myocardial infarction brings about sudden changes in health and makes a healthy individual become ill; it changes the individual's perspective about self and of life.

Affliction with chronic diseases makes people to prioritize their goals and expectations so they can reach satisfaction in life. This response is explainable through the phenomenon of 'Response Shift'. Based on this approach, as they try to reach a satisfactory level of life quality, people with chronic diseases change or prioritize their goals, values and expectations, though they suffer from the limitations imposed on them due to their illness (Carver and Scheier, 2000).

The final category of positive effect mentioned by our participants was bettering the social and interpersonal relationships. Myocardial infarction had made participants to follow better family/ relative relationships. In line with this, the other studies also report the positive effects of the illness on family members' relationships (Lukkarinen, 1999; Mahrer-Imhof et al., 2007), and friends and relatives (Kamm-Steigelman et al., 2006). This study was carried out in the national context of the Iranian society and its results should be interpreted cautiously due to its qualitative nature of study.

## Conclusion/Implications

It can be concluded that in spite of problems and stresses experienced by patients, myocardial infarction may also have positive effects for them. That is, patients may draw some positive experiences from their illness. Looking at effects of illness in the patients' life experiences and understanding what the patients think about their illness and how this affects their behaviors are important issues in nursing. The patients may learn important lessons from their illness about themselves and their life which help them to better cope with challenges brought on by myocardial infarction. Moreover, positive changes do not occur in everybody following myocardial infarction. Further research is needed about the characteristics of patients reporting positive effects of illness. The attributed meanings are the bases for patients' behaviors. Nurse's knowledge of patients' perception of illness and disease is important to care for patients, as well as in patient education and consultation.

## ACKNOWLEDGEMENTS

The authors would like to thank the patients who participated in the study. Thanks are also offered to the academic staff that helped us in the coding process. The authors are deeply appreciative of Shaheed Beheshti University of Medical Sciences and Health Services that supported the study financially.

## REFERENCES

- Al-Hassan M, Sagr L (2002). Stress and stressors of myocardial infarction patients in the early period after discharge. *J. Adv. Nurs.* 40(2): 181–188.
- Barakat LP, Alderfer MA, Kazak AE (2006). Posttraumatic growth in adolescent survivors of cancer and their mothers and fathers. *J. Pediatr. Psychol.* 31(4): 413–419.
- Bouthillette F (2001). Women with HIV/AIDS described several forms of Positive change resulting from their illness. *Evid. Based. Nurs.* 4:126.
- Burke LE, Dunbar-Jacob JM, Hill MN (1997). Compliance with cardiovascular disease prevention strategies: a review of the research. *Ann. Behav. Med.* 19(3): 239–263.
- Carver CS, Scheier MF (2000). Scaling back goals and recalibration of the affect system are processes in normal adaptive self-regulation: understanding response shift phenomena. *Soc. Sci. Med.* 50(12):1715–1722.
- Corbin J, Strauss A (2008). *Basics of Qualitative Research*. 3rd ed. Thousand Oaks, CA. Sage, London.
- Currier JM, Hermes S, Phipps S (2009). Children's response to serious illness: perceptions of benefit and burden in a pediatric cancer population. *J. Pediatr. Psychol.* Apr 2. [Epub ahead of print].
- Daly J, Davidson P, Chang E, Hancock K, Rees D, Thompson DR (2002). Cultural aspects of adjustment to coronary heart disease in Chinese-Australians: a review of the literature. *J. Adv. Nurs.* 39(4): 391–399.
- Farber EW, Mirsalimi H, Williams KA, McDaniel JS (2003). Meaning of illness and psychological adjustment to HIV/AIDS. *Psychosomatics* 44 (6): 485–491.
- Frazier PA, Conlon A, Glaser T (2001). Positive and negative life changes following sexual assault. *J. Consult. Clin. Psychol.* 69(6):1048–55.
- Garnefski N, Kraaij V, Schroevers MJ, Somsen GA (2008). Posttraumatic growth after a myocardial infarction: a matter of personality, psychological health, or cognitive coping? *J. Clin. Psychol. Med. Settings* 15(4): 270–277.
- Ginzburg K (2006). Life events and adjustment following myocardial infarction: A longitudinal study. *Soc. Psychiatry Psychiatr. Epidemiol.* 41(1): 825–831.
- Greenberg MA (1995). Cognitive processing of traumas: the role of intrusive thoughts and reappraisals. *J. Appl. Soc. Psychol.* 5(25):1262–96.
- Helgeson VS, Reynolds KA, Tomich PL (2006). A meta analytic review of benefit finding and growth. *J. Consult. Clin. Psychol.* 74(5): 797–816.
- Hutton JM, Perkins SJ (2008). A qualitative study of men's experience of myocardial infarction. *Psychol. Health Med.* 3(1): 87–97.
- Janoff-Bulman R (1989). Assumptive worlds and the stress of traumatic events: applications of the schema construct. *Soc. Cogn.* 7:113–136.
- Kamm-Steigleman L, Kimble LP, Dunbar S, Sowell RL, Bairan A (2006). Religion, relationships and health in midlife women following acute myocardial infarction. *Issues Ment Health Nurs.* 27(2):141–159.
- Laerum E, Johnsen N, Smith P, Arnesen H (1991). Positive psychological and life-style changes after myocardial infarction: a follow-up study after 2–4 years. *Fam. Pract.* 8(3): 229–33.
- Linley PA, Joseph S (2004). Positive change following trauma and adversity: a review. *J. Trauma Stress* 17(1):11–21.
- Lukkarienen H (1999) Life course of people with coronary artery disease. *J. Clin. Nurs.* 8(6): 701–711.
- Mahrer-Imhof R, Hoffmann A, Froelicher ES (2007). Impact of cardiac disease on couples' relationships. *J. Adv. Nurs.* 57(5):513–521.
- Mosca L, Ferris A, Fabunmi R, Robertsen RM (2004). Tracking women's awareness of heart disease: an American Heart Association national study. *Circulation* 109(5):573–9.
- Murray SA, Manktelow BAK, Clifford C (2000). The interplay between social and cultural context and perceptions of cardiovascular disease. *J. Adv. Nurs.* 23(5):1224–1233.
- Norekvål TM, Moons P, Hanestad BR, Nordrehaug JE, Wentzel-Larsen T, Fridlund B (2008). The other side of the coin: perceived positive effects of illness in women following acute myocardial infarction. *Eur. J. Cardiovasc. Nurs.* 7: 80–87.
- Petrie KJ, Butck DL, Weinman J, Booth RJ (1999). Positive effects of illness reported by myocardial infarction and breast cancer patients. *J. Psychosom. Res.* 47(6): 537–543.
- Strauss A, Corbin J (1998). *Basics of Qualitative Research*. 2nd edition. Sage Publication, Thousand Oaks pp. 101–140.
- Streubert HJ, Carpenter CR (1999). *Qualitative Research in Nursing*, 4th edition. Lippincott Williams and Wilkins. Philadelphia pp. 28–29.
- Svedlund M, Danielson E, Norberg A (2001). Women's narrative during the acute phase of myocardial infarction. *J. Adv. Nurs.* 35(2): 197–205.
- Tedeschi RG, Calhoun LG (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *J. Trauma. Stress* 9(3): 455–71.
- Tedeschi RG, Calhoun LG (2004). Posttraumatic growth: conceptual foundations and empirical evidence. *Psychol. Inquiry* 15(1): 1–18.