Original Research Article

Lived Experience on Lifestyle Modification of Patients with Old Myocardial Infarction at a University Hospital in Bangladesh

Mst. Monni Akter[1*], Md. Nurul Anowar[2], Jotsna Akter[2], Fahima Khatun[3]

[1]Cardiac Care Unit, Mugda Medical College Hospital, Bangladesh
[2]Adult and Elderly Health Nursing, National Institute of Advanced Nursing Education and Research (NIANER), Bangladesh
[3]Woman Health Nursing, National Institute of Advanced Nursing Education and Research (NIANER), Bangladesh

*Corresponding author: Mst. Monni Akter
Cardiac Care Unit, Mugda Medical College Hospital, Bangladesh

Abstract

Background: Realizing the advantages of lifestyle modification after myocardial infarction (MI) requires active lifestyle change. Sometimes patients find it difficult to follow the recommendations for lifestyle changes, which are crucial for all MI patients to implement in order to lower the risk of secondary attack. This study aimed to explore the real-world experiences of post MI patients who had changed their lifestyles at a university hospital. *Methods:* This qualitative study was conducted among 20 purposively selected post MI patients. The patients who had confirmed medical diagnosis as old MI, had admitted in Bangabandhu Sheikh Mujib Medical University Hospital for more than a week, and had willingness to take participation in this study, were considered as the study subjects. Data was collected through an open ended semi-structured questionnaire by face to face interview. Using qualitative content analysis, the interview transcripts were examined at the same time as the data was being gathered. *Results:* Out of 20 study subjects, 55% were male and 60% were Muslim. Participants age was ranging from 36-70 years. Two themes namely adjustment with modified life and mal-adjustment with normal life were emerged as the lived experiences on lifestyle modification of patients with old Myocardial Infarction. *Conclusion:* It is concluded that patients with post-MI can have both good and bad experiences during the period of lifestyle modification.
Keywords: Lifestyle modification; lived experience; myocardial infarction; changing life.

INTRODUCTION

Myocardial Infarction (MI) is a significant aspect of coronary heart disease (CHD), as stated by Mendis *et al*., (2011) [1]. It is estimated that over 3 million individuals experience MI annually, and the pathology of MI is evident in more than 4 million people [2]. MI plays a prominent role in causing illness and death worldwide, accounting for over 15% of annual mortality [3]. In Bangladesh, the impact of MI on mortality cannot be overlooked, with 50,708 recorded deaths in 2014 alone [4]. Considering the increasing prevalence of CHD in Bangladesh, it is likely that the death toll has further risen since then, as reported by Islam *et al.*, (2016) [4].

According to Tawalbeh and Ahmad (2014) [5], myocardial infarction (MI) has a profound impact on various aspects of a patient's life, including physical, psychological, and social well-being. A study conducted in the United States revealed that individuals with coronary heart disease (CHD) had significantly lower mental health scores (2.4%), health utility scores (4.6%), and physical health scores (9.2%) compared to the general population [6]. Mierzyńska *et al.*, (2010) review further emphasized the psychological burden faced by MI patients and highlighted the importance of social support [7]. Additionally, a 2003 review demonstrated that post-MI individuals experienced declines in work status, physical capacity, functional status, symptoms, and general health perceptions [8]. Another US population-based study reported that 26.4% of MI survivors faced limitations in activities of daily life, such as walking across a room and transferring from bed to chair, compared to 11.9% of individuals without MI [9].

Clinical guidelines exist for the prevention and treatment of myocardial infarction (MI), encompassing various approaches such as cardiac rehabilitation,

management of type two diabetes mellitus, medication usage, and lifestyle adjustments, as noted by Tawalbeh and Ahmad (2014) [5]. Lifestyle modification involves adopting healthy habits, including smoking cessation, blood pressure control, maintaining a nutritious diet, engaging in regular exercise, managing cholesterol and diabetes, and avoiding stress, as explained by Dhilip *et al*., (2016) [10]. Numerous studies have demonstrated that long-term lifestyle changes can effectively reduce cardiac risk factors, alleviate symptoms, and decrease the likelihood of recurrence. Despite the crucial role of lifestyle modification in secondary prevention, the adherence to behavioral guidelines among individuals affected by MI remains less than optimal, according to Young and Barnason (2015) [11].

In spite of the growing population of individuals affected by myocardial infarction (MI), there is a scarcity of research exploring the lived experiences of lifestyle changes, particularly within the context of Bangladesh. Insufficient attention has been given to delving deeply into these experiences, leading to a lack of substantial information in this area. Consequently, there is a need to address this gap in knowledge and understanding. The aim was to gather insights that can contribute to the development of a strategy for lifestyle modification following MI. Therefore, it was deemed necessary to employ a qualitative study design to thoroughly examine the experiences of lifestyle changes among older patients who have experienced MI.

METHOD
Study population and recruitment process
This qualitative study was conducted among 20 post MI patients who were admitted at the Bangabandhu Seikh Mujib Medical University Hospital (BSMMUH) for treatment purpose. Before approaching to the respondents, study proposal was submitted at the Institutional Review Board (IRB) of National Institute of Advanced Nursing Education and Research (NIANER), and BSMMU, Dhaka, Bangladesh. After receiving approval, permission was sought from the authority of BSMMUH for utilizing its data source. Based on the data saturation of BSMMUH, 20 participants were purposively selected. The patients who had confirmed medical diagnosis as old MI, had admitted in BSMMUH for more than a week, and had willingness to take participation in this study were considered as the study subjects. In contrast, patients who had any known cognitive impairment, severe hearing impairment, other medical condition than MI and had stayed at the BSMMUH for less than a week were excluded from this study. Prior to the data collection from study subjects, informed consent was taken from them after explaining the study purpose. In addition, all patients were assured that their participation would be voluntary and that their privacy and identity would be strictly maintained through the

use of code numbers and that they could withdraw their names at any time without any reason.

Interview
Data was collected through an open ended semi-structured questionnaire by face to face interview. This questionnaire had two sections. The first section was designed to obtain participants' Socio-demographic information such as age, sex, religion, level of education, marital status, and place of residence, occupation, monthly income, smoking history, and history of alcoholism, duration of sufferings and pay for medication. The second part was prepared to explore the knowledge, thoughts, impact and need of lifestyle modification after myocardial infarction. The researcher had used interview guidelines, and audio- tape recorder during data collection. The interview guidelines were checked by two experts and the interview was conducted in conversational language.

Data Analysis
Using qualitative content analysis, the interview transcripts were examined at the same time as the data was being gathered. There were several stages in the analysis process. Initial codes were produced for text that seemed to relate to alterations in lifestyle and patients' perceptions of a MI. The researcher read and reread the transcripts.

The information was arranged first into lower level codes and then into higher level codes. The researchers repeatedly compared each transcript to earlier and later transcripts to ensure that no significant statements had been missed. The potential themes were debated and revised until significant themes emerged for every transcript. The main themes included topics that the participants frequently brought up.

RESULTS
This section represents the socio-demographic characteristics of MI patients in frequencies, percentage, mean and standard deviation, and lived experiences in two emerged themes such as adjustment with changing life and mal-adjustment with modified life.

Socio-demographic characteristics of participants
Table 1 illustrates that participants' age was ranging from 36 to 70 years where 11 (55%) participants were male, and 9 (45%) participants were female. Of these, 60% and 95 % were Muslim and married. In terms of educational status, about 45% participants had completed primary school while 20 % was illiterate. Approximately 55% had stated urban area as their place of residence and 40% had mentioned housewives as their occupation. It was noticed that 55% participants had monthly income of ≥30000 and 60% respondents had never smoked in their life time. In the case of duration of suffering, 55% patients had >3 years

of suffering and 60% study subjects had pointed self

and relative as the source of medications payment.

Table 1: Socio- Demographic characteristics of Old MI patient, (n=20)

Demographic Characteristics		Number of participants (n = 20)
Age (years) Mini = 36 Maxi = 70		
	< 50	8 (40%)
	50-59	8 (40%)
	≥60-Above	4 (20%)
Gender		
	Male	11 (55%)
	Female	9 (45%)
Religion		
	Muslim	12 (60%)
	Non-Muslim	8 (40%)
Marital Status		
	Married	19 (95%)
	Divorce	1 (5%)
Education		
	Illiterate	4 (20%)
	Primary school	9 (45%)
	Secondary & others	7 (35%)
Place of Residence		
	Urban	11 (55%)
	Rural	9 (45%)
Occupation		
	Housewife	8 (40%)
	Govt. /Private Service	5 (25%)
	Others	7 (35%)
Income (in Bangladeshi Taka)		
	<20000	5 (25%)
	20000-29000	7 (35%)
	≥30000	8 (40%)
Smoking		
	Never smoking	12 (60%)
	Previously Smoking	3 (15%)
	Continuous Smoking	5 (25%)
Duration of suffering		
	≤ 3	9 (45%)
	>3	11 (55%)
Pay for medication		
	Self and relatives	12 (60%)
	Family	8 (40%)

Theme 1: Adjustment with Changing Life

All the participants were hospitalized patients with diagnosis of old MI. Under this main theme, there are some sub-themes such as re-defining life, giving up bad habits, Avoid unhealthy behaviors, and previous experience support in changing lifestyles, family support of changing lifestyles. Patients had a wide range of self-reporting experiences about the lifestyle changes after MI. Majority of the patients reported that they were noticed that Lifestyle changes are main part of their lives. The most frequently reported that if they were mentioned to change lifestyles need to re-start life and giving up any bad habits.

1.1. Re-defining life

In re-start life, almost all of patients define their experiences after MI as a rebirth, expressed great fullness to Almighty Allah for being a new change in life. The feeling ranged from remission of symptoms to feeling of completely prevents disease. Others two participants mentioned: "After heart attack life seems to have started afresh again. In my previous life, I was leading life indiscipline. But in this life, I spent my time with prayer" (MI Patient-20, 09).

One participant mentioned that: "After heart attack, I started life again. In this life, I told myself that

I should have goals in my life, as I have been given a second chance again (MI Patient-16).

1.2. Giving up bad habits

In giving up bad habits, the previous experience of heart attack and fear of future attack had adversely affected patients to give up bad habits. Some participants were shared their experiences how they can give up their bad habits. Some patients expressed: "After heart attack, I changed my health drastically. I stopped as much as I did regularly and I also stopped eating fast food too" (MI Patient-17, 12).

Most of participants mentioned: "I stopped everything that was harmful for life after heart attack, like stopping smoking, dietary change etc" (MI Patient-06).

Two patients mentioned: "After heart attack, I changed everything in my life like changing my dietary habits. I was also smoker for a long time and stopped it forever and also stopped eating tea" (MI Patient-05, 09).

Another patient told: "After heart attack, I changed my dietary habits. But I could not do physical exercise became the pain in the chest would go away" (MI Patient-19).

Only one patient expressed: "My health has changed drastically after heart attack. Like I used to have a lot fast food before but now I have to close them all. So I have become much thinner due to changing food habits "(MI Patient-14).

1.3. Avoid unhealthy Behaviors

In changing their behaviors, patients can realize self-actualization of changing lifestyles. Majority of the patients suggested all people to avoid smoking, increasing awareness, and avoiding outside foods to prevent these kinds of life threating disease and leading peaceful life. They were also grown sense of control and as well as they were committed to maintain healthy life. They expressed a strong desire to have control over their health. Most of the participants express their experiences. Also patients have to changes their lifestyle for rescues their life from further attack. So, most of participants were changed their behavior after heart attack. They also mentioned that: "After heart attack, I have changed my standard of living such as dietary changes, smoking, exercise habits etc" (MI Patient-13).

If you want to live a healthy life, changing lifestyle after having heart attack follows the doctor's advice and follows the path shown by Allah and our prophet" (MI Patient-07).

"One of the positive things of my life after heart attack was that I put everything into a routine.

Like before I used to talk a lot, smoking, drink a lot of milk tea, now I have stopped all. On the other hand, the downside is the fear of death always in my mind" (MI Patient-1).

As the participants mentioned that: "The best thing I have ever done in my life after heart attack is to return to a disciplined life. As I used to smoke, I stopped eating too much fast food now. On the other hand, I do not remember much about bad things" (MI Patient-11).

1.4. Previous experience support in changing lifestyle

The participants' previous experience helps to attempts to change their lifestyle without supervision. At the same time, the previous attempts made them realize that at the beginning, they had expected this change to provide visible results quickly. Without any visible or measurable changes, they lost motivation after only a short period of trying. The participants found that there were no easy solutions to making lasting lifestyle changes. They stated their desire for long-lasting, permanent change, and said they did not want a temporary solution that would ultimately fail. In previous experience, Positive outcomes reinforced behavioral change adherence, as a result, they are coping with disease and also they were change their behavior. As these participants noted: "My experience with heart disease is that every person has to lead a discipline life otherwise, they can affect in heart disease" (MI Patient-08).

"Speaking of the experience of heart disease, it is my first heart attack. The day of my first heart attack, it was unbearable. It could not be explained in words. It felt as my entire chest was closed and at one point I felt like I couldn't breathe anymore" (MI Patient-06).

1.5. Family Support

Participants mentioned that they perceived family support more than before. They considered that family support from the patient is important and emphasized that this patient's life depends on support of family. In this regard a participant said:

"Family support for a patient with heart disease is very important. If the family doesn't support the patient, he become effete and will die" (MI Patient-11).

A participant mentioned the effect of support from a patient with heart disease and said: "After the disease my family supported me a lot. If there is no support, the patient will suffer a worse disease. When I see my family is sympathetic, supportive, as well as cooperative, and I have some facilities, I got motivated" (MI Patient-17).

However, one MI patient has expressed his negative, "I have not got much support from the family because my family was not financially sound but I am still treating my sons with help" (MI Patient-10).

Theme 2: Mal-Adjustment with Modified Life

Participants also discussed about living with mal-adjustment. In some circumstances, MI patients cannot adjust with their changing lifestyles. Majority of MI patients were in-adhering to maintain MI management and they are suffering from facing difficulty in maintaining daily life, feeling of stress, experience in living with MI, and also living in fear.

2.1. In-adhere to maintain MI management

In patient with in-adhere to maintain MI management, after experiencing heart disease, many participants concluded that they have lost their health and also lost their normal life. They also expressed that they cannot maintain their treatment protocol easily and they always feeling of sorrow to maintain their life. Only two patient's state: "The most difficult thing for me that is to maintain drug chart regularly" (MI Patient-17).

One patient mentioned: "Life was pretty good before heart attack. But now there have many restrictions in life and many rules need to follow that is very difficult to me (MI Patient-13).

2.2. Facing difficulty to maintain daily life

Participants reported two types of experience of living with MI in facing their disease. Some expressed the experience of compatibility and others expressed the experience of indifference and neglect. Some of the participants believed that they should use proper strategies to control and cope with their disease to have a quality life, but some others tried to reject their disease. It was difficult for the patients to maintain daily life and they also facing difficulty to maintain their normal daily activities. They express their opinions: "The Life is spending in trouble. Sometime chest pain is beginning. It is so difficult to do house work. There is a lot of trouble in prayer. As a whole, life is hard" (MI Patient-7).

Another participant expressed, "I often thinks I will die anytime. Now the body does not have the strength it used to have. Chest pain goes away at any time. This is how life is spent" (MI Patient-08).

2.3. Feeling of stress

Some patients were suffering from persistent stress such as fear of death, chest pain, disability etc. In sharing the experience of causes of persistent stress, patients expressed that: "In this life, it seems that eating a little more. It sometimes increases the pressure and also started chest pain again" (MI Patient-03).

Another participant mentioned: "I started life again; in here, there is always feeling of stress that may arise from fear of death" (MI Patient-09).

2.4. Experience in living with MI

Some participants said their hearts have been damaged after suffering from heart disease and should live with damaged hearts for the rest of their lives. They mentioned some symptoms such as chest pain, shortness of breath, edema, palpitations, and cough. A participant talked in this regard: After the disease my heart was damaged; now I'm living with a damaged heart" (MI Patient-8).

Another participant said about his heart status after the disease: "If a human heart is damaged, it is left for him/her to live further. I didn't care about myself and damaged my heart" (MI Patient-18).

2.5. Living with fear

For patients living with MI was always accompanied with fear, anxiety, uncertainty, fear of the future, and feelings of hopelessness so that all participants after suffering from heart diseases expressed such experiences. They were always afraid of having heart attack, cardiac arrest, and sudden death. Being worry and having fear were so severe in some patients that they were worry about heart attack even in sleep. They were afraid of having cardiac arrest during nights; feeling worry and fear caused disturbance in their sleeps. Some patients stated that: "After heart disease I had much concern, I was too sad. Sometimes I slept and said I will die tomorrow morning and will not wake up" (MI Patient-1).

About living after heart disease a patient mentioned: "Living with heart disease is with anxiety and worry; being worry about cardiac arrest and death" "My life after heart disease has always been accompanied with anxiety, I'm thinking if I sleep in night I will have rupture of heart tomorrow morning. I'm always worried; I'm always sad" (MI Patient-4).

Table 2: Experiences on lifestyles modification of old MI patients

Main Theme	Sub-Theme	Quotes from the Interviews
	Re-defining Life.	*"After heart attack life seems to have started afresh again."*
	Giving up bad habits.	*"I changed my health drastically. I stopped as much as I did regularly and I also stopped eating fast food too."*
	Avoid Unhealthy Behaviors.	*"After heart attack, I have changed my standard of living such as dietary changes, smoking, exercise habits etc."*
	Previous experience support in change	*"My experience with heart disease is that every person has to lead a discipline life otherwise they can affect in heart disease."*

Main Theme	Sub-Theme	Quotes from the Interviews
Adjustment with Changing Life	lifestyles.	
	Family supports.	*"Family support from a patient with heart disease is very important. If the family doesn't support the patient, he become effete and will die"*
Mal-Adjustment with Modified Life	In-adherence to MI management.	*"The most difficult thing for me that is to maintain drug chart regularly."*
	Facing difficulty in maintaining daily life.	*"The Life is spending in trouble. Sometime chest pain is beginning. It is so difficult to do house work. There is a lot of trouble in prayer. As a whole, life is hard."*
	Feeling Stress.	*"In this life, it seems that eating a little more. It with increase the pressure and also started chest pain again."*
	Experience in living with MI	*After the disease my heart was damaged; now I'm living with a damaged heart."*
	Living in Fear.	*"After heart disease I was always assuming two modes for myself and the situation was a new experience for me. I was in a situation which my hope to continue living was very low"*

DISCUSSION

This study tried to accumulate perception from old patients about lifestyle modification following myocardial infarction. Though there is very limited evidence about the lived experiences of lifestyles modification, this section is attempted to discuss the current study with relevant findings of the other study. The participants in this study expressed a variety of positive feelings, including adjustment to changing their lives, with sub-themes of redefining life, quitting bad habits, avoiding unhealthy behaviors, prior experience supporting changing their lifestyles, and recognizing family support for changing their lifestyles, according to the study's findings.

Like a previous author [12], the participant of this study defined life-style changes as life-saving that gave them a positive feeling of rebirth and an opportunity to restart life and live a meaningful life. Adjustment with changing lifestyle is particularly important to improve the management of chronic diseases including MI, though patient's collaboration is required for it optimal success. Adaptation of good life style behavior can reduce the occurrence of recurrent MI. Although, most of this study participants were often engaged in a single behavioral change (e.g., diet, smoking, and exercise), some of them were engaged in multiple lifestyle changes that are similar to a study conducted by Young & Barnason in 2015 [11] . The reason for engaging in single or multiple life style behavior modification was not sought in this study which should be considered as its limitation. On the other hand, some strategies such as stress management, regular exercise, changing working hours and changing eating habits were adopted by the respondents of this study to change their unhealthy life style which is consistent with the findings of previous research [12]. Due to the nature of the study, the effectiveness of the strategies was not explored which is another limitation of this study. Therefore, it is recommended to conduct a pilot study to explore the effectiveness of lifestyle change strategies and guidelines.

Supportive experiences promote adherence to lifestyle changes according to recommended guidelines [11].The findings of this study showed that patients who had been supported earlier during MI, had changed their lifestyle in line with the guidelines of post MI as most of them had received affection, companionship, financial support, and encouragements from their families. Evidences suggest [13, 14] that patients' performance can be increased because of receiving affection, companionship, care, respect, attention, and help by other people, groups, friends, and families. Therefore, if nurses and other health care providers could improve their professional knowledge about lifestyle changes in MI patients through cardiac rehabilitation programs, it can simultaneously help patients' faster recovery and reduce secondary attacks. In addition, patients' family member understanding about providing different types of support during MI and post MI should be promoted through booklets, training or videography.

Symptoms of diseases with anxiety, depression, and fear of death and physical disability can causes mal-adjustment with modified life, stated by Colquhoun et al. (2013) [15]. Many participants of this research had mentioned heart disease as a stressful and anxious event of their life. Having a constant feeling of stress after MI was also expressed by a great number of this study respondents. Moreover, most of them were always afraid of having recurrent heart attack, cardiac arrest, and sudden death. Similarly, Mozooni *et al.*, (2017) found that subjects in their study identified the heart attack as a stressful event and expressed feelings of stress and fear after the MI [12]. However, this persistent feeling of uncertainty, a sense of vulnerability, and loss of autonomy may have negative effects on the patient's day-by-day life, and also causes adverse effects on their physical, social, mental and emotional functioning [16, 17]. A link has been found between patients' negative experience, lack of adherence to medication regimen, lifestyle changes and

risk reduction activity [18]. Afrasiabifar and collegue (2020) coded that elderly use some approaches to reduce consequences of the disease and return to previous life after having heart attack despite tensions and limitations [19]. Thus, it is advised to address the negative experiences in resulting of heart attack including MI and taking appropriate measures to mitigate the problems.

CONCLUSION

Patient with post MI can go through both positive and negative experiences on lifestyle modification period. Redefining life, giving up bad habits, avoid unhealthy behaviors, and family and other persons' support are identified as the positive experiences of study participants of this study. In contrast, this study subjects have pointed out in-adhere to maintain MI management, facing difficulty to maintain daily life, feeling of stress, and living with MI and fear as the negative experiences.

REFERENCES

1. Mendis, S., Thygesen, K., Kuulasmaa, K., Giampaoli, S., Mähönen, M., Ngu Blackett, K., ... & Writing group on behalf of the participating experts of the WHO consultation for revision of WHO definition of myocardial infarction. (2011). World Health Organization definition of myocardial infarction: 2008–09 revision. *International journal of epidemiology*, *40*(1), 139-146. Available from: http://dx.doi.org/10.1093/ije/dyq165

2. Salari, N., Morddarvanjoghi, F., Abdolmaleki, A., Rasoulpoor, S., Khaleghi, A. A., Hezarkhani, L. A., ... & Mohammadi, M. (2023). The global prevalence of myocardial infarction: a systematic review and meta-analysis. *BMC Cardiovascular Disorders*, *23*(1), 206. Available from: http://dx.doi.org/10.1186/s12872-023-03231-w

3. Chadwick Jayaraj, J., Davatyan, K., Subramanian, S. S., & Priya, J. (2019). Epidemiology of myocardial infarction. In: Pamukçu B, editor. Myocardial Infarction. London, England: IntechOpen.

4. Islam, A. M., Mohibullah, A. K. M., & Paul, T. (2016). Cardiovascular disease in Bangladesh: a review. *Bangladesh Heart Journal*, *31*(2), 80-99. Available from: http://dx.doi.org/10.3329/bhj.v31i2.32379

5. Tawalbeh, L. I., & Ahmad, M. M. (2014). The effect of cardiac education on knowledge and adherence to healthy lifestyle. *Clinical Nursing Research*, *23*(3), 245-258. Available from: http://dx.doi.org/10.1177/1054773813486476

6. Britton, A., Brunner, E., Kivimaki, M., & Shipley, M. J. (2012). Limitations to functioning and independent living after the onset of coronary heart disease: what is the role of lifestyle factors and obesity?. *The European Journal of Public Health*, *22*(6), 831-835. Available from: http://dx.doi.org/10.1093/eurpub/ckr150

7. Mierzyńska, A., Kowalska, M., Stepnowska, M., & Piotrowicz, R. (2010). Psychological support for patients following myocardial infarction. *Cardiology journal*, *17*(3), 319-324.

8. Simpson, E., & Pilote, L. (2003). Quality of life after acute myocardial infarction: a systematic review. *The Canadian journal of cardiology*, *19*(5), 507-511.

9. De Leon, C. F. M., Krumholz, H. M., Vaccarino, V., Williams, C. S., Glass, T. A., Berkman, L. F., & Kas, S. V. (1998). A population-based perspective of changes in health-related quality of life after myocardial infarction in older men and women. *Journal of clinical epidemiology*, *51*(7), 609-616.

10. Dhilip, S., Prabhakar, A., & Suresh, H. (2016). Compliance and reasons for non-compliance to life style modification among myocardial patients. *International Journal of Advanced, 2*(9), 220-223.

11. Young, L., & Barnason, S. (2015). Older patients' perception and experience with lifestyle changes following cardiac revascularization. *American Journal of Clinical Medicine*, *10*(1), 30-38.

12. Mozooni, M., Heravi-Karimooi, M., Rejeh, N., Rahmani, M. A., & Sharif Nia, H. (2017). The effect of individual hope therapy program on reduction of depression in elderly patients with unstable angina hospitalized in cardiac care unit. *Journal of Critical Care Nursing*, *10*(4). http://dx.doi:10.5812/ccn.57665

13. Momennasab, M., Moattari, M., Abbaszade, A., & Shamshiri, B. (2012). Spirituality in survivors of myocardial infarction. *Iranian journal of nursing and midwifery research*, *17*(5), 343-351.

14. Najafi Ghezeljeh, T., Yadavar Nikravesh, M., & Emami, A. (2014). Coronary heart disease patients transitioning to a normal life: perspectives and stages identified through a grounded theory approach. *Journal of clinical nursing*, *23*(3-4), 571-585. http://dx.doi:10.1111/jocn.12272

15. Colquhoun, D. M., Bunker, S. J., Clarke, D. M., Glozier, N., Hare, D. L., Hickie, I. B., ... & Branagan, M. G. (2013). Screening, referral and treatment for depression in patients with coronary heart disease. *Medical Journal of Australia*, *198*(9), 483-484. http://dx.doi:10.5694/mja13.10153

16. Pocock, S. J., Henderson, R. A., Clayton, T., Lyman, G. H., Chamberlain, D. A., & RITA-2 Trial Participants. (2000). Quality of life after coronary angioplasty or continued medical treatment for angina: three-year follow-up in the RITA-2

trial. *Journal of the American College of Cardiology*, *35*(4), 907-914. http://dx.doi:10.1016/s0735-1097(99)00637-3

17. Rinfret, S., Grines, C. L., Cosgrove, R. S., Ho, K. K., Cox, D. A., Brodie, B. R., ... & Stent-PAMI Investigators. (2001). Quality of life after balloon angioplasty or stenting for acute myocardial infarction: one-year results from the Stent-PAMI trial. *Journal of the American College of Cardiology*, *38*(6), 1614-1621.

18. Hasankhani, H., Gholizadeh, L., Mohammadi, E., Zamanzadeh, V., Allahbakhshian, A., Ghaffari, S., & Allahbakhshian, M. (2014). The lived experiences of patients post coronary angioplasty: a qualitative study. *Journal of Vascular Nursing*, *32*(4), 144-150. Available from: http://dx.doi.org/10.1016/j.jvn.2014.04.001

19. Afrasiabifar, A., Mehri, Z., & Ghaffarian Shirazi, H. R. (2020). Orem's self-care model with multiple sclerosis patients' balance and motor function. *Nursing Science Quarterly*, *33*(1), 46-54. http://dx.doi:10.1177/0894318419881792