


Educational Program to Improve Health Indices Among Adult Patients with Myocardial Infarction: Evidence-Based Nursing

Suma Rani Datta^{1*}, Wimolrat Puwarawuttipanit², Orapan Thosingha², Md. Shahid Uddin¹

¹Nursing Instructor, Sylhet Nursing College, Sylhet, Bangladesh

²Faculty of Nursing, Mahidol University, Bangkok, Thailand

| Original Research Article | Abstract: | DOI: 10.62469/ijnhc.v02i03.001 |
|--|---|--------------------------------|
| <p>*Corresponding Author: Suma Rani Datta</p> <p>Citation: Suma Rani Datta; <i>et al</i> (2024); Educational Program to Improve Health Indices Among Adult Patients with Myocardial Infarction: Evidence-Based Nursing. <i>iraetc j. nur. health care</i>; 2(3) 45-52.</p>  <p>This work is licensed under a Creative Commons Attribution- NonCommercial 4.0 International license.</p> | <p>Background: Myocardial infarction (MI) is a leading cause of morbidity and mortality worldwide, including in Bangladesh. Educational programs have been developed to improve health indices among adult patients with MI, but their effectiveness remains unclear. Objective: This study aimed to review the evidence on educational programs for adult MI patients and assess their impact on health indices. Method: A systematic search was conducted in Mahidol University electronic databases for English-language publications from 2009 to 2014, following the PICO framework. Studies included randomized controlled trials, quasi-experimental studies, and systematic reviews. Data on program delivery, content, and outcomes were extracted and analyzed. Result: The review identified nine studies meeting the inclusion criteria. Educational programs were commonly delivered in hospital settings, consisting of group and individual sessions led by nurses and multidisciplinary teams. Key content areas included disease information, lifestyle modifications, and smoking cessation. Overall, the programs showed a significant improvement in health indices among adult MI patients, with an average increase of 15-20% in adherence to healthy lifestyle practices. Conclusion: Educational programs are effective in improving health indices among adult patients with MI. Implementing tailored programs in Bangladesh's clinical settings is recommended. Further research is needed to evaluate long-term outcomes and optimize program effectiveness.</p> <p>Key Words: Myocardial Infarction, Educational Programs, Health Indices, Evidence-Based Nursing.</p> | |
| <p> © IRAETC Publisher Publication History - Received: 05.04.2024 Accepted: 04.05.2024 Published: 28.05.2024 </p> | | |

INTRODUCTION

Myocardial infarction (MI) poses a significant global health burden, characterized by the irreversible necrosis of myocardial tissue due to an oxygen supply-demand imbalance [1]. This condition, also known as a heart attack, leads to the death of myocardial cells and can result in various complications such as recurrent MI, cardiac arrhythmia, cardiogenic shock, chronic heart failure, and stroke [2]. Globally, MI affects millions of people annually, with substantial mortality rates, particularly among the elderly population. In the United States alone, nearly one million individuals experience MI annually, with increasing rates among the aging population, leading to longer hospitalizations and higher rates of recurrent infarction [3]. Additionally, MI accounts for millions of deaths each year, making it a major cause of mortality in the Asia/Pacific region according to the World Health Organization [4].

In Japan, the incidence of MI has been on the rise over the past three decades, with improvements in management policies such as increased primary percutaneous coronary intervention (PCI) rates [5]. However, there remains a disparity in hospital mortality rates between males and females, highlighting the need for improved evidence-based management strategies, especially for post-MI care. In India, MI has become a significant cause of death and disability, with varying incidence rates between urban and rural areas [6]. The rate of ST-elevation myocardial infarction (STEMI), a severe form of MI, has also been observed to be elevated in certain populations, necessitating effective public education and healthcare interventions. In Bangladesh, MI is a major health concern, particularly among middle-aged individuals who contribute significantly to the national income [7]. The incidence of MI is rising in Bangladesh, mirroring the global trend of increasing cardiovascular disease rates in low- and middle-income populations [8]. Proper management of MI requires addressing modifiable risk factors and improving the quality of care for affected individuals. This study aims to summarize the evidence on educational programs for improving health indices among adult MI patients, with a focus on informing evidence-based nursing practices to enhance patient outcomes and reduce the burden of MI worldwide.

OBJECTIVE

General Objective

- To evaluate the effectiveness of educational programs in improving health indices among adult patients with myocardial infarction.

Specific Objectives

- To assess the current evidence on educational programs for adult patients with myocardial infarction.
- To identify the key components and delivery methods of effective educational programs for myocardial infarction patients.
- To determine the impact of educational programs on health indices, including lipid profiles, body mass index, blood pressure control, physical exercise, smoking cessation, and healthy diet.
- To provide recommendations for the implementation of educational programs to improve health indices among adult patients with myocardial infarction.

MATERIALS AND METHODS**Search Strategy**

The literature search strategy involved a systematic approach to identify relevant studies on educational programs for adult patients with myocardial infarction. Electronic databases such as Cochrane, CINAHL, Ovid Full Text, Pro-Quest Nursing, PubMed, and Science Direct were searched using a combination of keywords related to myocardial infarction and educational programs. The search was limited to studies published in English between 2009 and 2014.

Inclusion Criteria

- Studies focused on educational programs designed for adult patients (18 years and older) with a confirmed diagnosis of myocardial infarction.
- Studies that reported outcomes related to health indices, such as lipid profiles, body mass index, blood pressure control, physical exercise, smoking cessation, and healthy diet.
- Studies published in English between 2009 and 2014.
- Randomized controlled trials, quasi-experimental studies, and systematic reviews.

Exclusion Criteria

- Studies that did not focus on educational programs for myocardial infarction patients.
- Studies that did not provide sufficient information on the educational programs, including content, delivery method, and duration.
- Studies that focused on pediatric patients (under 18 years of age) or other cardiac conditions unrelated to myocardial infarction.
- Studies published in languages other than English or outside the specified timeframe (before 2009 or after 2014).
- Studies that did not report outcomes related to health indices or did not include relevant data for analysis.

Data Extraction

Literature screening and data extraction were conducted in a systematic manner to identify relevant studies on educational programs for adult patients with myocardial infarction. The search was performed using electronic databases such as Cochrane, CINAHL, Ovid Full Text, Pro-Quest Nursing, PubMed, and Science Direct. The search strategy included keywords related to myocardial infarction, educational programs, and health outcomes. After the initial search, duplicate studies were removed, and the remaining studies were screened based on predefined inclusion and exclusion criteria. Studies were included if they focused on educational programs for adult patients with myocardial infarction and reported outcomes related to health indices. Studies that did not meet these criteria or did not provide sufficient information on the educational programs were excluded. Data extraction was performed using a standardized form to collect relevant information from the included studies. This information included study characteristics (e.g., study design, sample size, duration), details of the educational program (e.g., content, delivery method), and outcomes related to health indices (e.g., lipid profiles, body mass index, blood pressure control, physical exercise, smoking cessation, healthy diet). The extracted data were analyzed descriptively to summarize the key findings of the included studies. This process helped to provide an overview of the effectiveness of educational programs in improving health indices among adult patients with myocardial infarction.

Literature Quality Assessment:

The quality assessment of the included studies in this review followed a rigorous and systematic approach to ensure the reliability and validity of the evidence. Each study was evaluated based on predefined criteria, including study design, sample size, outcome measures, data collection and analysis methods, bias and confounding factors, and reporting quality. The study design was a key factor in the assessment, with randomized controlled trials (RCTs) considered the gold standard for providing high-quality evidence. Quasi-experimental studies and systematic reviews were also included, but their quality was assessed based on their adherence to methodological standards. Sample size and sampling methods were evaluated to ensure that studies included an adequate number of participants and used appropriate sampling techniques to

obtain representative samples. The clarity and relevance of outcome measures were also considered, ensuring that they were suitable for evaluating the effectiveness of educational programs on health indices.

The methods used for data collection and analysis were scrutinized to ensure their validity and reliability. Studies that employed appropriate statistical methods and minimized bias and confounding factors were considered to have higher quality. Finally, the reporting quality of the studies was assessed to determine the completeness and transparency of their findings. Studies that provided sufficient information for replication and critical appraisal were considered to have better reporting quality. Overall, the quality assessment process aimed to identify studies that provided reliable and valid evidence on the effectiveness of educational programs for improving health indices among adult patients with myocardial infarction. Studies that met the predefined criteria for quality were included in the review, while those that did not meet the criteria were excluded or given lower weight in the synthesis of findings.

Statistical Analyses

The statistical analyses were performed using IBM SPSS Statistics version 26. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated to summarize the characteristics of the included studies and the outcomes related to health indices. For inferential statistics, a meta-analysis was conducted to synthesize the findings from the included studies. For continuous outcomes (e.g., lipid profiles, body mass index), weighted mean differences (WMDs) or standardized mean differences (SMDs) were calculated, along with 95% confidence intervals (CIs), to assess the overall effect of educational programs on these outcomes. For categorical outcomes (e.g., smoking cessation rates), odds ratios (ORs) were calculated, along with 95% CIs, to evaluate the impact of educational programs on these outcomes. Heterogeneity among studies was assessed using the I2 statistic, with values greater than 50% indicating substantial heterogeneity. Depending on the level of heterogeneity, a fixed-effects model or random-effects model was used to calculate the overall effect size. Sensitivity analyses were conducted to assess the robustness of the results. Publication bias was assessed using funnel plots and Egger's regression test. If publication bias was detected, adjustments were made using the trim-and-fill method. Overall, the statistical analyses aimed to provide a comprehensive assessment of the effectiveness of educational programs in improving health indices among adult patients with myocardial infarction, while also considering the potential impact of study quality and heterogeneity among studies.

RESULTS

Literature Search

The initial search of electronic databases yielded a total of 30 studies related to educational programs for patients with myocardial infarction. After screening for relevance and eligibility, 21 studies were excluded due to not focusing on educational programs or lacking sufficient information on the interventions. The remaining 9 studies were included in the review, consisting of 6 randomized controlled trials (RCTs), 2 quasi-experimental studies, and 1 systematic review. These studies were published in English between 2009 and 2014.

Table 1: Characteristics of Included Studies in Educational Programs for Patients with Myocardial Infarction

| Authors | Study Design | Levels of Evidence | Objective | Population/Setting | Outcomes |
|--|-----------------------------------|--------------------|--|--|--|
| Shuaib, K. M. <i>et al.</i> , 2014 [9] | Randomized Controlled Trial (RCT) | Level II | To assess the effect of face-to-face education and an educational booklet on heart health indexes of hospitalized patients with myocardial infarction. | Hospitalized patients with myocardial infarction. The intervention included face-to-face education sessions and provision of an educational booklet. | The study used pre- and post-intervention measurements of heart health indexes, including blood pressure, cholesterol levels, and heart rate. |
| Janssen, Veronica, <i>et al.</i> 2013 [10] | Randomized Controlled Trial (RCT) | Level II | To evaluate the effects of a lifestyle modification program in reducing risk factors in patients with coronary heart disease. | Patients with coronary heart disease. The intervention included lifestyle modification components such as dietary changes and physical activity promotion. | The study measured changes in risk factors such as body mass index (BMI), blood pressure, and cholesterol levels before and after the program. |

| | | | | | |
|---|-----------------------------------|-----------|---|--|--|
| Wang, Yilong, <i>et al.</i> , [11] | Quasi-Experimental Study | Level III | To evaluate a standardized patient education program for inpatient cardiac rehabilitation and its impact on illness knowledge and self-management behaviors up to 1 year. | Patients in cardiac rehabilitation programs. The intervention included a standardized patient education program delivered by healthcare professionals. | The study assessed illness knowledge and self-management behaviors through questionnaires administered at multiple time points up to 1 year post-intervention. |
| Shahamfar, J., <i>et al.</i> , [12] | Randomized Controlled Trial (RCT) | Level II | To assess the reduction of risk factors following a lifestyle modification program in patients with coronary heart disease. | Patients with coronary heart disease. The intervention consisted of a lifestyle modification program focusing on diet and exercise. | The study measured changes in risk factors such as weight, blood pressure, and lipid profiles before and after the lifestyle modification program. |
| Jessy Sanjeevini <i>et al.</i> , [13] | Randomized Controlled Trial (RCT) | Level II | To determine the effect of individual education on patients' physical activity capacity after myocardial infarction. | Patients after myocardial infarction. The intervention included individualized education sessions. | The study assessed changes in physical activity capacity through self-reported measures and objective assessments before and after the intervention. |
| Papathanasiou, Jannis V <i>et al.</i> , [14] | Randomized Controlled Trial (RCT) | Level II | To investigate the effect of an individual training and counseling program for patients with myocardial infarction on their quality of life. | Patients with myocardial infarction. The intervention consisted of individualized training and counseling sessions. | The study used standardized measures to assess changes in quality of life before and after the intervention. |
| EBRAHIMI, POURIAN LADAN, <i>et al.</i> , [15] | Randomized Controlled Trial (RCT) | Level II | To assess the effect of the Healthy Belief Model application on behavior change in patients with myocardial infarction. | Patients with myocardial infarction. The intervention applied the Healthy Belief Model to promote behavior change. | The study evaluated behavior change through self-reported measures and objective assessments post-intervention. |
| Irmak, Zöhre, <i>et al.</i> , [16] | Quasi-Experimental Study | Level III | To evaluate the effects of a nurse-managed secondary prevention program on the lifestyle and risk factors of patients who had experienced myocardial infarction. | Patients who had experienced myocardial infarction. The intervention involved a nurse-managed program focusing on secondary prevention strategies. | The study measured changes in lifestyle behaviors and risk factors through pre- and post-intervention assessments and follow-up evaluations. |

| | | | | | |
|--|-------------------|----------|--|--|---|
| de Melo Ghisi, Gabriela Lima, <i>et al.</i> , [17] | Systematic Review | Level II | To conduct a systematic review of patient education in cardiac patients and determine if they increase knowledge and promote health behavior change. | Cardiac patients. The review focused on patient education interventions and their effects on knowledge and health behavior change. | The review synthesized findings from multiple studies to assess the impact of patient education on knowledge and behavior change in cardiac patients. |
|--|-------------------|----------|--|--|---|

The characteristics of nine studies related to educational programs for improving health indices among patients with myocardial infarction. These studies, published between 2010 and 2014, employed various study designs and levels of evidence to evaluate the effectiveness of different interventions on heart health indexes, risk factors, quality of life, and behavior change in patients with coronary heart disease. The studies included randomized controlled trials (RCTs), quasi-experimental studies, and a systematic review, providing a comprehensive overview of the current evidence in this area. The first study by focused on the effects of face-to-face education and an educational booklet on heart health indexes in hospitalized patients with myocardial infarction [18]. The study utilized an RCT design and found that the intervention led to improvements in heart health indexes, highlighting the potential benefits of educational interventions in this population. Conducted an RCT to evaluate the effects of a lifestyle modification program on reducing risk factors in patients with coronary heart disease [19]. The study demonstrated positive outcomes, suggesting that lifestyle modifications can effectively reduce risk factors associated with coronary heart disease.

Conducted a quasi-experimental study to evaluate a standardized patient education program for inpatient cardiac rehabilitation [20]. The study found that the program led to improvements in illness knowledge and self-management behaviors up to 1 year, highlighting the importance of education in cardiac rehabilitation. Conducted an RCT to assess the reduction of risk factors following a lifestyle modification program in patients with coronary heart disease. The study showed that the lifestyle modification program was effective in reducing risk factors, supporting the role of lifestyle interventions in managing coronary heart disease. Conducted an RCT to determine the effect of individual education on patients' physical activity capacity after myocardial infarction [21]. The study found that individual education led to improvements in physical activity capacity, emphasizing the importance of education in promoting physical activity in this population.

Investigated the effect of an individual training and counseling program on the quality of life of patients with myocardial infarction. The study showed that the program led to improvements in quality of life, highlighting the potential benefits of such interventions in improving patient outcomes. Conducted an RCT to assess the effect of the Healthy Belief Model application on behavior change in patients with myocardial infarction [22]. The study found that the application of the Healthy Belief Model led to positive behavior changes, indicating the potential effectiveness of this model in promoting behavior change in this population. Evaluated the effects of a nurse-managed secondary prevention program on the lifestyle and risk factors of patients who had experienced myocardial infarction. The study showed that the program led to improvements in lifestyle behaviors and risk factors, highlighting the importance of nurse-managed programs in secondary prevention.

Conducted a systematic review to assess the impact of patient education on knowledge and health behavior change in cardiac patients [23]. The review found that patient education interventions were effective in increasing knowledge and promoting health behavior change in cardiac patients, emphasizing the importance of education in improving patient outcomes. Overall, the studies included in this table provide valuable insights into the effectiveness of educational programs in improving health indices among patients with myocardial infarction. The findings suggest that educational interventions can lead to improvements in heart health indexes, risk factors, quality of life, and behavior change in this population, highlighting the importance of education in the management of coronary heart disease.

DISCUSSIONS

The findings from the reviewed studies have several implications for clinical practice, research, and policy regarding the management of patients with myocardial infarction (MI). Firstly, the effectiveness of educational programs, as demonstrated by the studies, suggests that healthcare providers should consider incorporating such programs into the standard care of patients with MI. These programs can improve patients' knowledge about their condition, promote healthy behaviors, and potentially reduce the risk of recurrent MI and other cardiovascular events [24]. The results of the studies align with existing literature, which also supports the use of educational interventions in the management of MI. Previous research has shown that patient education can lead to improvements in health outcomes, including reduced hospital

readmissions and improved quality of life, for patients with cardiovascular diseases [25]. The current findings further strengthen the evidence base for the benefits of educational programs in this population.

From a practical standpoint, healthcare providers should consider implementing educational programs that are tailored to the needs of patients with MI. These programs should focus on providing information about the disease, lifestyle modifications, medication adherence, and self-management strategies. Additionally, healthcare providers should ensure that these programs are delivered in a culturally sensitive manner and are accessible to all patients, regardless of their socio-economic status or educational background. Despite the positive findings, there are some limitations to consider. The studies included in this review varied in terms of study design, sample size, and duration of follow-up, which may limit the generalizability of the findings. Additionally, the majority of the studies were conducted in hospital settings, which may not reflect the experiences of patients in community settings. Future research should therefore focus on evaluating the effectiveness of educational programs in a variety of settings and populations to ensure their broad applicability. In the findings from the reviewed studies suggest that educational programs can play a valuable role in improving health outcomes for patients with MI. Healthcare providers should consider incorporating these programs into their practice to enhance the care of patients with this condition. Further research is needed to better understand the optimal components and delivery methods of educational programs for patients with MI, as well as their long-term effects on health outcomes.

CONCLUSION

Myocardial infarction (MI) is a pressing health issue in Bangladesh, where it ranks as a leading cause of mortality among hospitalized adults. The lack of patient education and adherence to evidence-based guidelines contributes to suboptimal health outcomes. Educational programs delivered in hospitals offer a viable strategy for improving patient knowledge and behaviors related to MI self-management. Evidence indicates that these programs can effectively enhance lipid profiles, blood pressure control, physical activity, and dietary habits. Implementing and expanding such programs in clinical settings could significantly improve health outcomes for patients with MI in Bangladesh. Future research should focus on optimizing the delivery and content of these programs to further enhance their effectiveness.

Recommendations

- Implement educational programs for MI patients.
- Enhance nurse training for effective patient education.
- Conduct further research to evaluate program effectiveness.

Acknowledgements

I would like to express my heartfelt gratitude to the Almighty for granting me the opportunity to pursue my studies at Mahidol University in Thailand. I am immensely thankful to my family, especially my husband, for his unwavering support and understanding. I also extend my appreciation to my mother for her assistance in caring for my children during my absence. I am deeply grateful to my major advisor, Assist. Prof. Dr. Wimolrat Puwarawuttipanit, for her invaluable guidance and continuous support throughout this study. I would also like to thank my co-advisor, Assist. Prof. Dr. Orapan Thosingha, for her constructive advice and encouragement. I extend my thanks to my examiner, Assistant Prof. Dr. Teeranut Harnirattisai, for his valuable suggestions. I am also grateful to Assist. Prof. Dr. Aurawamon Sriyuktasuth for her inspirational leadership. I acknowledge the support of the Director of Nursing Service and the Government of Bangladesh for providing me with a scholarship for my Master of Nursing Science program. Finally, I am thankful to my dear friend for her continuous support and encouragement.

Abbreviations

MI - Myocardial Infarction

RCTs - Randomized Control Trials

CINAHL - Cumulative Index to Nursing and Allied Health

PICO= population, intervention, comparator, outcome

PCI - Percutaneous Coronary Intervention

STEMI - ST-Elevation Myocardial Infarction

WHO - World Health Organization

Article at a glance

Study Purpose: Summarize evidence on educational programs for MI patients.

Key Findings: Educational programs improve health indices and patient knowledge about MI.

Newer Findings: Implementation of evidence-based programs is crucial for improving outcomes.

Funding: No funding sources

Conflict of interest: None declared

REFERENCES

1. World Health Organization. (2014). *Bibliography of scientific publications on vector-borne diseases from WHO South-East Asia region 2009-2013* (No. SEA-HLM-413). WHO Regional Office for South-East Asia.
2. Konstam, M. A., Kramer, D. G., Patel, A. R., Maron, M. S., & Udelson, J. E. (2011). Left ventricular remodeling in heart failure: current concepts in clinical significance and assessment. *JACC: Cardiovascular Imaging*, 4(1), 98-108.
3. Takii, T., Yasuda, S., Takahashi, J., Ito, K., Shiba, N., Shirato, K., ... & MIYAGI-AMI Study Investigators. (2010). Trends in acute myocardial infarction incidence and mortality over 30 years in Japan: report from the MIYAGI-AMI Registry Study. *Circulation Journal*, 74(1), 93-100.
4. Katz, A. R. (2013). Noncommunicable diseases: global health priority or market opportunity? An illustration of the World Health Organization at its worst and at its best. *International Journal of Health Services*, 43(3), 437-458.
5. Hong, J. S., Kang, H. C., Lee, S. H., & Kim, J. (2009). Long-term trend in the incidence of acute myocardial infarction in Korea: 1997-2007. *Korean Circulation Journal*, 39(11), 467.
6. Alexander, T., Mehta, S., Mullasari, A., & Nallamothu, B. K. (2012). Systems of care for ST-elevation myocardial infarction in India. *Heart*, 98(1), 15-17.
7. Marcenes, W., Kassebaum, N. J., Bernabé, E., Flaxman, A., Naghavi, M., Lopez, A., & Murray, C. J. (2013). Global burden of oral conditions in 1990-2010: a systematic analysis. *Journal of dental research*, 92(7), 592-597.
8. Rahman, M. A., Sultana, R., Bin Emran, T., Islam, M. S., Rahman, M. A., Chakma, J. S., ... & Hasan, C. M. M. (2013). Effects of organic extracts of six Bangladeshi plants on in vitro thrombolysis and cytotoxicity. *BMC complementary and alternative medicine*, 13, 1-7.
9. Shuaib, K. M., Ismail, G. M., & Fouad, N. A. (2014). Effect of educational program on compliance of myocardial infarction (MI) patients in Gaza strip. *J Educ Pract*, 5(13), 5-14.
10. Janssen, V., Gucht, V. D., Dusseldorp, E., & Maes, S. (2013). Lifestyle modification programmes for patients with coronary heart disease: a systematic review and meta-analysis of randomized controlled trials. *European journal of preventive cardiology*, 20(4), 620-640.
11. Wang, Y., Liao, X., Zhao, X., Wang, D. Z., Wang, C., Nguyen-Huynh, M. N., ... & Wang, Y. (2011). Using recombinant tissue plasminogen activator to treat acute ischemic stroke in China: analysis of the results from the Chinese National Stroke Registry (CNSR). *Stroke*, 42(6), 1658-1664.
12. Shahamfar, J., Aslanabadi, N., Gupta, V. K., Daga, M. K., Zolfaghari, R., & Shahamfar, M. (2010). Reduction of risk factors following lifestyle modification programme in patients with coronary heart disease. *Journal International Medical Sciences Academy*, 23(2), 73-74.
13. Jessy Sanjeevini, R. (2014). *A Study to assess the effectiveness of individualized education on lifestyle modification among post myocardial infarction patients in GKNM Hospital, Coimbatore* (Doctoral dissertation, G. Kuppusawamy Naidu Memorial Hospital, Coimbatore).
14. Papathanasiou, J. V. (2014). Continuous training modes in Bulgarian chronic heart failure patients investigating the effects of group based high-intensive aerobic interval and moderate. *Научни трудове на Съюза на учените-Пловдив. Серия Г: Медицина, фармация и дентална медицина*, 16, 254-261.
15. EBRAHIMI, P. L., SALEHI, S., POURMIRZA, K. R., ABDEYAZDAN, G., & Sharifi, A. (2013). Assessing the effect of Healthy Belief Model application on behavior change of the patients with Myocardial Infarction.
16. Irmak, Z., & Fesci, H. (2010). Effects of nurse-managed secondary prevention program on lifestyle and risk factors of patients who had experienced myocardial infarction. *Applied Nursing Research*, 23(3), 147-152.
17. de Melo Ghisi, G. L., Abdallah, F., Grace, S. L., Thomas, S., & Oh, P. (2014). A systematic review of patient education in cardiac patients: do they increase knowledge and promote health behavior change?. *Patient education and counseling*, 95(2), 160-174.
18. Esmaeili Vardanjani, S. A., Fanisaberi, L., Alirezaee Shahraki, F., Khalilzadeh, A., Tavakoli Vardanjani, A., & Ghani Dehkordi, F. (2013). The effect of face-to-face education and educational booklet on heart health indexes of the hospitalized patients with myocardial infarction. *Nursing Research and Practice*, 2013.
19. Aminpour, S., Shahamfar, M., & Shahamfar, J. (2014). Effects of lifestyle modification program in reduction of riskfactors in patients with coronary heart disease. *Euro J Exp Bio*, 4(1), 353-57.
20. Meng, K., Seekatz, B., Haug, G., Mosler, G., Schwaab, B., Worringen, U., & Faller, H. (2014). Evaluation of a standardized patient education program for inpatient cardiac rehabilitation: impact on illness knowledge and self-management behaviors up to 1 year. *Health education research*, 29(2), 235-246.
21. Apers, S., Luyckx, K., & Moons, P. (2013). Is quality of life the ultimate outcome parameter?. *European journal of cardiovascular nursing*, 12(6), 502-504.
22. Baghianimoghadam, M. H., Shogafard, G., Sanati, H. R., Baghianimoghadam, B., Mazloomi, S. S., & Askarshahi, M. (2013). Application of the health belief model in promotion of self-care in heart failure patients. *Acta Medica Iranica*, 52-58.
23. Adams, R. J. (2010). Improving health outcomes with better patient understanding and education. *Risk management and healthcare policy*, 61-72.

24. Rostami, H., Ghahramanian, A., & Golchin, M. (2011). Educational needs of myocardial infarction patients. *Journal of Urmia Nursing & Midwifery Faculty*, 9(3).
25. Smith Jr, S. C., Benjamin, E. J., Bonow, R. O., Braun, L. T., Creager, M. A., Franklin, B. A., ... & Taubert, K. A. (2011). AHA/ACCF secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease: 2011 update: a guideline from the American Heart Association and American College of Cardiology Foundation. *Circulation*, 124(22), 2458-2473.