Effect of Educational Program on Compliance with Medication Regimen of Myocardial Infarction Patients

Khalil Abu Shuaib   Akram Abusalah   Hamza Abdeljawad   Abdelulrahman Elhamss
Mohammed Aljerjawy   Abed Elmajeed Thabet
Palestine College of Nursing, PO box 7049, Khan Younis, Gaza Strip, Palestine

Abstract

Myocardial infarction (MI) is a major cause of death and disability worldwide as well as in Palestine. In Palestine, mortality rate from MI reach 18.7% in males and 7.7% in females. Recently it has become evidenced that there are certain modifiable factors that may contribute to the occurrence of MI. The study aims to determine the effect of an educational program about medication regimen on compliance of myocardial infarction patients in Gaza Strip. A quasi-experimental design (pre-test/post-test) was conducted at two major hospitals with cardiac outpatient clinics in the Gaza Strip. 65 clients suffering from myocardial infarctions were selected randomly from Shifa and Nasser hospital. Pretest and posttest structured interviewing questionnaire was used to collect data about patient's knowledge and reported practices about medication regimen. The educational program was typed and handed out to study participants in the form of a booklet. The study revealed that patients' knowledge score about MI disease and treatment regimen pre educational was improved significantly post education program. The same as, the percentage of patients who ranking score of compliance as good was improved from 13.8% pre-education program to 72.3% post education. The study concluded that, educational program about medication regimen implicated changes in myocardial infarction subjects' knowledge, and reported practices. This would ultimately increase the quality of life for myocardial infarction patients and decrease the incidence of complications.

Keywords: compliance, myocardial infarction, educational program, knowledge, reported practice

1. Introduction

Coronary artery disease (CAD) remains a challenging public health issue despite decades of research and efforts to prevent it. In Palestine, Mortality rate from MI reach 18.7% and 7.7% in males females respectively (Palestinian Ministry of Health, 2005). Myocardial infarction (MI) defined in pathology as myocardial cell death due to prolonged ischemia. After the onset of myocardial ischemia, histological cell death is not immediate, but takes a finite period of time to develop as little as 20 min or less (Thygesen, et al., 2012). Cardio vascular diseases (CVDs) are the number one cause of death globally, as estimated 17.1 million people died from CVDs in 2004, representing 29% of all global deaths. Out of these deaths, an estimated 7.2 million were due to coronary heart disease (WHO, 2011). The majority of Acute MI occurs in people over the age of 50, although everyone is at risk of developing artheroma, leading to an MI, but there are well-known risk factors which may increase susceptibility to the disease, such as high blood pressure, smoking or lack of exercise. Therefore health providers should emphasize on preventive measures (Kumar et al. 2008). Low and middle income countries are disproportionally affected; 82% of CVD deaths take place in low- and middle-income countries and occur almost equally in men and women. By 2030, almost 23.6 million people will die from CVDs, mainly from heart disease and stroke. The largest percentage increase will occur in the Eastern Mediterranean Region (WHO, 2011). In Palestine, CVDs principally heart diseases are the first leading cause of death in year 2005 (Palestinian Ministry of Health, 2005). Recently it has become clear that the nine most common and potentially modifiable risk factors for MI are lipoproteins, smoking, psychosocial factors, high blood pressure, lack of exercise, diabetes, abdominal obesity, alcohol consumption, and low fruit and vegetable consumption. As such, these risk factors contribute to the growing burden of strokes, heart failure, myocardial infarction and peripheral vascular disease (Shantouf, 2012). Management of these risk factors and heart health indexes in the patients who have been diagnosed with MI will result in prevention of secondary MI, reduction of post improvement mortality, increase of life span and improvement of life quality (Vardanjani et al. 2013). Furthermore, it has been reported that the mean score of patients' compliance to medication was improved with provision of educational program (Hadi and Rostami, 2006). In Gaza strip, it has been noticed through communicating with MI patients in outpatient clinics that recurrent of myocardial infarction attacks linked to noncompliance to medications regimen post myocardial infarction. Ultimately, those patients require more attention to save their lives from another life threatening attack of myocardial infarction or any other related subsequent adverse effects. Therefore, the study aimed to determine the effect of educational program on medication regimen compliance of myocardial infarction patients in Gaza Strip in order to save their lives from another life threatening attack of myocardial infarction or/and any other related subsequent adverse effects. This study could also help nurses in their practice with MI patients to prevent MI recurrence and other complications which will ultimately improve their quality of life.

2. Population and Methods

2.1 Research design:
A quasi-experimental design (pre-post-test) was used in this study, where the study subjects act as their own control.

2.2 Setting of the study:
The study was conducted at two cardiac outpatient clinics in Gaza Strip; one of these clinics is located in Shifa hospital and the other in Nasser hospital. Cardiac outpatient clinic at Shifa hospital serves about 5843 patients annually, out of them about 360 are MI patients. Cardiac outpatient clinic at Nasser hospital serves about 3524 cardiac patients, out of them about 140 are MI patients (Palestinian Ministry of Health 2010).

2.3 Study Participants:
A systemic random sampling method was used in this study; eligible subjects were out clinic patient who (i) diagnosed as myocardial infarction at least three months ago; (ii) age 60 years or less, (iii) can read and write, and (iv) willing to participate in the study. Out of 643 registered patients at Shifa and Nasser cardiac outpatient clinics from October 2010 till the end of September 2011, there are 500 met the inclusion criteria; 360 from Shifa outpatient clinic and 140 from Nasser outpatient clinic; 15% (75 MI patients) of them were selected randomly. However, the final number of study subjects was 65 patients due to drop out of 10 patients.

2.4 Data Collection Tools:
Data on patients' characteristics and compliance score were collected by two basic tools (1) structured interviewing questionnaire that was developed by the researcher to assess socio-demographic data about the patient, and pre-post knowledge assessment regarding myocardial infarction, complications, drugs used; their effects and side effects. Regarding knowledge, the patients were considered having good knowledge if they scored 70% or more, fair knowledge if they scored less than 60% to less than 70% and poor knowledge if they scored less than 60% (2) Medication compliance tool: included questions regarding the name and dosage of drugs used by participants and the number of times they missed their medication during the previous three days. Every missed dosage from the prescribed drugs was given minus one (-1) then summation of the missed dosages over the three days was calculated.

2.5 Ethical Considerations
A written approval was obtained from Ministry of Health in Gaza to collect data and implement the program at outpatient clinics in the designated study sites. Written consent was obtained from MI patients who met the criteria for inclusion in the study. The patients were informed about the confidentiality of the collected data and their rights to withdraw from the study at any time without jeopardizing the kind or quality of treatment they receive in the outpatient clinics.

2.6 Procedures
The study was conducted on three phases; preparatory, implementation and evaluation
2.6.1 Preparatory Phase:
The educational program was carefully prepared in Arabic language. It was typed in the form of a booklet; which includes relevant pictures and simple instructions. Other required data were collected using self-structured interviewing questionnaire. This phase took between 15 to 20 minutes for each patient to complete
2.6.2 The implementation phase:
The educational program was given individually in two separated sessions (20-25 minutes each). The first session covered information such as definition of myocardial infarction, symptoms, diagnosis and complications and the second session covered the effects and side effects of drugs prescribed and the importance of follow up schedule. Booklets were distributed to each patient at the end of the program. The patients were encouraged to contact the researcher as needed through cell phone for consultation and follow up concerning program information
2.6.3 The evaluation phase:
Three months after the completion of the educational program, patients were reassessed using the same study tools as posttest. Evaluation sessions were conducted either in the outpatient clinics or in patients' homes according to patient' preference.

3. Results

3.1 Sociodemographic Characteristics
The sociodemographic characteristics of the 65 participants are shown in Table (1). The study results revealed that 47.7% of patients in the age group 51-60 years old with mean age of 52.1±7.18. The majority (44.6%) of

study participants was university educated, while 27.7% were secondary school educated. Furthermore, 41.5% of participants were worked as white collar workers. Most of them (63.1%) were of average financial status.

Table 1. Percentage distribution of sociodemographic characteristics (n-65)

Sociodemographic characteristics		Frequency	%
Age	20 - 30	1	1.5
	31 - 40	7	10.8
	41 - 50	26	40.0
	51 - 60	31	47.7
	Mean age = 52.1±7.18		
Educational level	Primary	8	12.3
	Elementary	10	15.4
	Secondary	18	27.7
	University	29	44.6
Occupation	Retired	15	23.1
	Blue collar worker	23	35.4
	White collar worker	27	41.5
Financial status	Good	9	13.8
	Average	41	63.1
	Poor	15	23.1

Table 2. Total knowledge scores regarding MI disease and treatment regimen

Level of knowledge regarding MI disease & treatment regimen	Pre		Post		X^2	P
	No	%	No	%		
Good	5	7.7	63	96.6		
Fair	7	10.8	2	3.4	105.248	0.000*
Poor	53	81.5	0	0		
Total	65	100	65	100		

* P value is significant at level of ≤ 0.05

3.3 Patients' compliance "pre and post educational program"
Table (3) shows that 13.8% of patients had good compliance scores pre education program compared to 72.3% post education program, while 73.8% had poor compliance pre educational program compared to 23.1% post educational program with a statistically significant difference (p= 0.000).

Table 3. Total patients' scores regarding compliance to medication regimen

Practice	Pre		Post		X2	p
	No	%	No	%		
Good	9	13.8	47	72.3		
Fair	8	12.3	3	4.6	45.344	0.000*
Poor	48	73.9	15	23.1		
Total	65	100	65	100		

* P value is significant at level of ≤ 0.05

4. Discussion:
Many of cardiac disease risk factors were thought to be preventable through the behavioral changes and improvement in the quality of life. Self-management of cardiac disease are personal actions to prevent disease progression. Results of the present study showed that the majority of patients were males and the mean age of all patients was 52.1±7.18 years. This is in agreement with Jafary et al. (2007) who conducted a study in Pakistan, where the majority of MI subjects were males, and their mean age was 52.2 years. The study showed that more than half of patients in the study sample had primary, elementary or secondary education. The same was reported by Dawood et al. (2008) who conducted a study on MI patients in the United State which revealed that about half of study subjects had high school education or less. Also, it was noticed that the majority of patients had an average monthly income. This result was supported by Vardanjani, et al. (2013) who found that the majority had average economic status.

On the other hand, slightly more than two fifths of patients in the current study were white-collar workers and one third were blue-collar workers; while more than one tenth was retired. This results are

supported by Leonga et al. (2004) who conducted a study on 52 MI patients at Manchester university hospital, which found one quarter of respondents were working as blue-collar workers, less than half were white-collar workers and less than one third of respondents were retired. This means that, stressful working life of white collar workers might be a disposing factor for MI.

In a comprehensive review of patient's knowledge, a positive statistically significant difference between patients' knowledge scores pre and post the educational program was demonstrated in the study; which indicating higher total and subtotal knowledge scores post program. This is in accordance with Ghahramanian et al. (2011) who reported that, education programs have positive effects on knowledge of cardiac patients. However, knowledge improvement might be the result of the provision of an educational program and the elevated patients' concern about the heart attack as life threatening and the fear of recurrence which made them more receptive to the provided knowledge and instructions

Furthermore, the study showed high improvement scores and differences (pre and post education) regarding patients' compliance to medications; which slightly more than one tenth of patients had good compliance scores preprogram implementation compared to almost three quarters post education program. This result is congruent with Hadi & Rostami (2006), who conducted a study on 150 patients at Shiraz hospital outpatient clinic, Iran, to identify the effectiveness of a hypertension educational program on increasing medication compliance, the result showed improvement in compliance scores between pre and post educational program. Therefore, this finding of patients' compliance to medications regimen support the main hypothesis of the current study.

5. Conclusion:

Following implementation of the educational program, MI patients showed improvements in their knowledge and reported practice regarding adherence to medications regimen. Therefore, the findings of this study stress the need for creating educational program to cardiac outpatient clinics over Gaza strip as primary and secondary lines of prevention; in addition to empower the role community health nurses as health educators to enhance and ensure patients' compliance to medications regimen.

References

Dawood, N., Vaccarino, V., Reid, K.J., Spertus, J.A., Hamid, N., & Parashar, S. (2008). Predictors of Smoking Cessation after a Myocardial Infarction: The Role of Institutional Smoking Cessation Programs in Improving Success. Arch Intern Med.168 (18):1961-1967.

Ghahramanian, A., Golchin, M., & Rostami H. (2011). Educational needs of myocardial infarction patients. J Urmia Nurs Midwifery Fac 2011; 9(3): 157-63.

Jafary, M.H., Samad, A.D., Ishaq, M., Jawaid, S.A., Ahmad, M., & Vohra, E.A. (2007). Profile of Acute Myocardial Infarction (Ami) In Pakistan.Pak J Med Sci. 23 (4).

Kumar, A., Ramiah, S., & Gunasekera, S. (2008). Ischemia modified albumin: a potent marker in acute myocardial infarction in normolipidaemic. Pak J Med Sci. Vol. 24 No. 3.

Hadi, N., & Rostami-Gooran, N. (2006). Effectiveness of a hypertension educational program on increasing medication compliance in Shiraz. Shiraz E Medical J. 7:1–6.

Leong, J., Molassiotis, A., & Marsh, H. (2004). Adherence to health recommendations after a cardiac rehabilitation programme in post-myocardial infarction patients: the role of health beliefs, locus of control and psychological status. Clinical Effectiveness in Nursing 8:26–38 doi:10.1016/j.cein.02.001.

Palestinian Ministry of Health (2005). Palestine Health Status: Non-Communicable Diseases. Ministry of Health, Palestine.

Palestinian Central Bureau of Statistics. Health Annual Report (2010). Hospitals statistics. Palestine.

Shantouf R. (2012). Risk factors and the growing burden of cardiovascular disease in the Arab world, cardiology.

Thygesen, K., Alpert, J., Jaffe, A., Simoons, M., Chaitman, B., & White, H. (2012). Third universal definition of myocardial infarction. European Heart Journal 33, 2551–2567.

Vardanjani, S.A., Fanisaberi, L., Shahraki, F.A., Khalilzadeh, A., Vardanjani, A.T., & Dehkordi, F.G. (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, Article ID 675634, 8pp.

World Health Organization (2011). Cardiovascular Diseases (CVDs) Fact Sheet No. 317. WHO Available: http://www.who.int/mediacentre/factsheets/fs317/en/index.html (online). Accessed, June, 2013.