# International Journal of Advance Research in Nursing

# Effect of individualized nursing teaching protocol on quality of life for patients post myocardial infarction

[1] **Sahra Zaki Azer**, [2] **Nermeen Mahmoud Abd-Elaziz**, [3] **Mona Abd Elalazem Ahmed**, [4] **Safaa Rashad Mahmoud**

[1] Medical Surgical Nursing, Faculty of Nursing, Assiut University, Egypt
[2] Gerontolgical Nursing, Faculty of Nursing, Assiut University, Egypt
[3] Critiical Nursing, Faculty of Nursing, Assiut University, Egypt
[4] Community Health Nursing, Faculty of Nursing, Assiut University, Egypt

**Abstract**
Myocardial infarction is the irreversible necrosis of heart muscle, secondary to prolonged ischemia.
**Aim:** to recognize the effect of individualized nursing teaching protocol on quality of life for older adult patients post myocardial infarction.
Research design: Quasi-experimental study design was utilized.
**Setting:** The study was conducted, cardiology wards and out Patient clinic at Assiut University Hospital.
**Sample:** Simple random samplings of 60 adult patients were included in the study. They divided into two groups (30 studies and 30 controls). The study group received individualized nursing teaching protocol, while the control group received routine hospital care.
**Tools:** Four tools were used for data collection: Structure interviewing questionnaire, Myocardial Infarction Dimensional Assessment Scale (MIDAS), Short Form 36 (SF-36) quality of life scale, and individual teaching protocol.
**Results:** more than half of the patients' in the study group were male, married, with a mean of (57.1±7.62). There were significant differences in the intervention group in both total scores of the MIDAS and SF-36 quality of life scales.
**Conclusion:** an improvement in study group was observed in comparison with the control group in the patients' knowledge after application of nursing teaching protocol and improvement in quality of life led to decrease risk factors by increasing behaviours that protect cardiac health.
**Recommendation:** Individualized nursing teaching protocol should be applied in a Simple Arabic booklet for all cardiac patients before discharge to provide them with simple explanation about safely living with myocardial infarction.

**Keywords:** Myocardial infarction, teaching protocol, and quality of life

## Introduction

A myocardial infarction (MI) occurs because of sustained ischemia, causing irreversible myocardial cell death (necrosis).Thrombus formation causes 80% to 90% of all acute MIs. When a thrombus develops; there is no blood flow to the myocardium distal to the blockage, resulting in necrosis. The degree of altered function depends on the area of the heart involved and the size of the infarction (Bonow *et al*., 2012) [5]. If the thrombus is not completely blocking the artery, the time to complete necrosis may be as long as 12 hours. MIs are usually described based on the location of damage (e.g., anterior, inferior, lateral, septal, or posterior wall infarction) (O'Gara *et al*., 2013) [17].
Cardiovascular manifestations such as chest pain or discomfort, palpitations, and heart resonances might incorporate S3, S4, and furthermore new onset of a murmur. Expanded jugular venous distention may be seen if the MI has caused heart failure. Blood pressure may be raised due to sympathetic stimulation or diminished due to decrease contractility, impending cardiogenic shock. Pulse deficit

might demonstrate atrial fibrillation. ECG may show tachycardia, bradycardia, and dysrhythmias (Smeltzer *et al*., 2010) [19].
Respiratory manifestations such as tachypnea, dyspnea, shortness about breath, also crackles if MI need created pulmonary blockage. Pulmonary edema might be introduce.
Others manifestations such as, decreased urinary output, cool, clammy, diaphoretic, and pale skin, dependent edema, anxiety, restlessness, light-headedness, headache, visual disturbances, altered speech, altered motor function, and further changes in level of consciousness (Smeltzer *et al*., 2010) [19].
Severe, immobilizing chest pain not relieved by rest, position change, or alternately nitrate administration will be the sign of an MI. Persistent and unlike any other pain, it is typically depicted similarly as a heaviness, tightness, pressure, constriction, burning, or crushing. Common locations are substernal, retrosternal, or alternately Epigastric areas. When Epigastric pain is present, the patient may relate it to acid reflux and take antacids without relief.

The pain might emanate of the neck, lower jaw, and also arms alternately of the back. It might happen while the patient is active or at rest, sleeping or awake. It typically keeps up for 20 minutes or longer and may be all the more extreme over common Angina pain (Evangelista & McLaughlin, 2009) [6].

The patient may experience nausea and vomiting. These symptoms can result from reflex stimulation of the vomiting center by the severe pain. They can also result from vasovagal reflexes initiated from the area of the infarcted myocardium (Huether & McCance, 2012) [8]. The temperature might increase inside the first 24 hours up to 100.4° F (38° C). Those temperature rise might last for likewise long as 1 week. This increase in temperature is due to a systemic inflammatory process caused by myocardial cell death (Lewis et al., 2014) [14].

Acute myocardial infarction (AMI) is a significant community health problem due to being potentially fatal, generally occurring more frequently in society's productive age group, leading to significant problems in the *post-acute* period in relation to complications (Shibata et al., 2007). Complications of myocardial localized necrosis include; dysrhythmias, cardiogenic shock, heart failure, ventricular aneurysm, papillary muscle dysfunction, and pericarditis Dressler syndrome (Jneid et al., 2012) [9].

Quality of life (QOL) represents an individual's perception from claiming feeling for prosperity that comprised of subjective indicators for example, well-being and satisfaction with life and objective indicators for example, functional status (Bimala & Charuwan, 2011) [4].The physical, social, psychological and occupational limitations spoil the individual's quality of life in the post-myocardial infarction (MI) period. For this reason, those point of the medication to people for MI should be not only to lengthen life but also to allay manifestations furthermore enhance functions (Kuçukdeveci, 2005) [11].

In a number of studies, it has been verified that nursing teaching decrease risk factors, the rate of disorder recurrence and improve psychological wellness by decreasing stress. Although in the clinic the standardized care, knowledge is given to the patients suffering from myocardial infarction regarding medication, diet, and activity, there is no existing standardize education programme for patients currently (Uysal & Ozcan, 2011) [22].

Nurses should provide the patient with an exercise information such as instructing the patient will record as much heart rate previously then then afterward each phase of practice and whenever he feels anything unusual surprising throughout furthermore following each exercise. Patient may increase speed of walking day by day, and increase the length of walking distance. At the end of 6-8 weeks patient should be able to engage in brisk walking for 5km/hr. patient may be advised to avoid static exercise (lifting, carrying, pushing heavy objects) ( Nair, 2009) [16].

In Egypt, cardiovascular rehabilitation, usually, may be not a part of the schedule patient care following myocardial infarction, so the planning and implementing of nursing teaching protocol for MI patients might be one of the important and essential steps in improving MI patients' outcomes.

## Significant of the study
The number of patients with myocardial localized necrosis need expanded again the most recent a considerable length of time and these patients require intensive consideration care to save their lives and they are at danger to a few results. These results thus might need negative effect on the patient's physical and mental condition, and will prolong patient's hospital stay, and increase costs of the hospital, That is the reason there is an investment will behavior such sort for exploration which may shield this classification for patients against these not kidding consequences, In addition, scattered researches the place completed in this zone particularly on the national level.

This exploration might provide wellbeing experts for an in depth identified with this classification of patients which might make reflected positively on the quality of patients' life. The study also might support the important role of the nurse in the patients' care through assessing the patient's and providing the required care and educating help in regards to the myocardial infarction, Also it is hoped that findings of this study might help in improving quality of patient care and establish evidence based data that can promote nursing practice and research.

## Aim of the study
The aim of this study was to evaluate the effect of individualized nursing teaching protocol on quality of life for patients with myocardial infarction.

## Research hypotheses
To fulfill the aim of this study, the following research hypotheses were formulated:
1. Patients who will be exposed to the individualized nursing teaching protocol will have reduce the severity of disease symptoms
2. Patients who will be exposed to the individualized nursing teaching protocol will have a high level of quality of life and follows up appointments.

## Subjects and method
### Research design
Quasi-experimental design was utilized in this study.

### Setting
The study was conducted, cardiology wards and outpatient clinic at Assiut University Hospital, Egypt.

### Sample
Simple random sample of 60 older adult patients who were admitted cardiology wards were included in this study. Patients were distributed randomly (convenes) into two groups (study and control group). The study group (30 patients) received individualized teaching protocol, while the control group (30 patients) received routine hospital care.

- **Inclusion criteria:** All patients from both sexes (Male and female), and their ages ranging between 55 – 75 years, had experienced myocardial infarction for the first time and passed the acute period
- **Exclusion criteria:** Patients who have second time of myocardial infarction are children and young adult, and mental or psychiatric disorder patient.
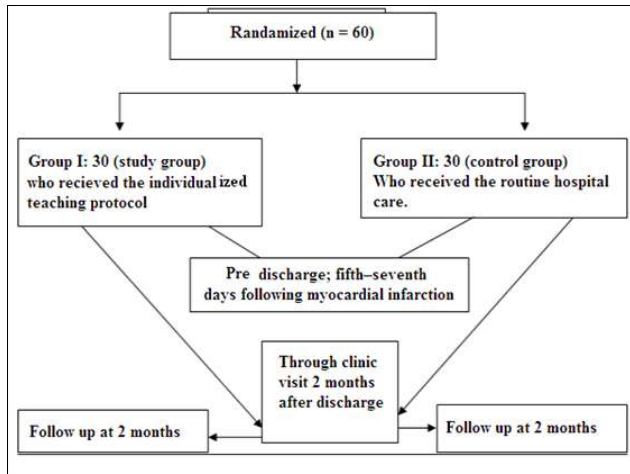
**Fig 1:** Study flowchart shows the study profile of patient and the randomization process of the groups.

**Tools:** Four tools were used for data collection of this study:

**Tool 1: Structure patient interviewing sheet**
It was designed by the researcher based on literature review and it includes three parts:

**Part I:** Demographic data about the patients (age, sex, marital status, family size, educational level).

**Part II:** Myocardial infarction risk factors assessment such as smoking, diabetes mellitus, obesity and physical activity/exercise (type, frequency and duration), the patient medical history such as common cardiovascular symptoms, health habits, family history.

**Part III:** Checking blood pressure & blood glucose (if there is diabetes). The patients' height and weight were measured to calculate their body mass index.

**Tool 2: The Myocardial Infarction Dimensional Assessment Scale (MIDAS) Pre/ Post 2 months after discharge**
This has proven to be a highly beneficial and reliable instrument and was developed by Thompson *et al*., 2002. It consists of six domains (a) Physical activity 11 items, (b) Insecurity 1 item (18), (c) Emotional reaction 13 items, (d) Social activity 4 items, (e) Dependency 3 items, and (f) Concern over medication 3. The time taken to complete the questionnaire was 10–15min.

**Scoring system for (MIDAS)**
Each question is scored from '0' to '100', '0' representing the best health condition and '100' representing the worst. Good (more than 70%), Moderate (50 -70%), and Bad (less than 50%).

**Averaging items to Myocardial Infarction Dimensional Assessment Scale (MIDAS) Pre/ Post 2 months after discharge**

| MIDAS | Number of items | Average the following items |
|---|---|---|
| Physical activity | 11 | 1, 2, 3, 4, 5, 6, 7, 9, 12, 17, 34 |
| Insecurity | 1 | 18 |
| Emotional reaction | 13 | 8, 13, 16, 19, 20, 21, 22, 23, 24, 25. 29, 30, 31 |
| Social activity | 4 | 10, 14, 15, 26 |
| Dependency | 3 | 11, 27, 28 |
| Concern over medication | 3 | 32, 33, 35 |

**Tool 3: Short Form 36 (SF-36) quality of life scale Pre/ Post 2 months after the discharge**
Was developed by Ware and Serbourne, 1992 in order to assess quality of life and has been used in many clinical application and research studies. SF-36 evaluates health based on a range of 0–100, '0' represents bad health condition, whereas '100' indicates a good state of health. The scale can be completed in 5–10 min and provides a quick assessment. (Ware, *et al*., 1993 & Aydemir, 1999). A 36-item short-form (SF-36) was constructed to survey health status in the Medical Outcomes Study. The SF-36 includes one multi-item scale that assesses eight health concepts: physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy /fatigue, emotional well-being, social function, bodily pain, and general health.

**Averaging items to Short Form 36 (SF-36) quality of life scale Pre/ Post 2 months after the discharge**

| Short Form 36 (SF-36) quality of life scale | Number of items | Average the following items |
|---|---|---|
| Physical function | 10 | 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 |
| Role limitations due to physical health | 4 | 13, 14, 15, 16 |
| Role limitations due to emotional problems | 3 | 17, 18, 19 |
| Energy /fatigue | 4 | 23, 27, 29, 31 |
| Emotional well-being | 5 | 24, 25, 26, 28, 30 |
| Social function | 2 | 20, 32 |
| Pain | 2 | 21, 22 |
| General health | 5 | 1, 2, 33, 34, 35, 36 |

Scoring system for Short Form 36 (SF-36) quality of life scales:
High (more than 70%), Moderate (50 -70%), and low (less than 50%).

**Tool 4: Individualized nursing teaching protocol**
The nursing teaching protocol was developed in simple Arabic language by the researchers based on patient's needs assessment, literature review, researcher experience, and opinion of the medical and nursing expertise to evaluate effect of nursing teaching protocol on patients' quality of life. Visual materials were prepared to be used in teaching and individualized nursing teaching protocol plans consists

of ten parts: information about anatomy of the heart and its function, MI (definition, risk factors, causes, clinical manifestation, complications, diagnosis and treatment, instructions related to taking medication and side effect, stress management, effect of smoking and how to stop smoking, guidelines for blood pressure control (hypertension management) and importance of physical activity, weight control, healthy eating and diabetes control. The nursing teaching protocol for patient post myocardial infarction to help them return to healthy life. Content of each part was devised for each patient individualized.

## Methods

### 1. Administrative approval
Official approval and administration permission was obtained from the head of cardiology words to collect the necessary data, after explaining the aim of the study and the nursing teaching protocol was obtained their cooperation.

### 2. Validly and reliability of the tools
Teaching protocol was tested by 5 Expertises from the field cardiology and nursing for content validly and reliability. Modifications were done accordingly then the tools were designed in its final format and tested for reliability using internal consistency for all of tools which was measured using Cronbach alpha test, the tools proved to be reliable (0.71).

### 3. Ethical considerations
Prior to the pilot study, ethical approval was obtained from the Scientific Research Ethical Committee at Assiut University and written informed consent was obtained from each participant after explaining the purpose of the study. In addition, they were assured that anonymity and confidentiality would be guaranteed and their right to withdraw from the study at any time without any reason.

### 4. Pilot study
A pilot study was conducted during November 2017. It included (10%) 6 patients, in order to test the clarity and applicability of the tools. According to this pilot study, the required modifications were made. Those patients who were involved in the pilot study were excluded from the study.

### 5. The data collection was done in the following phases
The researchers develop the nursing teaching protocol through four stages (assessment, planning, implementation and evaluation phase).

### A. Assessment phase
The researchers interviewed the patients individually and took their oral consent to participate and they answered the questions in the interview sheet, initial assessment of the patient was done and recorded for study and control group.

### B. Planning phase
The arrangement of conducting the program was done during this phase. The sessions and time of the program were decided. The chosen facilities were checked and arranged during this phase as teaching place, audiovisual aids and handout.

### Teaching time
The time of teaching was decided according to coordination between the researchers and each patient individually.

### Teaching place
The study program was conducted in the cardiology wards and outpatient clinic.

### Teaching methods and materials
It was important, before implementing the nursing teaching protocol, to prepare simple teaching instruments and audiovisual aids to be used; as Arabic booklet it was gave to each studied patient at first time after filling the pre assessment tools by the researchers.

### C. Implementation phase
The nursing teaching protocol had been implemented during a period of 7 months starting from the first December 2017 until the end of June 2018.

### During admission
- Each patient was interviewed individually after receiving medical management and his/her condition was stable.
- Each patient was asked to answer the interview questionnaire sheet. Initial assessment of patient was done and recorded; the teaching protocol was explained by the research.

### Teaching protocol sessions
- Five teaching sessions were conducted for each patient, teaching aid and media (pictures, Arabic handout; the content of teaching protocol modified in Arabic language) was given to the patient.
- The nursing teaching protocol had been implemented for the study group in the five sessions during fifth day after stabilization of the patient condition. The teaching protocol sessions aimed to elaborate the effect of implementing nursing teaching protocol on patients' quality of life.
- After each session there was 5 minutes for discussion and giving feedback. Each patient in the study group obtained a copy of the teaching booklet. The researcher used pictures for illustration, diagram, and video to educate the patient.
- Each session ranged between (20-30) minutes except for the session for discharge instruction, which took 40 minutes.

### The first session; it contains two parts:
- **Part I:** Information about the information on anatomy of the heart and its function.
- **Part II:** Information about the myocardial infraction such as definition, risk factors, causes, clinical manifestation, complications, diagnosis, warning signs of MI and treatment.

### The second session: it contains two parts:
- **Part I:** Information about instructions related to taking medication, guidelines for forgetfulness any dose of medication and side effects.

- **Part II:** Information about harmful effects of smoking on the heart and how to stop smoking and alcohol consumption and its danger on the heart function.

**The third session**
Information about guidelines for blood pressure control (hypertension management) such as weight control (importance and guidelines for weight control), physical exercise (importance and types as walking, swimming and bicycling).

**The Fourth Session:** it contains two parts:
- **Part I:** Information about importance of healthy eating, healthy components and preparation of diet. Instructions about importance of decreasing salt in diet.
- **Part II:** Information about importance of stress management and how perform relaxation technique and coughing exercise; Lean the patient forward slightly from a sitting position in bed, interlace the fingers together, and place the hands across the chest. Open the mouth slightly, and then breathe in fully. Hack out sharply for three short breaths, then keeping the mouth open, take in a quick deep breath and immediate give a strong cough once or twice. This helps clear secretions from chest. Deep breathing before coughing stimulates the cough reflex. If the patient does not coughs effectively pneumonia and other lung complications may occur.

**The Fifth Session:** it contains two parts:
- **Part I:** Information about diabetes control such as healthy diet for diabetic patient, to prevent foot ulcer the patient must perform assessment to the skin on the foot: top, bottom and sides including between the toes, assess toenails, look for any bony changes, look at the

shoes that the patient is wearing and discuss what he or she normally wears. Assess for presence of wound, scar or ulcers. Teach patient how to perform foot care by washing the foot by warm water and dry especially between toes. Put cream on the skin especially between toes to prevent dryness of the skin. Instruct the patient not to cut the nails or remove scars. Don't walk bare foot, and wear suitable shoes and check before wearing. The patient must wear stocking made from cotton or wool, and must be large. The patient must maintain level of glucose and take prescribed medication in right rout and dose. Give the patient examples of meals for breakfast, lunch and dinner
- **Part II:** teach patient how to perform insulin injection (how to aspirate the dose, sites, and procedure), instruct the patient to keep insulin medication according to manufacturer's specifications. Teach the patient to perform hand washing before and after procedure.

**D. Evaluation phase:** After implementing the nursing teaching protocol for patients, reassessment was done by the posttest to assess participant's knowledge and the QOL level.

**6. Statistical design**
The obtained data were reviewed, prepared for computer processing, coded, analyzed and tabulated. Data entry was done using the Epi-info 6.4 computer software package, while statistical analysis was done using the SPSS 16.0 statistical software package. Data was presented using descriptive statistics in the form of frequencies and percentages, means, standard deviations and using chi-square test. Statistical correlation between awareness and adherence, was considered at P- value <0.05.

**Results**

**Table 1:** Distribution of the demographic characteristics in study and control group subjects (n= 60).

| Demographic characteristics | Group | | | |
|---|---|---|---|---|
| | Study (n=30) | | Control (n=30) | |
| | No. | % | No. | % |
| **1. Age group:** | | | | |
| 55 < 65 year | 10 | 33.3 | 9 | 30 |
| 65 - 75 year | 20 | 66.7 | 21 | 70.0 |
| Mean ± SD | 57.1±7.62 | | 56.87±7.39 | |
| **2. Sex:** | | | | |
| Male | 17 | 56.7 | 14 | 46.7 |
| Female | 13 | 43.3 | 16 | 53.3 |
| **3. Marital status:** | | | | |
| Married | 27 | 90.0 | 26 | 86.7 |
| Widowed | 3 | 10 | 4 | 13.3 |
| **1. Educational level:** | | | | |
| Illiterate | 15 | 50.0 | 8 | 26.7 |
| Reading and Writing | 3 | 10.0 | 5 | 16.7 |
| Basic education | 4 | 13.3 | 8 | 26.7 |
| Secondary school | 6 | 20.0 | 6 | 20.0 |
| University | 2 | 6.7 | 3 | 10.0 |
| **2. Occupation:** | | | | |
| Worked | 9 | 30 | 12 | 60 |
| Not worked | 21 | 70.0 | 18 | 40 |

Statistically not significant at P > 0.05.

**Table 1:** the data reveals the more than half of the patients' in study group 56.7 % was male, 90 % were married, were 66.7% from (65-75 year) with mean 57.1±7.62, half of the

patients' 50% were illiterate, and 70.0 % were non-worked. While the patients' in control group more than half of them 53.3% were female, 86.7 % were married, were 70.0 %

from (40 to 50 years) with mean 56.87±7.39, 26.7% were illiterate, and 46.7% were non-working. No statistical significant difference between study and control groups as regards demographic characteristics.

**Table 2:** Distribution of the sample according to risk factors for study and control group (n= 60).

| Risk factors | Study (n=30) | | Control (n=30) | | P. value |
|---|---|---|---|---|---|
| | No. | % | No. | % | |
| 1. Diabetes mellitus: | | | | | |
| Yes | 9 | 30.0 | 11 | 36.7 | 0.584 |
| No | 21 | 70.0 | 19 | 63.3 | |
| 2. Type of diabetes: | | | | | |
| Type1 | 3 | 10.0 | 4 | 13.3 | 1.000 |
| Type2 | 6 | 20.0 | 7 | 23.3 | |
| 3. Duration of diabetes. | 2.83±5.11 | | 1.89±3.93 | | 0.438 |
| 4. Treatment | | | | | |
| Oral hypoglycemic agent (OHE) | 3 | 10.0 | 3 | 10.0 | 1.000 |
| Insulin | 4 | 13.3 | 4 | 13.3 | |
| Combined | 2 | 6.7 | 4 | 13.3 | |
| 5. Blood glucose level: | | | | | |
| Usually maintained | 4 | 13.3 | 5 | 16.7 | 0.921 |
| Usually elevated | 5 | 16.7 | 6 | 20.0 | |
| 6. Hypertension | 15 | 50.0 | 15 | 50.0 | 1.000 |
| 7. Chronic obstructive pulmonary disease | 5 | 16.7 | 7 | 23.3 | 0.519 |
| 8. Admission to the ICU before | 11 | 36.7 | 13 | 43.3 | 0.598 |
| 9. Previous cardiac surgery | 8 | 26.7 | 10 | 33.3 | 0.573 |
| 10. Use of antibiotics | 15 | 50.0 | 17 | 56.7 | 0.605 |
| 11. Use of anticoagulant | 14 | 46.7 | 12 | 40.0 | 0.602 |
| 12. Body mass index | 26.2±4.86 | | 25.2±3.74 | | 0.375 |
| 13. Nutritional status: | | | | | |
| Low weight < 20 kg | 1 | 3.3 | 2 | 6.7 | 1.000 |
| Standard level of weight (20 < 26 kg) | 3 | 10.0 | 5 | 16.7 | |
| over weight (26 < 26-30) | 7 | 23.3 | 3 | 10.0 | |
| Obese (30 < 40kg) | 19 | 63.3 | 15 | 50.0 | |

**Table (2):** Mentioned that the percentage of both the study and control group were diabetes mellitus (30.0 % and 36.7%) respectively with type I diabetes (20.0 %), (13.3 %) were taking insulin treatment. Regarding blood glucose level in both groups were elevated (10.0% and 13.3%) respectively. The half of both the study and control group was hypertensive (50 %). Less than one third of study and control group were had chronic obstructive pulmonary disease (16.7 % and 23.3%) respectively. (36.7 % and 43.3%) respectively of the study and control group were previously admitted to the ICU. There was no statistically significant difference between both the study and control group as regard risk factors. Regarding body mass index (p-value 1.000) with near two third of the study and control group (63.3%) were standard level of weight.

**Table 3:** Distribution of the sample according to clinical assessment and health habits for study and control group (n= 60.

| Variable | Study (n=30) | | Control (n=30) | | P. value |
|---|---|---|---|---|---|
| | No. | % | No. | % | |
| 1. **Common symptoms for cardiovascular:#** | | | | | |
| Chest pain | 29 | 96.7 | 29 | 96.7 | 1.000 |
| Palpitation | 8 | 26.7 | 11 | 36.7 | 0.405 |
| Dyspnea | 14 | 46.7 | 15 | 50.0 | 0.796 |
| Cough | 9 | 30.0 | 6 | 20.0 | 0.371 |
| Edema | 3 | 10.0 | 6 | 20.0 | 0.278 |
| Extremity pain | 4 | 13.3 | 7 | 23.3 | 0.317 |
| Nocturnal dyspnea | 2 | 6.7 | 4 | 13.3 | 0.389 |
| Fatigue | 22 | 73.3 | 21 | 70.0 | 0.774 |
| 2. **Health habits:#** | | | | | |
| Use of tea and coffee | 21 | 70.0 | 24 | 80.0 | 0.371 |
| Use of alcohol | 0 | 0.0 | 1 | 3.3 | 0.313 |
| Smoking | 15 | 50.0 | 11 | 36.7 | 0.297 |
| Physical activity/Exercise | 4 | 13.3 | 6 | 20.0 | 0.488 |
| | | | | | |
| Frequency of Exercise | 2.4±0.55 | | 2.29±0.76 | | 0.780 |
| Duration of Exercise | 30±18.71 | | 27.86±15.77 | | 0.834 |
| **Type of Exercise:** | | | | | |
| Walking | 3 | 13.3 | 5 | 20.0 | 0.793 |
| Aerobic ex | 1 | 3.3 | 1 | 3.3 | |

#More than one answer

**Table 3:** The findings indicated that 96.7 % of the patients in the study and control groups had equal percent of chest pain. Concerning fatigue of both study and control groups were (73.3% and 70.0%) respectively. The data reveals that the patients' in control group more than study ones as regard use of tea and coffee was used (80 % and 70 %) respectively. Regarding smoking the majority of the patients' in study group had smoked more than control ones (50 % and 36.7 %) respectively. As regard type of exercises; less than one third of the study group and control group performing walking exercise (13.3% and 20%) respectively. The findings indicated that there were no statistically significant differences between the study and control groups as regard clinical assessment and health habits.

**Table 4:** Distribution of the sample according to vital signs means scores and physical examination for both study and control groups (n= 60.

| Variable | Group | | | | P. value |
|---|---|---|---|---|---|
| | Study (n=30) | | Control (n=30) | | |
| | No. | % | No. | % | |
| 1.    Vital signs: | 23.27±8.05 | | 23.67±8.2 | | |
| Respiration | | | | | 0.849 |
| Pulse | 86.43±18.02 | | 87.43±17.59 | | 0.829 |
| Systolic Blood pressure (SBB) | 130.33±21.73 | | 133.33±22.02 | | 0.597 |
| Diastolic Blood pressure (DBB) | 81.67±12.62 | | 82.33±11.94 | | 0.834 |
| Temperature | 37.17±0.53 | | 37.23±0.57 | | 0.640 |
| 2.    Physical examination: Face | | | | | |
| Pink | 9 | 30.0 | 11 | 36.7 | |
| Cyanosis | 1 | 3.3 | 1 | 3.3 | 0.858 |
| Pale | 20 | 66.7 | 18 | 60.0 | |
| **Thorax** | | | | | |
| Normal | 30 | 100.0 | 27 | 90.0 | 0.076 |
| Wounds | 0 | 0.0 | 3 | 10.0 | |
| **Abdomen** | | | | | |
| Normal | 28 | 93.3 | 23 | 76.7 | |
| Distension | 1 | 3.3 | 3 | 10.0 | 0.213 |
| Ascites | 1 | 3.3 | 1 | 3.3 | |
| Scars | 0 | 0.0 | 3 | 10.0 | |
| **Nail beds** | | | | | |
| Normal | 30 | 100.0 | 30 | 100.0 | - |
| **Lower extremities** | | | | | |
| Normal | 22 | 73.3 | 22 | 73.3 | |
| Pale | 4 | 13.3 | 4 | 13.3 | 1.000 |
| pain | 1 | 3.3 | 1 | 3.3 | |
| Edema | 3 | 10.0 | 3 | 10.0 | |
| **Jugular veins** | | | | | |
| Normal | 27 | 90.0 | 26 | 86.7 | 0.688 |
| Congested | 3 | 10.0 | 4 | 13.3 | |
| **Capillary refill** | | | | | |
| Normal (<3 second) | 25 | 83.3 | 25 | 83.3 | 1.000 |
| Delay | 5 | 16.7 | 5 | 16.7 | |
| **Edema** | | | | | |
| No present | 26 | 86.7 | 26 | 86.7 | 1.000 |
| present pitting | 4 | 13.3 | 4 | 13.3 | |

**Table 4:** This table shows that assessment of vital signs in both study and control groups. There are highest mean scores as regard to pulse rate, systolic blood pressure, and diastolic blood pressure in control group than in study group (87.43±17.59, 86.43±18.02, 133.33±22.02, 130.33±21.73 and 82.33±11.94, 81.67±12.62) respectively.
The data reveals that there was no statistically significant difference between both the study and control group regarding patient's physical examination, The data reported that the patients' in study group as pale face color more than control ones (66.7% and 60%) respectively. the majority of the studied sample were having a normal finding regarding thorax (100%), abdomen (93.3%) and nail beds color (100%). The results indicated that 10 % of the patients in the study and control groups had equal percent of edema in lower extremities mostly of the pitting type.

**Table 5**: Comparison between study and control groups as regard Myocardial Infarction Dimensional Assessment Scale MIDAS (pre and post nursing teaching protocol) (n=60):

| Midas | Pre nursing teaching protocol | | | | | Post nursing teaching protocol | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Study (n=30) | | Control (n=30) | | P. value | Study (n=30) | | Control (n=30) | | P. value |
| | No | % | No | % | | No | % | No | % | |
| **1. Physical activity** | | | | | | | | | | |
| Bad | 21 | 70.0 | 19 | 63.3 | 0.584 | 0 | 0.0 | 20 | 66.7 | 0.000** |
| Moderate | 9 | 30.0 | 11 | 36.7 | | 18 | 60.0 | 10 | 33.3 | |
| Good | 0 | 0.0 | 0 | 0.0 | | 12 | 40.0 | 0 | 0.0 | |
| **2. Insecurity** | | | | | | | | | | |
| Bad | 1 | 3.3 | 1 | 3.3 | 0.965 | 0 | 0.0 | 1 | 3.3 | |
| Moderate | 17 | 56.7 | 16 | 53.3 | | 0 | 0.0 | 16 | 53.3 | |
| Good | 12 | 40.0 | 13 | 43.3 | | 30 | 100.0 | 13 | 43.3 | 0.000** |
| **3. Emotional reaction** | | | | | | | | | | |
| Bad | 12 | 40.0 | 11 | 36.7 | 0.965 | 0 | 0.0 | 12 | 40.0 | |
| Moderate | 17 | 56.7 | 18 | 60.0 | | 25 | 83.3 | 17 | 56.7 | |
| Good | 1 | 3.3 | 1 | 3.3 | | 5 | 16.7 | 1 | 3.3 | |
| **4. Social activity** | | | | | | | | | | |
| Bad | 4 | 13.3 | 5 | 16.7 | 0.714 | 0 | 0.0 | 5 | 16.7 | 0.000** |
| Moderate | 14 | 46.7 | 16 | 53.3 | | 1 | 3.3 | 16 | 53.3 | |
| Good | 12 | 40.0 | 9 | 30.0 | | 29 | 96.7 | 9 | 30.0 | |
| **5. Dependency** | | | | | | | | | | |
| Bad | 12 | 40.0 | 14 | 46.7 | 0.771 | 3 | 10.0 | 16 | 53.3 | 0.001** |
| Moderate | 16 | 53.3 | 15 | 50.0 | | 24 | 80.0 | 13 | 43.3 | |
| Good | 2 | 6.7 | 1 | 3.3 | | 30 | 100.0 | 10 | 33.3 | |
| **6. Concern over medication** | | | | | | | | | | |
| Bad | 10 | 33.3 | 11 | 36.7 | 0.944 | 30 | 100.0 | 10 | 33.3 | |
| Moderate | 12 | 40.0 | 12 | 40.0 | | 0 | 0.0 | 13 | 43.3 | 0.000** |
| Good | 8 | 26.7 | 7 | 23.3 | | 0 | 0.0 | 7 | 23.3 | |

Bad < 50%, Moderate 50: 70, Good > 70 Chi-squire test, * statistically significant difference (p<0.05), ** highly statistically significant difference ($p<0.01$).

**Table 5:** This table indicated that, there are no statistically significant differences between both the study and control group regarding Myocardial Infarction Dimensional Assessment Scale in pre nursing teaching protocol. While in post nursing teaching protocol there are statistically significance difference between study and control groups.

**Table 6:** Comparison between studied group as regard Short Form 36 (SF-36) quality of life scale (pre and post nursing teaching protocol) (n=60)

| Quality of life | Pre nursing teaching protocol | | | | | Post nursing teaching protocol | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Study (n=30) | | Control (n=30) | | P. value | Study(n=30) | | Control(n=30) | | P. value |
| | No | % | No | % | | No | % | No | % | |
| **1. Physical function** | | | | | | | | | | |
| low | 3 | 10.0 | 3 | 10.0 | 0.964 | 0 | 0.0 | 2 | 6.7 | 0.001** |
| Moderate | 13 | 43.3 | 14 | 46.7 | | 3 | 10.0 | 14 | 46.7 | |
| High | 14 | 46.7 | 13 | 43.3 | | 27 | 90.0 | 14 | 46.7 | |
| **2. Role limitations due to physical health** | | | | | | | | | | |
| low | 0 | 0.0 | 0 | 0.0 | 0.795 | 0 | 0.0 | 0 | 0.0 | 0.067 |
| Moderate | 16 | 53.3 | 17 | 56.7 | | 9 | 30.0 | 16 | 53.3 | |
| High | 14 | 46.7 | 13 | 43.3 | | 21 | 70.0 | 14 | 46.7 | |
| **3. Role limitations due to emotional problems** | | | | | | | | | | |
| low | 0 | 0.0 | 0 | 0.0 | 0.781 | 0 | 0.0 | 0 | 0.0 | 0.781 |
| Moderate | 20 | 66.7 | 21 | 70.0 | | 20 | 66.7 | 21 | 70.0 | |
| High | 10 | 33.3 | 9 | 30.0 | | 10 | 33.3 | 9 | 30.0 | |
| **4. Energy fatigue** | | | | | | | | | | |
| low | 9 | 30.0 | 9 | 30.0 | 1.000 | 0 | 0.0 | 11 | 36.7 | 0.000** |
| Moderate | 18 | 60.0 | 18 | 60.0 | | 6 | 20.0 | 16 | 53.3 | |
| High | 3 | 10.0 | 3 | 10.0 | | 24 | 80.0 | 3 | 10.0 | |
| **5. Emotional well-being** | | | | | | | | | | |
| low | 3 | 10.0 | 2 | 6.7 | 0.572 | 0 | 0.0 | 2 | 6.7 | 0.000** |
| Moderate | 16 | 53.3 | 20 | 66.7 | | 5 | 16.7 | 21 | 70.0 | |
| High | 11 | 36.7 | 8 | 26.7 | | 25 | 83.3 | 7 | 23.3 | |
| **3. Social function scale** | | | | | | | | | | |
| low | 3 | 10.0 | 2 | 6.7 | 0.895 | 0 | 0.0 | 1 | 3.3 | 0.014* |
| Moderate | 22 | 73.3 | 23 | 76.7 | | 11 | 36.7 | 21 | 70.0 | |

| | No | % | No | % | P. value | No | % | No | % | P. value |
|---|---|---|---|---|---|---|---|---|---|---|
| High | 5 | 16.7 | 5 | 16.7 | | 19 | 63.3 | 8 | 26.7 | |
| **4. Pain** | | | | | | | | | | |
| low | 7 | 23.3 | 6 | 20.0 | 0.948 | 0 | 0.0 | 5 | 16.7 | 0.062 |
| Moderate | 16 | 53.3 | 17 | 56.7 | | 18 | 60.0 | 16 | 53.3 | |
| High | 7 | 23.3 | 7 | 23.3 | | 12 | 40.0 | 9 | 30.0 | |
| **5. General health** | | | | | | | | | | |
| low | 4 | 13.3 | 4 | 13.3 | 1.000 | 0 | 0.0 | 7 | 23.3 | 0.000** |
| Moderate | 25 | 83.3 | 25 | 83.3 | | 13 | 43.3 | 22 | 73.3 | |
| High | 1 | 3.3 | 1 | 3.3 | | 17 | 56.7 | 1 | 3.3 | |

Low < 50%, Moderate 50: 70, High > 70

**Table (6):** This table revealed that was significant difference in all items of quality of life scale in study and control group post nursing teaching protocol except items of role limitations due to physical health and emotional problems and pain in study group. The findings indicated that there were no statistically significant differences in study and control group as regard in all items of quality of life scale pre nursing teaching protocol.

**Table 7:** Comparison between studied group as regard total scores of Myocardial Infarction Dimensional Assessment Scale MIDAS and Short Form 36 (SF-36) quality of life scale (pre and post nursing teaching protocol) (n=60):

| Variable | Pre nursing teaching protocol | | | | | Post nursing teaching protocol | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | study | | control | | P. value | study | | control | | P. value |
| | No | % | No | % | | No | % | No | % | |
| **1. Midas** | | | | | | | | | | |
| Bad | 20 | 66.7 | 22 | 73.3 | 0.781 | 1 | 3.3 | 19 | 63.3 | 0.000** |
| Moderate | 8 | 26.7 | 7 | 23.3 | | 12 | 40.0 | 10 | 33.3 | |
| Good | 2 | 6.7 | 1 | 3.3 | | 17 | 56.7 | 1 | 3.3 | |
| **Mean ±SD** | 3.06±0.36 | | 3.00±0.26 | | 0.420 | 3.90±0.30 | | 3.00±0.26 | | 0.000** |
| **2. Short Form 36 quality of life scale** | | | | | | | | | | |
| Low | 4 | 13.3 | 4 | 13.3 | 1.000 | 0 | 0.0 | 4 | 13.3 | 0.000** |
| Moderate | 21 | 70.0 | 21 | 70.0 | | 4 | 13.3 | 21 | 70.0 | |
| High | 5 | 16.7 | 5 | 16.7 | | 26 | 86.7 | 5 | 16.7 | |
| **Mean ±SD** | 2.03±0.55 | | 2.03±0.55 | | 1.000 | 2.86±0.34 | | 2.03±0.55 | | 0.000** |

1- Chi-squire test. ** Highly statistically significant difference ($p<0.01$). 2- Independent sample t-test ** highly statistically significant difference ($p<0.01$).

**Table 7:** this table revealed that are significant difference was observed in the intervention group in both total scores of the MIDAS and the SF-36 quality of life scales with P-values ($P \leq 0.000$).

**Discussion**
The results of the study will be discussed and interpreted in the right of updated references. A major goal is to achieve the highest level of quality of life (QoL). The QoL, a relatively new scientific measure, is strongly influenced in coronary artery disease (CAD) patients especially soon after an acute myocardial infarction, acute coronary syndrome or heart failure. Individualized teaching protocol interventions have been proven to increase QoL.

Based on the results of the present study, more than half of patients in study group were male, while in control group were female. The results were in the same line with (Barlow JH, et al., 2009); (Johnston, 2009) who reported that; the majority of both samples was composed of males. More than two third of them their ages ranged from (40 to 50 years) with mean 57.1±7.62 and 56.87±7.39 respectively. According to (Uysal H. and Ozcan S, 2012) [23] who revealed that the highest rate of MI frequency was found to be in the 45–54 and 65–70 age groups in both sexes.

Regarding the patients` marital status; the majority of patients in the study and control group were married. This result was in the same line with (Lakdizaji et al., 2013) who mentioned that the majority of participants were married,

Regarding education and occupation; half of the patients' were illiterate, and two third were non-working. The current study finding disagreed with (Lakdizaji et al., 2013) who reported that most subjects were at elementary education level and more than one third of them were self-employed. The present study mentioned that there is no statistical significant difference between study and control groups as regard socio-demographic characteristics.

The present study mentioned that less than one third in study group and more than one third in control group were having diabetes mellitus (type I diabetes) less than one third in both groups were taking insulin treatment and were having an elevated level in blood glucose. Concerning hypertension, half of both the study and control group were hypertensive. This result was in the same line with (Bautista, 2006) who reported that history of hypertension had the strongest association with acute myocardial infraction (AMI). Also, (Fernando, 2007) [7] illustrated that permanent stress and history of hypertension had the strongest association with AMI, followed by a history of diabetes mellitus and abdominal obesity.

According to (Kushner et al., 2013) [12-17] who stated that factors that increase the risk of developing atherosclerosis and heart attacks include increased blood cholesterol, high blood pressure, use of tobacco, diabetes mellitus, male gender (although women may still be very much at risk, and a family history of coronary heart disease.

The present study revealed that, less than one third of study

and control group were having chronic obstructive pulmonary disease. More than one third of both study and control group were previously admitted to the ICU.

Regarding body mass index (*p*-value 1.000) near two third of the study and control group were at standard level of weight. According to (Wild, 2004) [26] who stated that the majority of risk of AMI were tobacco use, abnormal lipids, abdominal obesity, and hypertension.

The findings indicated that there were no statistically significant differences between the study and control groups as regard clinical assessment and health habits. The data illustrated that the majority of patients' in both study and control group had equal percent of chest pain. The data mentioned that more than two third of both study and control groups were having fatigue and use tea and coffee.

Regarding smoking the majority of the patients' in study group smoked more than the control ones. This result from opinion of the researcher can be explained as more than half of the study group was male. (Fernando, 2007) [7] Agreed with the finding of our study and mentioned that; the most common risk factors in the control group were abdominal obesity and smoking. Increasing levels of smoking increased the risk of AMI compared with nonsmokers.

The data demonstrated that the patients' in the control group perform exercise more than study ones and less than one third of the study group and control group perform walking exercise. According to (Thompson *et al*., 2007) [21] who stated that habitual physical activity reduces coronary heart disease events, but vigorous activity can also acutely and transiently increase the risk of sudden cardiac death and acute myocardial infarction in susceptible persons. Maintaining physical fitness through regular physical activity may help to reduce events because a disproportionate number of events occur in least physically active subjects performing unaccustomed physical activity. The patients must be screened before participation in exercise, excluding high-risk patients from certain activities, promptly evaluating possible prodromal symptoms, training fitness personnel for emergencies, and encouraging patients to avoid high-risk activities.

The current study results reveals that assessment of vital signs in both study and control groups; there were highest mean scores as regard to pulse rate, systolic blood pressure, and diastolic blood pressure in the control group than in study group (87.43±17.59, 86.43±18.02, 133.33±22.02, 130.33±21.73 and 82.33±11.94, 81.67±12.62) respectively.

The data reveals that there was no statistically significant difference between both the study and control group regarding patient's physical examination, the data reported that two third of the patients' in study group were having pale face color. The majority of the studied samples were having normal finding regarding thorax, abdomen and nail beds color. The results indicated that less than one third of the patients in the study and control groups had equal percent of edema in lower extremities mostly of the pitting type.

The present study found that, there was no statistically significant difference between both the study and control group regarding Myocardial Infarction Dimensional Assessment Scale in pre nursing teaching protocol. While after implementing the nursing teaching protocol there was a statistically significant difference between study and control groups. After application of nursing teaching protocol which helped in improvement of patients' physical activity, insecurity, emotional reaction, social activity, dependency, and concern over medication. According to (Uysal and Ozcan, 2012) [23] who mentioned that the improvement in patients' physical activity subscales as an expected effect, patients should be trained in terms of regular physical activity and healthy nutrition in order to preserve the ideal body weight.

The present study found that were significant difference in all items of quality of life scale pre and post nursing teaching protocol except items of role limitations due to physical health and emotional problems and pain in study group. The findings indicated that there were no statistically significant differences in control group as regard all items of quality of life scale pre and post nursing teaching protocol. (Yousefy *et al*., 2009 and Johnston, 2009) agree with the finding of our study and emphasize that the programme applied to patients following AMI is effective in increasing quality of life. Also, (Muller-Nordhorn *et al*., 2004) stated that only patients in the intervention group had improved quality of life.

The present study showed that significant difference was observed in the intervention group in both total scores of the MIDAS and the SF-36 quality of life scales with P-values (P ≤ 0.000). The results were in the same line with (Uysal and Ozcan, 2012) [23] who stated that a significant difference was observed in the intervention group in both the MIDAS and the SF-36 quality of life scales' there month of evaluations in comparison with the baseline values (*P ≤ 0.000*).

Finally, it is the fact that study documented that the nurse play a vital role in care and giving teaching to patients information about MI, medication, stress management, effect of smoking and alcohol consumption, blood pressure control (hypertension management) and importance of physical activity, weight control, healthy eating and diabetes control. The qualified care nurse must integrate theoretical knowledge, assessment skills, and problem solving ability to provide optimal nursing care and maintain high quality outcomes for patients.

## Conclusion
Based on the results of the present study, it can be concluded that the MIDAS and the SF-36 quality of life scales, more improvement was observed in comparison with the control group in the patients' quality of life after application of nursing teaching protocol when compared with the control group. The results indicated that individualized nursing teaching protocol provided to patients having experienced acute myocardial infarction lead to improvement in quality of life and decrease risk factors by increasing behaviours that protect cardiac health.

## Recommendation
1. Establishment of patients' educational centers in hospitals equipped by suitable related materials, Medias and audio-visual aids for teaching all myocardial infarction patients' how to live with their medical condition.
2. Cardiac rehabilitation centers can be established and encouraged.
3. Regular follow up for all patients with myocardial

infarction to evaluate their health conditions and to detect complications early.

4. Replication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data.

5. Further studies have to be carried out in order to assess the effectiveness of nursing teaching protocol applications on patients' outcomes regarding different cardiac disorders.

6. Further studies have to be carried out in order to assess nurses' knowledge and practices regarding providing a nursing teaching protocol for myocardial infarction patients.

## References

1. Aydemir O. Consultation–liaison psychiatry measurement of quality of life: Short Form-36 (SF-36). Turkish Journal of Psychiatry. 1999; 7:14-22.

2. Barlow JH, Tunner AP, Gilchrist M. A Randomised controlled trial of lay-led Self-management for myocardial infarction patients who have completed cardiac rehabilitation. European Journal of Cardiovascular Nursing. 2009; 8:293-301.

3. Bautista LE, Orostegui M, Vera LM, Prada GE, Orozco LC, Herrán OF *et al.* Prevalence and impact of cardiovascular risk factors in Bucaramanga, Colombia: results from the Countrywide Integrated Non communicable Disease Intervention Programme (CINDI/CARMEN) baseline survey. Euro J Cardiovascular Prev Rehab. 2006; 13:769-775.

4. Bimala Panther & Charuwan Kritpracha: Anxiety and Quality of life in Patients with Myocardial Infarction. Nurse Media Journal of Nursing. 2011.

5. Bonow RO, Mann DL, Zipes DP, *et al.* Braunwald's heart disease: a textbook of cardiovascular medicine, 9th (Ed), St Louis, Saunders, 2012.

6. Evangelista O, McLaughlin MA. Review of cardiovascular risk factors in women, Gender Med. 2009; 6(Suppl 1):17.

7. Fernando Lanas, Alvaro Avezum, Leonelo E. Bautista, Rafael Diaz, Max Luna, Shofiqul Islam, Salim Yusuf, Risk Factors for Acute Myocardial Infarction in Latin America, The Interheart Latin American Study, 2007.

8. Huether SE, McCance KL. Understanding pathophysiology, 5th (Ed), St Louis, Mosby, 2012.

9. Jneid H, Anderson JL, Wright RS, Adams CD, *et al.*, ACCF/AHA focused update of the guidelines for the management of patients with unstable angina/non-ST-elevation myocardial infarction, J Am Coll Cardiol. 2012; 126:875.

10. Johnston M Example of HSR project: Cardiac counselling and rehabilitation: RCT of complex interventions. Available from URL: http://www.abdn.ac.uk/~psy378/dept/MRes%20RCT.ppt, 2009.

11. Kuçukdeveci A. Quality of life in rehabilitation. Turkish Journal of Physical Medicine and Rehabilitation; 51 (Özel ek B). 2005; B23-B29.

12. Kushner FG *et al.*, ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction. Circulation. 2013; 127 (4):362-425.

13. Lakdizaji S, Hassankhni H, Mohajjel A, Khajegodary M, Salehi R Effect of Educational Program on Quality of Life of Patients with Heart Failure: A Randomized Clinical Trial, J Caring Sci. 2013; 2(1):11-18.

14. Lewis SL, Heitkemper MM, Bucher L, Dirksen SR, Harding MM. Medical Surgical Nursing, Assessment and Management of clinical problems. 9th (Ed). Mosby, an imprint of Elsevier Inc. 2014, 747-750.

15. Muller-Nordhorn J, Kulig M, Binting S. *et al.* Change in quality of life in the year following cardiac rehabilitation. Quality of Life Research. 2004; 13:399-410.

16. Nair UR. Textbook of medical surgical nursing (1st Ed.). India, Jaypee Brothers medical Publishers. 2009, 45-430.

17. O'Gara PT, Kushner FG, Ascheim DD. *et al.* ACCF/AHA guideline for the management of ST-elevation myocardial infarction: executive summary, J Am Coll Cardiol. 2013, 61-485.

18. Shibata A, Oka K, Nakamura Y, & Muraoka I., Recommended level of physical activity and health-related quality of life among Japanese adults. Health and Quality of Life Outcomes. 2007, 5:64.

19. Smeltzer SC, Bare BG, Hinkle JL, Cheever KH, Brunner & Suddrrth's. Textbook of Medical Surgical Nursing. 12th ed. Philadelphia: Lippincott, 2010.

20. Thompson DR, Jenkinson C, Roebuck A, Lewin RJP, Boyle RM, & Chandola T. *et al.* Development and validation of short measure of health status for individuals with acute myocardial infarction: The Myocardial Infarction Dimensional Assessment Scale (MIDAS). Quality of Life Research. 2002; 11:535-543.

21. Thompson Paul D, Franklin Barry A, Gary J, Balady, Steven N, Blair Domenico Corrado NA, Mark Estes, Janet E. Exercise and Acute Cardiovascular Events Placing the Risks Into Perspective: A Scientific Statement From the American Heart Association Council on Nutrition, Physical Activity, and Metabolism and the Council on Clinical Cardiology, 2007.

22. Uysal H, Ozcan S. A Turkish version of Myocardial Infarction Dimensional Assessment Scale (TR-MIDAS): Reliability–validity assessment. European Journal of Cardiovascular Nursing. 2011; 10:115-123.

23. Uysal H, Ozcan S. The effect of individual training and counselling programme for patients with myocardial infarction over patients' quality of life. International Journal of Nursing Practice. 2012; 18(5):445–453.

24. Ware JE, Serbourne CD. The MOS 36 item short-from health survey (SF-36). I. Conceptual framework and item selection. Medical Care. 1992; 30:473–483.

25. Ware JE, Snow KK, Kosinski M, & Gandek B. SF-36 Health Survey Manual and Interpretation Guide. Boston, MA: New England Medical Center, the Health Institute, 1993.

26. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care. 2004; 27:1047-1053.

27. Yousefy A, Keshtiaray N, Yamani N, Rabiei K, Baghbranian P. Quality of life in post myocardial infarction patients with or without cardiac rehabilitation. Research Journal of Biological Sciences. 2009; 4:54-58.