Improving Daily Living Activity for Clients with cardiovascular disease Using Orem Self Care Theory at Benha City

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ABSTRACT

Background: According to Orem's definition, self care includes those learned behaviors that individuals perform in order to preserve or promote their daily living activity, health, well being and prevention or treatment of their disease. **The aim** of this study was to improve daily living activity for clients with Cardiovascular disease using Orem self care theory at Benha City. **Design:** A quasi-experimental design was used in carrying out this study. **Setting** the study was conducted at the Medical Outpatients' Clinics of Benha University Hospital and Health Insurance Hospital**. The sample** of this study included 100 Cardiovascular disease' clients chosen randomly from total (1000). **Tools** utilized in this study comprised a structured interviewing questionnaire for the assessment of clients' socio-demographic characteristics, knowledge about disease, self-care, and daily living activity, clients' home environment assessment and the health profile for history of Cardiovascular disease' clients; and clients' practices for measuring pulse. **Results** of this study showed a significant positive effect of self care program on knowledge, practices and self-care of Cardiovascular disease' clients. There were improvements in Cardiovascular disease clients' self-care of daily living activities after conduction of the program. **This study concluded that**, significant improvement was detected for client's daily living activities after the self care program implementation **The study recommended that**, Cardiovascular disease clients should be offered continuous refresher home health care programs, promotion and enhancement of the self-care modalities to Cardiovascular disease; written illustrated instructions about disease process, allowed foods, rest and physical activities and follow up should be available at cardiac outpatients' clinics.

Key words: Cardiovascular disease, daily living activities, self-care management, Orem theory

Introduction

Cardiovascular disease generally refers to conditions that involve narrowed or blocked blood vessels that can lead to a heart attack, chest pain (angina) or stroke. Other heart conditions, such as those that affect patient heart's muscle, valves or rhythm, also are considered forms of heart disease. Half of all deaths in the developed world and a quarter of deaths in the developing world are due to cardiovascular disease. It is predicted that by the year 2020 coronary artery disease will have become the leading cause of death in the developing world. Increase in male than female 3-1or 3-2 ***(Allender& Spradely, 2015).***

Cardiovascular Diseases (CVDs) are the number 1 cause of death globally: more people die annually from CVDs than from any other cause. An estimated 17.5 million people died from CVDs in 2012, representing 31% of all global deaths. of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke. Over three quarters of CVD deaths take place in low- and middle-income countries. Out of the 16 million deaths under the age of 70 due to noncommunicable diseases, 82% are in low and middle income countries and 37% are caused by CVDs ***(Mosbah, 2014)***

Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol using population-wide strategies. People with cardiovascular disease or who are at high cardiovascular risk (due to the presence of one or more risk factors such

as hypertension, diabetes, hyperlipidaemia or already established disease) need early detection and management using counseling and medicines, as appropriate ***(Younis. & Ahmed 2015)***

According to ***World Health Organization,(2017)*** cardiovascular diseases, are the number one cause of death globally, especially ischemic or coronary artery diseases (CADs) which are on top of causes list of mortality and morbidity in both sex. An estimated 17.5 million people died from cardiovascular diseases in 2005, representing 30% of all global deaths. of these deaths, 7.6 million were due to heart attacks and 5.7 million were due to stroke. Around 80% of these deaths occurred in low and middle income countries and occur almost equally in men and women. If appropriate action is not taken, by 2015, an estimated 20 million people will die from cardiovascular disease every year.

Mekhamiar, (2015) added that, heart disease the cause of a clot stroke is related to cardiovascular diseases such as atherosclerosis, heart attack, valvular heart disease of various types and all forms of acute and chronic ischemic heart disease is the leading cause of death in the industrialized Western world, accounting for one of every five deaths in 2001. In Egypt, the World Health Organization (1995) revealed that the incidence of deaths caused by cardiovascular disease is nearly 6721 per 100.000 populations per year.

Myocardial Infarction (MI) or heart attack is the irreversible necrosis of heart muscle secondary to prolonged ischemia. An infract is an area of tissue that dies (necrosis). An MI or heart attack occurs when there is prolonged total occlusion of coronary arterial blood flow. The larger necrotic area is a coronary thrombosis; it is usually secondary to

arteriosclerotic and atherosclerotic changes. Arterial spasm also may cause an MI. Once an area of the myocardium has been damaged and destroyed, the cells in that area lose the special functions automaticity, excitability, conductivity, contractility, and rhythmicity. Thus, dysrhythmias and heart failure are common ***(Al Mowla, 2012).***

Myocardial infarction symptoms vary but typically include sudden, severe chest pain, which usually is substernal and may radiate to the shoulder, arm, teeth, or throat. The pain lasts longer than anginal pain. Some clients describe it as squeezing or crushing. Rest and sublingual nitrates do not relieve MI pain. Clients may appear pale and diaphoretic, also may experience nausea and vomiting or be hypotensive and faint. Pulse is rapid and weak and may be irregular ***(Zafari, 2013).***

Risk factor or factors affecting the prevalence and incidence of cardiovascular disease include basic three factors as **human biology** (such as age, sex, race, genetic inheritance and physiological function), **environment** and **life style** factors are the major contributors to development of most cardiovascular disease. Globally and within the region the sedentary life, smoking, diabetes, obesity, dyslipidaemia, high fat diet, high blood pressure, and stress are the main risks which lead to increased prevalence of cardiovascular disease especially in Egypt. The major risk factors' prevalence are as the following; smoking is nearly 48% for men and 4% for women; DM is 7.8% in urban areas, 5.6% in rural agricultural areas, and 2.5% in rural desert areas; and obesity is 55.6% and hypertension is almost 31 %(hypertension mortality rate 25% to 50%) in Egypt***(American Heart Association,2015 a).***

Accorging to Aaronson, et al., (2013) taking action to control risk factors can help prevent or delay heart disease. So, prevention of heart

disease must rely on eating healthy, balanced diet, being more physically active, keeping to a healthy weight, Keeping blood pressure under control, Keeping diabetes under control, giving up smoking, and taking any prescribed medication.

Activities of daily living (ADL), cognition and communication skills. A good home care helps in promoting natural recovery (to perform activities of daily living), preventing complications due to disabilities and adapting to disabilities ***(Allender&spradely, 2015).***

The client with cardiovascular disease practicing selfcare to maintenance live a healthy lifestyle, perform daily living activities, adhere to the treatment regimen, and monitor symptoms. Self care management is an active, deliberate process that begins with recognizing a change in signs or symptoms and risks, evaluating the change deciding to take action, implementing treatment strategy and evaluating the treatment implemented ***(WebMD,2015).***

The community health nurse has a vital role in increasing the clients' sense of control, allowing the greatest potential for independence and self-direction in daily living activities, and greater sense of involvement in their care to cope with sequel following the disease ***(American Heart Association,2015, b).***

Significance of the Study

The cardiovascular disease is a leading cause of morbidity and mortality, particularly in the Western world. In Egypt, the incidence of CAD is 4.41/1000 as a result of international data base. In the UK it is estimated that 147 000 men and 121 000 women have a heart attack each year ***(Mosbah, 2013).***

Nurses play a major role in engaging and encouraging clients in performing self care. In most health care settings, nurses provide the majority of client's education. It is of great importance in order to assist clients in taking control and adapting to their diagnosis of cardiovascular disease ***(Washburn & Hornberger, 2008& Walker, 2011)***.

Cardiac clinics, a setting that provides frequent client-nurse interaction, have proven to reduce hospitalizations. Nurses interact with clients to assess their needs, intervene appropriately, and evaluate their outcome (***Eastwood et al., 2007).***

Aim of the Study

The aim of this study is to improve daily living activity for clients with CAD using Orem self care theory at Benha City through the following objectives: Assessing self care deficits of clients with CVD according to their activity of daily living to determine the needs. 2 Designing and carrying out self care program for clients with CVD according to their needs, and Evaluating the degree of improvement in their self-care.

Hypothesis:

The self care of daily living activity will improve after the self care program implementation for clients with CVD.

SUBJECTS AND METHODS

The subjects and methods used in the present study are represented under technical, operational, administrative, and statistical designs.

I- Technical design

Research design:

A quasi-experimental design was used in carrying out this study.

Setting:

The study was conducted at the Medical Outpatients' Clinics of Benha University Hospital and Health Insurance Hospital in Benha City.

Sampling:

A purposive sample was used in this study. The total number of Cardiovascular disease clients attending in the last year at the Medical Outpatients' Clinics of Benha University Hospital was about 600, so, 10% were chosen randomly i.e. 60 Cardiovascular disease Clients, while the number of clients attending at the Medical Outpatients' clinics of Health Insurance Hospital were about 400, so, 10% were chosen randomly, i.e. 40 Cardiovascular disease clients, according to the following criteria for the Cardiovascular disease clients: Their diagnosis as Cardiovascular disease within the last three months.

Tools of data collection:

Tool I: <u>An Interviewing Questionnaire (Appendix I)</u>

An interview questionnaire, developed by the researcher based on literature review under supervision of supervisors, and written in simple clear Arabic language consisted of five parts as the following:

First part: It was designed to collect data about the socio-demographic characteristics of Cardiovascular disease clients. It included questions about sex, age marital status, occupation, educational level, and source of treatment fees.

Second part: It was designed to collect data about health profile of clients. It included questions about presence of chronic illness, duration of disease, complaint during attack, number of complaints / month, severity of pain, duration of pain, type of chest pain, source of information about disease, and number of hospitalizations.

Third part: It was devoted to the Cardiovascular disease client's knowledge about CVD. It included close–ended questions, which covered areas such as; heart structure, function of the heart, meaning of coronary arteries, causes of CVD, risk factors of CVD, symptoms of CVD, expansion of pain and diagnostic studies for clients with CVD, appropriate diet and medications.

Scoring system: For knowledge items the correct answers were predetermined according to literature review, a correct response was scored 1 and the incorrect one was scored zero. For each area of knowledge, the scores of the items were summed up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score, and means and standard deviations

were computed. The total knowledge was evaluated good >75%, average 50 – 75%, and poor <50%.

Fourth part: It dealt with clients' practices about self care through their daily living activity and through their risk factors; it is composed of 2 parts:

First part: It was adapted from ***Susanne (2012)***, translated and modified by the researcher. It is composed of 5 lists of different daily living activity. The responses were on a 3–point: dependently, partially dependant and independently.

Scoring system: Each question has 3 levels of answer: "independently ", " with partially dependant " and " dependently ". These were respectively scored 2, 1 and 0. The scores of the items were summed–up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score, and means and standard deviations were computed. A total score was used to evaluate the effect of the program.

Second parts: It was adapted from ***Gattas, (2007); El-Ahamdy (2010)***. The self-care for the CVD clients through their risk factors is composed of seven risk factors. e.g., nutrition, obesity, constipation, hypertension, diabetes mellitus, fatigue and stress.

Scoring system: Each question has 3 levels of answers: "always", sometimes", and never. These were respectively scored 2, 1, and 0. The scores of the items were summed–up and the total divided by the number of the items, giving a mean score. These scores were converted in a percent score, and means and standard deviations were computed.

Tool II:- **<u>An observational checklist for clients practice for measuring pulse*(Appendix II)*</u>** .

It was developed based on literature review nursing procedure book ***(Mosbah, 2013)***. It is composed of five steps.

Scoring system: Each step has 3 levels of answers: "done completely", done incompletely", and not done. These were respectively scored 2, 1, and 0. The scores of the items were summed–up and the total divided by the number of the items, giving a mean score. These scores were converted in a percent score, and means and standard deviations were computed.

Content validity:

The tools validity was done by 5 of Faculties' Staff Nursing experts from the community specialties.

II- Operational Design:

Preparatory phase:

Preparation of study design and data collection tools were based on reviewing current, past, local, and international related literature about various aspects of CVD and self care by using books, journals, periodicals, and computer search to construct the tools and prepare self care program.

Ethical considerations:

Permission was obtained orally from each client before conducting the interview and after giving a brief orientation to the purpose of the study. Clients were also reassured that all information gathered would be treated confidentially and used only for the purpose of the study. No

names were required on the forms to ensure anonymity and confidentiality. They were also informed about their right to withdraw at any time from the study without giving any reasons

Pilot study:

It was conducted in December 2015 on 10% of the sample (10) of coronary artery disease clients to test clarity, simplicity, and applicability of the tools using the interviewing questionnaire and the observational checklist as a pre-test sheet. Those who shared in the pilot study were excluded from the main study sample. Based on the pilot results, the tools were modified. Modification included rephrasing and rearrangement of some questions. After refinement and modification, the final forms of the tools were developed. This pilot study was carried out in two weeks before starting the study.

Field work:

Data were collected over a period of 9 months throughout the period from beginning of January 2016 to end of December 2016. It was carried out by the researcher for the CVD clients in the selected settings at medical outpatient's clinics.

Program Development Included 3 Phases:

Phase (I):- Program preparation:

Based on the results obtained from the interviewing and observational sheets, as well as literature review, the self care program was developed by the researcher. It was implemented immediately after the pre-test. **(Appendix III).**

General objective of the program: At the end of the program the CVD clients will be able to improve daily living activities according to their needs without complications

Contents of program: The content of the program was designed to meet CVD client's needs and to fit their interest and levels of understanding.

I- Self care: Meaning and its purpose.

II-Disease: Anatomy of the heart, function of the heart, risk factors, causes, signs and symptoms, diagnostic measures, drugs used to treat CVD, side effects of these drugs, demonstration and re-demonstration to practice pulse rate, preparing healthy meals, self-care management, complications, follow up needed for clients with CVD and preventive measures to prevent recurrent attack.

Teaching Methods:

All clients received the same program content using the same teaching methods, these were:

- Lectures/Discussions.
- Demonstration.
- Role play.
- Presentation.

Teaching aids:

Suitable teaching aids were specially prepared for the program, as follows: Flip charts, pictures, available real materials (e.g., some types of food, drug specimens) and handouts.

Phase (II): Implementation of the program:

The researcher visited the medical outpatients' clinics of Benha University Hospital three times a week (Saturdays, Mondays and Tuesdays) for five months from 9.00 a.m. to 12.00 mid day. Pre test was done in the first month, followed by application of the program to the previously selected cases.

As well, the researcher visited the medical outpatient clinics of Health Insurance Hospital three times a week (Saturday, Monday and Tuesdays) for seven months from 9.00 a.m. to 12.00 mid day. The first two months to collect all cases, followed by the implementation of the program to the previously selected cases.

The total number of sessions was 8 of 15 hours (12 hours for theory and 3 hours for practice). This is in addition to 2 sessions for pre– and post tests. The duration of each session was varied, including periods of discussion pre test and post test.

The MI clients of the study group were present, all the time of the program sessions. The duration of each session varied, according to its contents as well as the clients' response.

At the beginning of the first session, an orientation to the program and its process were presented. Each session started by a summary about what had been given through the previous session then the objectives of the new topics, taking into consideration the use of simple language to suite the level of clients. Discussion, motivation and reinforcement during program sessions were used to enhance learning. Direct reinforcement in the form of a copy of the program was given as a gift for each client to use it as future reference. All the participants were cooperative with the researcher. At the end of each session, clients participated in a discussion

to correct any misunderstanding. Clients were informed about the time of the next session.

Phase (III): Evaluation of the program:

Evaluation of the program was done by using the post test questionnaire which was the same format of pre-test in order to compare the change in clients' knowledge, practices. Self care was also assessed, for the clients, immediately after implementation of the program.

III - Administrative Design:

Permission for conduction of the study and implementation of the program was obtained by submission of official letters issued from the Faculty of Nursing, Benha University to the heads of the Medical Outpatients Clinics in Banha University Hospital and Health Insurance Hospital, Benha City.

IV - Statistical Analysis:

Statistical presentation and analysis of the present study data were carried out, using the mean, standard deviation and error, student t- test, paired t-test, Chi-square, Linear Correlation Coefficient and Analysis of variance (ANOVA) test by using the statistical package for social sciences (SPSS) version 20.

Conclusion:

In the light of the study findings, and research hypothesis, it might be concluded that:

There was improvement in the cardiovascular disease clients' knowledge about cardiovascular disease as; function of the heart, meaning, risk factors, medication, and exercise. As well, there was a

better practice related to measuring pulse in relation to position the client's arm supported and rest, taking firm hold of the client's wrist, placing first three fingers on wrist bone just over radial artery, with sufficient pressure to feel the pulsation distinctly. As well, there was a better in all items of self-care practice related to Cardiovascular disease after implementation of self care program.

Significant improvement was detected for cardiovascular disease client's daily living activities after the self care program implementation. There was a highly statistically significant relationship between clients' total knowledge, daily living activities and self-care management and their educational level.

RECOMMENDATIONS

Based on the findings and conclusion of the current study, the following recommendations are suggested:

- Establish self care program to improve self care for Cardiovascular disease clients; a strict written illustrated instructions in all cardiovascular outpatients' clinics should be available about: The disease process, daily living activities, self care management, and follow up and managing health problems as fatigue, stress, obesity, improper nutrition and smoking

- Further research is proposed to explore the effect of self care intervention on the prevention of cardiovascular disease among high risk group.

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