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Original Article

The effectiveness of self instructional module on cardiac rehabilitation

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ARTICLE INFO

Article history:
Received 8 December 2014
Received in revised form
21 January 2015
Accepted 29 July 2015
Available online 6 August 2015

Keywords:
Cardiac rehabilitation
Indore
Myocardial infarction
Nurse
Self-instructional module

ABSTRACT

Objective: Nurses play a strong role in helping patients reduce their risk for disease and make informed lifestyle changes. Reliability of the nurses is critical for them to serve as role models and educators. The aim of the present study was to improve nurse knowledge of post-myocardial infarction rehabilitation at selected hospitals in Indore through a newly designed self-instructional module.

Methods: Sixty cardiac center staff nurses were administered a questionnaire, a pre-test on cardiac care and the self-instructional module. Five days after the nurses were administered the module, a post-test was given to assess the gain in knowledge on in post-myocardial infarction cardiac rehabilitation.

Results: The mean pre-test score was 8.27 ± 4.40 but increased to 23.18 ± 3.69 in the post-test following administration of the self-instructional module. The change in score was statistically significant ($P < 0.0001$) indicating that the self-instructional module was instrumental in increasing knowledge of post-myocardial infarction rehabilitation.

Conclusions: The results of this study highlight the need for continuing education of nurses in cardiac rehabilitation. Self-instructional modules are a useful tool for furthering nurse education.

1. Introduction

The heart, a vital internal organ, and is susceptible to several disorders, which account for one of the leading causes of death worldwide [1]. Myocardial infarction (MI), also known as a heart attack, is caused by reduced coronary blood flow that causes a reduction in oxygen and a destruction of myocardial tissue [2].

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Peer review under responsibility of Chinese Nursing Association.
http://dx.doi.org/10.1016/j.ijnss.2015.07.004

A recent study which analyzed all major world ethnic groups in relation to heart disease found that Indians have the highest risk of coronary heart disease, with rates three to four times higher than Americans, six times more than the Chinese and 20 times more than the Japanese [3]. In North India, 7–10% of people have coronary heart disease while the prevalance is as high as 14% in South India [4]. Indians typically suffer from MIs around 50 years of age. But it appears the age of onset is decreasing with an increasing number of people in their 3rd and 4th decades of life presenting with MIs [5]. A 2003 population-based cross-section survey found that the prevalence of coronary heart disease in India was estimated to be 3–4% in rural areas (two-fold higher compared with 40 years ago) and 8–10% in urban areas (six-fold higher compared with 40 years ago), with a total of 29.8 million people affected (14.1 million in urban areas and 15.7 million in rural areas) [6]. In 1990, there were an estimated 1.17 million deaths from coronary heart disease in India and the number is likely to almost double to 2.03 million by 2010. The Indian subcontinent suffers from a tremendous loss of productive working years due to cardiovascular disease deaths: an estimated 9.2 million constructive years of life were lost in India in 2000, with an expected increase to 17.9 million years in 2030 almost ten times the projected loss of productive life in the United States [7,8].

Myocardial infarction results in enormous burden of increased mortality and morbidity by threatening the patient's stability, security, adaptability, belief and assumptions [9]. After MI, many patients led miserable unproductive lives, they were frightened to return to work and unnecessarily become cardiac invalids. Recognizing the importance of patients to run to 'normal', cardiac rehabilitation has emerged as a part of total patients care. It is increasingly being recognized that post infarct care of life is more effective only if delivered with proper rehabilitation backup to enhance the speed of recovery and quality of life [10]. National Institute of Health, USA, defines rehabilitation of cardiac patient as "the sum of activities required to influence favorably the underlying cause of the disease, as well as to ensure the patients best possible physical, social and mental conditions, so that they may by their own efforts, preserve or resume when lost, as normal a place as possible in the life of the community" [11].

From our own experience, we have found that patients between 35 and 70 years of age that were admitted to the intensive care unit, many for their second heart attack, were psychologically, physiologically, socially and vocationally handicapped. We believe that MI patients receiving robust rehabilitative support and care by the nursing staff will achieve optimum levels of health and a reduced risk for future attacks. Given the importance of cardiac rehabilitation in post-MI patients, we undertook the present study. Because most patients were unaware of the cardiac rehabilitation options, we developed a comprehensive teaching program incorporating various topics such as physiological, psychological, vocational and sexual rehabilitation with the ultimate goal of providing relief and preventing recurrence.

Because cardiovascular disease contributes to high rates of mortality, the present study is warranted. Our goal is to provide a comprehensive approach to post-MI patient care through education of the staff nurses that work in the cardiac units. In this study, we assess the effectiveness of a self-instructional module on the education of post-MI patients by staff nurses working in cardiac units of the Indore Hospital. The main objectives of study were to (a) to assess the pre-test knowledge of staff nurses regarding cardiac rehabilitation of post-MI patients, (b) to evaluate the effectiveness of the self-instructional module on knowledge regarding cardiac rehabilitation of post-MI patient and (c) to evaluate the association between pre-test knowledge, score and selected demographic variables.

2. Research methodology

We conceptualized this study utilizing the goal attainment theory, or "interpersonal relationship model", established by Imogene King. The goal attainment theory encompasses concepts of perception, goal setting, action, interaction and transaction (Fig. 1) with a special emphasis on interpersonal systems, a feature highly relevant to the nursing profession. Goal attainment theory is based on holism, or one total human being interacting with another total human being in a specific situation. King's theory establishes mutal goal setting as the independent variable. "Each human being perceives the world as a total person in making transactions with individuals and things in environment. Transaction represents a life situation in which perceiver and thing perceived are encountered and in which person enters the situation as an active participant and each is changed in the process of these experiences" [10].

We adopted an evaluative approach [11] for the research method, as it involves the collection of data from a representative sample population. This approach is suitable to assess the effectiveness of the self-instructional module on acquired knowledge by cardiac unit staff nurses on post-MI patient cardiac rehabilitation education in the Indore hospital system. An experimental research design was used, as there was no compensation for the lack of randomization or a control group. The data from the experimental group is then analyzed using pre- and post-test analyses (O_1, X, O_2) (Fig. 2) [12].

Sixty cardiac unit nurses were selected using the non-probability convenience sampling technique [13]. The following inclusion criteria were applied: the nurse must be part of a cardiac unit, the nurse must be a willing participant and the nurse must be readily available for study testing and analysis. Nurses who were not willing to participate or were not members of the cardiac unit were excluded from this study. In this study, the dependent variable was the post-MI cardiac rehabilitation knowledge of the nurses while the independent variable was the self-instructional module on cardiac rehabilitation [14]. A schematic representation of the study design is depicted in Fig. 3.

2.1. *Development and description of the research tools*

This study was designed with the personal clinical experience of the primary investigator, extensive review of the literature and expert input from doctors and teachers in the medical and surgical nursing departments. We used several tools, both