Application of BASNEF Health Belief Model in Preventing the Occurrence of Risk Factors Contributing to Myocardial Infarction in Patients with Coronary Artery Disease

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Abstract

Objective- This research was performed to determine the application of BASNEF health belief model in the prevention of the risk factors contributing to the occurrence of myocardial infarction among patients with coronary artery disease.

Method- This is a quasi-experimental study, with a self-control group, which was conducted for six consecutive months in 100 patients with coronary artery disease, attending the cardiac clinic. Patients' records and a questionnaire based on BASNEF health belief model served as the instruments for data collection. The health belief model was applied initially, and after the intervention for patients' education, attempts aimed at encouraging the patients to reduce or quit cigarette smoking, readings of the blood pressure, and laboratory assessments of serum glucose, cholesterol and triglyceride levels, further pre- and post-intervention results were compared.

Results- Intervention for BASNEF health belief model application produced a significant difference in serum cholesterol (p=0.009) and triglyceride (p=0.000) levels, the systolic blood pressure readings (p=0.000), the diastolic blood pressure readings (p=0.008) and the number of cigarettes smoked (p=0.000). The results also indicated a significant change in knowledge, attitude and performance (KAP) of the subjects, enabling them to apply the appropriate behavior for preventing the occurrence of risk factors leading to myocardial infarction (confidence interval 95%).

Conclusion- Intervention for health education based on BASNEF health belief model improves the knowledge, attitude and behavior of patients with coronary artery disease in preventing the occurrence of risk factors leading to myocardial infarction ***(Iranian Heart Journal 2004; 5(1,2):29-32).***

Key words: behavioral beliefs■ knowledge■ attitude■ enabling factors■ health education■ coronary artery disease■ intervention

According to a WHO report (2002)[1,2] out of 100,000 Americans 50 die every year due to coronary artery disease, where in Sweden and Japan this figure is 32 and 15, respectively. Diberestin states that health education is a client's basic need, thus providing clear and sufficient information to the patient is a major responsibility of health professionals.[3,4] Systematic and scientific approach to health education requires a conceptual model where clients' needs assessment and intervention for application of the teaching material will take a clear course.[5,6]

In this research, BASNEF health belief model served as the conceptual frame work. The key words to this model are: Behavioral beliefs, Attitude, Subjective Norms, Enabling Factors. This model plans to observe and record behaviors and identifies factors that will bring change in belief and decision making of the client for positive behavioral changes.[8,9]

It is assumed that the prevention of the occurrence of risk factors contributing to coronary artery disease in a course of 3 to 6 months' health education program is a major national health promotion goal.

Specific Objectives

This study sought to: A) Assess the knowledge, attitude and performance (KAP) of the clients with coronary artery disease attending the high risk cardiac clinic on prevention of factors leading to myocardial infarction pre- and post-intervention,

B) Identify the enabling factors in clients with coronary artery disease to perform preventive behaviors in accordance with their serum cholesterol, triglyceride and glucose levels, blood pressure readings and reducing or stopping cigarette smoking, pre- and post-intervention, and

C) Determine the application of BASNEF health belief model in patients with coronary artery disease in the prevention of risk factors contributing to myocardial infarction pre- and post-intervention.

Material and Methods

Study population and sample

The population of this study was all the patients with coronary artery disease attending the high risk cardiac clinic at our center. Calculations for 95% confidences in the sample size were made, and a total of 100+4 patients were selected incidentally and continuously. Those who had suffered a cerebrovascular accident, and those with mental illness were excluded from the study.

Procedure

The intervention for application of BASNEF health belief model and patient education took place in the high risk cardiac clinic for 6 months.

The mean age of the 104 subjects (54 males and 50 females) was 51 ± 60 years old. Most of the women were housewives, and the majority had completed the elementary school. In the course of the study, 4 of the subjects dropped out, and most of the subjects were diagnosed with coronary artery disease (blocking of merely one vessel).

Design

This research is a quasi-experimental study of one group of patients with coronary artery disease.

Information was obtained by reviewing the subjects' records and a questionnaire designed to measure the application of BASNEF health belief model by the clients, which was employed pre- and post-intervention (clients' education, determination of blood pressure readings, reducing or stopping cigarette smoking and laboratory studies of serum cholesterol, triglyceride and glucose levels).

The goal of patients' education, which is the provision of knowledge to establish positive attitude and change of behavior, was achieved by group instruction sessions held by health professionals, film presentations, pamphlet distribution and telephone call follow-ups. The objective was to assess the behavior of the subjects in an attempt to prevent the risk factors leading to myocardial infarction.

Statistical Analyses

To analyze the collected data both descriptive and inferal statistical methods were employed.

The findings were presented in appropriate tables of frequency and percentile distribution.

Chi-square test was used to determine the relation between personal characteristics of the subjects and the effect of intervention.

The Wilcoxon statistical test was drawn upon to identify and correlate the pre- and post-intervention results with ordinal data obtained.

T-tests were employed for identifying the outcomes of pre- and post-interventions, and SPSS v.11 was used for further statistical calculations.

Results

Pre- and post-intervention findings showed significant differences between the mean and standard deviation of knowledge, attitude and behavior and the subjects' beliefs, life-style and enabling factors employed by each, for prevention of the occurrence of risk factors leading to myocardial infarction (95% confidence).

Furthermore, the application of BASNEF health belief model in accordance with serum cholesterol, triglyceride, blood pressure readings and the number of cigarettes smoked (risk factors to myocardial infarction), showed that intervention for health education had been effective. This finding was confirmed by SPSS version 11 program (Figs. 1,2).

A more detailed review of pre- and post-intervention (health education) results showed a significant difference in the knowledge, attitude and performance of the subjects with coronary artery disease attending the cardiac clinic for preventing the occurrence of risk factors leading to myocardial infarction.
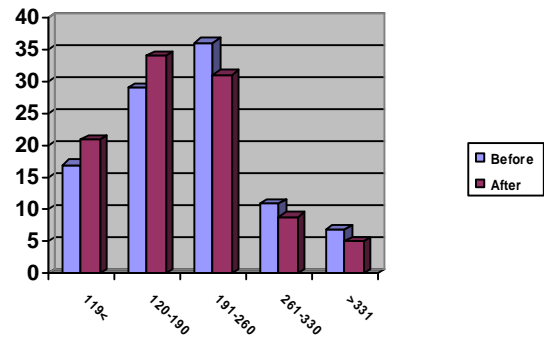

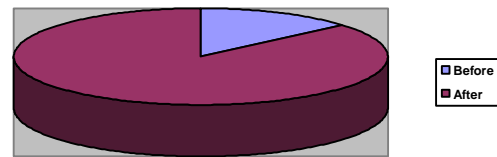**Fig. 1.** Variations of cholesterol before and after health education.

Fig. 2. Variations of sustained smoking before and after heath education.

A paired samples test with 95% confidence confirmed the significance of this finding (Table I).

Table I. Paired Samples Test

Knowledge by percentage pre- and post-int.	T = 32.91
Attitude by percentage pre- and post-intervention	T = 6.34
Behavior by percentage pre- and post-intervention	T = 8.24

These findings tie in with those by Davey Smith et al., who state that health education helps to bring change in knowledge, attitude and behavior and promotes human participation for establishing change in environment and serves as a means of controlling illnesses and promoting health protecting behaviors.

Table II presents the pre- and post-intervention results regarding the enabling factors for preventive behaviors in accordance with serum cholesterol, triglyceride and glucose levels, blood pressure readings and reduced or stopped cigarette smoking. The Wilcoxon test showed the significant relationship of this finding.

Table II. Pre- and post-intervention

P=0.009	Z=2.629	Cholesterol
P=0.000	Z=3.663	Triglyceride
P=0.008	Z=4.062	Systolic BP
P=0.000	Z=1.202	Diastolic B.P
P=0.000	Z=5.578	Sustaired smoking
P=0.227	Z=1.208	Blood glucose

Discussion

Based on the findings of this study, we suggest that in health education, more attention be paid to all levels of prevention.[11,12] The fundamentals of prevention, better recognition of risk factors and the mechanism that ends up blocking the blood vessels should be taught either in academic class sessions or in clinical settings or by holding seminars for students in health fields. Health instructors in clinical settings along with student instruction will supervise the procedure of patient education and will stress the need for better knowledge in promoting health.[13,14]

This study may serve as a basis for other similar studies, thus the problems associated with cardiac and circulatory diseases will be recognized and means of solving related problems will be implemented.

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