Original Article

The Effect of Training Based on Health Belief Model on the Awareness and Attitude of Nursing and Midwifery Students in Preventing Cardiovascular Diseases

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Abstract

Introduction: Among the most important strategies for controlling cardiovascular diseases are preventive steps such as training and enhancing the awareness level, and preventive skills for protecting individuals. The aim of this study was to investigate the effect of training based on Health Belief Model on the awareness and attitude of nursing and midwifery students in preventing cardiovascular diseases.

Methods: In this quasi-experimental study, 110 participants were selected from nursing and midwifery students during 2010 and 2011. They had not passed courses related to cardiovascular diseases. Four 2-hour training sessions were designed based on Health Belief Model. Demographic information questionnaire had questions related to awareness, perceived susceptibility, perceived severity, perceived benefits, perceived barriers and action guide which was completed before training and six weeks after training by questionnaire and interview. Data was analyzed using SPSS 16 software and paired t-test.

Results: The findings indicated that the mean scores of the students' awareness before and after training were 14.5 and 16.1, respectively and there was a statistically significant difference between them. The findings also showed that the mean scores of the students' attitude before and after training were 41.9 and 41.8, respectively and there was no statistically significant difference between them.

Conclusion: Since changing in behavior is the result of changing in attitude, in order to change the attitude of the people about health issues such as health behavior toward cardiovascular diseases, training should be considered as a continuous procedure.

Keywords: Training, Attitude, Awareness, Cardiovascular diseases

Introduction

Today, cardiovascular diseases have become a major source of death in most countries of the world. Currently, these sorts of diseases are among three sources of death all over the world. Though, some sources of cardiovascular diseases such as age are uncontrollable, there are various preventive ways which can help prevent them or at least delay their occurrence. At the beginning of 20th century, about one hundred years ago, only about 10% of deaths occurred as a result of cardiovascular diseases. Thanks to human development in many fields and controlling contagious diseases and subsequently lengthening human life rate, chronic diseases among them cardiovascular ones are so prevalent that by which the rate of death rose up to 25% at the end of 20th country. It is predicted that the death caused by cardiovascular diseases will have reached 35% to 60% by 2025. The probability rates of being afflicted by these diseases are 49% and 39% for men and women after the age of 40, respectively. Nowadays, approximately 1/4 of Americans are suffering from cardiovascular diseases and every year about 6 million people are hospitalized as a result of cardiovascular diseases. Based on some Australian Health Organizations, 21% of individuals over 18 suffer from cardiovascular diseases. Besides, 42% of deaths happened as a result of cardiovascular diseases in this country in 2002 (1). Based on statistics revealed by vice-chancellery of health among 21 cases of death in Iran in 2007, three major causes are systematic cardiovascular diseases (19.5%), accident (9.8%), and brain stroke (9.2%) (2). According to statistics released the most common causes of death in Kermanshah during 2001-2009 were cardiovascular diseases, accident, cancer, and respiratory diseases, respectively. In addition, in this province, cardiovascular diseases were the cause of 26% of deaths in 2001, 27.9% in 2002, 32.16% in 2004, 39.1% in 2009, and 40.46% in 2010. It is expected, however, that this figure will increase unless preventive steps are taken (3).

One of the most effective models which is used for preventing diseases in health education program is Health Belief Model (HBM). This model focuses mainly on preventing diseases and the relationship between individuals' beliefs about health. The prominent element in this model is the individuals' perceived susceptibility. The second element is the individuals' perceived severity, perceived benefits. The fourth element is perceived barriers. The individuals, after analyzing the mentioned perceptions, make decision about the performance of the behavior (cues to action) (4). HBM, which is used in this research, is an individual model of study on health behavior which

was established and applied in 1950 by Hochbavm and Rosenstock in America (5).

Health education program encourages and enables people to voluntarily accept and perform health behavior, use available health services reasonably, make decision to enhance and develop health level in the environment, increase awareness level for preventing diseases and change their attitude and behavior toward the diseases. Programs which are based on health education models and theories for their conceptual framework are tools and instruments that can enable experimental groups so systematically that they have a great control on their health, social and physical environment (such as work or life conditions), healthy life style and individuals' habits (6). In educational planning the most significant strides are selecting the model or theory based on condition, knowing the problem and the objective, and congruence of the model or theory with the objective of the educational problem. Since cardiovascular diseases are widespread in this region and are threatening the health of the society as well as necessary steps should be taken to prevent them, HBM is one of the most significant models which is used in line with the objectives of this study (7).

Based on this model, to prevent cardiovascular diseases, people at first should feel endangered (perceived susceptibility) about the problem (being afflicted with the disease) they should then perceive the depth of the danger and believe in the criticality of its physical, mental, social and economical consequences (perceived severity). They should also believe in manageability and useful preventive ways of cardiovascular diseases via positive signs they receive internally or externally (cues to action). Moreover, they should find both preventive factors (perceived barriers) and usefulness and interest of the model (perceived benefits) so that they can make a reasonable decision for preventing cardiovascular diseases (8). One prominent feature of this model is its extreme emphasis on the individual and only the effect of health belief on behavior is taken into account. The relationship between the elements of this model, which is utilized as a framework for educational planning, is shown in figure 1. While numerous studies have been done on the effective application of HBM in health education planning, few studies have been done on using this model for the enhancement of awareness level, attitude and performance of the students in controlling and preventing cardiovascular diseases (9-12).
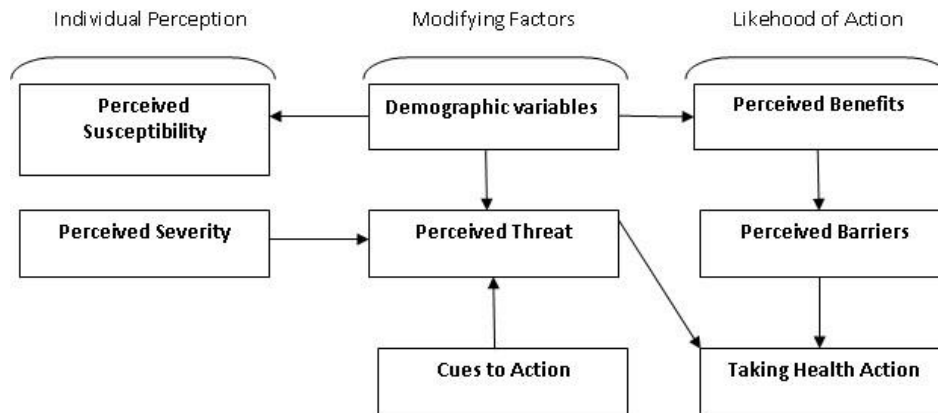
Figure1: The relationship between the elements of HBM

Henceforth, in this study the researchers have sought to use this model to determine the awareness, beliefs, and performance of nursing and midwifery students of Kermanshah University of Medical Sciences (KUMS) in preventing cardiovascular diseases to develop educational planning for their education. Accordingly, we can enumerate medical students majoring in different fields and studying in different department who are somehow involved in the health services and will provide them in the future among whom we can enumerate nursing and midwifery students. Since they have major roles in providing health services to cardiovascular patients in different hospitals, as well as their awareness and knowledge of cardiovascular diseases have a significant role in preventing cardiovascular diseases, they have been selected and trained as the participants of the study to measure their awareness levels based on this model. The aim of this study was to examine the effect of educational programs, using HBM, on the nursing and midwifery students' preventive behavior.

Methods

This study is a quasi-experimental whose design is of pre-post type. The sample was taken from a total of 110 nursing and midwifery students at KUMS who were studying in 2011-2012. To avoid any contaminating variables, the students who had not passed courses related to cardiovascular diseases, those who were reluctant to participate, and those who were guest students were excluded from the study. To determine the validity of the research tool (questionnaire), content validity was applied. At first, via literature review necessary data were gathered and the content of the questionnaire was determined accordingly. Then, the content of the questionnaire was analyzed through consulting with experts in both medical sciences and measurement studies. In other words, to determine the validity of the study, both content validity and consensual validity were employed and to determine the reliability of the questionnaire the repeated measurement procedure (pre and post test) was employed, that is; a pilot study was run and the questionnaire was directly administered to the students, then the same students were given the questionnaire after two weeks. The correlation of pre and post test was obtained through correlation coefficient. Having obtained the reliability and validity of the questionnaire, the next phase of the study, training, was performed.

The participants of the study were divided into two groups of nursing students and midwifery students. All of the participants were taught similarly for four sessions in two weeks. The participants were taught and informed about the criticality of cardiovascular diseases, the death status of these diseases in Iran and Kermanshah, how to prevent these diseases, the endangering factors for these diseases, and physically risk factors for these diseases via lecturing and showing slides (perceived susceptibility and perceived severity). Finally, the discussion section was employed (perceived benefits and perceived barriers) and teaching contents (cues to action) were given to the students. Before training and six weeks after training, a questionnaire including 42 items and divided into seven parts, was directly administered to the participants. The first part was related to demographic information that consisted of the following items: awareness (15 items) perceived susceptibility (6 items) perceived severity (6 items), perceived barriers (7 items), perceived benefits (5 items), and cues to action (3 items). The Likert scale of 0-2 or agree, undecided, disagree) was employed. The data were gathered and analyzed by paired t-test ($P<0.05$).

Results

76.4% of the participants were female and the rest were males. 92.7% of the participants were between 18-23 years old and the rest were between 24-29 years old. 39.9% of the participants had the body mass index of below 20 (thin), 56.4% between 20-25 (appropriate), 10.9% between 26-30 (overweight), and 1.8% over 30 (obese). Regarding the residential status of the participants, 14.5% of them had rental houses, 85.5% had their own house, 18.2% had the income of 5 million Rials, 83.2% between 5-8 million Rials, and 43.6% above 8 million Rials. The maximum score of awareness was 30 and it was 52 for attitude. The

findings indicated that there was a statistically significant difference between the score obtained before and after training by the participants who were between 18-23 years old, had the body mass index of 20-25, whose family income was below 5 million Rials and had their own house. Besides, the findings also indicated that the greatest difference in this regard was related to the participants who had the family income below 5 million Rials. The findings also demonstrated that there was a statistically significant difference between awareness score of the participants who had the family income of 5-8 million Rials and were between 18-23 years old before and after training (table 1).

Table1: Means and standard deviation of awareness and comparison of the results before and after treatment using t-test

Demographic information		Number	Before training Mean±SD	After training Mean±SD	P value
Gender	Male	26	17±3.7	18.9±2.8	0.102
	Female	84	13.7±4.1	15.2±3.6	0.050
Age	18-23	102	14.3±4.2	15.8±3.7	0.043
	24-29	8	17.5±4.1	20±0	0.331
Body Mass Index	<20	34	15±4.5	16.5±3.4	0.352
	20-25	62	14±4.1	15.7±4	0.050
	>25	14	15.02±3.4	13.1±3.6	0.414
Residential status	Renter	16	13.2±5.1	15.2±3.5	0.205
	Owner	94	14.7±4	16.2±3.8	0.049
Family income	<5million Rials	20	12±3.1	15.8±3.4	0.026
	5-8million Rials	42	14.4±4.4	16±3.2	0.204
	>5million Rials	48	15.7±4	16.3±4.4	0.352
Total		110	14.5±4.2	16.1±3.7	0.02

Table2: Means and standard deviation of attitude score and comparison of findings before and after treatment using t-test

Demographic information		Number	Before training Mean±SD	After training Mean±SD	P value
Gender	Male	26	42±5.1	41.7±5.2	0.876
	Female	84	41.9±4.3	41.9±7	0.979
Age	18-23	102	41.1±4.5	41.8±4.3	0.934
	24-29	8	43.2±3.9	43.2±6.2	0.105
Body Mass Index	<20	34	42.7±3.9	40.5±6.5	0.209
	20-25	62	41.6±4.8	42.7±6.9	0.432
	>25	14	41.5±4.9	40.8±3.4	0.596
Residential status	Renter	16	42.8±6.1	41.2±9.4	0.743
	Owner	94	41.8±4.2	42±6.1	0.856
Family income	<5million Rials	20	40.6±3.8	43.9±6.2	0.128
	5-8million Rials	42	44.4±3.8	41.4±5.6	0.050
	>5million Rials	48	40.3±4.4	41.4±7.5	0.536
Total		110	41.1±4.14	40.8±5.9	0.9

Discussion

Results showed that there was no significant difference between the students' attitude before and after the training Further, training proved to have its greatest effects on the awareness of those with a family income less than 5 million Rials per month, this was, in fact, the only group on which the paired sample t-test produced a significant difference before and after training.

The results draw our attention to the income status of the family: families with a lower rate of income displayed a lower level of awareness to the diseases, tried to compensate for the lack and raise the awareness of the diseases. Also, training was especially successful with those with a body mass index higher than 30 (obese people). In a descriptive–analytic study carried out by Jalali (2003) in Babol concerning the symptoms and causes of cardiovascular diseases entitled awareness, attitude and performance people in Babol have toward cardiovascular diseases, the following results were obtained: gender proved significant since women obtained a higher level of awareness and general information on the subject as well as a higher rate of proper reactions in comparison with men, though there was no significant correlation between attitude and awareness of symptoms and proper reaction and gender (13). In a study carried out by Kirk-Gardner examining the effectiveness of cardiovascular health promotion extension schedule, it was found out that the training periods raised not only the subjects' awareness of the risk factors of cardiovascular diseases, but also the level of proper reaction (14). Haghpanah et al. studied the efficiency of training health care volunteers to promote women's awareness of leishmaniasis and its prevention. They concluded that direct and immediate training offered to people at such gathering places as mosques, training centers and gyms proves socially effective. They also found out that promoting society's awareness using different methods has a determining role in subduing the rate of leishmaniasis dissemination (15).

The data obtained on attitude alteration produced similar results with awareness level: people with a family income less than 5 million Rials per month underwent the highest level of attitude alteration. It means that people belonging to lower income rates sense the threat far sharper than the rest and try to alter their attitude. Also similar to awareness table, results are the same for people with body mass index higher than 30 (obese people) taking into account the effectiveness of the training. However, unlike the awareness

table, there is no meaningful correlation between attitude alteration distribution and training periods. Based on a study done by Sarrafzadegan et al. in Esfahan whatever the method, training can always lead to a rise in the level of awareness of the trainee, though different methods normally produce a wide range of effects. However, it is believed that on the whole, after a period of requisite training, the trainees' attitude must take a positive turn, if a change in reaction is expected to be enforced. Training should also be institutionalized if reactions must change for the better (16).

The results showed that the majority of students examined were of a high opinion with respect to the consequences and dangers of taking no measure to safeguard against cardiovascular diseases. Maintenance and promotion of vigilance is a must if cardiovascular diseases are to be deterred. Hazavehei et al. showed that HBM brought about a significant change throughout the components of the model and the subjects behavior, while traditional training merely changed awareness and the first components of the model, (perceived susceptibility), thus resulting in no significant behavior (12). A study conducted by Doroudgar et al. entitled "Effect of education on teachers' knowledge towards leshmaniasis in Kashan" showed that HBM could be effective in preventing leishmaniasis to the effect that students' awareness before and after the training proved to be significant (17). In another study conducted in Kermanshah by Zighaimat (2010), it was shown that training by utilizing HBM could raise the level of awareness of the advantages and obstacles and proper reaction to nutrition patterns in patients under coronary transplantation operations, while the operation pattern was not significant. Thus, the results obtained in this study confirm those achieved in other studies (18).

Although training proved to produce a significant effect merely on the level of awareness in this study, application of other models, including Basnef Model and Precede-Proceed where social network and norm factors play a crucial role in infection prevention, might produce more positive effects on cardiovascular disease prevention which requires further verification.

Conclusion

Whatever the method utilized, training can always lead to a rise in the level of awareness, but to improve the subjects' reaction, it is vital to change their attitude for better if a more proper reaction is expected.

Acknowledgement

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