

A New Experimental Model for Improving Self-care Performance of Myocardial Infarction Patients

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Abstract

This paper is to develop a new experimental model for improving self-care performance in myocardial infarction patients. The pair wise t-test was done to compare the self-care performance before and after application of a new experimental model. The results of study are as follows. First, for sesame intake, subjects' score (62.51 ± 0.49) who have intake sesame after application significantly higher than subjects (47.36 ± 0.35) who didn't intake sesame ($t = -2.47, p = .000$). Second, for self-care performance, the mean scores of the persistence in myocardial infarction patients showed an increase in the experimental group, regardless of the time elapsed of 4 weeks after the application of a new experimental model. Thus, the research can use the results as guidelines for designing self-care performance and networks in the future.

Keywords: Component, Experimental Model, Myocardial Infarction, Patients, Performance, Self-care

1. Introduction

Myocardial infarction in cardiovascular diseases occurs when blood stops flowing to a part of the heart, and the heart muscle is injured because it is not receiving enough oxygen. It is because the coronary arteries in cardiovascular diseases that supplies blood to the heart develops a blockage due to an unstable buildup of white blood cells, cholesterol and fat. On the other hand, myocardial infarction is confined to the left ventricle. The patient experiences a heart attack, sudden severe chest pain, which may spread to the arms. The main danger is that of ventricular fibrillation, which accounts for most of the mortality^{1,2}. Previous papers have been proposed to explain why age increases the risk of cardiovascular diseases with each decade of life. Age is the most important risk factor in developing heart diseases, with approximately a tripling of risk with each decade of life so far. It is estimated that 81.5 percent of people who die of myocardial infarction are over 65 years old. Myocardial infarction is 3 to 7 times more common among middle-aged men than women. At the same time, the risk of stroke doubles every decade from age 60^{3,4}.

One of them is also related to serum to cholesterol level. In most populations, the serum total cholesterol level

increases as age increases. In men, it increases levels off approximately age 50 to 60 years. In women, the increase continues sharply until age 65 to 70 years. Moreover, aging is associated with changes in the structural properties of the vascular wall, which leads to the loss of arterial elasticity. Men are at greater risk of cardiovascular disease than pre-menopausal women^{5,6}. Once past menopause, it has been argued that a woman's risk is similar to a man's although more data from the previous paper. If a female has diabetes mellitus in endocrine diseases, she is much more likely to develop cardiovascular disease than a male with endocrine disease. Sex differences in cardiovascular disease are hormonal difference. Among women, estrogen is the predominant gender hormone. Estrogen may have protective effects through glucose metabolism and homeostatic system, and may have direct effect in improving endothelial cell function. The production of estrogen decreases after menopause and this may change the female lipid metabolism toward a more atherogenic form by decreasing the high density lipoprotein cholesterol level while increasing low density lipoprotein. Among men and women, there are differences in body fat distribution, heart rate, and arterial compliance. This may be caused by the women's arterial dimensions which are independent of menopause^{5,7}.

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In order to solve the severe state, the researchers should seek plan possible. However, there were few studies to deal with effect of a new experimental model to improve self-care performance for patient with myocardial infarction by far³. Therefore, this research is to develop a new experimental model for improving self-care performance of myocardial infarction patients. Finally, patient-centered challenging performances that enhance logical thinking and the program that the patients participate in aggressively are carried out through the experimental model which was developed. This study will contribute to reducing myocardial infarction.

2. Materials and Methods

2.1 Experimental Model Development

This paper is to provide for a new experimental model ranging from planning, strategy, and evaluation stage. In the first stage, this step defines planning stage and how to achieve data among patients. In the second stage, this is to identify the elements of the system and gather the information related patients. In the third stage, strategic stage, where a preliminary program is to be applied. In the four stage, evaluation stage which evaluated in the practice has been implemented. It also identified the data analyzed from its intervention. When self-care performance has finished its work on data process, this conducted the effects of a new experimental model Figure 1.

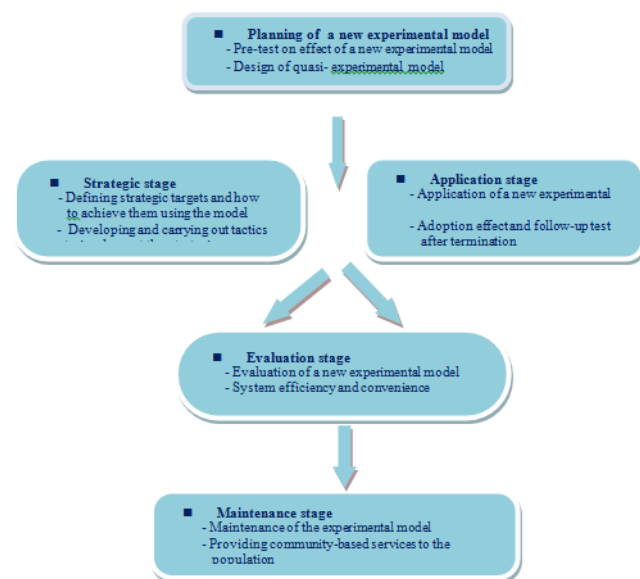


Figure 1. Structure of a New Experimental Model to Improve Self-Care Performance.

2.2 Study Materials

The subjects of this study were 142 persons who have visited a general hospital in Metropolitan province which was willing to participate in the program. The subjects were randomly divided into two groups, each 71. One group was for the experimental group and the other group was for the control group. The experimental group which was assigned as group with application of a new experimental model, while the control group was assigned as group with no application of an experimental model. The two groups are compared to know the difference of changes which affects self-care performances. On the other hand, a follow-up test had been estimated the durability performance of self-care for 12 weeks. The experimental group was applied by the experimental model during a twelve-week period of time, once every two-four weeks, for 4 sessions each of which lasted 50 minutes.

2.3 Research Instruments

The data were collected by interview and self-administered questionnaire from May 26 through June 27, 2014. The data collection tool was composed of totally 20 items with 5 items for general characteristics, 15 items for self-care performance. It measured before and after self-care performance by application of an experimental model. In the work, the rate of self-care performance after the application of a new experimental model was plotted as a function of time : 2, 4, 8 and 12 weeks.

The data employed a five point scale. After collecting the survey questionnaires and monitoring biologic reaction, the usable data was analyzed after excluding data deemed as insincere or unreliable. To see if the experimental group was equivalent to control group in rate of performance of self-care performance, the program was conducted to check the difference between the control and experimental group. It analyzed the effect by external application in myocardial infarction patients, thereby having implemented the myocardial infarction patient's prediction model.

2.4 Study Methods

General characteristics of study subjects were measured descriptive statistics by percentage and number. The chi-square test was used to observe a statistically significant difference between experimental and control group. The pairwise t-test was done to compare the self-care performance before and after application of a new

experimental model. The collected data were examined the distribution of myocardial infarction patient's characteristics by using SPSS 18.0.

3. Results

3.1 General Characteristics of Subjects in this Study

Table 1 presents general characteristics of subjects in this study. For marital status, married subjects (73.2%) of the experimental group were a higher rate than subjects (63.4%) of the control group. The subject's gender was analyzed. Male with 54.9% of the control group showed a higher rate than male with 47.9% of the experimental group. Female with 52.1% of the experimental group showed more than female with 45.1% of the control group.

On the other hand, age groups were divided into four groups for two groups. It divided less than 39 years, 40 to 49 years, 50-59 years, and 60-69 years old or more. The respondents of 40-49 years old was lower in experimental group(15.5%) than in control group(29.6%). In an education, the experimental group of respondents 35.2% which have graduated over a two-year accredited college was higher than the control group of respondents 33.8%.

3.2 Self-care Performance before and after Application of a New Experimental Model

Table 2 represents self-care performance before and after application of a new experimental model. For sesame intake, subjects' score(62.51 ± 0.49) who have intake sesame after application significantly higher than subjects(47.36 ± 0.35) who didn't intake sesame(t = -2.47, p = .000). On the other hand, for low fat diet, there was a significant difference in practicing the self-care performance after application of an experimental model for nutritional status(t = -1.50, p = .002).

3.3 Persistence of Self-care Performance and Clinical State

Figure 2 presents the persistence of self-care performance and clinical state after application of an experimental model. For self-care performance, the mean scores of the persistence in myocardial infarction patients showed an increase in the experimental group, regardless of the time elapsed of 4 weeks after the application of a new

experimental model. On the other hand, for clinical state, the mean scores of the experimental group decreased more rapidly after the application than control group at the time elapsed of 2 weeks. However, the application effect increased with time elapsed of 8 weeks after application in the experimental group as compared to the control group.

Table 1. General characteristics of subjects in this study

Variables	Experimental Group N(%)	Control group N(%)	Variables	Experimental Group N(%)	Control group N(%)
Marital status			≥60	28(39.4)	22(31.0)
Single	19(26.8)	26(36.6)	Monthly income		
Married	52(73.2)	45(63.4)	≤99	15(21.1)	7(9.9)
Gender			100-200	11(15.5)	14(19.7)
Male	34(47.9)	39(54.9)	201-299	17(23.9)	28(39.4)
Female	37(52.1)	32(45.1)	≥300	28(39.4)	22(31.0)
Age			Education		
≤39	7(9.9)	10(14.1)	Under middle	17(23.9)	15(21.1)
40-49	11(15.5)	21(29.6)	High school	29(40.8)	32(45.1)
50-59	25(35.2)	18(25.4)	Over college	25(35.2)	24(33.8)
Total	71(100.0)	71(100.0)	Total	71(100.0)	71(100.0)

Table 2. Self-care performance before and after application of a new experimental model

Variables	Before Mean±S.D	After Mean±S.D	t	P
Low-salt diet intake	49.24±3.17	59.26±4.91	-1.74	.158
Weight control	51.17±0.49	56.64±1.37	-3.52	.413
Chest pain	56.33±2.75	52.81±3.94	0.89	.758
Dyspnea	62.79±1.74	47.36±0.82	0.53	.000
Sesame intake	47.36±0.35	62.51±0.49	-2.47	.000
Vegetable intake	52.93±4.27	71.28±1.63	-0.65	.000
Exercise	39.47±0.82	58.24±0.96	-1.74	.000
Smoking	54.78±1.39	42.19±0.34	0.76	.028
Alcohol drinking	57.06±3.81	51.63±1.95	3.58	.364
Stress status	69.42±0.54	65.47±0.38	0.47	.657
Diabetes mellitus	59.15±3.92	53.19±1.52	0.56	.394
Hypertension control	67.41±0.58	59.42±1.77	2.49	.038
Hyperlipoprotein	62.48±4.27	47.63±0.93	0.71	.000
Low fat diet	65.20±0.84	72.44±3.16	-1.50	.002
Syncope	41.51±2.59	32.18±1.72	-3.39	.285

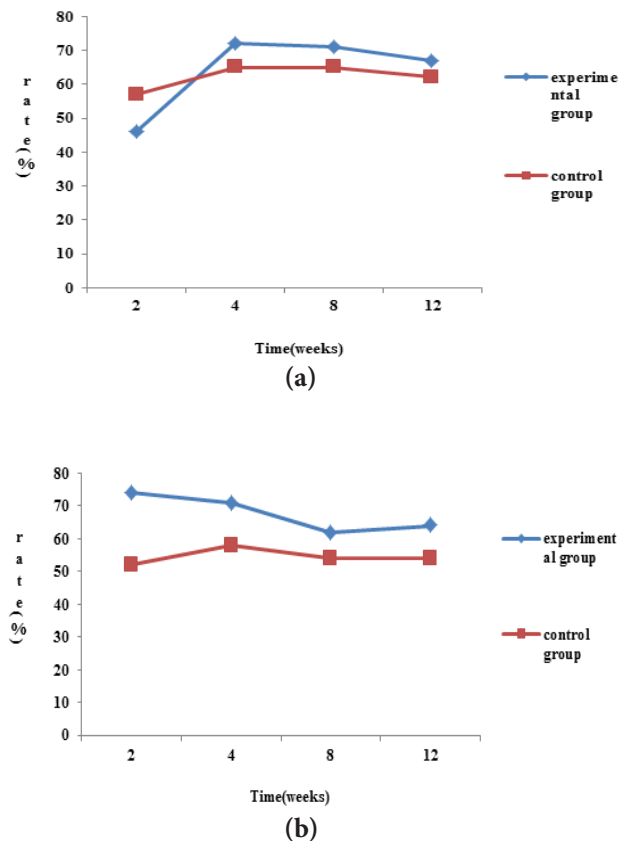


Figure 2. (a) and (b) Persistence of Self-Care Performance and Clinical State.

4. Discussion

The purpose of this study was to conduct the effects of a new experimental model to improve self-care performance in patients with myocardial infarction. As a result of this study, there was statistically significant rate of increase in health behaviors of food intake such as sesame, vegetable and low fat diet. This proportion are similar to that based on data on diagnoses in 2001-2008 from all high-quality US registries combined that cover about 92% of the US population⁸⁻¹⁰. Therefore, this study identified good application possibilities in effective model.

The study suggests that populations with myocardial infarction should be focused on food management of the cardiovascular disease. Moreover, in building effective food construction systems, convergence educational program for patients with myocardial infarction focused on health promoting behavior is more effective than individual program. The proposed model with application is more efficient than web-based medical information

system. Because this experimental model itself provides more flexibility than previous information system.

In comparison with the average of hyper lipoprotein level in control group, the experimental group's change was more positive, and there was significantly lower than control group. The result made a difference to the previous studies on chronic disease¹¹⁻¹³. There was also a meaningful difference of the result of experimental group. Moreover, the follow-up survey showed an increase in the experimental group than control group in terms of self-care performance in the time elapsed of 4 weeks after the application of a new experimental model. The construction of an experimental model is important to select characteristics of the model, and with the selected characteristics can do the model quality measures, and then with the result it is able to derive the quality improvement of an experimental model, and so sustainable quality control is possible by measurement of the improved health.

5. Conclusion

The purpose of this study was to conduct the effects of a new experimental model to improve self-care performance in patients with myocardial infarction. As a result of this study, first, it showed positive changes in self-care performance such as sesame intake, smoking, low fat diet intake and exercise regularly. Second, for sesame intake, subjects' score (62.51 ± 0.49) who have intake sesame after application significantly higher than subjects (47.36 ± 0.35) who didn't intake sesame ($t = -2.47, p = .000$). Third, for self-care performance, the mean scores of the persistence in myocardial infarction patients showed an increase in the experimental group, regardless of the time elapsed of 4 weeks after the application of a new experimental model. In this study, it brought up measurement method after selecting quality characteristics for an experimental model and developing valuation models. Thus, the research can use the results as guidelines for designing self-care performance and networks in the future.

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for the health promoting behaviors in a busy life. The experimental model will provide effective services and help in improving their self-care performance in myocardial infarction patients. In addition, the model application in patients will be widely as an effective treatment guide.

7. References

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