

The Development of a New Information System for Health Promotion Behavior in Patients with Laparoscopic Colon Resection

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Abstract. This paper is focused on the development of a new information system for health promotion behavior in patients with laparoscopic colon resection. Subjects of this study were patients who visited general surgery in K general hospital from July 8 to September 10, 2013. The total of 152 subjects was divided into experimental group 76 and control group 76. As a results, firstly, the present research showed the mean score of green tea drinking after intervention increased significantly than subjects($t=5.28$, $p=0.000$) before the intervention. Secondly, the present research showed that the rate of the health improvement behavior of colon cancer patients can be increased to 75.4-83.2% by the intervention. Therefore, a new information system-based health promoting program can be utilized as an effective intervention for self-management of patients with laparoscopic colon resection.

Keywords: Development, Information system, Health promotion behavior, Laparoscopic colon resection, Patients

1 Introduction

Colon cancer is one of the major malignancies in western countries and its incidence is rapidly increasing in other countries including Korea [1]. Recent increase of colorectal cancer has been attributed to high intake of fat and protein. However, there are inconsistent results between meat intake and the incidence of colorectal cancer [2]. Recently the frequency of the colon cancer in the laparoscopic colon resection is increasing with the increased use of health-checkup laparocopy [3]. Laparoscopic treatment is becoming increasing used as an alternative to traditional surgical resection, but there are few reports on the efficacy, safety and long-term prognosis of laparoscopic treatment for colon cancer [4].

In order to solve the problem, we should look for the practical plans. There were few studies to deal with information application of predictive model for health promotion in patients with laparoscopic colon surgery until present in Korea. This study is to examine the relationship between information system application and health promotion behavior of patients who had surgery for colon cancer.

Thus, we need to develop a health management program for laparoscopic surgery patients. The purpose of this study is to conduct a comparative verification on the development of a new information system program suitable for colon cancer patients

to improve their physical and psychological health. Because the study has verified the effect of a information program to boost colon cancer patients health through a scientific measurement method, it is expected that the study will help with an improvement in their quality of life through a information intervention to solve problems stemming from an increasing colon cancer patients and related patients problems. This study designed to develop the long-term health intervention program and ultimately to analyze the intervention effect through its application.

2 Materials and Methods

2.1 Study materials

Subjects of this study were patients who visited general surgery in K general hospital in Metropolitan from July 8 to September 10, 2013. The total of 152 subjects were divided into experimental group 76 and control group 76.

2.2 Study methods

General characteristics of study subjects were measured by percentage and number. The pairwise t-test was done to compare the difference in the scores between the pretest and posttest of the intervention effect designed to develop information system and conducted in two groups. On the other hand, the estimate of the four factors had been implemented to find out whether there were possible effects of the health promoting behavior program of a new information system by analyzing the results of the tests.

3 Results

3.1 General Characteristics of Study Subjects

Table 1 presents general characteristics of study subjects. The response rate(46.1%) of experimental groups was higher than the response rate(40.8%) of control groups at male according to gender of subjects. On the other hand, for subjects with a family history, the response rate(75.0%) of experimental groups was higher than the response rate(38.2%) of control groups.

Table 1. General Characteristics of Study Subjects

Variables	Experimental Group	Control Group	Variables	Experimental group	Control group
Age			≥5millions	14(18.4)	11(14.5)
≤39	9(11.8)	12(15.8)	Educational		
40-49	26(34.2)	21(27.6)	≤middle school	8(10.5)	14(18.4)
50-59	22(28.9)	19(25.0)	High school	32(42.1)	32(42.1)
≥60	19(25.0)	24(31.6)	≥University	36(47.4)	30(39.5)
Gender			Occupation		
Male	35(46.1)	31(40.8)	Yes	47(61.8)	44(57.9)
Female	41(53.9)	45(59.2)	No	29(38.2)	32(42.1)
Marital status			Family history		
Single	20(26.3)	17(22.4)	Yes	57(75.0)	29(38.2)
Married	56(73.7)	59(77.6)	No	19(25.0)	47(61.8)
Economic status			Other disease		
<2 millions	19(25.0)	23(30.3)	Yes	45(59.2)	24(31.6)
2-2.99 millions	23(30.3)	25(32.9)	No	31(40.8)	52(68.4)
3-4.99 millions	20(26.3)	17(22.4)			
Total	76(100.0)			76(100.0)	

3.2 The Comparison of Health Promotion Behavior by intervention

Table 2 presents the comparison of health promotion behavior by before and after intervention of a new information system. Below table notes, according to the health practice scores after intervention, the mean score of green tea drinking after intervention displayed a significant increase than subjects ($t=5.28$, $p=0.000$) before the intervention. And then behavioral change of meat intake after intervention was significantly lower compared to before the intervention ($t=7.05$, $p=0.000$)

Table 2. The Comparison of Health Promotion Behavior by Intervention

Variables	Before	After	t	P
	Mean±S.D.	Mean±S.D.		
Physical factor				
Exercise	57.81±0.36	76.35±0.54	-2.63	.007
Body weight	71.53±1.64	50.81±1.59	8.19	.024
Cholesterol	76.81±0.51	69.24±0.65	1.52	.753
Hypertension	82.94±1.63	70.38±0.47	7.36	.392
Blood sugar	74.53±1.64	62.79±1.85	5.47	.165
Psychological factor				
Depression	47.28±0.73	45.72±0.21	1.62	.703
Anxiety	65.07±0.44	47.36±1.72	4.29	.019
Perceived stress	63.45±0.26	52.51±0.68	2.83	.062
Sleep disorder	71.53±1.64	50.81±1.54	5.12	.038
Dietary factor				

Vegetable intake	63.94±0.82	83.19±0.42	-3.94	.002
Meat intake	78.21±0.54	42.57±0.81	7.05	.000
Green tea drinking	31.82±1.71	63.94±1.46	5.28	.000
Social factor				.
Passive smoking	51.68±0.52	32.39±0.62	0.29	.019
Drinking alcohol	72.95±0.18	65.70±0.28	3.67	.042
Daily living activity	68.12±0.17	45.39±0.95	8.41	.028

4 Discussion

The purpose of this research was to develop a new information system-based self-care promoting program for self-management of colon cancer patients with laparoscopic surgery and identify the effects of this program on patients' self-care behavior, nutritional status, and quality of life. This paper also shows the feasibility of the system through some tests.

This material is based on the research of finding out any difference in the scores between the pretest and posttest of the intervention effect designed to develop information system and conducted in two groups. As a results, green tea intake had identified preventive effects against colon cancer. The data suggest that the application of a new information system may be the tumor suppressive effects of dietary green tea extracts as a modulator on cisplatin in an established colon cancer model [5]. These findings suggest that the application of a new information system may be effective to reduce the obesity and increase the vegetable intake of subjects.

The data suggested that meditation had positive impact on health-promoting behaviors of colon cancer patients. Information interventions with an emphasis on meditation are needed to increase health-promoting behaviors and, in turn, to improve quality of life among colon cancer patients who have undergone surgical treatment[6].

The study was found that experimental group in meditation had a tendency toward gradually less variation in depression than control group over the timings of measurement. This finding indicates that meditation program is effective in relieving from depression. This finding shows that exercise is effective in improving general health and vitality of colon cancer patients. With regard to measurement of stress over measurement timings, it was also found that exercise group had a tendency toward gradually higher social role performance, self-confidence, general health and vitality over the timings of measurement, but had a tendency toward gradually lower vegetable intake over measurement timings. This finding indicates that exercise is effective in alleviating cancer patients from stress.

5 Conclusion

The present research showed that the rate of the health improvement behavior of colon cancer patients can be increased to 75.4-83.2% by the intervention. Therefore, it is concluded that this program is effective in relieving patients with laparoscopic

resection from stress over physical, psychological and social changes they experience in personal life, family and local community in the face of their years of life, and is also an alternative program fit for improvement of their general health. Thus, it is important to extend the coverage of this exercise program into wider population, so that more people have possibility and opportunity to enjoy better and healthier life.

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