RESEARCH ARTICLE

Effect of Education on Knowledge, Attitude and Behavioral Intention in Family Relative with Colorectal Cancer Patients Based on Theory of Planned Behavior

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Abstract

Background: Colorectal cancer is one of most common cancers in women and men and one of the major causes of death due to neoplasia. Colonoscopy is considered as the most accurate diagnostic procedure to detect colorectal cancer at the earlier stages. Objectives: The current study aimed to evaluate the effects of an education program using the Theory of Planned Behavior on promoting behavioral intention among first degree relatives of colorectal cancer patients. Materials and Methods: A quasi-experimental study conducted to evaluate the effectiveness of an educational program to promote attitudinal factors associated with early detection of colorectal cancer in 99 first degree relatives of colorectal cancer patients aged more than 20 years in Yazd city, Iran. A researcher made questionnaire forwhich validity and reliability were confirmed by expert point of view and pilot testing was employed for data collection. Questionnaires were filled in before and after educational intervention. The registered data were transferred to SPSS 19 and analyzed by paired T-test, Man-Whitney and Wilcaxon. Results: Mean scores of knowledge, attitude, perceived behavioral control and intention regarding colorectal cancer increased after education significantly (P<0.05). Conclusions: Application of the Theory of Planned Behavior has positive influence on promoting intention behavior. It is therefore recommended to apply educational programs to promote behavioral intention.

Keywords: Colorectal cancers - first degree family - knowledge - attitude - intention - Iran

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Introduction

Colorectal cancer is one of the first four prevalent cancers in human and is the second leading cause cancers deaths (Breslier, 2010). In Iran, cancers are the third cause of death that colorectal cancer is the third and fifth most common cancer women (7.56%) and men (8.34%) respectively (Ministry of Health and Medical Education of Iran, 2004). Estimations shows that risk of colorectal cancer in general population is about 5-6%, but the risk in first degree relatives of patients with cancer will increase 2-3 times more and if one of first degree relatives has cancer, at ages under 50, risk will be 3-4 times higher than normal population.

Colonoscopy must be done for normal population from age 50 and for at risk patients must be started 10 years earlier than the age of stricken patient (American cancer society, 1996). Early diagnosis of the disease with screening can increase five years survival of patients from 5% (in cases with end stage diagnosed patients) to 95% (Bat et al., 1986). Rate of acceptance of screening from patients has been estimated from 25% (Bat et al., 1986) to 79% (Caffrey, 1993) in different studies. Though regular screening is suggested for such people but acceptance of it is weak (harris and Byles, 1997).

Planned behavioral theory is using to anticipate behavior of population and can forecast subjects intention toward behavior. This theory has been used extensively to understand and anticipate healthy behavior like exercise, nutrition, smoking, alcohol use, safe sexual activity and screening. One of the most important specifications of this theory is that consider individual factors and moreover social factors too (Armitage and Conner, 2000). Based on this model intention toward a behavior controls by three factors: 1) attention about the consequences of behavior and interpretation n of the results (behavioral intention), 2) intention about expectation norms of others and motivation for matching with these expectations (behavioral norms), 3) intention about convenience factors or barriers towards behavior and percept power on each

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of mentioned factors (controller intentions) (Ajzen, 1991; Jillian et al., 2004)

This study was done in Yazd city, Iran to detect the interest of relatives of colorectal cancer patients towards screening and also to determine the effect of education on increase of interest and intention of them toward screening.

Materials and Methods

This was a quasi-experimental study was based on some structures of planned behavioral theory. Participants were selected from first degree relatives of colorectal cancer patients who were registered in Yazd city hospitals.

The questionnaire developed in consultation with two health educators, two gastroenterologists and an expert in questionnaire validation. The validity of the questionnaire was assessed by a healthcare specialist and internal consistency was determined by a pilot study on 15 participants were not included in the main study, Alpha chronbach was measured for structures of questionnaire as follows: attitude questions 76%, abstract norms 68%, control of perceived behavior 92% and intention 76%. Questionnaire was consisted of six sections with questions on demographic information (age, sex, graduation level, work and degree of familial relativity), knowledge questions on disease symptoms, way of diagnosis, screening and influencing factors on disease (19 questions and 19 scores), attitude questions on probability of being diagnosed with disease, consequences of disease in treatment, perceived barriers and perceived benefits towards disease and screening. Responses were possible based on likert five options scale (completely agree to completely disagree) (18 questions with total attainable 90 scores). Higher scores indicates higher level of knowledge, more positive attitude towards disease, higher abstract norms and more control on behavior and better intention towards disease.

Interviews were done in homes or at the office of gastroenterologist or oncologist between February-march 2012. All registered data were transformed into SPSS-19 software and analyzed. Then based on primary analysis a pamphlet was designed. All participants were invited for educational sessions in a general polyclinic and some information about disease and diagnosis modalities were presented by gastroenterologist and pamphlet was given for reading. After two months of educational intervention participants were requested to fill in the questionnaire again. All registered data after intervention was analyzed and compared to primary information.

Table 1. Data for Knowledge, Attitude, Abstract Norm, Perceived Behavioral Control and Behavioral Intention

Variable	Mean score		P Value
	Before	After	
Knowledge	10.55±3.43	14.82±2.11	0.0001
Attitude	63.38±9.51	70.55±6.82	0.0001
Abstract norm	9.12±3.15	12.33±2.02	0.0005
Perceived behavioral control	5.31±1.94	8.33±4.69	0.0005
Behavioral intention	8.34±3.28	10.83±2.29	0.0005

Table 2. Data Knowledge and Variables of Planned Behavioral Thory toward Colorectal Cancer Based on Sex before and after Education

Variable	Sex	Female	Male
Knowledge	Before education	11.90±2.7	9.63±3.58
	After education	15.27±1.93	14.51±2.19
P-Value (Wilcoxon)		0.001	0.001
Attitude	Before education	63.00±9.35	83.67±9.54
	After education	70.37±6.83	70.68±6.81
P-Value (Paired T test)		0.001	0.001
Abstract norm	Before education	9.43±3.39	8.94±2.97
	After education	11.55±2.20	11.17±2.01
P-Value (Wilcoxon)		0.0001	0.0001
Perceived behavioral control	Before education	5.51±2.11	5.17±1.86
	After education	7.85±1.84	8.15±1.54
P-Value		0.0001	0.0001
intention	Before education	8.68±3.39	8.12±3.18
	After education	10.82±2.51	10.84±2.51
P-Value (Paired T test)		0.0001	0.0001

Table 3. Knowledge and Variables of Planned Behavioral Theory toward Colorectal Cancer based on Level of Graduation before and after Education

Variable	Sex	Under high school	High school diploma and associate diploma	Master of science and higher
Knowledge	Before education	10.47±4.10	10.36±3.06	11.27±2.29
	After education	14.48±2.39	14.89±2.01	15.44±1.5
P-Value (Wilcoxon)		0.0001	0.0001	0.0001
Attitude	Before education	59.47±9.58	65.92±8.25	67.05±8.44
	After education	67.57±6.68	71.76±6.23	74.72±5.30
P-Value (Paired T test)		0.0001	0.0001	0.001
Abstract norm	Before education	8.16±3.31	10.02±2.97	9.55±2.52
	After education	10.92±2.37	11.46±1.86	11.94±1.79
P-Value (Wilcoxon)		0.0001	0.0001	0.0001
Perceived behavioral control				
	Before education	5.35±2.09	5.31±1.885±1.94	
	After education	7.58±1.87	8.20±1.48	8.66±1.32
P-Value		0.0001	0.0001	0.0001
intention	Before education	7.57±3.15	9.20±3.40	8.33±2.91
	After education	10.21±2.66	11.33±2.27	11.16±2.35
P-Value (Paired T test)		0.0001	0.0001	0.0001

Results

Totally 99 participants were included in this study. About 56.6% of participants were male and 40.4% were female. Mean age was 39.05±10.79 years and 84.4 were married. Level of graduation in 42 participants was under high school diploma, in 39 diploma and associate degree and 18 participants were master of science and higher. 29 participants were siblings and 70 were son or daughter of patients. Time lasted from primary diagnosis of cancer was under two years in 56 and more than two years in 43 patients. Age 34.3% of study participants were among 20-34, 35.4% were 34-43 and 30.3% between 44-70 years.

Based on Wilcoxon test, mean scores for knowledge of participants was increased significantly after education in contrasting with before education (Table 1).

Mean scores of study participants according to abstract norms, perceived controlled behavior and behavioral intention before and after education. Scores were increased at all study variables are indicated in table 2 too. Before

study women had higher scores in knowledge than men, but there was no significant difference between these variables according age, sex, graduation and work before and after education (Table 2 and Table 3).

Discussion

Our study showed that education can improve knowledge, attitude, ability to do behavior and intention to behavior. There was no significant difference between variables before and after education according to age, sex and graduation, these results are concomitant with Ishii et al. (2011), Collins et al. (2000) and Meng et al. (2009). Mahani after a survey on knowledge of 80 participants over than 50 years concluded that education increased the knowledge of patients significantly (Abdollahmahani, 2001). These results are in line with our results. Weinrich et al in their study concluded similar results (Weinrich and Mester, 1992). Moattari et al. (2009) also after education based on health belief model concluded that education can improve knowledge scores significantly (Moattari et al., 2009). These results also are similar with our results. Hatefnia and Mazloomy concluded similar results in women toward breast cancer screening (Mazloomy et al., 2007; Hatefnia et al., 2010). Rimer et al in their study on 500 women at age risk of breast cancer, resulted that positive attitude towards ability of mammography in diagnosis of breast cancer has direct relation to participant` behavior toward doing mammography (Rimer et al., 2001).

In our study, mean attitude scores were improved significantly after education in relatives of colorectal cancer patients, Hatefinia et al concluded similar results in his study on improving knowledge and attitude of participants toward breast cancer screening by mammography (Hatefnia et al., 2010). Kim and Mmazloomy also concluded similar results too (Kim, 2004; Mazloomy et al., 2007). Tabeshian in his study concluded similar results in prevention of cervix cancer by Pap smear (Tabeshian and Farah, 2009).

Based on present study results, scores of abstract norm were 9.12±3.15 and 12.32±2.02 before and after education respectively (P=0.001). Similar results were reported about mammography in screening of breast cancer by Rimer et al. (2001) and Hatefnia et al. (2010). Theory of planned behavior emphasizes the role of abstract norm on changing or even development of behavior, and also based on other studies that suggest relationship between this variable and cancer screening doing as an behavior, we can conclude that increasing in abstract norms after education can cause increase in doing colonoscopy as a screening modality for colorectal cancers (Kang, 1993; Champion, 1997; Allen and Sorensen, 2008).

One of other finding of present study was significant effect of education on perceived behavioral control. In 2005 Steele et al in their study concluded that perceived behavioral control is an important factor to the behavior (Steele et al., 2008).

Mean behavioral intention also was increased in our study after education significantly. Fletcher et al. (1993) and Jouan et al. (2006) in their studies on breast cancer and Philip etal, Antonio et al and Makoul et al in their studies on colorectal cancer reported similar results (Antonio et al., 2009; Makoul et al., 2009; Philip et al., 2010)

In conclusion, application of the Theory of Planned Behavior has positive influence on promoting intention behavior. It is, therefore, recommended to apply educational programs promote behavioral intention.

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