RESEARCH COMMUNICATION

Evaluation of a Navigator Program for Cancer Screening of Women in Korean Communities

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Abstract

The objectives of this study were to develop and evaluate a culturally acceptable navigator program for female community leaders to improve the cancer screening rates of Korean women. The study was designed to improve knowledge, self efficacy and communication skills for breast and cervical cancer screening, monitor navigator's activities and evaluate change of knowledge, motivation, behavioral skills of a selected community population. A total of 30 women aged from 40-69 who were educated in a 12 hour navigator program, and 210 of a 1,200 community members in contact with cancer screening navigators were surveyed for evaluation of effectiveness of the navigator program. Contents of program were causes of cancer, benefit of breast cancer early detection, benefit of cervical cancer early detection, health care service for cancer screening, role of cancer early detection navigators, communication skills, trans-theoretical modeling and role play. Cancer screening was significantly related to the change of knowledge by cancer screening navigator (OR=3.02, p<0.01), and changed skills for taking screening (OR=2.46, p<0.05). This study showed that the navigator program could be applied effectively to communities in Korea, contributing to improvement of screening rates through community capacity building.

Keywords: Evaluation - navigator - cancer screening - Korean women - community activities

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Introduction

Cancer is the most common leading cause of death in Korea. Each year approximately 10 million people were diagnosed as cancer. Also, the cancer mortality has increased continually; 130.1, 132.6, 134.0 and 139.5 per 100,000 people in 2002, 2004, 2006 and 2008 accordingly (Statistics Korea, 2009). According to the report of Korean National Cancer Center (KNCC), the number of incidences and deaths caused by cancer are expected to be increased by 46% and 30% in the next 10 years.

Breast and cervical cancer are the most frequently diagnosed cancer among Korean women and contributes to the fact that Korean females were the first Korean population to experience cancer as the leading cause of death with incidence of 47.4 and 14.8 per 100,000 female (Korean National Cancer Center, 2010). World Health Organization (WHO) has suggested that national cancer screening program has been the most effective and efficient method to improve the quality of life (WHO, 2002). Although Korean government had established 'Cancer Control 10 years Plan' since 1996, and had implemented 'National Cancer Screening Program' as a part of many efforts since 1999. Cancer screening rate in Korea is still lower than in other developed countries. In Korea, the screening rates of breast cancer and cervical cancer were 55.2% and 63.9% (KNCC, 2010).

To improve the cancer screening rate, there require multiple strategies including not just public relations with mass media but also the efforts to increase community capacity of taking cancer screening. Increased community capacity means that the abilities affected on taking cancer screening. Specifically small city and rural area not metropolitan area are operated within the community, and the community could improve the cancer screening rate effectively through the efforts of increased the community activities. For other countries, many programs for building of community capacity were applied to various people (McElmurry et al., 2003; Kegler and Malcoe, 2004; Kim et al., 2004; CDC, 2005; Israel et al., 2005; Cornell et al., 2009). Especially, the program of mammography to decrease the mortality due to breast cancer was introduced (Moyer et al., 2001; Paskett et al., 2006), the screening rate of breast cancer was increased by the capacity improvement program of community (Earp et al., 2002). On these programs, Lay Health Advisor (LHA), navigators who are the participants in the community provided people with the information of cancer, advice, emotional support or help, and the community capacity for cancer screening was increased. However, there are few the studies to examine the capacity building program of cancer screening in Korean communities.

The objectives of this study were to develop and evaluate a culturally acceptable navigator program,

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program for community female leaders to improve the cancer screening rate of community.

Materials and Methods

Study design

The program for training of cancer screening navigator was composed of 12 hours education; knowledge of cancer screening, self-efficacy, and theory-practice of communication. Then, the effectiveness of training program was measured for the changes of knowledge, self-efficacy and communication skills. 30 educated navigators acted in their community, and after 1 year, the knowledge of people, motivation, behaviors, screening rate and the intention of screening for the community people contacted with the navigators were measured to evaluate the navigators' activities.

Subjects

The study was performed in 'Chuncheon' city, Gangwon province in South Korea. This city was a middle city with 250,000 populations and had lower rate of cancer screening than large cities. Because the city had traits of urban-rural consolidated cities, it would be evaluated that the individual contact by community leaders was better than mass media on the effects of activities for cancer screening.

Cancer screening navigator, subjects of the program are above 40 years old and female and the recruitment of the program was introduced through website and city bulletins. Finally, 30 women were selected and trained. The regular monitoring for education and activities was performed on monthly meetings, where the navigators submitted the result of their activity and self-evaluation data.

For the evaluation of effectiveness, people who contacted in the community with navigator, 8-10 females per each navigator were selected. Totally 250 persons among 1200 contacted with navigator were randomly selected. 223 persons replied the questionnaires and 13 responses were withdrawn due to inadequacy. Finally, data of 210 responses were analyzed.

Questionnaire items

1) The self-evaluation instrument for navigators. The self-evaluation for navigators was measured with satisfaction of activities. This was classified with 'very satisfied', 'satisfied' 'common' and 'unsatisfied'. The influence on screening rate and the improvement of cancer knowledge, self-efficacy and communication skills of themselves by navigators' activity are classified with 'very improved', 'improved', 'not improved'.

2) Evaluation instrument for community people contacted by navigators. The improvement of community people between before and after contact with navigators was examined. The intention of cancer screening, screening plan and the influence by navigators were measured. Also, the cancer knowledge, motivation and skill change were examined based on the Information motivation behavioral skills model.

(1) Knowledge of cancer screening. For the knowledge of breast/cervical cancer screening, 6 questionnaires were used. 1 point is given for a right answer and 0 point is given for a wrong answer on each item: the score range was 0 through 6. The high score meant the high level of knowledge. Also, the change of knowledge on cancer screening by influence of navigators was measured.

(2) Motivation for cancer screening. The motivation of community people was composed of 3 questionnaires-the importance of screening, the confidence on screening, the support of screening-with 5 points (1 through 5). The higher scores the more positive motivation on cancer screening. It was also examined whether the motivation was changed by influence of navigators.

(3) Skill of cancer screening. The screening behaviors of community people were measured with 2 questionnaires: information of screening cycle and kinds of screening methods of breast/cervical cancers. 1 point is given for a right answer and 0 point is given for a wrong answer on each item (0 through 2 points). It was also examined whether the information of skill was changed by influence of navigators.

Development and Operation of Cancer Screening Navigator Program

1) The training program for navigators. The training program for navigators was developed through the literature review (The North Carolina-Breast Cancer Screening Program: NC-BCSP, 2002) and complemented by experts. Navigator training started in 2008 and included a total of 12hours of training. The training topics were confidentiality, emotional support, communication skill, breast and cervical cancer overview, screening and obtaining appropriate follow-up for abnormal results.

2) The operation of program in the community. Trained navigators performed activities for cancer prevention and screening in the community: provided close family with the information related to cancer screening, then expanded relatives and neighbors. On the monthly meeting, navigators reported activities including the name of which they contacted person, demographic characteristics, screening status, and navigator's activities of cancer screening.

Data collection procedures

The data of navigators' activities in the community had collected from September 1st, 2008 to October 9th, 2009. The education program of cancer screening navigators was held on September 1st~2nd, 2008 and the self-evaluation of navigators was on October 8th, 2009. The evaluation of navigators by community was on Oct 8th~15th, 2009.

The activities of navigators were monitored regularly and the number of community people with contact from navigators was measured. After 1year of navigator activities, the questionnaires for self-evaluation of navigators and community people who navigator contacted were completed.

Data analysis

The general characteristics were analyzed with real numbers and percentage and the change of knowledge,

Table 1. Contents of Navigator Education for Cancer Screening

Session	Title	Main contents	Instructor
1	Opening	Understanding of the navigator education Object of the education program Make a confidence between participants	Doctor
2	Case	Success case of the cancer screening & treatment	Experienced Woman
3	Breast Cancer	Understanding of the breast cancer Benefit of the breast cancer screening	Nurse
4	Cervical Cancer	Understanding of the cervical cancer Benefit of the cervical cancer screening	Doctor
5	Health Care System	Health care service for cancer screening Health care service for cancer patient support	Public health nurse
6-7	Role & Mission of Navigator	Introduction of the navigator's role Discussion of the navigator's mission -Restraining force & driving force brainstorming, Gallery walk	Specialist
8-9	Communication	Encouraging of the communication skill & relationship - Block practice Increasing of the group leadership	Specialist
10	TTM*	Transtheoretical model for cancer screening	Doctor
11	Role Play	Role play for cancer screening -Strengthening & weakness sharing, Gallery walk	Nurse
12	Closing	Action plan for increasing of the cancer screening rate	Nurse

*TTM: Transtheoretical model

motivation and behavior of community people were analyzed. The main factors related to behavior change of cancer screening were analyzed with logistic regression test on got cancer screening by navigators and the other group ('got cancer screening without help of navigators' and 'no cancer screening group'). The analysis was operated by PASW Statistics 17.0 for window with the p-value 0.05.

Results

Self-evaluation of cancer screening navigators

The navigators' self-satisfaction was very satisfied 6.7%, satisfied 50.0%. The influence on the improvement of cancer screening on the people in the community was : very much 30%, common 50%, and little 20%. The change of knowledge through navigator activity was: very improved 43.3% and improved 56.7%. The change of self-efficacy by navigators was: very improved 36.7% and improved 60.0%. The change of communication skills through navigator activity was: very improved 23.3% and improved 74.4%.

Table 2. Self Evaluation of Navigators (n=30)

Characteristics	Categories	N	%
Age	Under 49	11	36.7
	50-59	12	40.0
	Above 60	7	23.3
Activity duration	7 months	16	53.4
	13 months	14	46.6
Satisfaction degree	Very satisfied	2	6.7
	Satisfied	15	50.0
	Common	13	43.3
Influence of screening on the community	Very much	9	30.0
	Common	15	50.0
	Little	6	20.0
Knowledge change	Very improved	17	43.3
	Improved	13	56.7
	Not improved	-	-
Self efficacy change	Very improved	11	36.7
	Improved	18	60.0
	Not improved	1	3.3
Communication skill change	Very improved	7	23.3
	Improved	22	73.4
	Not improved	1	3.3

The general characteristics of respondents

The main target people who navigators contacted were: age 50's (43.3%), and education high school graduated (55.7%). The contact period was within 6 months (42.4%) and below 1 year (35.7%). The received activities from navigators were: invitation of screening test (88.6%), provision of cancer knowledge (72.9%), confirmation of screening test (61.9%), and information of support (42.4%) (Table 3).

Characteristics associated with cancer screening of the respondents

Among people who received the navigators' recommendations for cancer screening, 74.3% took the screening, 95.7% had the intention of screening within 1 month (10.0%), within 6 months (21.9%) or within 2

Table 3. Characteristics of the Respondents (n=210)

Characteristics	Categories	N	%
Age	Under 49	79	37.6
	50-59	91	43.3
	Above 60	40	19.1
Education	Middle school	46	21.9
	High school	117	55.7
	College	47	22.4
Contact period	Within 6 months	89	42.4
	Below 1 year	75	35.7
	Above 1 year	46	21.9
Activity contents†	Invitation of screening	186	88.6
	Provision of knowledge	153	72.9
	Confirmation of screening	130	61.9
	Information of support	89	42.4
	Emotional support	55	26.2
	Direct help	52	24.8

† Multiple responses

Table 4. Characteristics Associated with Cancer Screening of the Respondents (unit : % or M±SD)

Characteristics	Categories	% or M±SD
Taking of Screening	Yes	74.3
	No	25.7
Intention of	Yes	95.7
Screening	No	4.3
Detailed Screening	1 month under	10.0
Plan	6 months under	21.9
	2 years under	63.8
	No plan	4.3
Level of Knowledge	(range 0-6)	4.09±1.15
Level of Motivation	Importance(range 1-5)	4.71±0.54
	Self efficacy(range 1-5)	4.33±0.78
	Helpfulness(range 1-5)	4.57±0.61
Level of Behavioral	Screening cycle(range 0-2)	0.39±0.67
Skill	Screening method(range 0-2)	1.55±0.64

Table 5. Major Factors Associated with Cancer Screening

Characteristics	Categories	Taking the cancer screening	
		OR	95% CI
Age	Under 49	1.00	
	50-59	1.63	0.80-3.32
	Above 60	3.22*	1.08-9.64
Education	Middle school	1.00	
	High school	1.12	0.47-2.68
	College	1.99	0.67-5.93
Contact period	within 6 months	1.00	
	Below 1 year	0.65	0.32-1.32
	Above 1 year	1.02	0.43-2.41
Knowledge	No	1.00	
of screening	Yes	3.02**	1.32-6.92
Motivation	No	1.00	
of screening	Yes	1.48	0.27-8.02
Behavioral skill	No	1.00	
of screening	Yes	2.46*	1.12-5.40

*p< 0.05, **p< 0.01; OR: Odds Ratio, CI: Confidence Interval

years (63.8%) (Table 4).

The knowledge of cancer screening had 4.09 out of 6 points. The importance of motivation had 4.71 out of 5 points, self-efficacy 4.33 and helpfulness 4.57. The screening cycle of behavior had 0.39 out of 2 points and the screening method 1.55.

The related factors to the cancer screening

Respondents were classified into two groups: on group was 'got the cancer screening by navigators' influence (24.3%)' and the other was the group 'got cancer screening regardless of navigators' influence (50.0%) or no cancer screening (25.7%)' The respondents above 60 years old had higher screening rate than below 49 years old (OR=3.22, p<0.05), with statistically significant. The respondents influenced by navigators had higher screening rate than non-influenced by navigators. There were significantly related to knowledge (OR=3.02, p<0.01). Also the behavior was significantly influenced by navigators (OR=2.46, p<0.05) (Table 5).

Discussion

This study was undertaken to evaluate the effectiveness of cancer screening navigator program, designed for community capacity building of cancer screening among women in an urban area of Korea. To change behavior and maintain personal practices continuously, it is necessary to give proper information and to encourage positive attitudes through participatory activities in the community. The reinforcement of community network through navigators' activities would lead to improve the screening rate, the activities of navigators in the community can be suggested as effective strategies to improve the screening rate. The navigator program developed by this study is evaluated as a timely and valuable program. Moreover, this program used community's resources, establish network and monitor navigators' activities.

To induce active participation of training program for navigators, we included participating activities such as game, discussion and role play rather than traditional lectures. So, the trainees were interested and the program was valuable. This study also had feedback through expert of education program for appropriateness and adequacy of program. The navigators were trained to perform cancer history, screening cycle check, screening encouragement, explanation of screening importance and provision of others to community people and share experience and weakness/strengths through regular meetings to establish network between navigators. This was consistent with the study results of patient navigators (NCI, 2006).

Adams et al., (2007) recommended that 40-64 women, with low economic status, uninsured and minor of race are needed for program to improve the accessibility of cancer screening. In our study, the navigators contacted mainly 40-50's women, who were appropriate subjects for the prevention screening of breast and cervical cancers. Our study area was small city and rural area not metropolitan area were operated within the community, so community participatory activity for capacity building for cancer screening was very useful than other kinds of program.

The results of this study showed that people in a community could improve their knowledge and attitude of cancer screening through a well managed program. For Korean women's lifetime screening rate, the most recently esbalished values were for cervical cancer (76.8%) and breast cancer (55.9%) (Kwak et al., 2005). This study showed the 74.3% among community people had received screening for 2 years and this was not classified between breast cancer and cervical cancer. So, the results could not been compared directly, but this would be evaluated the rate was getting raised. This study showed people with plan of screening was 95.7%, and the navigator program could contribute to the improvement of screening on the community; this was consistent that the intention of screening could affect on cancer screening (Kwak et al., 2005). This study indicated that the screening behavior of subjects was improved by navigators, and this was also similar to the studies, which are that the behavior was changed after the program (Fisher et al., 2002; Singh, 2003; Eileen et al., 2006).

The reports (Rauscher et al., 2004; Grindel et al., 2004), which were that people with breast screening were motivated positively, indicated that it could have better effects on the intervention with the consideration of subjects' cultural background or educational level.

Also the results was similar to the following; knowledge was improved by education program (Fisher et al., 2002; Singh, 2003; Angela et al., 2006) and motivation was improved by education program (Fisher et al., 2002; Singh, 2003; Angela et al., 2006; Eileen et al., 2006). In our study, navigators could influence knowledge, motivation and behavior change and contribute on cancer prevention and early screening.

The navigators of this study provided information of cancer screening, encouraged screening, check screening, supported emotionally and so on. These activities were reported every monthly meeting. The attendance rate of monthly meeting was average 62.7%. The rate increased on the continuing education but getting decreased after training program gradually. For the positive impact on communities, there should be continuous meetings, network establishment and improved abilities after basic training for cancer screening navigators.

There are several limitations in our study. First, we did not evaluate the starting level of knowledge, motivation, and behaviors for community people and the changes, and we could not compare with the pre-post changes the navigators' activities. Second, the impacts on screening rate and screening intention by navigators were relied on self-evaluation. Lastly, also, in order to obtain high-quality process of evaluation data, the development of structured questionnaire has to be taken into account. However, the characteristics of this study were focused to improve personal relationship and to strengthen the network, it was difficult to assess with structured questionnaire when navigators meet the community people at first time.

Nevertheless, this study showed that the navigator program could be applied effectively to communities. If the results of this study are applied to other communities, adopt training program considered local, cultural and cancer diagnosis, and improve navigators program, the program could contribute on the improvement of screening rate through community capacity building.

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