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Research

Pap smear test Promotion among Women: An Educational Intervention Based on Theory of Planned Behavior

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ABSTRACT

Cervical cancer is the second most common cancer among women in the world and the most common cancer in developing countries. Pap smear is the single effective method in reducing deaths because of cervical cancer. This study was conducted to evaluate Pap smear test promotion intervention efficiency among women in Iran and theory of planned behavior was applied as theoretical framework. This interventional - study was accomplished by choosing 120 women in two health Centre randomly divided into experimental and control groups. Three months after educational intervention results were evaluated. Participants responded to the standard self-report questionnaire. Data were analyzed by SPSS-16. It was found significant improvements in average response for Attitude (P=0.004), subjective norms (P<0.001), perceived behavior control (P=0.010) and behavioral intention (P=0.000) toward undergoing Pap smear among intervention group. Additionally after intervention, the rate of doing Pap smear test was increased among intervention group (P=0.013). This study indicated the educational program based on theory of planned behavior could encourage the women to do Pap smear test.

Key words: Cervical cancer, Pap smear, Theory of Planned Behavior, Interventional study

1. INTRODUCTION

Carcinoma of the cervix uteri is an important cause of mortality and morbidity amongst women especially in developing countries. It is often the most common cause of cancer-related death among women (1). Cervical cancer is the third most common cancer among women after breast and colorectal cancer and the second most frequent cause of cancer-related death (2, 3). Cervix cancer is the fourth common cancer among Iranian women (4). The risk factors for cervical cancer include early age at first intercourse and multiple sexual partners women with known human papilloma virus (HPV), low socio-economic status, women with a family history of cervical cancer or a partner who has had multiple sexual partners and women who smoke are considered at high risk for HPV and should be tested annually (5, 6). However, it's considered one of the most preventable cancers (7). Performing cancer screening tests can decrease cancer related mortality and morbidity (8). In this regard, Pap smear is the most successful screening test for carcinoma in the history of medicine (9). The success of this test is mainly a result of its simplicity, low cost, and low false-negative rate and with no side effect (10, 11). Pap smears can detect abnormal cellular changes before more serious problems develop, the Pap smear purpose is to detect these abnormal cellular changes while they are still benign and easily treatable and it can effectively reduce the incidence of cervical cancer by 75–90 percent (12, 13). Mortality rates from cervical cancer have decreased in most industrialized countries, markedly through early detection programs that stress the use of Pap test (14). Prevention and early diagnosis of cancer are the vital factors in controlling the disease and increasing life expectancy (8). According to prevalence of cervical cancers in Iran, studies about effective factors on Pap smear test behavior based on psychosocial models of health behavior is necessary for planning of interventional programs (15). In this regard, several studies have reported theory of planned behavior predictability to explain healthy behavioral such as pap smear test among women (16-18) . "The theory

of planned behavior (TPB) was proposed by Icek Ajzen in 1985. According to the TPB, the primary determinants of future behavior are one's intention to perform the behavior and the subjective perception of having control over behavior (perceived behavioral control - PBC). In turn, intentions are predicted by three variables: (a) Attitudes are a person's positive or negative evaluation of performing the focal behavior, (b) Subjective norms (SN) are a person's perception of other people's opinion regarding behavioral performance and (c) PBC refers to a person's sense of control over performing the behavior under study. When PBC is a reflection of actual control over behavioral performance, it is expected that it will predict behavior directly" (16). The purpose of this study was to assess the effectiveness of Pap smear test promotion program among sample of Iranian married women referred to health centers in Hamadan County, the west of Iran based on theory of planned behavior.

2. MATERIALS AND METHODS

2.1. Participants

This study was conducted among a sample of Iranian married women aged 35 to 54 years old referred to health centers in Hamadan County, the west of Iran during 2012. Two health centers randomly selected within all health centers in Hamadan County. Sixty participants as intervention and sixty as control groups were enrolled at the baseline survey, of who all were followed up after 3-month intervention. This study was conducted with approval from Hamadan University of Medical sciences' institutional review board. Informed assent and consent were obtained from participants.

2.2. Measures

Questionnaire included two sections that comprised of twenty-two questions. Eight questions for demographic features; and fourteen questions for TPB variable.

2.2.1. Demographics

Background data collected in this research include: age (years), education level (primary school, secondary school, High school, academic), number of children, number of previous pregnancies, job (housewife, working), menopause (yes, no), family history of cervical cancer (yes, no), and history of undergoing regular Pap smear test (yes, no).

2.2.2. Theory of Planned behavior Scale

TPB scale was a standard questionnaire (16) and included 14 items under four constructs including (a) attitude; (b) subjective norms; (c) perceived behavioral control; (d) behavioral intention. Six items were designed to measure attitude toward undergoing a regular Pap smear (e.g., "Getting a Pap smear test would help me to reduce cervical cancer"). Four items were designed to measure subjective norms toward perform a regular Pap smear (e.g., "My husband thinks I should have regular Pap smear test"). Two items were designed to perceived behavioral control toward perform a regular Pap smear (e.g., "Take a Pap smear every 1-3 years for me would be very easy"). Two items were designed to evaluate intention toward perform a regular Pap smear (e.g., "I intend to take a regular Pap smear test every 1-3 years"). In order to facilitate participants' responses to the items, all items were standardized to a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Estimated reliability using alpha Cronbach coefficient for each TPB constructs questionnaire were as follows: attitude (α= 0.70); subjective norms (α= 0.68); perceived behavior control (α= 0.71) and behavioral intention (α= 0.88).

2.3. Procedure

This was a longitudinal randomized pre-test - post-test series control group design panel study to implement a health education based intervention to promotion undergoing pap smear among a sample of women aged 35 to 54 years recruited from two randomly selected health center in Hamadan, Iran. After obtaining informed consent participants were enrolled in the study, a 22-item, structured questionnaire with the aforementioned measures was distributed to the women to complete. Prior to the self-administration of the questionnaire, study staff explained the logistics of answering different type of questions and clarified any concerns and questions that were raised by participants. The intervention aimed to promotion undergoing Pap smear among women. The intervention activates were tailored and implemented based on women educational needs based on previous our result in cross sectional study (16) and our results showed that subjective norms were strong predictor for taking Pap-smear test, in addition, physicians' advice plays an important role to persuade women to take part in Pap smear. The course included four weekly teaching (A lecture and group discussion) units (45–60 min each). The educational program including: cervical cancer and factor related with and role of Pap smear test in cervical cancer prevention. Also from doctors and health, workers at the health center intervention were request to encourage women to undergoing the Pap smear test.

2.4. Statistical Analysis

Analyses were conducted by using SPSS-16 and a probability level of 0.05 was used throughout. Cross -tabulation and T-test were employed to determine comparability of the intervention in compare with control group.

3. RESULTS AND DISCUSSION

Totally 120 women including 60 women in each group were participated in this study. The demographic data of each group at base line are shown in table 1. According this table there are no significant differences between two groups in terms of all demographic characteristics.

Table 1. Pretest Equivalency results for Intervention and Control groups (n=120)

Variable		Total (n=120)	Intervention Group (n=60)	Control Group (n=60)	P-value
Age		39.70(4.37)	40.18(4.2)	39.40(4.7)	0.338
Education	Elementary	23(19.1%)	10(43.5%)	13(56.5%)	
	Guidance	27(22.5%)	9(33.3%)	18(66.7%)	
	Diploma	50(41.7)	28(56%)	22(44%)	0.116
	Academic	20(16.7%)	13(35%)	7(65%)	
Menopause	Yes	9(7.5%)	3(33.3%)	6(66.7%)	0.298
	No	111(92.5%)	57(51.4%)	54(48.6%)	
Occupation	Housewife	107(89.2%)	52(48.6%)	55(51.4%)	0.378

	Working	13(10.8%)	8(61.5%)	5(38.5%)	
Positive family history of cervical cancer	Yes	7(5.8%)	3(42.9%)	4(57.1%)	0.697
	No	113(94.2%)	57(50.4%)	56(49.6%)	
History of Pap smear test	Yes	56(46.7%)	30(53.6%)	26(46.4%)	0.464
	No	64(53.3%)	30(46.9%)	34(53.1%)	

Table 2 indicates that there are significant improvements in average response for independent variables among women are who were under intervention. As it shown in table 2 average response for positive attitude toward undergoing Pap smear was 17.26 that it was increased to 19.22 after intervention. Also, it was significant improvement for score of subjective norms (13.82 to 15.57) and perceived behavioral control (6.50 to 7.22) about undergoing Pap smear among women in intervention group. Additionally average response to intention to undergoing Pap smear was 5.73 that it was decreased to 7.54 after intervention.

Table 2. Average Responses for TPB variables about undergoing Pap smear before and after Educational Program (n=112)

Independent Variables	Before Intervention Mean (±SD)	After Intervention Mean (±SD)	P-value
Attitude			
Intervention group (n=57)	17.26(3.06)	19.22(4.51)	0.004*
Control group (n=55)	17.09(3.14)	17.49(3.18)	0.217
Subjective norms			
Intervention group (n=57)	13.82(3.38)	15.57(2.23)	0.000*
Control group (n=55)	13.12(3.09)	12.81(2.66)	0.154
Perceived behavior control			
Intervention group (n=57)	6.50(2.12)	7.22(1.46)	0.010*
Control group (n=55)	6.01(1.25)	5.89(1.13)	0.404
Behavioral Intention			
Intervention group (n=57)	5.73(2.02)	7.54(1.53)	0.000*
Control group (n=55)	5.94(1.45)	6.14(1.28)	0.181

Additionally, Table 3 show undergoing Pap smear before and after training in two groups. To assess efficiency of Pap smear intention promotion educational program cross-tabulation analysis was performed. Our results show improvement undergoing Pap smear behavior in the past 3 months among participation in the intervention group.

Table 3. Undergoing Pap smear after training in two groups (n=112)

Variable		Total	Intervention Group	Control Group	P-value
Undergoing Pap smear	Yes	70(62.5%)	42(60%)	28(40%)	X2=6.195, P=0.013
	No	42(37.5%)	15(35.7%)	27(64.3%)	

The purpose of this study was to assess the effectiveness of Pap smear test promotion program among sample of Iranian married women referred to health centers in Hamadan, Iran. The theory of planned behavior variables including attitude, subjective norms, perceived behavioral control and intention was conducted as theoretical framework to assess educational need assessment among participants. Many of studies reported significant relationship between attitude and women healthy behavior. In this regard, Barling *et al* (17) and Breitkopf (18) reported that attitude strong factor for taking Pap smear test; Also Rimer (19) reported a significant relationship between attitude and doing mammography among women. Our findings showed that improving attitude toward take a pap smear among participants in intervention group after educational programs. Effectiveness of education programs on attitude toward women healthy behavior has been shown in other studies (19-22). For example Shojaeizadeh *et al* (20) reported that educational program improved the participants' knowledge of cervical cancer significantly, changed their attitudes and motivated women to undergoing Pap test. In addition, Adamu *et al* (21) in their study among the female teacher in Birnin-Kebbi, North-Western Nigeria showed attitudes toward undergoing Pap smear test for cervical cancer prevention after educational program was increased. Jalilian and Emdadi (16) in their study reported subjective norms were strong predictor factor for undergoing Pap smear test among Iranian women. Our result showed significant subjective norms improvement after manipulation. Additionally our result showed average response to perceived behavioral control was 6.50 that it was increased to 7.22 after intervention. This outcome is consistent with other studies. For example, Steele and Porche reported that perceived behavioral control toward mammography was promotion after educational program among women in intervention group (22). Our findings indicated that improving behavioral intention toward take a Pap smear among intervention group. In this regard, Ajzen (23) explain, the behavioral intention an indication of an individual's readiness to perform a given behavior and it is assumed to be an immediate antecedent of behavior. Previous study showed behavioral intention promotion toward healthy behavior after implementation educational program among women which consistent with the findings in present study (24). Ultimately, cross-tabulation analysis was performed to assess efficiency of Pap smear promotion educational program. Our results show improvement undergoing Pap smear test behavior in the past 3 months after educational program among participation in the intervention group. In this regard, Pirzadeh and Mazaheri (25) reported increased undergoing Pap smear test after the implementing of educational program.

4. CONCLUSION

Overall, findings of the current study showed the rate of undergoing Pap smear test was 46.7% that it was increased to 62.5% after intervention. This result supported that implementing educational program would be effective to improve undergoing Pap smear test among women.

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AUTHORS CONTRIBUTION

This work was carried out in collaboration between all authors.

CONFLICT OF INTEREST

Authors have declared that no conflict interests exist.

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