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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 the developing countries. Pap smear is the single effective method in reducing deaths happening because of cervical cancer. This study was conducted to evaluate the Pap smear tests promotional intervention efficiency among women in Iran with the theory of planned behavior applied as theoretical framework. This interventional study was accomplished by choosing 120 women in two health Centers randomly divided into experimental and control groups. Three months after the educational intervention results were evaluated. Participants responded to the standard self-report questionnaire. Data were analyzed by SPSS-16. It 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 deaths 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 socioeconomic status, women with a family history of cervical cancer or a partner who has had multiple sexual partners and women who smoke are at a high risk for HPV and should must be tested annually (5, 6). However, cervix cancer is also 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 further 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 the 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 of 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) ATTITUDE: which is a person's positive or negative evaluation of performing the focal behavior, (b) SUBJECTIVE NORMS (SN): which is 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 after following them up for a 3-month intervention. This study was conducted with the approval from the institutional review board, Hamadan University of Medical sciences'. Informed assent and consent were obtained from the 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 intentions. Six items were designed to measure attitude towards 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 towards performing a regular Pap smear (e.g., "My husband thinks I should have regular Pap smear test"). Two items were designed to perceive behavioral control towards performing 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 towards performing a regular Pap smear (e.g., "I intend to take a regular Pap smear test every 1-3 years"). In order to facilitate participants' response 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 ($\alpha = 0.70$); subjective norms ($\alpha = 0.68$); perceived behavior control ($\alpha = 0.71$) and behavioral intention ($\alpha = 0.88$).

2.3. Procedure

This was a longitudinal randomized pre-test - post-test series of control group design panel study to implement a health oriented education based on interventions to promote the undergoing of pap smear tests among a sample of women aged 35 to 54 years recruited from two randomly selected health centers in Hamadan, Iran. After obtaining the informed consent, the participants were enrolled in the study and a 22-items structured questionnaire with the aforementioned measures were distributed to the women to complete the procedure. 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 the participants. The intervention aimed for the promotion of undergoing of Pap smear test among women. The intervention activities that were tailored and implemented were based on women's educational needs on our previous result in the cross sectional (16) studies and our results showed that subjective norms were strong predictors 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 included : cervical cancer and factors related with it and role of Pap smear test in cervical cancer prevention. The doctors and staff workers at the health center were requested to encourage women to undergo the Pap smear test.

2.4. Statistical Analysis

Analyses were conducted using SPSS-16 and a probability level of 0.05 was used. Cross -tabulation and T-tests were employed to determine the comparability of the intervention with control groups.

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 the 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 is shown in table 2, average response for positive attitude towards undergoing Pap smear was 17.26 and it was increased to 19.22 after intervention. There 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 undergo Pap smear was 5.73 and it 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 shows undergoing of Pap smear before and after training in the two groups. To assess efficiency of Pap smear an intention promotion educational program with 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 a sample of Iranian married women referred to the 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's healthy behavior. In this regard, Barling *et al* (17) and Breitkopf (18) reported that attitude is a 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 towards taking a pap smear among participants in intervention group is a result of educational programs. Effectiveness of educational programs on attitude towards women's healthy behavior has been reflected in other studies (19-22). For example SHOJAEIZADAH *et al* reported that educational programs improved the participants' knowledge of cervical cancer significantly, it also changed their attitudes and motivated women to undergo 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 of 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 of Pap smear test among Iranian women. Our results showed significant subjective norms of improvement after manipulation. Additionally our result showed average response to perceived behavioral control was 6.50 that it 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 because of promotion of educational program among women in intervention group (22). Our findings indicated that improving the behavioral intention results in taking a Pap smear among intervention group. In this regard, Ajzen (23)explain's, the behavioral intention is 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 towards a healthy behavior after implementation of educational program among women which consist of findings from the present study (24). Ultimately, cross-tabulation analysis was performed to assess efficiency of Pap smear promotion of educational program. Our results showed improvement in undergoing of Pap smear test behavior since the past three months because of the educational programs among participants in the intervention group. In this regard, Pirzadeh and Mazaheri (25) reported an increase in the undergoing of Pap smear test after the implementation of educational program.

4. CONCLUSION

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