Original Article

Application of the Perceptual Factors, Enabling and Reinforcing Model on Pap Smaear Screening in Iranian Northern Woman

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Abstract

Background and Purpose: Cervical cancer is the most prevalent cancer among women in the world. Cervical cancer is no symptoms and can be treated if diagnosed in the first stage of the disease. The aim of this study was to survey the affecting factors of the Pap smears test on perceptual factors, enabling and reinforcing (PEN-3) model constructs in women.

Materials and Methods: This study was a descriptive cross-sectional study. The sample size was 416 married women with random sampling. The questionnaire had 50 questions based on PEN-3 model structures. Data were analyzed by descriptive statistics and logistic regression method in software SPSS 20.

Results: The mean age of women was 32.70 ± 21.00 years. The knowledge of risk factors and screening methods for cervical cancer was 37.2. About 40% of women had a history of Pap smears. The most important of perception factors were effective, family history of the disease, encourage people to Pap smear, and fear of detecting of cervical cancer. The most important enabling factors were the presence of expert health personnel to provide training and Pap smear test (50.3%), lack of time and too busy to do Pap smear test (23.2%). The reinforcing factors were the media advice (41.3%), doctor's advice (32.5%) and neglect and forgetfulness (36.2%).

Conclusion: This study has shown the Pap smear screening behavior affected by personal factors, family, cultural and economic. Application of PEN-3 can effective in planning and designing intervention programs for cervical cancer screening.

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Key words: Pap Smear, Cervical Cancer, Perceptual Factors, Enabling and Reinforcing-3

1. Introduction

Cervical cancer is the second most common cancer in women in the worldwide. According to the World Health Organization report in 2012, more than 530,000 new cases of cervical cancer and nearly 275,000 deaths in the world are due to cervical cancer, and more than 85% of them are in the developing countries (1). Based on recent reports from the Ministry of Health and Medical Education in 2009, the total number of cervical cancer in women was 663 cases with the incidence rate of age-specific (ASR), 2.61 and 38 cases with the incidence of ASR, 3.28 in the Mazandaran province (2). In Iran, cervical cancer ranks 11 among cancers diagnostic in women, and except for North Khorasan, Golestan, Mazandaran and Kohkiluyeh-Boyerahmad that cervical cancer is ranked 7-8 (1,2).

Cervical cancer is asymptomatic, but the patients who have been early diagnosed had survival rate much more than whom suffering from advanced stage of the disease (3,4). Pap smear is a simple and inexpensive method and relatively reliable for the detection and prevention of cervical cancer (5) so that with effective screening and treatment programs about 52% of the high rate of mortality from cervical cancer is reduced (6). This test recommended for all married women of the age group of 20-65 years. Routine cervical cancer screening every 1-3 years is recommended for cervical pathology after the negative tests will be repeated every 3 years (5,7).

Several studies found that the different factors associated with cervical cancer at advanced stage such as, health insurance, inadequate access to health care, fear of results, prior history of cancer screening, embarrassment, history of cancer in Grade 1 family, income, inadequate trained health care providers, forgetfulness, lack of awareness, social and cultural barriers among women have been introduced as an obstacle for to do Pap smear (5-10). Several studies have pointed to the benefits of screening, but encouraging people to do test very little (5,11,12). In developing countries because of lack cervical screening programs, death from cancer are a major cause (3). Screening programs in these countries have minimal, or no effect and patients are diagnosed at an advanced stage (4).

The perceptual factors, enabling and reinforcing (PEN-3) model is a theoretical model that based on elements of the PRECEDE, health belief, and reasoned action models of health behaviors. The acronym "PEN-3" represents three interrelated dimensions of the model that include aspects of: (1) health education as person, extended family, and neighborhood; (2) the elements that inform an educational diagnosis of health behavior, including perceptions, enablers, and reinforcing; and (3) considers the cultural appropriateness of health behavior, examining positive, negative, and existential beliefs. Because for the Pap test are effective social and cultural factors, so we used PEN-3 model for analysis of data (13).

It seems that cultural and social factors can influence Pap test on the acceptance of women's cancer screening methods so survey of these factors are necessary. The aim of this study was to assess the affecting social and cultural factors is based on the PEN-3 model of married woman in sari.

2. Materials and Methods

This study was descriptive cross-sectional. The study populations were 416 married women referred to health centers in sari. For sampling, Sari was divided into four zones, each zone selected randomly one urban health centers, and finally the number of samples distributed equally among the four health centers.

Data collection were based on a questionnaire. This questionnaire based on the PEN-3 consists of 8 questions on demographics information's, 8 questions about the screening behavior of women, and

the frequency of risk factors for cervical cancer, 19-Q for the assessment of cognitive factors, 7 questions to measure the enabling factors and 8 questions to assess of the amplifier factors. The validity of questionnaire was determined by content validity and advice from experts (14) and the reliability was calculated by using cronbach alpha for each section of the questionnaire. The test was for the screening performance, perceptual screening of 79-81%, the factors enabling and reinforcing factors of 78% and 80%, respectively.

To measure the performance of cervical cancer screening questions with options yes, no, and a score of zero and one, respectively. To measure the perceptual factors of five Likert scale with response options (it agrees with the points 4 and 5 agree, not agree nor disagree with a score of 3, contrary to the very opposite points 2 and 1 points, respectively).

To assess the factors enabling and reinforcing factors of questions with yes or no answers and a score of zero and one, respectively. Inclusion criteria were married women and women interested in participating in the study and exclusion criteria have been cervical cancer. For ethical considerations before completing, the questionnaire verbal consent was obtained samples and to ensure that the questionnaire was anonymous and confidential information. Questionnaire by trained interviewers collected in person from the client. Data were analyzed by descriptive statistics, and logistic regression methods in software SPSS 20 (SPSS, Inc., Chicago, IL, USA).

3. Results

The results of the study showed that the age mean of women was 32.70 ± 21.00. The majority of patients were (48.3) in the age group 20-30 years. The average years of participant's education were 12 years. About 60% of women were housewives. The age mean of marriage is 21 years and the age mean at the first intercourse was 20 years (Table 1).

Table 1. Demographic characteristics of in women participating in the study

Characteristics	N (%)
Age group	
< 20	8 (1.9)
20-30	201 (48.3)
30-40	134 (32.2)
40-50	58 (13.9)
50-60	13 (3.1)
60	2 (1.5)
Married status	
Married	398 (95.7)
Widow and divorced	18 (4.3)
Education status	
Low	88 (21.2)
Intermediate	201 (48.3)
High	127 (30.5)
Disease history	62 (14.9)
Positive history of genital disease	
Grade 1	12 (2.9)
Grade 2	20 (4.8)
Smoking	
Yes	11 (2.6)
No	405 (87.4)

Regarding to the risk factors associated with cervical cancer, 2.6% had a history of smoking, duration mean of oral contraceptive use was 1.61 years and parity mean was 1.47. About 9.2% had a history of cervical cancer in the Grade 1 family and 4.8% of Grade 2 families and about 15% had a history of genital disease. 40% of the subjects had a history of Pap smears one.

The results of the demographic variables and Pap smears showed a significant relationship between age and Pap smear (P < 0.001). As most of Pap smears at age 20-40 years in compared to other age groups was significant. Pap smears in women with increasing age is reduced. The relationship was found between education status and Pap smears. The results showed a significant correlation between Grade 1 and Grade 2

family histories, genital disease history and smoking. The first and second delivery of Pap smears in women who have been greater than in other cases had a significant difference (P < 0.100). But with increasing parity Pap smears less. Furthermore, contraceptive pills use increase the Pap smear is lower, but this decrease was not significant.

The positive behavior related to the perception of cervical cancer screening in women: the effectiveness of the history of the family and relatives encouraged Pap smear (53%), increase the health of the woman (47%). The negative behavior of perceptual factors include the fear of breast cancer with a Pap test (51%), lack of belief in Pap smears (50%) and low sensitivity of the individual to the Pap test (50%), respectively (Table 2).

The positive behavior of the enabling factors for cervical cancer screening in women include the existence of high-skilled health personnel for training on Pap smear (50.3%). The availability of health centers to perform Pap tests (49.5%) and the negative behavior of the enabling factors include a

lack of training and lack of skilled personnel to perform Pap tests (37%), and lack of time people are too busy to do a Pap smear (23.2%). The reinforcement of positive behavior related to cervical cancer screening in women: the recommended media (41.3%), doctor's advice (32.5 %), health care team recommendation (29.6%) and the negative behavior of reinforcing factors including neglect and forgetfulness (36.2%), lack of attention to people cultural issues (16.3%).

4. Discussion
The results showed that the behavior of perceptual, enabling and reinforcing factors (whether positive or negative) on Pap smear performance is effective in 20-65 years woman. In this study, knowledge of the most important factors in the perception factors on Pap smears was a history of cervical cancer in a person, effective, positive history of cervical cancer in family, contribute to the early detection of cervical cancer and trust of to perform Pap smears tests.

Table 2. Structure of the PEN-3 on Pap smears in women participating in the study

Factors	Positive	Percent	negative	Percent
Perceptual	Aware of screening and risk factors	37.2	Embarrassment and shame of having cancer	43
	Enhance the health of women with Pap smears	47	Distrust of Service	29.3
	Encourage positive family history of Pap smears	53	Worried	48
	Contribute to the early detection of cervical cancer	41	Resistance to perform Pap tests	37
			Fear of to perform Pap smears	51
			Lack of belief Pap smears in cancer treatment	50
Enabling	There is high-skilled health personnel	50.3	Lack of skilled health personnel	37
	Appropriate insurance cover and Pap smears	20	Busy and lack of time to perform	23.2
	Payment of examination and Pap smears	35		
	Access to health care services for to do the test	49.5		
Reinforcing	The family agrees woman	19.5	Disregarding cultural issues	21.8
	Advice your doctor	32.5	Neglect and forgetfulness	36.2
	Recommendations from friends and acquaintances	25.2		
	Wife agree	67.3		
	Advice healthcare staff	29.6		
	Recommended media	41.3		

PEN-3: Perceptual factors, enabling and reinforcing

In Soltanahmadi et al. study (5), the most important of perceptual factors to perform Pap smear involve awareness of the importance of this program (83.3%), early detection of cancer (58.2%), having friends or relatives who have been diagnosed with cervical cancer (37%), have genital disease (50%), awareness of individuals about screening methods (59.5%) and shame of having examination (64.8%). In Fang et al. study (14), embarrassment and shame were an important factor that these findings are in line with our study. It is apparent from the results that training is effective so that the focuses on behavior and not just on increasing knowledge and awareness.

In Shakibazadeh et al. study (11), the most positive behavior was in early detection of cancer, awareness of the importance of this program and the negative behavior of perceptual factors involve fear or feel embarrassed and uncomfortable during the examination. The finding is consist of finding of studies by Holakoie Naienie et al. study (15), that found the main reasons for the lack of Pap smears were ignorance and fear of an incurable disease.

The most negative enabling behaviors about Pap smears in Soltanahmadi et al. study (5) has been proposed 29.4% lack of time, around 3.9% unavailability of health centers to perform Pap tests, 13.7% financial problems, and 84.4% negligence. In Shakibazadeh et al. study (11), barriers to perform Pap smear were cost or appropriate insurance cover. In Enjezab et al. study (12), lack of facilities, lack of time, lack of training of health staff and the forgetfulness and negligence. According to our findings, the most negative enabling behaviors include the lack of skilled health personnel, busy and lack of time. Therefore, implementation of training programs for midwives and health perssonel on programs for cervical cancer screening is nessesary. Considering that, most women who had Pap located in the age group 20-90 years,

so, attention to this age group is helpful.

In this study, positive reinforce behaviors of Pap smears in women were wife agrees and advised the media and negative factors were neglect and forgetfulness. In Soltanahmadi study (5), positive factors were midwives and health center staff advice. Furthermore, in this study, as the most important barrier to Pap smears lack of physician recommendation. In Lee study (16), doctor's advice and education were a strong factor for the Pap test by women and the economic situation is the most important barrier to Pap smear. In another study with friends or relatives who have died from cancer and family member's advice were of the affecting factors in the Pap test (17). In Shakibazadeh et al. study (11), doctor's advice encouraging friends and family to do the test was introduced. Therefore, education programs seem necessary in health centers for women, as well as the recommendation of physicians, midwives and health personnel to participate in the screening program.

The most striking result to emerege from this study is that image of the affecting variables on the Pap smear screening behavior in women based on the PEN-3 model. According to this, screening behavior in women is influenced by personal, family, cultural and economic factors. Therefore, it is recommended planners and implementers with a good understanding of the positive and negative affecting factors of the Pap smear to the social and cultural context of each society.

This study had some limitations, for example, the dimensions of this model cannot be completely separated from each other and are dependent together. Another limitation is the findings from these qualitative studies can be transferred from one context to another, even though some of the findings in this review show similar outcomes in different study populations. Finally, it seems that the use of focus groups could help better analysis of the study.

Conflict of Interests

Acknowledgement

References

1. World Health Organization (WHO), Pan American Health Organization (PAHO). Monitoring national cervical cancer prevention and control programmes. [Online]. [cited 2014 Nov]; Available from: URL: http://www.who.int/reproductivehealth/public ations/cancers/9789241505260/en/

2. Ministry of Health and Medical Education, Deputy of Health. National cancer registration report 2009. Tehran, Iran: Ministry of Health and Medical Education; 2012. [In Persian]

3. Ryan KJ, Berkowitz RS, Barbieri RL, Dunaif AE. Kistner's gynecology and women's health. 7th ed. Philadelphia, PA: Mosby; 1999.

4. Berek JS. Berek and Novak's gynecology.13th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2007. p. 1607-8.

5. Soltanahmadi Zh, Abbaszadeh A, Tirgari B. A survey on the rate and causes of women's participation or nonparticipation in breast and cervical cancers screening programs. Iran J Obstet Gynecol Infertil 2009; 13(3): 37-46. [In Persian]

6. World Health Organization. Comprehensive cervical cancer control: a guide to essential practice. 2nd ed. Geneva, Switzerland: WHO; 2014.

7. Were E, Nyaberi Z, Buziba N. Perceptions of risk and barriers to cervical cancer screening at Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya. Afr Health Sci 2011; 11(1): 58-64.

8. Swan J, Breen N, Coates RJ, Rimer BK, Lee NC. Progress in cancer screening practices in the United States: results from the 2000 National Health Interview Survey. Cancer 2003; 97(6): 1528-40.

9. Byrd TL, Chavez R, Wilson KM. Barriers and facilitators of cervical cancer screening among Hispanic women. Ethn Dis 2007; 17(1): 129-34.

10. Scarinci IC, Beech BM, Kovach KW, Bailey TL. An examination of sociocultural factors associated with cervical cancer screening among low-income Latina immigrants of reproductive age. J Immigr Health 2003; 5(3): 119-28.

11. Shakibazadeh E, Ahmadnia E, Akbari F, Negarandeh R. Barriers and Motivating Factors Related to Cervical Cancer Screening. Hayat 2009; 14(3-4): 83-9. [In Persian]

12. Enjezab B, Faraj Khoda T, Mojahed Sh, Bokaee M. Barriers and motivators related to cervical and breast cancer screening. J Shahid Sadoughi Univ Med Sci 2004; 12(3): 78-84. [In Persian]

13. Didarlo A, Shojaeezade D, Mohamadian H. Health promotion planing based on the models of behavior change. Tehran, Iran: Sobhan; 2009.

14. Fang CY, Ma GX, Tan Y, Chi N. A multifaceted intervention to increase cervical cancer screening among underserved Korean women. Cancer Epidemiol Biomarkers Prev 2007; 16(6): 1298-302.

15. Holakoie Naienie K, Chinichian M, Ghazizadeh Sh, Sadeghipour HR. Pap smear follow-up among women who need treatment and repeated Pap smear test. Payesh Health Monit 2004; 3(2): 131-7. [In Persian]

16. Lee MC. Knowledge, barriers, and motivators related to cervical cancer screening among Korean-American women. A focus group approach. Cancer Nurs 2000; 23(3): 168-75.

17. Holroyd E, Twinn SF, Shia AT. Chinese women's experiences and images of the Pap smear examination. Cancer Nurs 2001; 24(1): 68-75.