

Health beliefs and screening behavior of cervical cancer among the women of Bandar Abbas

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Abstract: Background and aims: Pap smear test is recommended for early diagnosis of cervical cancer in women without any symptoms. As health beliefs played important role in the inclination of people to participate in the health improving relate behaviors, based on the significance of the study, the current study aimed to determine the predictive factors of conducting Pap smear test among the women by health belief model structures. Materials and methods: The current study is a descriptive-analytical study by cross section method conducted on 727 married women referring to the health centers of Bandar Abbas and they were selected by two-state sampling method. The data collection instrument was a questionnaire designed by health belief model. The data were analyzed by descriptive study and Mann Whitney, Kruskal-Wallis test and logistic regression in SPSS software. Findings: The results showed that 50.3 % of the subjects had the history of conducting Pap smear test. The mean score of all the model structures except the barriers in the people performing the test was higher than the people without doing any test. The regression analysis of the barriers, perceived susceptibility and benefits were the final predictors of the behavior of Pap smear test. Conclusion: According to the results, by the increase of susceptibility, severity, benefits and reduction of perceived barriers to cervical cancer, the predicting behaviors of the health of cervical cancer are improved and show that the health belief model is a useful framework to identify the effective factors on applying Pap smear among Iranian women.

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1. Introduction

Cervical cancer after Breast cancer is the second malignant neoplasm of women and the third common cancer of genital system and is raised as a serious health problem in the world (World Health Organization, 2009, Mary 2011). Cervical cancer due to having a long period before the aggression, access of a good screening plan and effective treatment of initial lesion is recognized as preventive cancer (Logan, 2011). According to the latest statistical studies, cervical cancer is one of the common genital system cancer in the developing countries (Sharma 2010) and annually about 0.5 million people suffer from advanced cervical cancer, more than 50% lose their life (Yakhforoushha, 2008). The study performed in Iran reported raw cervical cancer 34.2% (Cancer register report, 2005). The survival of cervical cancer is increased in the past 50 years and it is due to the prevalence of Pap smear test to diagnose pre-complications of cervical cancer. Pap smear test as an easy, cheap and safe method is the selective method in screening cervical cancer (O Meara, 2002).

The instructions about doing Pap smear test is one of the effective measurements in timely diagnosis of cervical cancer. Any women after 18 years old or after the start of sexual intercourse should undergo Pap smear test annually. If the results of Pap smear and pelvic diagnoses are normal for three consecutive years, increasing the distance of screening is possible according the view of the physician (Rayan, 2008). In Iran the test is recommended annually for all the married women aged 20-65 years old. If the results of the test and annual pelvic diagnosis are normal for three consecutive years, the screening distance is increased from the view of the physician (Sedighi, 2005). Despite the advances in the past decade in screening and treatment, pelvic cancer is one of the major health problems among Iranian women. Determining the amount of health beliefs about Pap smear test can be effective in the design of a preventive plan of cervical cancer. The cognitive factors have important role in health behaviors namely Pap smear test. Health belief model is widely applied to evaluate the

health beliefs about the cancer screening behaviors. This model is a cognitive model attempting to recognize the health behavior models (Cohen, 2005).

The health belief model is formulated on the belief that one's perception of health threat changes their behavior or not and the model is focused on preventing the disease and the behaviors taken to avoid the diseases chain. It is one of the important models being used to determine the relation between health beliefs and behavior. This model was introduced by Hochbaum and Rosenstock during 1950 to 1970 and was developed by Baker and Mimen. Based on this model, a person should believe that she is susceptible to cervical cancer (perceived susceptibility) and perceive the depth of the risk and seriousness of various complications in the life (perceived severity), know some proposed behaviors as Pap smear useful in reducing the danger or the disease severity (perceived benefits) and overcome the inhibiting factors such as costs, pain, etc (perceived barriers) (Bird et al., 2004). The studies showed that screening behavior of the cancer in people is influenced by perceived severity of cancer and the benefits of cancer screening (Ferting et al., 1998), perceived barriers and screening problems (Rimer et al., 1991) and perceived danger of suffering from cancer (Difenbach, Miller and Dali, 1999).

Health belief model is widely applied to investigate the beliefs of screening behaviors of breast cancer (Wu et al., 2006). Most of the researchers applied this model to develop the health intervention with the aim of changing the behavior (Borhani, 2010) and is useful in a wide range of healthy behaviors (Stein et al., 1992; Barak and Mir, 1997; Bird, 2004 and Kwak et al., 2009). Despite the effect of screening plans in the initial stages diagnosis of cancer, a great number of susceptible people don't attend the screening programs. The cheap and free screening and health information are available to help the early diagnosis of the disease and teaching the public about the healthy life and preventing the disease in most regions. The question is raised that why most of the people didn't use the benefits of such services or they don't change their life style. As one of the most important effective factors in attending the screening programs is the beliefs of people about screening methods, by recognizing the people beliefs, we can justify their inclination to do some of the behaviors. Thus, the current study was aimed to investigate the role of health beliefs in predicting Pap smear test among the women referring to health centers of Bandar Abbas city.

2. Materials and methods

This is a descriptive-analytical cross section study during 2011-2012 among the women referring to health centers of Bandar Abbas. The sampling was a two-state method and in the first stage, of 10 health centers of the town, 5 centers were selected randomly and in the second state, by simple random method, 727 samples were selected and enrolled in the study. The inclusion criteria were the history of marriage and referring to the health center to receive one of the services (to control pregnancy, post-delivery care, family control consulting, women disease and vaccination of their children). They were excluded because of the history of suffering from genital system cancer or the lack of inclination to include in the study. The data were collected by the questionnaire including 3 parts: personal profile, evaluation of the inclusion or exclusion in the study in screening cervical cancer screening plans (Pap smear) and health belief evaluation (4 groups of the questions of benefits, susceptibility, perceived barriers and severity). The questionnaire was provided in accordance with the health belief model and by the valid questionnaire. The consent of the subjects and confidentiality of the information were the ethical issues of the study.

The questionnaire of health beliefs of cervical cancer

The questionnaire was provided to evaluate the health beliefs of cervical cancer consisting of 23 questions and three aspects of health beliefs including (9 susceptibility questions, 5 severity questions and 9 perceived benefits questions of Pap smear test) at Likert scale 1 to 7. The questions were obtained of the questionnaire being applied for the evaluation of health beliefs by Bish et al. (2000). In the study performed by Bish et al., (2000), Cronbach's alpha coefficient, susceptibility, perceived benefits and severity were 0.79, 0.61, 0.71, respectively.

The barriers of Pap smear screening

The questionnaire of Pap smear screening barriers is 11-item questionnaire being used to evaluate the barriers with Pap smear test (Hill, 2011). The questions are provided based on the barriers in the books and articles (Barata et al., 2008; Danker et al., 2007; Stewart et al., 2007). Cronbach's alpha of the questionnaire was 0.89. At first, the mentioned questionnaires were translated and after the approval by the experts, the Persian version was applied. Cronbach's alpha in the study sample was 0.837 showing the good internal consistency of the study. To determine the validity, the questionnaire was given to 10 experts and they corrective views were applied. The evaluation of the reliability of the questionnaire was done via Cronbach's alpha test. The alpha coefficients of the study for susceptibility,

severity, benefits and barriers were 0.71, 0.64, 0.667 and 0.837, respectively and it showed the good reliability of the scale in the sample.

The data were analyzed by Mann Whitney and Kruskal-Wallis and logistic regression tests. Mann Whitney analysis was used to compare the mean in both groups. Kruskal-Wallis test was applied to compare the mean in some groups. Logistic regression was applied to model the participation in screening test and health belief variables.

3. Findings

In the current study, 727 participants with the mean age 33.96 completed the questionnaires by self-report method.

45.6% had academic education, 33.9% Diploma and the remaining were below Diploma. 54.9% of the samples were homemaker and the remaining was employed. Totally, 363 (50.3%) had

the history of doing Pap smear and 231 (31.8%) had the history of doing Pap smear in the past three years regularly.

The mean of the scores of health belief model is shown in Table 1.

Table 1: The mean and standard deviation of the scores of health belief structures

	Number	Range	Min	Max	Mean	SD
Barriers	727	17.00	1.50	18.50	3.37	3.12
Susceptibility	727	4.08	1.25	5.33	3.29	0.92
Severity	727	3.80	3.00	6.80	5.37	0.97
Benefits	727	3.00	3.67	6.67	5.45	0.74

The results of the investigation of the relation of the health belief model with demographic variables are shown in Table 2.

Table 2: The investigation of the relation between demographic characteristics and health belief model by Kruskal-Wallis model

Variable		Perceived barriers			Susceptibility			Severity			Benefits		
Demographic variable	Items	Mean	SD	Significance	Mean	SD	Significance	Mean	SD	Significance	Mean	SD	Significance
Age	21-29	3.47	1.12	0.07	3.48	0.69	0.04	4.18	0.84	0.0420	3.92	0.66	0.442
	30-39	3.24	1.33		3.68	0.79		4.36	0.86		3.99	0.69	
	40-49	3.15	1.58		3.75	0.79		4.39	0.77		3.94	0.69	
	50-59	3.18	1.43		3.61	0.61		4.33	0.76		3.81	0.44	
Marital status	Widow	4.05	1.10	0.538	3.71	0.15	0.879	3.88	0.81	0.4170	4.09	0.37	0.787
	Married	3.20	1.36		3.59	0.44		4.40	0.94		3.94	0.40	
	Divorcee	3.03	1.44		3.68	0.63		4.45	0.82		3.97	0.28	
Education	Elementary	3.46	1.67	0.112	3.77	0.49	0.026	4.43	0.70	0.3150	3.90	0.48	0.527
	Guidance school	3.08	1.33		3.73	0.60		4.37	0.86		3.92	0.59	
	Diploma	3.29	1.23		3.54	0.66		4.26	0.83		3.91	0.62	
	University	3.33	1.29		3.61	0.84		4.28	0.84		3.99	0.70	
Employment	Illiterate	3.98	1.35		3.41	0.72		4.43	0.67		3.93	0.71	
	Employee	3.45	1.37	0.36	3.65	0.96	0.995	4.30	0.91	0.3270	4.03	0.82	0.123
	Housewife	3.29	1.345		3.59	0.705		4.415	0.8475		3.9475	0.6375	3.29

As is shown in Table 2, there is a significant association between education and perceived susceptibility and severity. Also, there is a significant study between age and perceived severity. While there was no significant association between other demographic variables and other structures.

The results of the correlation test showed that there was a positively significant correlation between perceived benefits to Pap smear test and doing the test ($p=0.000$, $r=0.348$) and there was a reverse and significant correlation between perceived barriers to doing Pap smear test ($P=0.000$, $r=0.317$). There was a positively significant correlation between the perceived susceptibility and severity with doing Pap smear test ($r=0.412$, $p=0.000$, $r=0.346$, $p=0.000$). As is shown in Table 3, Mann Whitney test showed the significant difference between the mean score of all the health belief model structures in

people with the history of doing or not doing the test and totally the mean score of all the structures of the model except the barriers in the people with the history of doing the test was higher than the people without the history of doing the test.

Table 3: The investigation of the mean and standard deviation of health belief model structures in the people with the history or without the history of performing Pap smear test by Mann-Whitney test

Variable	Without test history		With test history		Significance level
	Mean	SD	Mean	SD	
Susceptibility	3.225	0.931	3.33	0.927	$P<0.05$
Severity	5.33	0.97	5.39	0.975	$P<0.05$
Benefits	5.34	0.77	5.53	0.718	$P<0.05$
Barriers	4.25	4.52	2.67	0.782	$P<0.05$

Table 3 shows that the mean score of the model structures (susceptibility, severity and benefits) in the subjects with the history of performing the test is higher than the mean of the subjects without test history and the mean scores of barrier structure in the subjects without the history of test is higher than the scores of the subjects with the history of doing the test.

Table 4: The summary of logistic regression analysis for health belief model as predictor of the participation in doing Pap smear test

Variable	Coefficient B	Standard Error SE	WALD	Degree of freedom (df)	Significance level p-value	Exp(B)
Susceptibility	-.308	.097	9.985	1	.002	.735
Severity	-.018	.083	.050	1	.824	.982
Benefits	-.768	.110	48.860	1	.000	.464
Barriers	.454	.077	34.462	1	.000	1.574
Coefficient	3.570	.866	17.012	1	.000	35.530

The results of logistic regression analysis to predict doing Pap smear test based on health belief model are shown in Table 4. The benefits, perceived barriers and sensitivity can be good predictors to do Pap smear test.

4. Discussion and conclusion

One of the reasons of the failure and achieving the best results in preventing the cervical cancer is the shortage of women participation in screening plans. The mental and attitude factors have an important role in the participation. The health belief model is a good framework to predict health behaviors. The hidden assumption in health belief model is such that health beliefs affect health behaviors of people. The major focus of our study is the investigation of effective factors in Pap smear test by health belief model. In the current study, 363 (50.3%) of the subjects conducted Pap smear test at least once. In the studies performed by (Taylor et al., 2001, Chan Chee et al., 2005; Sirovich, 2004, Nelson et al., 2009, Yu CK et al., 1998, El-Hemasi, 2009, Allahverdi pour et al., 2008), most of the subjects conducted Pap smear at least once and it was consistent with the results of the study.

Achieving the screening aim is possible when the test is done to three years and if it is negative, it is done every three years and only 31.8% of the women in the study replicated the test regularly. The comparison of the current study with the results of the mentioned studies showed that the Pap smear test among Iranian women is considerably less than the studies performed in other studies.

These results can be a warning for health authorities and it should be considered that what are the barriers of Pap smear test among Iranian women that by identification of these factors, they can be eliminated. The identification of these barriers helps the researchers and health planners to use good strategies for regular pap smear test.

In the analysis of the relation of the structures of health beliefs model with population variables, it is considered that high education increases the perceived sensitivity and severity and it seems that high education increases the knowledge and awareness and the awareness can increase the participation of the patients in prevention and treatment and the result is consistent with the results of the study performed by Leyva et al., (2006) and Qi V (2006). In the current study, the mean score of sensitivity, perceived severity and benefits in the people with the history of doing the test was higher than the people without the history. The results of the study are consistent with the positive and significant association of Susceptibility, perceived severity and benefits by doing Pap smear test with the studies performed by Piter (2009), in Qana women, Burak (1997) among American students, Barata (2008) in Canada, Yakhforusha (2008) in Qazvin and Karimi (2011) in Zarandie.

Also, the mean score of the perceived barriers in the people with the history of the test was lower than the people without the history. The findings of the study about the association of the perceived barriers with doing the test are consistent with the study performed by Allahverdi pour (2008) among Iranian women, Wang (2008) among Malaysian women and the study of Rafael (2010) in Brazil. Finally, regression analysis of the benefits and perceived barriers and sensitivity were the final predictors of the behavior and among the variables, the perceived barriers and benefits were the strongest predictor of the behavior. In the study performed by Taner Smith (2010), both perceived benefits and barriers were the strongest components of health belief model and were consistent with the results of the study.

Allahverdi pour and Emami (2008) in their study showed that the perceived benefits and barriers are two important factors to do Pap smear test among the women and Jirojwong et al. (2001) in their study focused on the importance of doing the strategies to reduce the barriers of doing Pap smear test among women.

Also, the results of the studies of Ben and Adir (2009) and Jalilian et al. (2011) showed that the perceived barriers in doing Pap smear test were important factor. The results were consistent with the conceptual structure HBM. The model was a

framework to motivate people to positive behaviors and avoiding negative health behaviors (LaivA, 2004). Based on this model, the health behavior is affected by a person perception of his health threat (Dündar et al., 2006). By this model, the patient can be encountered with the reality and emphasis on the benefits and guide her perceived talent and severity in a logical way (Butler, 1997).

The most important perceived barriers from the women to prevent cervical cancer are fear of the test, painful Pap smear test, forgetting, time-consuming, inadequate awareness, less time, shame and the lack of physician recommendation and health personnel. The result was consistent with the results reported in the study of Akbari (2011) and Dematus study (2010) and the most important barriers were fear of the result of the test and shame. It seems that the lack of adequate knowledge about cervical cancer and its prevention caused that some cases as the less time and mental barriers (fear and shame) are turned into an important barrier for preventive behaviors.

It seems that considering the mentioned barriers in teaching planning for women can have an effective role in increasing to perform Pap smear test. The importance of the severity perception of the cervical cancer in teaching plans should be considered with the aim of improving preventive behavior and doing Pap smear test regularly among women.

The current study had some limitations as data collection via questionnaire. The participants in the current study were married women who referred to health centers to receive the services. It should be considered in the future studies and if the information is collected in the society, we can present a good analysis about health behaviors.

The information and awareness alone can not be adequate for regular health behaviors and the attitude of the disease is an important factor in preventive measurements. Indeed, the attitude forms the behavior and action. Based on the effect of perceived severity and susceptibility of the people of the disease and how the threat of the disease is serious and dangerous, the educational intervention can create deep changes in various aspects and help the health group to achieve good behaviors. It is recommended that by teaching health personnel to increase the awareness, motivation and the benefits of correct health behaviors and reduction of perceived barriers of the patients, health behaviors are considered and by step wise interventions, the life style is changed and health behaviors of the patients are improved.

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References

1. Akbari F, Shakibazadeh E, Pourreza A, Tavafian S.(2011). Barriers and Facilitating Factors for Cervical Cancer Screening: a Qualitative Study from Iran. *Iranian Journal of Cancer Prevention*.3(4):178-84.
2. Allahverdipour H, Emami A.(2008). Perceptions of cervical cancer threat, benefits, and barriers of Papanicolaou smear screening programs for women in Iran. *Women Health* .47(3): 23-37.
3. Barata Pc, Mai V, Howlett R, Gagliardi Ar, Stewart De.(2008). Discussions about Self-Obtained Samples for Hpv Testing As an Alternative for Cervical Cancer Prevention. *J Psychosom Obstet Gynaecol*.29(4):251-257.
4. Ben-Natan M, Adir O.(2009). Screening for cervical cancer among Israeli lesbian women. *Int Nurs Rev* . 56(4): 433-41.
5. Bish A, Sutton S and Golombok S.(2000). Predicting uptake of a routine cervical smear test: A comparison of the health belief model and the theory of planned behaviour. *Psychology and Health*, 2000, Vol. 15, pp. 35-50
6. Boonpongmanee, C .(2007). Predictors of papanicolaou testing in working women in Bangkok, Thailand. *Cancer Nursing*, vol. 30, no 5, pp. 384-389.
7. Borhani Fariba, Abbaszadeh Abbas, Taebi Mojgan, Kohan Simin.(2010). The relationship between self-efficacy and health beliefs among type2 diabetic patients. *Payesh journal*. 9: 371-383. [Article in Persian]
8. Burak, L.J., Meyer, M.,1997. Using the health belief model to examine and predict college women's cervical cancer screening beliefs and behavior. *Health CareWomen Int*.18, 251–262.
9. Burak Lj, Meyer M.(1997). Using The Health Belief Model to Examine And Predict College

- Women's Cervical Cancer Screening Beliefs And Behavior. *Health Care Women Int.* 18(3):251-62.
10. Butler T. (1997). Principles health education health promotion 2nd Edition, Morton Publishing Co Philadelphia.
 11. Byrd, Theresa L. Peterson, Susan K. Chavez, Rafaelita and Heckert, Andrea. (2004). Cervical cancer screening beliefs among young Hispanic women *Preventive Medicine* 38, 192–197
 12. Chan Chee C, Begassat M, Kovess V. (2005). Factors associated with cervical cancer screening in women covered by national health insurance. *Revue d'epidemiologie et de Sante Publique* 2005; 53: 69-75
 13. Cohen, Miri, Azaiza, Faisal. (2005). Early breast cancer detection practices, health beliefs, and cancer worries in Jewish and Arab women *Preventive Medicine*, 41, 852 – 858
 14. Dannecker, C., Siebert, U., Thaler, C. J., Hepp, H., & Hillemans, P. (2004). Primary
 15. cervical cancer screening by self-sampling of human papillomavirus DNA in internal medicine outpatient clinics. *Annals of Oncology*, 15, 863–869.
 16. DeMattos Russo Rafael R, de Moura ATMS. (2010). Barriers to implementation of cervical cancer screening: A household survey in the coverage area of the Family Health Program in Nova Iguaçu, Rio de Janeiro State, Brazil. *Cadernos de Saude Publica*. 26 (5):1045-1050.
 17. Diefenbach, M.A., Miller, S.M., & Daly, M.B. (1999). Specific Worry about breast cancer predicts mammography use in women at risk for breast and ovarian cancer. *health psychology*, 18, 532-536.
 18. Dündar PE, Özmen D, Öztürk B, Haspolat G, Akyıldız F, Çoban S, et al. (2006). The knowledge and attitudes of breast self-examination and mammography in a group of women in a rural area in Western Turkey. *BMC Cancer*. 6: 43-45
 19. El-Hammasi K, Samir O, Kettaneh S, Al-Fadli A, Thalib L. (2009). Use of and attitudes and knowledge about pap smears among women in Kuwait. *J Womens Health (Larchmt)*. 18(11): 1825-32.
 20. Fertig, D.L., Hayes, D.F., DiPlacido, J., Zauber, A., & Redd, W.J. (1998). Psychological issues in cancer screening. In J.C. Holland (Ed). *Psychooncology* (pp. 147-172). New York: Oxford University Press.
 21. Hill Erin M, Gick Mary L. (2011). The big five and cervical screening barriers: Evidence for the influence of conscientiousness, extraversion and openness. *Personality and Individual Differences* 50 662–667
 22. Jalilian1 Farzad, Mirzaei Alavijeh Mehdi, Emdadi Shohreh, Barati1 Majid. (2011).
 23. Nasirzadeh4 Mostafa, Hatamzadeh5 Nasser. Predicting Factors Related with Pap Smear Results among Women based on Health Belief Model. *Journal of Health System Research*. vol 6.1226-1234. [Article in Persian]
 24. Jirojwong S, MacLennan R, Manderson L. (2001). Health beliefs and Pap smears among Thai women in Brisbane, Australia. *Asia Pac J Public Health*. 13(1): 20-3.
 25. Karimi M, Shamsi M, Araban M, Gholamnia Z, Kasmai P. (2011). Health Beliefs and Performance Regarding Pap Smear Test in Zarandieh City Women's. *Journal of Guilan University of Medical Sciences*, No: 80, Pages: 42-48
 26. Kwak, Min-Son, Choi, Kui Son Spring, Bonnie J. Park Sohee, Park Eun-Cheol. (2009). Predicting the stages of adoption of cervical cancer screening among Korean women. *Preventive Medicine*, 49, 48–53
 27. Lai WA, Lew – Ting CY, Chiet WC. (2004). How diabetic patients think about and manage their illness. *Taiwan Diabetic Medicine*. 7: 286-92
 28. Leyva M, Byrd T, Tarwate P. (2006). Attitudes towards Cervical Cancer Screening: A Study of Beliefs among Women in Mexico. *Californian J Health Promot*. 4(2): 13-24.
 29. LOGAN L. & MCILFATRICK S. (2011). Exploring women's knowledge, experiences and perceptions of cervical cancer screening in an area of social deprivation *European Journal of Cancer Care* 20, 720–727.
 30. Maree, Johanna E. Wright, Susanna C.D. (2011). Cervical cancer: Does our message promote screening? A pilot study in a South African context. *European Journal of Oncology Nursing* 15, 118-123
 31. National Cancer Registry Report [Compact Disk]. (2005). Islamic Republic of Iran Ministry of Health and Medical Education, Deputy of Health. Tehran; Feb..
 32. Nelson W, Moser RP, Gaffey A, Waldron W. (2009). Adherence to cervical cancer screening guidelines for U.S. women aged 25-64: data from the 2005 Health Information National Trends Survey (HINTS). *Women Health (Larchmt)*. 18: 1759-68
 33. Meara AT. (2002). Present standards for cervical cancer screening. *Curr Opin Oncol*. 14 (5): 505-11
 34. Peter N, Abotchie M, Navkiran Ksh. (2009). Cervical Cancer Screening among College

- Students in Ghana: Knowledge and Health Beliefs. *Int J Gynecol Cancer*. 19(3): 412–416.
35. Qi V, Phillips SP, Hopman WM.(2006). Determinants of a healthy lifestyle and use of preventive screening in Canada. *BMC Public Health* . 6(1): 275-82.
 36. Rafael Rmr, Moura Atms.(2010). Barriers to Implementation of Cervical Cancer Screening: A Household Survey in the Coverage Area of the Family Health Program in Nova Iguaçu, Rio De Janeiro State, Brazil. *Cad. Saúde Pública, Rio De Janeiro* . 26(5):1045-1050.
 37. Rayan KJ, Berkowitz RS, Babieri RL, Dunaif A. (2008). Kistner's Gynecology & women's health. Translated by: Ghazijahani B, Ghotbi R.7th ed. Tehran:Golban. p. 128-9.
 38. Rimer,B.K.,Lerman, C., Trock, B., King , E ., & Engstrom, P.F.(1991). Why do some women get regular mammograms? *American journal of Preventive Medicine*, 7 , 69- 74.
 39. Sharma P, Rahi M, Lal P.(2010). A Community-Based Cervical Cancer Screening Program Among Women of Delhi Using Camp Approach. *Indian J Community Med* .35(1): 86-88.
 40. Sedighi J, Vahdani Nia MS, Khodabandeh A, Jarvandi F.(2005). Cervical cancer: knowledge of women and the effect of educational materials. *Payesh (Journal of The Iranian Institute For Health Sciences Research*.1(4): 29-38. [Article in Persian]
 41. Sirovich BE, Welch HG.(2004). The frequency of Pap smear screening in the United States. *Journal of General International Medicine* . 19: 243-50
 42. Stein, J.A., Fox, S.A., Murata, P.J., Morisky, D.E., (1992). Mammography usage and the health belief model. *Health Educ. Q.* 19, 447–462.
 43. Stewart, D., Gagliardi, A., Johnston, M., Howlett, R., Barata, P., Lewis, N., et al. (2007).
 44. Self-collected samples for testing of oncogenic human papillomavirus: A systematic review. *Journal of Obstetrics and Gynaecology*, 29, 817–828
 45. Tanner-Smith EE, Brown TN.(2010). Evaluating the health belief model: A critical review of studies predicting mammographic and pap screening. *Social Theory and Health* .8(1):95-125.
 46. Taylor RJ, Mamoon HA, Morrell SL, Wain GV. Cervical screening by socio-economic status in Australia. *Australian and New Zealand Journal of Public Health* 2001; 25: 256-60
 47. Wong Lp, Wong Yl, Low Wy, Khoo Em, Shuib R.(2008). Cervical Cancer Screening Attitudes and Beliefs of Malaysian Women Who Have Never Had A Pap Smear: A Qualitative Study. *Int J Behav Med*. 15(4):289-92.
 48. World Health Organization,(2009). Human papillomavirus infection and cervical cancer. http://www.who.int/vaccine_research/diseases/hpv/en/ (accessed 12.04.09) Population Reference Bureau and Alliance for Cervical Cancer Screening, 2004 Preventing Cervical Cancer World Wide. Population Reference Bureau, Washington.
 49. Wu Tsu-Yin , West Brady, Chen Yu-Wen, Hergert Clara.(2006). Health beliefs and practices related to breast cancer screening in Filipino, Chinese and Asian-Indian women. *Cancer Detection and Prevention* 30 , 58–66.
 50. Yakhforousha A, Solhi A, Ebadiaza F.(2008). The Effect of Health Education Via Health Belief Model on Knowledge And Attitude Of Healthy Voluntaries About Pap Smear In Urban Centers Gazvin. *Journal of Nursing and Midwifery* . 18(62):24-31. [Text in Persian]
 51. Yu CK, Rymer J. (1998). Women's attitudes to and awareness of smear testing and cervical cancer. *Br J Fam Plann*. 23(4): 127-33.

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