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Intention and Behavioral Stages in Pap Testing: A Cross-Sectional Study among Kermanshah Women's, the west of Iran

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ABSTRACT

Pap smear test is effective screening method for cervical cellular changes, before it becomes cervical cancer. The aim of this study is to determine the status of Pap smear test performed among women based on theory of planned behavior and stages of changes. This cross-sectional study conducted among 330 women referred to Kermanshah health center were selected in many stages. Use of standard questionnaires included in three sections are : Demographic, Theory of planned behavior and Stages of change structures to data gathering were analyzed by SPSS-21. 31.5% (97 cases) of participants had followed a regular Pap smear program. Attitude, subjective norms and perceived behavior control counted for 31% of the Pap smear behavior intention ($R^2=31\%$ & $P< 0.001$). Most of women (160 cases, 51.9%) were in the pre-contemplation and contemplation of regular undergoing of Pap smear test. Factors affecting in health behaviors can be useful in health planning, the present findings showed, in design of behavioral interventions to promotion of pap testing in women special emphasis should be in role for subjective norms in each of the stages of change.

Key words: Pap smear Test, Theory of Planned Behavior, Stages of Change, Subjective Norms

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1. INTRODUCTION

Cervical cancer is one of the prevalent cancers in women (1), Approximately 0.5 million women suffer from advanced cervical cancer every year and more than 50% die due to this disease; Statistics shows that mortality rate of cervical cancer has been reduced by more than 50% since 1940 up to now; However, this cancer has the sixth rank of mortality caused by cancer and had led to death of 4500 persons per year in USA (2). Cervical cancer in Iran is the fourth cancer with incidence rate of 6.64% and 34.2% of

the women cancers in Iran relates to it (3). Considering that precancerous stage of this disease is long and survivability of the patient in the precancerous lesions stage is almost 100% in case of treatment, screening is very important for primary diagnosis of this disease (4). In this regard, Pap smear test is an effective screening method for investigating cellular changes of cervix before being transformed into aggressive cervical cancer and it should be performed every year, every two or three years among women aged between 20 and 65 years (5). Different studies have shown that performance of this test

effectively reduces incidence of cervical cancer and mortality caused by it up to 90% (6). Economically, cervical cancer costs a lot for the family and society. These costs include diagnostic radiology expenses, blood test, surgery and surgery room, radiotherapy and other medical and health care and cost of Pap smear test is much lower than these expenses. On the other hand, life expectancy of these patients depends on diagnostic stage of this disease. Regarding importance of Pap Smear test, it should be added that failure to perform regular screening leads to risk of cervical cancer by 2 to 6 times but unfortunately, many of the women don't receive Pap Smear test for different reasons (5). For example, results of a research entitled "*Awareness and performance of American-Korean women about screening of Cervical Cancer*" indicate that 26% of the people had never heard of Pap Smear Test and only 34% people had Pap smear test screening for one time. Results of their research indicated that many women did not undergo screening or didn't undergo it in regular intervals despite advantages of Pap smear test (7). Other reasons for not performing Pap smear test are affliction with cervical cancer, painful nature of this test and shame for performing it (8). These facts necessitate execution of health interventions. On the other hand to design a curriculum, studies have shown that the most effective curriculums are based on theory-based approaches which have originated from behavior change patterns and selection of a suitable pattern of theory of health education is the first step for processing of a curriculum. Health education depends upon the proficiency in using the best theories and suitable strategies based on each event (9). One of the applied models in the field of Health behaviors is the theory of planned behavior presented by AJZEN and FISHBEIN. According to this theory, the primary determinant of a behavior is the intention of that behavior which indicates motivation of a person for adopting that behavior. Behavioral intention is the outcome of: (1) Attitude of person towards behavior (2). Personal perception of social norms of other people and life environment (3). personal perception of control which he/she has for performing or not performing that behavior, On the other hand "PROJASKA and DICLEMENTE" in their Trans-theoretical model present a concept called *stage of change* and mention that people in different levels are motivated and ready for performing behavior, these behavioral stages include five distinguished stages, Pre-contemplation (in this stage, people have no

information of their undesirable behavior and don't intend to change it in near future). Contemplation: at this stage, person is now more aware of results of his/her undesirable behavior, however, he/she will stay at this stage due to high expense of new behavior. Preparation: person at this stage is ready to start taking action within the next 30 days and takes a new behavior. Action: person at this stage has adopted healthy behavior and executes it. Maintenance: person at this stage followed and continued proper behavior more than 6 months ago. Therefore, different educational interventions can be utilized considering each level (10). Review of the previous studies shows that different studies have been conducted using theory of planned behavior and also trans-theoretical Models and different results have been presented in this regard (11, 12). In various studies on health behavior relationship between constructs of theory of planned behavior and constructs of stages of change has also been discussed (13, 14). Cornia *et al* in their study refer to the necessity of merging construct of stage of changes in the theory of planned behavior to predict physical activity (13). Considering importance of recognizing factors affecting adoption of preventive behaviors, the present study was designed to determine Pap Smear Test using theory of planned behavior and levels of stages of change among the married women referring to Kermanshah health centers, the west of Iran.

2. MATERIALS AND METHODS

This research was a cross-sectional study, which was conducted in summer 2013 among 330 married women referring to Kermanshah health centers. Sample size was calculated 323 persons considering study by JALILIAN and EMDADI, with confidence level of 95% and accuracy of 0.05. For more assurance, 330 people were included in the study and after omitting the uncompleted questionnaires, 308 questionnaires were analyzed (response rate in the present study was 93.3%). The study was conducted, such that different districts of Kermanshah city which have been divided into six districts based on different districts of Municipality were considered as classes and two health centers were randomly selected from each class and then participants were selected among the referring women using simple random sampling methods and the designed questionnaire was given to them. It is necessary to note that the research subjects were explained about the research methods, confidentiality of

information and goal of the research and all of them were included willingly. Married women referring to health and therapeutic centers were regarded with inclusion criteria and unwillingness to cooperate or complete questionnaires were considered exclusion criteria. Information collection instruments include: three sections and information were collected from women as self-report:

Section 1: Demographic and background information: this Section included 10 questions which regularly evaluated information of participants about age, education, number of children, number of pregnancies, job, menopause, any presence of a person suffering from cervical cancer in family history, familiarity with Pap Smear test, record of performing Pap Smear test.

Section 2: questions relating to constructs of theory of planned behavior: to measure constructs of theory of planned behavior in this study, a standard questionnaire was observed. The mentioned questionnaire had 14 items with 5-option Likert scale from 1 (strongly disagree) to 5 (strongly agree) as described below (11). The attitude includes SIX items (alpha coefficient of 0.70), for example, “our sexual relation is disrupted by undergoing the Pap smear test”. Higher score indicates stronger attitude toward regular under-going of Pap smear test. Subjective norms include SIX items (alpha coefficient of 0.68), for example, “Physician and Health personnel suggest me to undergo Pap smear test regularly”. Higher score indicates subjective norms encouraging regular undergoing of Pap smear tests. Perceived behavior control include 2 items (alpha coefficient of 0.71), for example, “it is difficult for me to undergo Pap smear test” and higher score

indicated controlling more perceived behavior in regular undergoing of Pap smear test. Behavioral intention was also measured with TWO items (alpha coefficient of 0.88). For example, “I want to undergo Pap Smear test regularly (every year, every two or three years) and higher score indicated stronger behavioral intention to undergo Pap smear test regularly.

Section 3: questions relating to construct of stage of change were evaluated based on the standard questionnaire applied in the field of screening behaviors of cervical cancer (15). At the end, the collected information was included in SPSS statistical software, version 21 and analyzed using suitable statistical tests (ANOVA, Pearson Correlation and Linear Regression).

3. RESULTS AND DISCUSSION

Average age of the participants was between 21 and 56 with mean of 38.59 years and standard deviation of 7.79 years regarding the educational status: 14 percent (43/308) had in elementary, 31.2% (96/308) middle, 46.1 % (142/308) were diploma and 8.7 % (27/308) were in academic education. About 7.8% (24/303) of respondents were employed and 92.2 % (284/308) were house wives. Almost 7.1 % (22/308) of respondents were reported menopause. In addition, 20.1 %, 31.8 %, 8.8 %, 32.1 %, and 7.1 % of the respondents reported were in pre-contemplation, contemplation, preparation, action and maintenance respectively .Furthermore, only 31.5% of participants reported to have undergone regular Pap-smear tests. Mean standard deviation and correlation between constructs of theory of planned behavior about performance of Pap smear test are shown in (Table 1)

Table 1. Correlation between Different Components of Theory of Planned Behavior

Component	Mean (SD)	X1	X2	X3
X1. Attitude	20.85 (4.26)	1		
X2. Subjective Norms	13.23 (3.62)	0.419	1	
X3. Perceived Behavioral Control	5.54 (2.52)	0.284	0.336	1
X4. Behavior Intention	6.75 (2.11)	0.374	0.536	0.264

Correlation is significant at the 0.01 level (2-tailed)

We found that statistically significant relationship lies between change (Table 2).
 constructs of theory of planned behavior and levels of stages of

Table 2 . Mean (SD) Different Variables of Theory of Planned Behavior and Stage of Change

TBP Variables	Level of SOC	Mean(SD)	95% Confidence Interval for Mean		P
			Lower	Upper	
Attitude	Precontemplation	18.74(4.80)	17.52	19.96	0.001
	contemplation	19.81(3.99)	19.01	20.61	
	preparation	21.22(3.43)	19.86	22.58	
	action	22.65(3.41)	21.97	33.33	
	maintenance	22.86(4.27)	20.69	24.76	
Subjective Norms	Precontemplation	12.01(3.33)	11.17	12.86	0.001
	contemplation	11.82(4.07)	11.00	12.64	
	preparation	12.29(2.99)	11.11	13.48	
	action	15.09(2.49)	14.59	15.58	
	maintenance	15.86(2.33)	14.64	16.71	
Perceived Behavioral Control	Precontemplation	2.91(1.19)	2.61	3.22	0.001
	contemplation	4.37(1.92)	3.99	4.76	
	preparation	6.44(1.45)	5.87	7.01	
	action	7.52(1.58)	7.21	7.84	
	maintenance	8.18(1.96)	7.30	9.05	
Behavior Intention	Precontemplation	5.77(2.03)	5.25	6.29	0.001
	contemplation	6.08(2.27)	5.62	6.53	
	preparation	6.14(1.68)	5.48	6.81	
	action	7.78(1.46)	7.49	8.08	
	maintenance	8.59(1.40)	7.96	9.21	

Finally, As can be seen in Table 3 linear regression analysis was performed to explain the variation in Pap smear intention, and our results showed on 2rd step the procedure stopped and the best model was selected, and three predictor variables of 1)

attitude, 2) subjective norms, and 3) perceived behavioural control, accounted for 31% of the variation in the outcome measure of the Pap smear intention (Table 3).

Table 3. Predictors of the Pap smear Intention

Variable	B	SE B	B	T	p-value
Step 1					
Attitude	0.084	0.026	0.169	3.19	0.002
Subjective Norm	0.259	0.031	0.443	8.23	0.001
Perceived Behavioural Control	0.056	0.043	0.066	1.30	0.193
Step 2					
Attitude	0.089	0.026	0.180	3.45	0.001
Subjective Norm	0.269	0.030	0.461	8.82	0.001
<i>Adjusted R2 = 0.31, p <0.001</i>					

The main goal of our study was to determine the undergoing of “Pap Smear Test based on theory of planned behavior and levels of stages of change among married women referring to Kermanshah health centers, the west of Iran (5, 9, 16).” Our results showed that 31.5% of the participants regularly undergo Pap Smear Test. In this regard, JALALVANDI who has conducted a study on women referring to clinics of Arak city has reported this rate 17.5%. “Jalilian et al” in their study among women referring to Hamadan health centers mentioned this rate 28.3%. These findings were lower than the studies conducted abroad so that Yu in his study among women aged between 15 and 78 years in London has reported rate of regular (17) undergoing of Pap smear tests 71.5%. In research by Tung et al. rate of regular undergoing of Pap smear test was reported 46.3% among the American Vietnamese women. Comparison of results of the present study with results of the mentioned studies indicates that rate of Pap Smear test in Iranian women is significantly lower than that in other countries. These results can be regarded as alarm for the health authorities and it should be studied, what the barriers of Pap Smear test are among the Iranian women. To take steps for removing them by

identifying these factors. Identification of these barriers helps health researchers and planners formulate suitable strategies for performing Pap Smear Test regularly. Different studies have been conducted using theory of planned behavior to predict screening behaviors related to health among the women like Pap smear test (18, 19). For example, Genghis-Dozir in his study has referred to importance of attitude, perceived behavior control and behavioral intention to undergo Pap smear test, he mentions in his study that perceived behavior control has been a strong factor which (20) predicts undergoing of Pap smear test among the women in America. “BARLING and BRITCOPEFF” in their study mentioned that attitude and perceived behavior control were strong predictors of Pap smear test (11, 18, 21). Comparison of these results with findings of the present study and another study conducted by “Jalilian” among the women referring to Hamadan health centers indicates that Iranian women are more affected by abstract norms for performing cervical cancer screening behavior and this point should be considered in design of the curricula for them. Awareness with screening behaviors of women’s health like Pap smear test and recognition of the

factors affecting it can be useful for educational and executive planning for encouraging women to perform the recommended health behavior and taking timely action for correcting it. Results of the present study showed that most of the studied women were in pre-contemplation, and contemplation (51.9%). In this regard, results of study by WIEN on the female nurses showed that 3.9%, 17.8%, 29.5%, 31% and 17.8% of them were in pre-contemplation to maintenance stages for performing Pap smear test (12). "Abdollah and Su" mentioned promotion of stages of change for performing Pap smear test among female teachers of Malaysia (15). Low levels of stages of change for performing cervical cancer screening behaviors can be regarded as threats to a women's health. Stages of change show in what stage intervention should be done and behavioral interventions can be different in each stage. Considering results of the present study and significant relationship between levels of stages of change and constructs of theory of planned behavior, it seems that execution of educational interventions can give useful results for promoting health of women based on need of each group. Limitations of the present study are collections of information through questionnaire (which can lead to a percent of error) and information collection from health centers (which doesn't cover a percent of women's society).

4. CONCLUSION

Rate of performing Pap smear test among the participants of the present study was higher than that of similar studies inside the country but was lower than the studies conducted in other countries. In addition, most of them were in pre-contemplation, contemplation and preparation stages and there was significant relationship between levels of stages of change and constructs of theory of planned behavior. Therefore, it seems that special emphasis should be given on role of subjective norms and required interventions in all levels of stages of change to design behavioral interventions for promoting behavior of performing Pap Smear Test among the 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.

REFERENCES

1. Alam M, Mohammad Alizadeh S, Aflatoonian Mr AM. Knowledge, Attitude And Practice of Behvarzes Working In Healthcare. *Journal of Hormozgan University of Medical Sciences*. 2007;10(4):379-86.
2. Winkler J, Bingham A, Coffey P, Handwerker WP. Women's participation in a cervical cancer screening program in northern Peru. *Health Education Research*. 2008;23(1):10-24.
3. Hemati K, MOHAGHEGHI S, MOUSAVI JS, KHABAZ KM. Cancer incidence in Ilam. *JOURNAL OF ILAM UNIVERSITY OF MEDICAL SCIENCES*. 2009.
4. Karimy M, Shamsi M, Araban M. Pap Smear Test Structures for Measuring Health Belief Model and Factors Affecting Women in Urban Centers Covered Zaranj. *Qom University of Medical Sciences Journal*. 2012;6(3).
5. Jalalvandi M, Khodadostan M. Knowledge and practice of married women about Pap smear. *Iran Journal of Nursing*. 2005;18(41):139-44.
6. Moasheri N, Hedyati H, Miri M, Aliabadi N. An epidemiological study on histological pap-smear results in Birjand" Imam Reza" hospital during two consecutive years. *The Horizon of Medical Sciences*. 2004;10(2):16-9.
7. Kim K, Elena S, Chen EH, Kim J, Kaufman M, Purkiss J. Cervical cancer screening knowledge and practices among Korean-American women. *Cancer Nursing*. 1999;22(4):297-302.
8. Fylan F. Screening for cervical cancer: a review of women's attitudes, knowledge, and behaviour. *The British Journal of General Practice*. 1998;48(433):1509.
9. Rakhshani F, Jalilian F, Mirzaei Alavijeh M, Zinat Motlagh F, Aghaei A, Ahmadi-Jouibari T. Pap smear test among Women: An Educational Intervention Based on Health Belief Model. *Journal of Birjand University of Medical Sciences*. 2013;20(2):136-43.
10. Jalilian F, Emdadi S, Mirzaie M, Barati M. The survey physical activity status of employed women in Hamadan University of Medical Sciences: The relationship between the benefits, Barriers, self-efficacy and stages of change. *Toloo-e-behdasht*. 2011.
11. Jalilian F, Emdadi S. Factors Related to Regular Undergoing Pap-smear Test: Application of Theory of Planned Behavior. *Journal of research in health sciences*. 2011;11(2).
12. Kim HW, Jung YY. Relating Factors in Pap Smears by Stages of Change among Married Nurses. *Korean Journal of Women Health Nursing*. 2010;16(4):317-25.
13. Courneya KS, Nigg CR, Estabrooks PA. Relationships among the theory of planned behavior, stages of change, and exercise behavior in older persons over a three year period. *Psychology and Health*. 1998;13(2):355-67.
14. Courneya KS, Bobick TM. Integrating the theory of planned behavior with the processes and stages of change in the exercise domain. *Psychology of Sport and Exercise*. 2000;1(1):41-56.
15. Abdullah F, Su TT. Applying the Transtheoretical Model to evaluate the effect of a call-recall program in enhancing Pap smear practice: A cluster randomized trial. *Preventive medicine*. 2013;57:S83-S86.
16. Yu C, Rymer J. Women's attitudes to and awareness of smear testing and cervical cancer. *The British journal of family planning*. 1998;23(4):127-33.
17. Tung WC, Nguyen D, Tran D. Applying the transtheoretical model to cervical cancer screening in Vietnamese-American women. *International Nursing Review*. 2008;55(1):73-80.
18. Breitkopf CR, Pearson HC. A theory-based approach to understanding follow-up of abnormal Pap tests. *Journal of health psychology*. 2009;14(3):361-71.
19. Duffett-Leger LA, Letourneau NL, Croll JC. Cervical cancer

screening practices among university women. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 2008;37(5):572-81.

20.Jennings-Dozier K. Predicting intentions to obtain a Pap smear among African American and Latina women: Testing the theory of planned behavior. Nursing research. 1999;48(4):198-205.

21.Barling NR, Moore SM. Prediction of cervical cancer screening using the theory of reasoned action. Psychological reports. 1996;79(1):77-8.