Predictors of Iranian women’s intention to first papanicolaou test practice: An application of protection motivation theory

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Abstract

BACKGROUND AND AIM: Given the importance of papanicolaou (Pap) test in the early detection and timely treatment of cervical cancer, present study was designed to determine predictors of a sample of Iranian women’s intention to first Pap test practice based on the protection motivation theory (PMT) variables. MATERIALS AND METHODS: In this cross-sectional study, a total of 240 women referral to the 30 primary health care clinics were selected. They completed a developed scale based on PMT variables including intention, perceived vulnerability and severity, fear, response costs, response efficacy and self-efficacy. Path analysis was used to determine the association between predictive factors and intention. RESULTS: The results showed that PMT had goodness of fit with a $\chi^2$/$df = 2.37$, $df = 28$, $P = 0.001$ and RMSEA = 0.076. PMT explained 42% of the variance in women’s intention to get first Pap smear test. Self-efficacy ($b = 0.55$, $P < 0.001$) and response efficacy ($b = 0.19$, $P < 0.001$) were found to be the predictors of intention. CONCLUSION: These findings may be used to develop tailored, theory-based educational interventions associated with Pap testing among women.

Key Words: Intention, papanicolaou smear, path analysis, protection motivation theory

Introduction

Cervical cancer is the second prevalent cancer among women.1,2 A review of the literature shows that screening programs such as Papanicolaou (Pap) smear can prevent up to 90% of this kind of cancer among women.3,4 Pap test is an effective method in early detection of abnormal precancerous cells and timely treatment of cervical cancer.3 Despite the important role that Pap test plays in preventing cervical cancer, only 27.1% of the Iranian women have reported getting at least one Pap test in their life.5 Current studies show that several factors such as fear of the result of the test, misconceptions and problematic beliefs about cervical cancer, lack of knowledge regarding benefits of Pap test, previous negative experience, inadequate trained health professionals and fund, cultural obstacles such as embarrassment of pelvic examination, less health literacy and so on could be considered for poor practice of Pap test among women.6-11 It is note-worthy that socio-cultural differences may also limit the generalization of these predictors.12 Recognizing the determinants of Pap testing in different cultures may assist practitioners and health educators to developing tailored interventions.

In this study, protection motivation theory (PMT) was used as a theoretical framework to recognize the factors influencing the Iranian women’s intention to first Pap test practice. In this model, it is proposed that protection motivation (i.e., intention to practice a specific behavior) results from two processes of coping and threat appraisal and it is a positive function of four variables consisting of severity, perceived vulnerability, perceived response efficacy and self-efficacy, and a negative function of two variables consisting of the rewards associated with maladaptive responses and the response costs of the adaptive behavior. PMT as a social cognition model was applied to predict different kinds of behavior such as cancer screening.13 Although Pap test practice as a method of cervical cancer screening had a high property in Iran and the level of performing this test is unacceptable, few studies have been conducted to reflect the determinants of doing Pap test or intention for doing it among Iranian women.6,11,12 Given the above, the present study was designed. The objective of this research was to identify PMT variables associated with Iranian women’s intention to first Pap test practice.

Materials and Methods

In this cross-sectional study, a total of 240 women enrolled in health care clinics were selected (8 women in each 30 clinic) by the stratified random sampling method between July 2012 and December 2013. Selection criteria of the participants were as follows: (1) Not having cervical cancer; (2) being married or sexually active; (3) previous negative history of the Pap test in their life; and (4) no history of full uterus hysterectomy. Furthermore, native language of the participants was Persian. Early in the study, a measurement tool for assessing demographic and PMT variables was developed and validated by the researchers. Then, 240 women who met the criteria for participating in the study completed the instruments. The completion of the questionnaire approximately lasted 12-16 min. Finally, data collected were analyzed. Ethics Committee approved this study. All participants were informed about the objectives of the research and a written consent was obtained from them.

A 26-item scale to assess PMT variables in terms of performing first Pap test was developed by researchers. Then, its reliability and validity were estimated. For evaluating content validity (qualitative method), the scale was reviewed by a panel of 10 experts in the health education, obstetrics and gynecology. The expert panel was asked to assess the necessity and relevance of the items to calculate content validity ratio (CVR) and content validity index (CVI). The CVI of
The intention scale as the primary dependent variable consisted of three items (“I want/intend/plan to have the Pap test”) on a 5-point Likert-type scale, which anchored from 1 = completely disagree to 5 = completely agree. Cronbach’s α and ICC for this subscale were 0.88 and 0.71, respectively.

Three items were used to measure perceived sensitivity regarding Pap test (e.g., “I do not have any problems in my reproduction organ, so it is impossible to have cervical cancer”). Items were measured on a 5-point Likert-type scale ranging from 1 = completely disagree to 5 = completely agree. Cronbach’s α and ICC for this subscale were 0.70 and 0.94, respectively.

Four items describe the perceived severity related to cervical cancer (e.g., “If I have cervical cancer, I will die in five years”). Items were measured on a Likert-type scale ranging from 1 = “completely disagree” to 5 = “completely agree”). Cronbach’s alpha and ICC for this subscale were 0.79 and 0.94, respectively.

The response costs scale consists of 2 items (e.g., “The Pap test is not pleasant for me”). These items were measured on a Likert-type scale ranging from 1 = “completely agree”) to 5 (=“completely disagree”). Cronbach’s alpha and ICC for this subscale were 0.80 and 0.96, respectively.

The response efficacy scale consists of 4 items (e.g., “The Pap test helps with early diagnosis of the disease”). Items in this scale were measured on a Likert-type scale ranging from 1 = “completely disagree”) to 5 (=“completely agree”). Cronbach’s alpha and ICC for this subscale were 0.85 and 0.79, respectively.

Seven items were used to evaluate self-efficacy (e.g., “I have the Pap test despite being shameful”). Items in this scale were measured on a Likert-type scale ranging from 1 (=“completely unconfident”) to 5 (=“completely confident”). Cronbach’s alpha and ICC for this subscale were 0.93 and 0.72, respectively.

Descriptive statistics including means and standard deviations were obtained through SPSS (version 18.0, SPSS, Inc., Chicago, IL, USA) Model fit was evaluated using the Chi-square index, goodness-of-fit index (GFI), root mean square error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), normed fit index (NFI), standardized root mean square residual (SRMR) and parsimonious normed fit index (PNFI) indices. Although, χ²/df value of 3 and less indicates that the model has a good fit, values of 4 or 5 are also acceptable.[18] The NFI, PNFI, CFI and GFI values of 0.9 and above (value range from 0 to 1) indicate a good fit.[19] RMSEA value of 0.08 or less indicates adequate fit. In addition, values of 0.05 or less and 0 indicate close and exact fits.[20,21] SRMR of 0.08 or less indicate a good fit.[22] The relationship between PMT variables and women’s intention to have the first Pap testing was estimated through path analysis. Also, LISREL (8.8) was used to do the preliminary and principal analysis for model testing.

Table 1 shows the demographic characteristics of the participants. The proposed model represented a good fit to the data (χ² = 2.37, df = 28, P = 0.001, RMSEA = 0.076, AGFI = 0.90, CFI = 0.97, NFI = 0.94, SRMR = 0.083 and PNFI = 0.95). The results showed that 42% of the variance in women’s intention to obtain first Pap smear test was explained by PMT. Standardized path coefficients presented in Figures 1 and 2 show that all the paths were significant (P < 0.05). The first model representing the PMT variables in relation to women’s intention to first Pap test practice is shown in Figure 1. Self-efficacy (b = 0.55, P < 0.001) and response efficacy (b = 0.19, P < 0.001) were all directly associated with intention. According to the proposed model, self-efficacy was also associated with the perceived vulnerability (b = 0.21, P < 0.001). Fear was associated with perceived severity (b = 0.12, P < 0.05) and response costs (b = 0.28, P < 0.001).

The second model which represented the PMT and demographic variables with regard to women’s intention to get the first Pap

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Percentage</th>
<th>Mean (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤35</td>
<td>99</td>
<td>41.3</td>
<td>38.11 (8.14)</td>
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<tr>
<td>&gt;35</td>
<td>141</td>
<td>58.7</td>
<td></td>
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<tr>
<td>Age at marriage</td>
<td>20.56 (4.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of pregnancies</td>
<td>2 (1.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of deliveries</td>
<td>2.04 (1.06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational status</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>Employee</td>
<td>16</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>213</td>
<td>88.8</td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
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<td></td>
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<tr>
<td>Illiterate</td>
<td>6</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>≤12th (grade)</td>
<td>200</td>
<td>47.9</td>
<td></td>
</tr>
<tr>
<td>&gt;12th (grade)</td>
<td>34</td>
<td>14.2</td>
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</table>
Our findings showed that self-efficacy and response efficacy were significant predictors of Iranian women’s intention for getting the first Pap test. These variables explained 42% of the variance in behavioral intention. Given that self-efficacy and response efficacy are the coping appraisal variables in the PMT, it is interesting to note that the coping appraisal factors provide strong predictions of women’s intention than do threat appraisal variables (including perceived severity and vulnerability). This finding is consistent with meta-analyses of PMT that have shown coping appraisal variables to have the strongest relation with behavioral intention than do variables of threat appraisal.[23,24] Self-efficacy as one of the predictors refers to the degree of perceived confidence a woman has about her ability to get Pap test. The low self-efficacy essay emphasized the difficulty of getting a Pap test. Su,[25] showed that self-efficacy had a significant association with poor practice of Pap smear screening among teachers in Malaysia. Boer and Seydel,[26] in their study also reported that self-efficacy was a predictor of breast cancer screening intention. In the current study, those women who had more perceived vulnerability and believed that they were susceptible to cervical cancer, was more likely to have self-efficacy for doing cervical cancer preventive approaches. A study done by Akbari et al.[12] stated that most of the Iranian women believed that they were not vulnerable to cervical cancer since there was no history of cervical cancer in their family. They demonstrated that Iranian women had limited awareness about causes of cervical cancer. In the same line, Lee et al.[27] have reported that Korean-American women had either no awareness or misunderstood the causes of cervical cancer screening. As a result, interventions regarding Pap smear should attempt to change self-efficacy of women, even though such perceptions are difficult to modify. In this regard, Bandura proposed four major sources of perceived self-efficacy that could be targeted in interventions. These sources include personal mastery experience, vicarious experiences; psychological condition of individual and persuasive communication.[13] Considering these resources may enhance self-efficacy of women for getting the Pap test. Moreover, providing information about cervical cancer causes and vulnerability of women to this cancer is essential.

In the present study, response efficacy was the second predictor of behavioral intention. The more response efficacy essay emphasized the effectiveness of Pap test practice in reducing their risk of developing cervical cancer. Akbari et al.[12] showed that Iranian women had no information about cervical cancer prevention approaches and their effectiveness. Overall, with regard to intervention for manipulating response efficacy, it is necessary to inform women about the effectiveness and benefits of Pap smear in preventing and early detecting of the cervical cancer.

Findings of the present study showed that fear was not associated with behavioral intention. In this study, fear was associated with two variables of perceived severity and response costs. Fear increases the processing of threat and attention to information associated with the threat. Coping appraisal processes are only activated when threat appraisal results in fear.[13] Abraham et al.[28] showed that there was no significant relationship between fear and condom use intentions.

Our findings also showed that none of the demographic variables were significantly associated with intention [Figure 2]. Education level of women had a negative association with response costs. The more the education, the lower the response costs associated with Pap test practice turned to be. Response costs focus on various
negative aspects of doing the recommended behavior.\textsuperscript{[13]} Literature shows that there are multiple barriers and costs for doing Pap smear. For example, Akbari \textit{et al.}\textsuperscript{[12]} showed that most Iranian women believed that getting Pap test takes much time. Demirtas \textit{et al.}\textsuperscript{[29]} also reported that women having more education level had fewer perceived barriers of cervical cancer screening than the other women.

Although the present study underscored the utility of PMT for determining predictors of first Pap test practice among Iranian women, it suffered some limitation. The limitation of the present study was that data were collected from women who referred to primary health care clinics. Since these clinics were located in low-income areas of Tehran, this homogeneity of samples may limit the extent to which findings can be generalized to other groups of women (e.g., those in high and middle-income areas). Similar studies within other racial/ethnic groups and geographic areas in Iran are recommended.

**Conclusion**

Women with more self-efficacy and response efficacy were more likely to practice first Pap test. Practitioners and health educators should take into account these two variables in developing interventions regarding first Pap test practice for women.

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**References**


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