

## ORIGINAL ARTICLE

# Knowledge about Cervical Cancer and Pap Smear and the Factors Influencing the Pap test Screening among Women

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Received: 14 November 2016 Revised: 11 September 2016 Accepted: 24 September 2016

### ABSTRACT

**Background:** Although the Pap smear is known as one of the effective methods to detect the cervical cancer, a large group of women are reluctant to do the test because of various reasons. Therefore, we carried out this study to determine the level of knowledge about cervical cancer and Pap smear and the factors influencing the Pap test screening among women.

**Methods:** In this cross-sectional study, 355 women referred to the health centers of Gilan-e gharb city were randomly recruited in 2015. The participants asked to complete a self-administered questionnaire including five parts (questions about: demographic factors, knowledge about cervical cancer and Pap smear, Pap smear performance, barriers and facilitators related to Pap smear and the sources of information). Data were analyzed through SPSS version 19, using descriptive statistics, Independent T-test, and logistic regression.

**Results:** The mean age of the participants was  $34.08 \pm 7.81$  years. Almost 50.4% of the subjects had a history of Pap smear test. Pap test performance was significantly higher in those who had higher knowledge ( $P < 0.001$ ). Knowledge about cervical cancer, Pap smear and age was the most important predictors of the Pap test performance ( $P < 0.001$ ). The most important barrier and facilitator to Pap smear test were inadequate knowledge and the recommendations received from family, friends and healthcare professionals (44.3% and 40.2%, respectively).

**Conclusion:** Knowledge about Pap smear and cervical cancer was important in predicting Pap test doing. In addition, inadequate knowledge was introduced as the most important barrier to screening test from the perspective of women. Therefore, we suggest that health education and health promotion studies as interdisciplinary and targeted interventions should be implemented to improve the women's knowledge.

**KEYWORDS:** Knowledge, Cervical cancer, Pap smear, Barriers, Facilitators

**Please cite this article as:** Ashtarian H, Mirzabeigi E, Mahmoodi E, Khezeli M. Knowledge about Cervical Cancer and Pap Smear and the Factors Influencing the Pap test Screening among Women. IJCBNM. 2017;5(2):188-195.

## INTRODUCTION

It is estimated that in 2015 the number of new cancer cases and deaths due to cancer will be 15 million and 9 million per year, respectively.<sup>1</sup> Cervical cancer is the third most common cancer and the fourth leading cause of cancer death in women worldwide.<sup>2</sup> The primary cause of this cancer is infection with human papillomavirus.<sup>3</sup> Since the cervical cancer is usually asymptomatic in the early stages, screening is important in the early stages.<sup>4</sup> This cancer is one of the few cancers that can be easily detected at pre-malignancy phase.<sup>5</sup> Screening for cervical cancer which is known as the Pap test is an effective method for early detection of cervical cancer.<sup>6,7</sup> However, a large group of women are reluctant to do the Pap smear because of various reasons. In some studies in Iran, the Pap test has been carried out ranging from 59.1 to 87.8 percent.<sup>8-12</sup> However, the other studies have reported even lower rates.<sup>13-18</sup> Some large-scale studies also have reported high levels of Pap test, for example 85% in Mexico,<sup>19</sup> 81.4% in America and Puerto Rico,<sup>20</sup> and 69% in Latin America.<sup>21</sup> According to some qualitative studies, there are a number of barriers for Pap smear screening participation such as a lack of awareness, inappropriate beliefs, the fear of being diagnosed with cervical cancer, abdominal pain after Pap smear, and an uncomfortable feeling during the test.<sup>22-25</sup> On the other hand, most of the quantitative studies have highlighted inadequate knowledge about Pap test,<sup>15,16,18,26,27</sup> embarrassment, and fear of cancer detection as the main barriers in this regard.<sup>15,16,18,28,29</sup> Also, some factors have been introduced as the most important motivational factors for Pap tests including recommendations of doctors, friends and family, awareness about the signs and methods for early diagnosis of the disease, understanding the seriousness of cancer, and easy and cheap access to Pap test.<sup>22</sup> The results of some quantitative studies have shown that the doctors and health care providers' advice has been the main facilitator for Pap test doing.

Given that a number of Iranian studies

have introduced inadequate knowledge as the most important barrier to doing Pap test and considering different statistics about the Pap smear test, the present study was conducted to determine the level of knowledge about cervical cancer and Pap smear and the factors influencing the Pap test screening among women from Gilan-e gharb city.

## MATERIALS AND METHODS

This cross-sectional study was conducted through recruitment of married women aged 18-49 years old from Gilan-e gharb (the west part of Iran), who were selected by systematic random sampling in the winter of 2015. The research population of this study included all women aged 18 to 49 years residents in Gilan-e Gharb city. According to the formula of estimating the sample size using proportion and considering the  $P=0.5$ ,  $Z\alpha=1.96$ , and  $d=0.05$ , the required sample size for conducting the research was calculated to includes 384 persons.

$$n = \frac{Z^2 \cdot P(1 - P)}{d^2}$$

Finally, we received 355 completed questionnaires for analysis (response rate=92.45%). Initially, we have compiled a list of health files in an urban health center of Gilan-e Gharb that had an eligible woman to participate in the study. Inclusion criteria were age between 18 and 49 years, at least once married, not having cervical cancer and coverage by urban health center of Gilan-e gharb. In addition, exclusion criteria were lack of consent to participate in the study, and having cervical cancer. Based on systematic random sampling method, 384 cases were selected from 4852 files. Then, the women were invited to participate in the research by phone. After explaining the purpose of the study and ensuring women from the confidentiality of information, written informed consent form was obtained from the participants and then they completed the questionnaires in 30 minutes. Research

Council and Ethics Committee of the Faculty of Health, Kermanshah University of Medical Sciences approved the study with approval number 93405.

Information of women was collected through a five-part questionnaire including 40 questions. The first part consisted of 13 questions on demographic information including age, occupation, and education (three questions about the participant and three questions about her husband), marital status, housing status, age at marriage, monthly income, duration of marriage, number of delivery, and number of children. The other part included 17 questions about the women's knowledge related to cervical cancer and detection methods, 6 questions about women's knowledge about the Pap test, one question on utilization of Pap test, 2 questions about facilitators and barriers to Pap test, and one question about the sources of information. To assess the validity of the data gathering tool, the questions were presented to a panel of five experts including health education and midwifery specialists. Then, after collecting the opinions, the credit of questions was approved using content validity ratio (CVR) and content validity index (CVI). Reliability was also evaluated using two-week test-retest on 40 subjects; the results showed a correlation coefficient equal to 95.4%, 94.16%, 97.5%, 87%, 92.5%, 85%, and 94.44% for knowledge about cervical cancer, knowledge about the Pap test, utilization of pap test, facilitators, barriers, sources of information, and the total questionnaire, respectively. In addition, we used Cronbach's Alpha test to assess the internal consistency of the questions; the result showed a Cronbach's alpha coefficient of 0.83. Data were analyzed by SPSS 19 using descriptive statistics, Independent T-test, one

way ANOVA, and logistic regression.

## RESULTS

Totally, 355 women participated in the study with a mean age of  $34.08 \pm 7.81$  years. The results also showed that 11% (n=39) were illiterate, 53.2% (n=189) were under diploma, and 35.8% (n=127) had a college qualification. Distribution of the participants according to the type of job was as follows: housewife 77.75% (n=276), government employee 19.44% (n=69), and worker 2.81% (n=10).

In this study, 50.4% of women (n=179) had a history of Pap test at least once and 49.6% (n=176) had never done a Pap test. There was no significant relationship between demographic variables and doing Pap smear. We used Independent T-Test to compare the mean scores of knowledge about cervical cancer and Pap test in women with or without the history of performing Pap test. As shown in Table 1, the mean score of knowledge about cervical cancer and Pap test in women who have done Pap test at least once was higher than those who did not, and this difference was statistically significant ( $P < 0.001$ ).

In this study, we used Stepwise logistic regression analysis to determine the most important predictors of Pap smear test amongst all studied variables. Results in the final model showed that knowledge about the Pap smear had the highest predictive power for the Pap test performance (OR=1.639). This means that women with higher knowledge have more tendencies to doing the Pap test. Furthermore, 'knowledge about cervical cancer' and 'age' were the other important predictive variables for Pap test, respectively (OR=1.083), (OR=1.056). Other variables had no significant role in predicting the Pap test

**Table 1:** Mean score of knowledge about Pap test and cervical cancer in women

| Variables                       | History of pap smear | Mean±SD   | t    | P value* |
|---------------------------------|----------------------|-----------|------|----------|
| Knowledge about Pap test        | Yes                  | 3.69±1.24 | 7.65 | <0.001   |
|                                 | no                   | 2.19±1.45 |      |          |
| Knowledge about Cervical cancer | Yes                  | 8.21±4.40 | 5.44 | <0.001   |
|                                 | no                   | 5.77±4.01 |      |          |

\*Independent T-test

performing (Table 2).

Related to the barriers, results showed that unawareness about the Pap test was the main barrier to performing the test (44.3%) while mistrust towards health care providers was the least barrier among them (5.1%). On the other hand, in people who had a Pap test previously, the most important facilitator was the recommendation of health care providers, friends and family whereas the least important facilitator was easy and inexpensive access to Pap test (Table 3).

In this study, regarding the main source of information about the Pap smear, 55 women (15.5%) stated that they had not heard about it at all. The most and least important sources of information were the health staff (31.8%) and the Internet (0.8%), respectively. The results are presented in Table 3.

**DISCUSSION**

In this study, more than half of the subjects had completed at least one Pap test. It seems that this rate is lower than that of some studies outside of Iran, which have reported rates from 69% to 85%.<sup>19-21</sup> In contrast, the results of the present study demonstrate a higher rate of performing Pap test among Iranian women compared with other studies. Most studies in developing countries indicate a very low rate of Pap smear as several studies reported this rate was even less than 20% of women.<sup>27,30-32</sup> In some studies conducted in Iran, the rate of the Pap test was reported more or lower than that of the present study.<sup>8-18</sup> Considering the fact that in the health care system of Iran Pap test is done with a very low cost in the urban and rural areas, it is expected to be much higher. However, according to the results of this study which is consistent with other national investigations,<sup>13-18</sup>

performing a Pap test among women is low. Therefore, it is necessary to examine different factors influencing the performance of Pap test. The present study shed some light on some of these factors such as women’s knowledge about cervical cancer and Pap test. It seems that the higher knowledge about cervical cancer and Pap test will lead to higher performance of Pap test among women. In some studies, the mean score of knowledge in individuals with a history of Pap test was more than those who had not performed a Pap test.<sup>15,29-31</sup> Regression results of a number of studies have also shown that knowledge is an important predictor for Pap test.<sup>17,30,33</sup>

Relationship between demographic variables particularly ‘age’ and participation

**Table 3:** Barriers, facilitators and source of information related to Pap test in women

| Barriers, facilitators & source of Information    | N (%)       |
|---|-------------|
| <b>Barriers</b>                                   |             |
| • Lack of knowledge                               | 78 (44.3%)  |
| • embarrassment                                   | 32 (18.2%)  |
| • Fear from result                                | 23 (13.1%)  |
| • Painful test                                    | 19 (10.8%)  |
| • Not recommended by health workers               | 15 (8.5%)   |
| • Lack of trust to health workers                 | 9 (5.1%)    |
| <b>Facilitators</b>                               |             |
| • Recommended by health workers, family & friends | 72 (40.2%)  |
| • Knowing the signs and methods                   | 44 (24.6%)  |
| • Perceived risk of cancer                        | 42 (23.5%)  |
| • Easy and affordable access to Pap test          | 21 (11.7%)  |
| <b>Source of Information</b>                      |             |
| • health workers                                  | 113 (31.8%) |
| • not heard about pap test                        | 55 (15.5%)  |
| • midwives  | 54 (15.2%)  |
| • Physician                                       | 42 (11.8%)  |
| • family & friends                                | 37 (10.4%)  |
| • TV & Radio                                      | 27 (7.6%)   |
| • Book, Newspaper & magazine                      | 24 (6.8%)   |
| • Internet  | 3 (0.8%)    |

**Table 2:** Summary results of stepwise logistic regression to predict the Pap test performance

| Variables                 | β    | β (SE) | OR   | 95% C.I. for EXP(B) |       | P value* |
|---------------------------|------|--------|------|---------------------|-------|----------|
|                           |      |        |      | Lower               | Upper |          |
| Pap test Knowledge        | 0.49 | 0.1    | 1.64 | 1.35                | 1.98  | <0.001   |
| Cervical cancer Knowledge | 0.08 | 0.03   | 1.08 | 1.02                | 1.15  | <0.001   |
| Age                       | 0.05 | 0.02   | 1.06 | 1.02                | 1.09  | 0.004    |

\*logistic regression



in Pap test has been recognized in several studies, showing that the percentages of cervical cancer screening vary by age. As women get older, they are most likely to do a Pap test.<sup>8,16,18,19,30,31,34</sup> On the contrary, no significant correlation was found between performing a Pap test and any demographic variables in this study.

Based on the results, in the women who had not undergone a Pap test, inadequate knowledge was mentioned as the most important barrier to performing the test, which is consistent with other studies.<sup>15,16,18,27</sup> In addition, the embarrassment or a feeling of embarrassment, and tension from fear of a bad result were the other major barriers in the participants. In various studies, embarrassment, along with some other factors, such as fear of cancer detection, sense of annoyance, and lack of health expert's recommendation are presented as the most important barriers to performing Pap test.<sup>12,16,28,35</sup>

Although there are a number of factors influencing women's readiness to perform the test, it seems that lack of awareness plays a significant role. Even perceptions such as embarrassment or feeling of being comfortable during the test are related to the lack of awareness. Considering this, raising awareness can reduce most of the barriers. Providing printed media through using posters and pamphlets designed to bring information and support to women and also using verbal and clear explanations about the Pap smear test can considerably reduce embarrassment and stress in women.<sup>16</sup>

In the present study, healthcare professionals, family and friends had the most important role in facilitating the Pap test. Their recommendation and advice was perceived as the most important facilitator of performing the Pap smear, among people who had completed it. This finding is in the same line with several studies showing the advice of healthcare professionals as a key facilitator.<sup>10,12,15,16,18,35</sup> Although the low-cost of and accessibility to Pap test could be perceived as facilitators, the results showed

that easy and affordable access to Pap test was worthless for women. Therefore, we should search for the cause of women's lack of interest in the issues besides the material and physical issues. For this purpose, we suggest that some targeted interventions should be designed based on the theories and models of health education and promotion such as the Health Belief Model and the Theory of Planned Behavior which examine the interpersonal reasons for behaviors.

In some studies, healthcare providers, and participation in educational programs have been reported as the main sources of information, which is consistent with the result of the present study.<sup>12,18,29</sup> Some studies have introduced media,<sup>9,17</sup> health care facilities / hospitals, friends,<sup>36</sup> obstetricians, family, television, internet and newspapers<sup>35</sup> as the most important sources of information.

The considerable issue in this study was that women rely heavily on healthcare professionals, family and friends for gathering information rather than use of electronic resources such as the Internet, and printed materials such as books. This result emphasizes the importance of traditional communication and information sources and shows the information delivered through healthcare professionals provides a certain level of credibility to information consumers or women. Although the credibility of some information found on the Internet is questionable, the Internet resources can be a useful source for information. In this regard, it is necessary to introduce the reliable and useful online resources for those who have sufficient knowledge and access to the Internet.

This was a descriptive-analytical study in which data were collected with self-report questionnaire. This usually reduces the confidence in the data and can be considered as the limitation of this study. On the other hand, one of the strengths of the study could be considered as the comprehensive view of the study to assess the knowledge and women's perceptions related to barriers, facilitators and resource information about the Pap test.

## CONCLUSION

In total, only half of the participants in the present study had previously experienced a Pap smear which should be improved through applying appropriate interventions. Since a significant relationship was found between knowledge level and performing Pap test, planning further education programs for women in this regard is recommended. Also, given the important role of health care providers as facilitators in this study, it is necessary to promote their knowledge to be able to encourage and guide women to perform Pap smear. In addition, a series of measures should be designed and implemented to use the electronic resources along with the printed educational materials to educate women about cervical cancer and Pap test performing.

## ACKNOWLEDGEMENT

This work was performed in partial fulfillment of the requirements for B.S. in Public Health of (Elaheh Mirzabeigi, and Elham Mahmoodi), in the Faculty of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran. We acknowledge all participants in the study, as well as authorities and staff of Gilan-e gharb health center who assisted us in performing this project. In addition, the researchers are grateful to the Kermanshah University of Medical Sciences for financial support (Grant No: 93405).

**Conflict of Interest:** None declared.

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