An Awareness-Raising Study on Cervical Cancer: Use of Health Belief Model as a Guide

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Abstract
It is vital to raise awareness of risk factors and early diagnosis about the cervical cancer. This study, it was aimed to evaluate the effects of planned education about early diagnosis of cervical cancer on the attitudes and behaviors of women towards cervical cancer. After the education given, it was observed that, in proportion to women in control-group, women in study-group had positive changes in their attitudes and behaviors towards early diagnosis of cervical cancer. It can be concluded that it would be beneficial to increase the awareness of women on cervical cancer and scanning tests through the educations.

1. Introduction
In both of “Most Frequently Diagnosed Cancers” and “Cancer-Related Deaths” lists, cervical cancer is at 4th rank. The highest incidences worldwide are observed in Middle and South Africa and Sub-Saharan Africa, while Middle East, North America, Australia, New Zealand, China, and some of European countries are those having lowest incidence values. Most of the morbidities and mortalities are seen in countries having low socioeconomic level, non-properly organized healthcare system, and no organized cervical cancer scanning programs. In year 2012, 527,600 new cervical cancer cases and 265,700 deaths occurred worldwide. 90% of these deaths occurred in developing countries (144,400 in Asia, 67,500 in India that is the most crowded country of world, and 60,100 in Africa) (Globocan, 2012). As well as entire world, cervical cancer also threatens the lives of women in Turkey. This type of cancer is the 8th most frequently seen type in Turkey (Ministry of Health, 2016). Because cervical cancer Pap smear scanning test started to be used widely since 1940s, the incidence of this cancer type decreased by 50%. But, despite this decrease, the sufficient level of success couldn't be achieved (ACS, 2007). In a study carried out in USA, it has been found that majority of 833 women diagnosed for cervical cancer have not taken Pap smear scanning test even though

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they could easily access the healthcare and scanning programs (Leyden, 2005). The most successful strategy of preventing the cervical cancer is undoubtedly the organized scanning methods involving the entire population. This can be achieved by widely using Pap smear test (ACS, 2007). The main objectives of scanning are to detect the precursor lesions and to decrease corresponding invasive cancer incidence. But, despite the successful results, the low cervical cytology awareness and especially the emergence of cervix adeno-cancers as a problem brought HPV DNA tests into the forefront, in addition to the cytology (Leyden, 2005).

Human Papilloma Virus (HPV) is considered one of the most important determinants of the cervical cancers. Having more than 200 known types, the most oncogenic type of HPV is Type-16, followed by Type-18, 31 and 45. Type-26, 53 and 66 are considered “potential” high risk. Its close relation with HPV caused cervical cancer to be accepted as a preventable disease (Burd, 2003; Munoz et al., 2004; Schiffman et al., 2009).

Primary and secondary protections are important for cancer and, in primary protection, the contact of individual with factors known to cause cancer should be prevented. In order to protect from the carcinogenic factors, it is important to change the lifestyle. Informing the women about risk factors influencing the occurrence of cervical cancer and getting women adopt protective behavior habits are the primary protection measures for preventing the cervical cancer (WHO, 2006). Organization of Preventing Cervical Cancer cooperates with 5 international organizations including World Health Organization, and emphasized the vital importance of educating, wherever possible, the women about protection from cervical cancer (ACCP, 2004).

In execution of abovementioned educations, the “lifelong health education” concept plays the key role. Being a concept towards giving individuals and societies the art of healthy life, the lifelong health education is based on strengthening the individual and ensuring the effective participation of society in order to improve and protect the health and to establish the healthy lifestyles (Güldali et al., 2003). Offering the healthcare services together with the society (with participation of the society) and achieving the success in educations depend on the efficient communication of healthcare personnel with the society (Tabak and Sonmaz, 2011). For this reason, it is very important for healthcare personnel, who are in continuous communication with the society, to raise awareness of public on the struggle with cancer and the protection methods by using accurate and effective communication methods.

Healthcare professionals should especially consider the groups of society, who are under primary risk, while planning the educations on protecting from cervical cancer risk (Kanbur, 2011). Moreover, changing the attitude is also important in developing and altering the health-related behaviors. The educations should be planned in the way ensuring this change in attitudes. Hence, all the theories regarding the health behavior emphasize the importance of attitudes for a qualified change (Sakallı, 2001).

Health belief model, which is one of many models of developing, adopting, and implementing health behavior, emphasizes that there is a relation between beliefs,
attitudes and behaviors of an individual. Besides that, the model is also useful for understanding and knowing in advance how to behave regarding the health and how to adopt the medical care (Tabak, 1999). Health belief model guides the health professionals in executing these educations and giving the individuals the relevant behavioral change (Nahcivan and Seçginli, 2003).

Resarching the factors prompting the societies to or not to do the acts towards protect their health would significantly contribute to protecting from the cancers. From this point, in parallel with the health belief model regarding the early diagnosis of cervical cancer, this study was carried out in order to analyze the effects of planned education about early diagnosis of cervical cancer on the attitudes and behaviors of women towards cervical cancer.

2. Method

This study is an experimental study carried out in order to analyze the efficiency of planned education about early diagnosis of cervical cancer. In this study pre- and post-test method with control group was utilized. The universe of this study consists of 492 women participating into the courses given by Kütahya Public Education Center and Evening Art School. Since the entire universe couldn’t be accesses because it was a planned education, 2 course locations (Gaybiefendi Neighborhood Education Center, and Municipal Hand-Arts Center) selected via cluster sampling method were assigned as study group and 2 course locations (Yenidoğan Neighborhood Education Center, and 100th Year Neighborhood Education Center) were assigned as control group. The course locations to constitute the study and control groups were randomly selected from the table of numbers. In total, 36 individuals were assigned to study group, while 31 individuals were assigned to control group. 18-63 year-old and non-pregnant volunteer women, who have never undergone total hysterectomy operation and diagnosed for cervical cancer, were involved in sample. The women to be involved in sample were informed about the objective and importance of study, and their written contents were obtained. Furthermore, before the study, the approval of authors, who have developed “Cervical Cancer and Pap Smear Test Health Belief Model Scale”, was obtained for using the scale, while Kütahya Governorship’s approval for the study on Kütahya Public Education Center and Evening Art School was received.

This study was carried out between 2nd and 17th of April, 2016. Firstly the “Form of Determining the Defining Characteristics of Women” and “Cervical Cancer and Pap Smear Test Health Belief Model Scale” were implemented as pre-test. “Form of Determining the Defining Characteristics of Women” consists of 20 items about women’s sociocultural characteristics and their knowledge, attitude and behaviors about the cervical cancer.

Cervical Cancer and Pap Smear Test Health Belief Model Scale is a scale developed by Güvenç, Akyüz and Açıkel (2010) based on the Health Belief Theory. Consisting of 35 items, the scale has 5 sub-dimensions (pap smear benefit and motivation perception; pap smear obstacles perception; seriousness perception towards cervical cancer, awareness perception, and health motivation). Each of the sub-dimensions of this scale is separately analyzed, and the scores are not summed in a
single total score. Increasing scores indicate the increasing awareness, health motivation, and seriousness. The subscales, except for the obstacles perception, are positively related with Pap smear scanning behavior. Cronbach alpha coefficient was found to be 0.86 for Pap smear benefit/health motivation, 0.82 for Pap smear obstacle perception, 0.78 for perception of preventing cervical cancer, 0.78 for awareness perception towards cervical cancer, and 0.62 for health motivation perception towards cervical cancer.

The implementation of pre-test took 15-20 minutes in total, and it was applied to women in study and control groups on 2nd of April, 2016, through face-to-face interview. Between 6th and 10th of April 2016, the women in study group received education about female genitals, definition and epidemiology of cervical cancer, risk factors, symptoms and indications, protection methods, HPV DNA test, HPV vaccine, Pap smear test, and treatment methods, and then the questions of participants were answered after the course. On 17th of April 2016, the pre-test applied before the education was implemented again as post-test. For the control group, the education was not given on the abovementioned date, while the post-tests were applied at the same day with women in study group.

During the course, the interactive educational methods such as presentation according to andragogic education principles, group work, brainstorming, intragroup moot, and roleplaying and effective communicational techniques such as debriefing, questioning, empathy, and effective listening were utilized. Moreover, during the education, models and posters were used, and the cervical cancer brochures, which have been prepared by the students, were given to all the participants.

Percentage, number, frequency, and intergroup analyzes were used for assessing descriptive statistics, while Independent-Samples t-Test, Paired-Samples t-Test, and One-Way ANOVA were used for demographic comparisons.

3. Results

Mean age of women having age varying between 18 and 63 years was 36.60±10.94 years. Of women, 34.3% were graduated from elementary school, 70.1% were housewife, and 82.1% were married. 23.9% of participants have no cancer history in their families. 50% of women stated that they went to gynecologist only when they are sick, while 17.9% of women emphasized that they do not go to gynecologist even when they are sick. One of the reasons for not going to gynecologist is “to shame at examination” (61.2%).

Of the women, 59.7% specified that they have knowledge about the cervical cancer, and 83.6% about the smear, while majority of them stated that they have been informed by a physician. 50.7% of women specified that smear test is a test that should be taken by all the women, while 82.1% stated that this test is a test that is used for early diagnosis of the cancer. But, however, 46.3% of women have never taken smear test before.

In Pap smear awareness sub-dimension, post-test mean scores of working women were found to be significantly higher than those of housewives (p=.035). It was observed that pre-test mean scores of those having no social security in Pap smear
obstacles dimension were significantly higher than those of women having a social security \((p=.008)\), while mean scores in Pap smear awareness dimension after the education were found to be statistically significantly higher than those of women having social security \((p=.008)\).

Mean scores of the women, who have knowledge about cervical cancer, pre-education \((p=.032)\), and post-education \((p=.033)\) form benefit motivation subscale were higher than those of women having no knowledge. In Pap smear obstacles subscale, the pretest mean scores of women graduated from elementary school were higher than those graduated from high school or higher institutions \((p=0.06)\). After the educations, mean scores of women graduated from elementary school from benefit motivation \((p=0.014)\), noticing/taking seriously \((p=0.003)\) and awareness \((p=0.001)\) subscales were higher than those of women having high school and higher degrees.

Mean scores of study and control group subjects from cervical cancer and Pap smear test health belief model scale before and after the education are presented in Table 1.

Given the subscales of cervical cancer and Pap smear test health belief model scale, it can be seen that the mean scores of study group from Pap smear benefit and motivation perception increased from 3211±5.4 to 36.47±3.6, while those of control group decreased from 32.10±5.2 to 30.42±4.2 \([t(65)=6.2, p<.01]\). In subscale of Pap smear obstacles perception, the mean score of study group decreased from 38.61±8.4 to 25.44±6.7, while that of control group increased from 29.94±14.27 to 32.26±11.7 \([t(65)=2.9, \ p<.005]\). In subscale of noticing/taking cervical cancer seriously, the mean score of study group increased from 20.28±5.7 to 24.50±6.2, while that of control group decreased from 18.94±7.9 to 17.71±8.4 \([t(65)=3.7, \ p<.01]\). In cervical cancer awareness perception, the mean score of study from increased from 6.25±2.6 to 8.47±2.8, while that of control group decreased from 6.65±3.1 to 6.00±2.6 \([t(65)=3.6, \ p<.01]\). In subscale of cervical cancer health motivation perception, mean score of study group increased from 9.42±2.2 to 11.53±2.5, while that of control group decreased from 9.94±3.2 to 9.35±2.7 \([t(65)=3.3, \ p<.005]\).
Table 1: Comparison of Mean Scores of Study and Control Group Subjects from Cervical Cancer and Pap Smear Test Health Belief Model Scale Before and After the Education

<table>
<thead>
<tr>
<th>Sub-dimensions of Cervical Cancer and Pap Smear Test Health Belief Model Scale</th>
<th>Applied tests</th>
<th>Groups</th>
<th>n</th>
<th>±Sx</th>
<th>t</th>
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<th>P</th>
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<tr>
<td>Pap-smear benefit and motivation perception</td>
<td>Pre-test</td>
<td>Study group</td>
<td>36</td>
<td>32,11±5,4</td>
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<td></td>
<td>Control group</td>
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<td>32,10±5,2</td>
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<td>Post-test</td>
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<td>30,42±4,2</td>
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<td>32,26±11,7</td>
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<td></td>
<td>Post-test</td>
<td>Study group</td>
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<td>11,53±2,5</td>
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<td>Control group</td>
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<td>9,35±2,7</td>
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4. Discussion

Cervical cancer is a type of cancer that can be seen worldwide and has a high level of mortality. Most important strategy in struggling with this cancer is to develop national scanning programs and to ensure early diagnosis (Boyle and Levin, 2008;
Aydoğdu and Bahar, 2011; Kanbur and Çapık, 2011). The success of early diagnosis approach for these cancers increases the importance of scanning programs. The Pap smear test performed in order to detect the precursor lesions of this cancer type aims preventing cancer-related deaths by ensuring the early diagnosis of cervical cancer (American Cancer Society, 2012).

In order for national scanning programs to be successful, healthcare professionals have important responsibilities. One of the first steps to be taken is to raise awareness of women about the early scanning programs and to encourage them to take Pap smear test (Güvenç et al., 2010; Kanbur and Çapık, 2011), because informing the women about the cervical cancer and Pap smear tests increases the participation into national scanning programs (Kanbur and Çapık, 2011; Özdemir and Bilgili, 2010). In this study, more than half of women (59.7%) stated that they have knowledge about cervical cancer, while almost all of the women (83.6%) stated that they have knowledge about Pap smear test. Besides that, more than half of women (50.7%) stated that Pap smear test is a test that all the women should take, and 82.1% emphasized that this test is used for early diagnosis of the cancer. In a study carried out on 388 adolescents in Singapore, it has been reported that 86.3% of the subjects have heard about Pap smear test but only 11% them have taken this test (Shae et al., 2013). In study of Gümüş and Çam (2010), the rate of being informed about the cervical cancer was reported to be 47.7%, while it has been reported to ne 76.2% in study of Ozan and Ertem (2011). In a study, where the women having cancer history in their relatives have been compared to those having no cancer history, it has been reported that 67% of those having cancer history in relatives have heard of cervical cancers and scanning tests, while only 35.9% of those having no cancer history have heard of cervical cancers and scanning tests (Günaydın, 2013).

Given the source of information about cervical cancers, it can be seen that majority of those women have been informed by a physician. In study of Shae et al. (2013), it has been stated that more than half (56.7%) of the participants have acquired the information from the media, while 37.9% have acquired from physicians and nurses. In other studies, it has been reported that the information has been mostly acquired from healthcare personnel, followed by TV/radio, book/brochure, and people having cancer history in their relatives (Gümüş and Çam, 2011; Günaydın, 2013). As it can be seen, the source providing the majority of information is the healthcare professionals. For this reason, it would be very beneficial for healthcare professional to have accurate and actual information and to convey these information to the public.

In developed countries, almost all the women take at Pap smear test at least one time (Kuo and Goldberg, 2003; Sirovich and Velch, 2004). But, however, in developing countries including Turkey, it can be seen that the portion of women that have taken Pap smear test is low. This ratio was 54% for women in Eastern Asia (İslam et al., 2006), while it varies between 68% and 89% among Vietnamese women (Do et al., 2007; Ho et al., 2007). In this study, it draws attention that one of every 2 women has never taken Pap smear test. Similarly, in a study carried out on women working in healthcare sector, it has been reported that 56.5% of subjects have never taken a test. Furthermore, in same study, it is attention-grabbing that 81.3% of resident physicians and 61.5% nurses have never taken the test. In a similar study carried out in İzmir, this rate has been reported to be 24.2% (Yücel et al., 2006), while Özdemir and Bilgili (2010) have calculated it to be 23.7%. It is worrisome that healthcare professionals do not pay sufficient attention on this test.
These findings indicate that also the healthcare professionals should be educated on cervical cancers.

The reasons for such low rates of taking Pap smear test have been subjected to many studies (Akyüz et al., 2006; Aziza and Cohen, 2008; Gümüş and Çam, 2011; Güvenç et al., 2010; Leung and Leung, 2010). In a qualitative study carried out in Turkey in year 2012, the restrictive factors have been determined to be lack of information about cancer and early diagnosis, absence of health insurance, transportation problems, shame, fear, financial problems, difficulties in getting an appointment, difficulties in finding female physicians, and fatalist perspective. The supportive factors have been found to be providing the information about cervical cancers and early diagnosis, attentive and tolerant attitudes of healthcare professionals, free healthcare services, transportation opportunities, and phone-call reminders (Ersin and Bahar, 2013). In this study, it was found that half of women visit the physician only when they are sick and 17.9% do not visit even when they are sick, and that their reason for not visiting the physician was hesitation from examination (61.2%). In similar studies on this topic, the reasons such as “absence of symptoms related with the disease”, “negligence”, “shaming”, and “absence of social security” (Gümüş and Çam, 2011), “fear” (Günaydın, 2013), “worrying for pain” (Byrd et al., 2004) come to the forefront. It is attention-grabbing that most of the women’s reasons for not taking Pap smear test are psychological ones. It is believed that the fact that the female genitals are considered confidential in traditional and conservative societies and the women are raised under this pressure brings these psychological obstacles (Gümüş and Çam, 2011; Güvenç et al., 2010).

In a study carried out in Hong Kong on 385 women, it has been determined that lack of information about the risk factors of cervical cancer significantly influenced the rates of taking Pap smear test (Leung and Leung, 2010). Similar results have been obtained in study of Duffett-Legeret et al. in year 2008. In study of Sönmez et al. in Turkey (2012), it has been reported that majority (72.5%) of women having knowledge about the Pap smear test (89%) have taken Pap smear test. Besides that, it was determined that there was non-significant difference between the women that heard about Pap smear test and those that haven’t. Similarly, in study of Kalyoncu et al. (2003), the percentage of women that heard about Pap smear test has been found to be 72.92. Even if it is not in details, it can be clearly seen that hearing of Pap smear test has positive effects of health beliefs of women (Demirgöz Bal, 2014).

According to Health Belief Model, as the positive perceptions of women towards Pap smear test’s usefulness increases, parallel increases are seen in awareness, seriousness, and health motivation (Güvenç et al., 2010; Demirgöz Bal, 2014). In this study, it was also determined that the usefulness perception towards Pap smear test increased in study group after the education. Similarly, it is promising that there were significant increases in perceptions of noticing/taking cervical cancer seriously, awareness, and health motivation. On the other hand, significant decrease in study group’s perception towards obstacles in proportion to control group draws attention. Similarly, in study of Pirzadeh et al. (2012) in Iran, while no difference has been found between the study and control groups before the education, significant differences have been identified after the education in all the sub-dimensions. Similar results have been obtained in study carried by Karimy et al. in year 2011. In study of Asarkaya (2011), where the effectiveness of cervical cancer education program has been examined, it has been determined that the
mean scores of women from the scale for early diagnosis of cervical cancer were found to be higher than those of control group in 1st and 2nd sessions and the differences were statistically significant.

When the women’s awareness perception towards the cervical cancers is compared to sociodemographic data, it can be obviously seen that women having lower educational level, who do not work and have no social security, have more obstacles. But, however, it was determined that these obstacles decreased significantly after the education. These findings coincide with those of other studies in literature (Akyüz et al., 2006; Aydoğdu and Bahar, 2011; Esin et al., 2011; Demirgöz Bal, 2014). Given the obtained results and literature reviews, the importance of educations on developing attitudes and behaviors regarding the early diagnosis of cervical cancer can be seen. With its conclusions, this study is an important one for improving the public health.

5. Conclusions and Suggestions

As a result of this study, it was determined that majority of women have heard of the cervical cancer and scanning tests but almost one of every 2 women have not taken the test. These results indicate that the information acquired before are not sufficient for developing a behavior. After the education given, it was observed that, in proportion to women in control group, women in study group had positive changes in their attitudes and behaviors towards early diagnosis of cervical cancer. As a result of this study, it can be stated that it would be beneficial to increase the awareness of women towards cervical cancer and scanning tests by utilizing the educations. There is no doubt that the protection from cancer and the early diagnosis can be ensured by increasing the awareness level of society. In this parallel, healthcare professionals should behave as a role model by protecting firstly their own health and then guiding the individuals they are serving for.

For the success of programs for early diagnosis and preventing the cervical cancer, in-service trainings should be organized for healthcare professionals, planned educations should be offered to the risk groups and all the segments of population, healthcare professionals should guide, support, and encourage the women, and the educations should be organized in parallel with the characteristics of participant profile. Besides that, in order to provide women with opportunity to access the scanning tests, it is important to perform the tests in family medicine departments.

This study has some limitations such as limited sampling size and no long-term follow-up of participants. For further studies, it would be better to study on larger sampling sizes, to perform long-term follow-ups, and to examine the effectiveness of educations on changing the behaviors.
References


