

RESEARCH ARTICLE

Challenges of Providing Cervical Cancer Prevention Programs In Iran: A Qualitative Study

Roghieh Bayrami¹, Ali Taghipour², Hossein Ebrahimipour^{3*}

Abstract

Background: Cervical cancer has become a major public health problem worldwide. Iran, like other developing countries, is facing a number of challenges in managing the disease. This qualitative study documents challenges encountered in cervical cancer preventing programs in Iran. **Materials and Methods:** In-depth interviews were conducted with 28 participants including eleven patients with cervical cancer, three gynecologic oncologists, five specialists in Obstetrics and Gynecology, five midwives, three health care managers and one epidemiologist in Mashhad Iran, between May and December of 2012. The sample was selected purposively until data saturation was achieved. Data credibility verified via allocated sufficient time for data collection, using member checking and peer debriefing. Data analysis was carried out using conventional content analysis approach with ATLAS.ti software. **Results:** Findings from data analysis demonstrated 2 major themes and 6 categories about challenges of providing cervical cancer prevention programs including: individual and social challenges (cognitive/behavioral challenges and socio/cultural challenges) and health system challenges (stewardship, financing, competency of health care providers and access to services). Each category included some subcategories. **Conclusions:** Managing the cervical cancer prevention programs need to include the consideration of individuals, health care providers and health system challenges. Addressing the low level of knowledge, negative attitudes, socio cultural challenges, Poor intersectional collaboration and coordination and intra-sectional management, financing and competency of health care providers are essential steps toward significantly reducing the burdens of cervical cancer.

Keywords: Cervical cancer - health systems plans - Pap smear test - qualitative research - Iran

Asian Pac J Cancer Prev, 15 (23), 10071-10077

Introduction

Cervical cancer which is the third most common cancer in women, and the seventh overall, with an estimated 527624 new cases and 265653 deaths in 2012, has become a major public health problem worldwide (IARC, 2014). Cancer of the cervix is a preventable disease. The incidence and mortality rate of cervical cancer have decreased during the past half-century using routine and organized cytology-based screening programs and treatment of pre-cancerous lesions in developed countries (Khan et al., 2014). These successes have not been achieved in developing countries; so that about 80% of deaths due cervical cancer occur in developing countries (Urasa and Darj, 2011) and referring to the Pap smear is not desirable in poor countries (Kawonga and Fonn, 2008). The incidence and mortality rate of cervical cancer in Iran are 2.4% and 1.6% respectively (IARC, 2014).

The World Health Organization predicts that new cases of cancer increase from 11.3 million in 2007 to 15.5 million in 2030 (WHO, 2008). Moreover nearly two-thirds of the cancer cases predicted for 2050 will occur in

developing countries (Cavalli, 2006).

The World Health Organization recommendation about combating cervical cancer and other gynecological morbidities with early diagnosis and screening programs is an essential component of all cancer control plans in preventive medicine (Yilmazel and Duman, 2014). High Coverage of the target population by screening test and treatment of all women with abnormal lesions represent the most important factors in determining program success, and are the immense practical challenges (Wongwatcharanukul et al., 2014). Challenges faced by the patients and health care providers in cervical cancer issue can be affected early detection practices (Fort et al., 2011).

In summary, deficiencies in health system functions such as the low coverage levels of cervical cancer screening programs, low quality of cytological services, lack of management and treatment of patients with abnormal lesions, and the subsequent no reduction in mortality and morbidity of cervical cancer (Murillo et al., 2008) a shortage of trained staff and limited budget for prevention health (Kawonga and Fonn, 2008) are

¹Nursing and Midwifery School, student research committee, ²Health Sciences Research Center, Department of Biostatistics, School of Health, ³Health Sciences Research Center, Department of Health and Management, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran *For correspondence: ebrahimipourh@mums.ac.ir

challenges that attributed to an absence of quality control procedures. Several studies reported that poor knowledge about Pap test would cause to inadequate use of it (Al-Meer et al., 2011; Reis et al., 2012). Vaccination to prevent Human papillomavirus HPV infection is an important strategy in cervical cancer prevention but this vaccine is expensive and may not be affordable for many women in developing countries (Yilmazel and Duman, 2014).

Although the Pap smear test has been performed in health care system of Iran from 1990; and it is an effective and inexpensive test in screening cervical cancer, but some studies have shown that it was not welcome by women (Karimi et al., 2012). Screening for cervical cancer using the Pap test starts at age 18 years and over for married women and who have had three consecutive normal pap smears should have a pap smear every three years. In spite of this, cervical cancer mortality rates have not decreased in the recent years. According to the cancer registry data of the Ministry of Health and Medical Education (MOHME) in Iran, 350 people in 2005, 600 people in 2006 and 663 people in 2007 had cervical cancer (Vaisy et al., 2012).

Iran, like other developing countries, is facing a number of challenges in managing cervical cancer. Although cervical cancer is an important women's reproductive health problem; most studies in Iran have focused on women's knowledge and attitude about cervical cancer and pap smear test (Hadi and Azimirad, 2012; Zareai, 2014) and few have focused on the challenges faced by health system and health care workers (Esmailpour et al., 2011; Saberi et al., 2012).

It is important to identify the challenges faced by cervical cancer prevention programs; because recognition of those challenges may give way to improvement of health care system performance. Qualitative study is Suitable for inquiry topics about which little is known and permit researcher to probe experience and voice of participants that have not study before (Polit et al., 2006). The aim of this qualitative study is to describe the perceptions of Gynecologic oncologists, Specialists in Obstetrics and Gynecology, midwives and patients with cervical cancer regarding to challenges of providing cervical cancer prevention programs. The results will help to inform managers and policy makers on whether or not, and how, to modify cervical cancer preventing activities. In addition, the results of present study will aid in understanding which components of the health system must be strengthened so that new and alternative prevention activities may be introduced in Iran.

Materials and Methods

Study design, location and population

This qualitative study was conducted in Mashhad, Iran, between May and December of 2012. Twenty eight participants including, eleven patients with cervical cancer, three gynecologic oncologists, five specialists in obstetrics and gynecology, three health managers of province health center, five midwives and one epidemiologist were purposively selected to be interviewed. At first, participants were purposefully recruited from two main sites 1) the Ghaem Educational, Research and Treatment

Center hospital with specialized services for gynecologic cancers and 2) Provincetown health center. Inclusion criteria for patients was recognized cervical cancer. To be ensured of maximum variation, patients were selected from various ages, levels of education and socio-economic status in order to get diversity in experiences, perceptions and beliefs about cervical cancer. Physicians, midwives and health managers were included in case that they had at least two years of experience in the relevant field.

Procedures

The main data collection method was face-to-face, semi-structured interview with participants that were conducted with first author. The interviews started using general open-ended questions like please talk to me about cervical cancer? How did you understand that you have cancer? What challenges faced by cervical cancer prevention programs? Each interview takes, between 60 and 120 minutes. Continuing the interview, according to the responses to each of the questions, in-depth probing questions such as 'What do you mean?' 'Why?' 'Explain more' and 'Would you please give an example to better convey what you mean?' were asked in order to find out the depth of the women's experience. During the interviews, the researcher recorded nonverbal data such as the participants' tone, facial expression, and position. The interviews were conducted at participants' convenience in places such as a home, hospital and health care centers. All of the interviews were recorded by an MP3 player. Data collection and analysis proceed simultaneously.

Data analysis

All recorded interviews were listened several times and transcribed verbatim. Each interview was analyzed before the next interview took place. The conventional content analysis approach is used to analyze the data Using ATLAS.ti software. Explanations and perceptions of participants were identified and coded then the codes were subdivided into subcategories and categories on the basis of differences and similarities. Also field notes were used to extract key concepts. For data credibility, sufficient time was allocated for data collection as well as using member checking, peer checking, maximum variation of and debriefings with external supervisor were used. To ensure reliability of coding, the transcript text of the interviews was presented to the some researchers who were not involved in this study as external observers and they were asked to check the accuracy of the coding process. No major differences in coding were identified. Minor differences were discussed and resolved between the researchers.

Sampling was continued until data saturation was achieved that is, no new information or codes were Present in the data which happened at the 28th interview.

Ethics of study

Ethical approval of this study was obtained from the ethics committee of the Mashhad University of Medical Sciences in Mashhad, Iran. All participants were given detailed information about the aim of study and written informed consent was obtained from them before

participating. The participants were assured that the anonymity is mentioned were assured of their anonymity. They could withdraw from the study at any time without harm to them. The files of recorded data were stored in safe place and were accessible only for the researchers.

Results

Cognitive/behavioral challenges

According to the findings of this study, there is no community-based approach associated with the cervical cancer preventing programs.

The following quotations from two of the physicians confirm the issue mentioned above:

"We all have learned that treatment should only be given to a patient in hospital. We do not know what happens to the patient after discharge. The patients may have more psychological problems in their family. They may have more troubles at work. Social workers play an important role at this stage. They need to protect the patient in solution of different problems. But we don't pay attention to their issues" (MD-2)

".....Information must be given to the community. In my opinion education must be given in the high school; it must be educated for both boys and girls at the high school level. This issue is very important." (MD -3)

Based on the analysis of the participants' comments, generally, the women had a lack of knowledge about cervical cancer and the Pap smear test. Confirming the aforementioned subjects, several individuals participating said:

"The patient who has post coital bleeding, a year later remembers that she should go to the doctor. Why? because she doesn't have any knowledge about cancer. She doesn't know that this symptom can become a dangerous and she may be in danger" (MD-4)

"At first i did not know what the smear was .when i had bleeding in my uterus, I went to doctor's office. She examined me and told me to do Pap smear test. At that time i had never heard about it and didn't really know what it was."(P-1)

"Cervical cancer has some symptoms such severe pain and i did not have any pain to go in to the doctor. (P-2)

Attitude has an indirect effect on health seeking behaviors and reflects personal consequences of the behaviors. Majority of patients participating had wrong attitude about cervical cancer and screening test. These quotations as evidence to support our claims:

"It is the 'God's will that one get cancer or die from the special disease. Illness, healing and death only occur with will of God."(P-3)

"I am afraid of pap test because it may shows that i have cancer also it is painful procedure."(P-8)

Based on the analysis of the participants' comments, the majority of cancer patients, either never undertook a Pap test prior, or they performed it irregular. These quotations as evidence to support our claims:

".....Majority of women doesn't follow a regular Pap-smear pro-gram." (MD-6)

"I am more than willing to go in for screening but doing Pap smear test last much time and so i could not

do it regularly. (P-9)

Socio/cultural challenges

Based on the study findings similar to sexual issues negotiation about cervical cancer is a cultural taboo. A physician mentioned:*"Most women do not like to talk about genital diseases even cancer and sexual transmitted disease. Many women become infected by their husband and embarrass to discussion it even with their physician."*

Formation of population changes in society, such as Prolonged period of celibacy and a young population, with social and cultural evolution such as cultural invasion and imitation of the West through the availability of satellite communications technology lead to sexual awakening and premarital sexual experiences. Extra marital relationship among young people lead to STDs related to cervical cancer such as HPV and AIDS. More physicians participating in this study pointed out that imitation of foreign culture is considered a risk factor for cervical cancer and HPV.

"Satellite television acts as a factor in high risk sexual behavior. Watching movies via satellite alters sexual relations between young people. Satellite television broadcasts sex before marriage, living with others instead of promoting the concept of marriage and Infidelity in marriage" (MD-6)

"Among the factors that may lead to cancer is HPV; and we disregard to it. Sexual relationships outside the marriage lead to HPV." (MD-4)

Stewardship

Information system plays an important role in health system and can be considered as determinants of health. The findings of this study demonstrated that there is no giving priority to cancer of cervix so that this lead to barrier in preventing cervical cancer. While an epidemiological approach helps policy makers to concentrate on the serious health problems of a community to identify solution for improving the health of the community.

The following quotation from one of the gynecology oncology specialists confirms the issues mentioned above:*"We don't have exact statistics of prevalence and epidemiological information about various types of HPV in our country, so that the administrators can plan for the control of this infection and consequently cervical cancer. Few studies have been conducted in the area of cervical cancer. Prevalence, incidence, risk factors and abnormal results of pap test are not estimated exactly in different regions of country. There is no sufficient data on how many women with unsatisfactory smear results or abnormal lesions that have been followed-up and treated"*.

In the health system, supervision of tasks and activities affect the organization, management, and delivery of health services, including control of work processes. The findings of this study demonstrated that the performance of health system in supervision and control of preventing program of cervical cancer is poor.

"In our health system there is no routine supervision for visiting private medical clinic to control whether or not the pap smear is done before cryo therapy or cuter". (health manager-2)

“Quality controls are not mandatory. Most private cytology laboratories do not have internal or external quality controls”. (MD-8)

In comments given by physicians and managers a specific quality management approach is essential to improving the performance of a program.

“If the screening program was monitored properly when it was done freely in health system it may be identified the defects of program. Controlling and monitoring of this program was not done and the shortcomings of it were not resolved”. (MD-7)

“Laboratory Personnel and midwives who read or preparation smear slides are not evaluated”. (MD-4)

Some participants’ stated that in general, government and non-government organizations coalition in the cervical cancer preventing programs is poor.

The following quotations from participants confirm the issues mentioned above:

“...All else community members, mass media organization, leaders ,ministry of education and health workers must be involved in efforts aimed at increasing awareness about cervical cancer risk factors and screening programs for cervical cancer“. (MD-5)

“By building coalition and partnership, groups can work together using creative strategies to develop screening and treatment services, leading to the elimination of cervical cancer. (Health manager-4)

“Participation of religious communities and NGOs in women’s education with important healthcare messages is poor”. (M- 1)

“The mass media play an important role in developing people’s awareness of cancers, prevention ways and screening methods while this role is not highlight in our country“. (Health manager-1)

Financing

Based on the analysis of the participants’ comments, lack of health insurance is a well recognized barrier to cervical cancer programs. Confirming the aforementioned subjects, participants said:

“The cost of cancer treatment is very high for those who are not covered by insurance.”(P-5)

“If insurance Agency paid for a liquid based screening test, we could recommend this accurate test for all patients”. (MD-7)

“One of the reasons that most women do not do Pap smear test is lack of insurance coverage for a pap smear test”. (MD-1)

Inadequate allocation of funds for cervical cancer preventing programs is the other challenge in our health system. Confirming the aforementioned subjects, participants said:

“Without money we cannot do all the things required. Even if the physician would decide to treat urgently, stage of disease changes while patient look for money. Patients have to earn money”. (MD-8)

“because cervical cancer prevention programs need budget since if there is no money then there is no appropriate planning and when there are no planning, there is no education, if there is no Education, then there is no screening”. (Epidemiologist)

“In our country the sufficient funds are not allocated to cervical prevention programs. HPV vaccine is often expensive for the developing countries. People cannot get it free on the health care system”. (MD -7)

Competency

One of the most important tools for cervical cancer prevention is adequate correct information and awareness about exact management of screening tests results. Many of the cancers are diagnosed in a late stage. This was attributed to a lack of exact diagnosis of health care providers and as well as mismanagement of patients. The following quotations confirm the issues mentioned above:

“In the hospital where I am working at present, all the patients come after stage 2” (MD-5)

“Majority of cancer patients come at stage three and four’ it’s very difficult to tell patients that you have come too late and nothing can be done” .(MD-6)

” I had vaginal bleeding and went to the doctor office. She was the doctor who helped in the birth of my daughter. First time she prescribed me only vaginal cream and antibiotics . I take my medication regularly but I didn’t get better. I went to the doctor office again. That time

Table 1. Themes and Categories of Challenges of Providing Cervical Cancer Prevention Programs

Theme	Category	Subcategory
Individual and social challenges	Cognitive/behavioral challenges	Lack of a community-based approaches to cervical cancer Lack of awareness Wrong attitude Lack of health seeking behaviors
	Socio/cultural challenges	Cultural taboo Socio cultural evolution Extra marital relationship
health system challenges	Stewardship	Deficit in Information system Poor intersectional collaboration and coordination (Poor Supervision and control and poor monitoring and evaluation). Poor intra-sectional management
	Financing	Insurance Budget allocation (funding)
	Competency of health care providers	Integration between knowledge and practice Low empowerment Low motivation at work
	Access to services	Centralized specialized services Limitations in accessibility to and availability of appropriate health services

she wrote me hormonal drugs. I take these drogues for three months but bleeding was not stopped. I went to the assistant professor office. She wrote me Pap smear test. if my doctor asked me to undertake pap smear I just did not have cancer". (P-7)

"Moreover, although all of obstetrics and gynecology doctors know that pap smear test is necessary before ablation procedures but some of them do not recommend pap test for women before these procedures". (MD-3)

"inappropriate slides results due to lack of skills among health care providers in taking pap smear ultimately leads to increased false-negative results". (MD-8)

Competency is described in way that is: observable, measurable, linked to the workplace, academic environment and other life experiences. Empowering employees in acquisition the competency has positive effect on the organization's performance. Empowerment enables an employee to think, behave and act in more autonomous ways. Appropriate communication skill is one of the major elements of that lead to employee's empowerment. The following quotations from participants confirm that health care providers have not enough empowered:

"In gynecologist office when you have a problem, the physician only notices your main problem. She gets angry if you ask a question. She visits 3-4 patients at the same time. You receive a few seconds of her attention. While a gynecologist should be a person who becomes closes to you, and can dedicate e time to you. She must dedicate some time on patient education." (P-11)

"....All health care providers should receive training in how to teach and communicate with clients and should gain necessary skills". (P- 10)

Empowerment on professional expertise through holding the workshops must be conducted periodically.

"Holding a workshop is a good way to empowering staff. I recommend that some educational workshops about cervical cancer prevention programs and communication and education skill should be performed for all health care providers. All of general physicians, specialists in obstetrics and gynecology and midwives should attend in these workshops". (MD -1)

"In order to promote efficiency, health care providers must have positive motivation. These incentives can be created in various ways, including additional money or encouragement". (MD-7)

"I want to educate women but I don't have any motivation to do it". (Midwife-4)

Access to services

The access to tertiary cervixes and shortage of oncologist are challenges in our health system.

Women living outside province center must travel long and costly distances to receive advanced diagnostic and treatment care. A specialist in obstetrics and gynecology said:

"Specialized centers in cervical cancer are centralized in province capitals. Patients who live in deprived cities for receiving services compelled to go to capital towns. It is more difficult to do this. In addition the number of oncologists in women cancer is low. These finding indicate that; the specialized hospitals are busy and don't have

sufficient capacity".

A 48 years old patient said: "After the doctor read my laboratory result sheet, she told me i should go to Mashhad for treatment. It was too difficult to my family to do it".

Common challenge was limitations in accessibility to and availability of appropriate health services. The following quotation by participants confirmed our claim:

"Women living in rural areas, especially poor rural areas don't easily access to up taking Pap smear test". (MD-6)

According to views of some participating physicians, important choices that might be considered for cervical cancer prevention are the presentation of the HPV vaccine and the availability of more accuracy tests for screening cervical cancer. Unfortunately both options have not been considered in our country.

"HPV vaccine does not offer free of charge in governmental health system. If it is necessary it should be purchased with high price". (MD-7)

Discussion

This study revealed some overarching challenges to cervical cancer preventing programs in Iran.

Two major themes and 6 categories about challenges including: Individual and social challenges (Cognitive/behavioral challenges and Socio/cultural challenges) and health system challenges (Stewardship, Financing, competency and Access to services) emerged from data analysis.

Low knowledge and wrong attitude of women were challengeable issues in cervical cancer prevention programs (CCPP). Low awareness and misconceptions about the screening test, symptoms and etiology of the cervical cancer, would lead to not undertaking Pap smear test. It is well known individuals' knowledge and attitude correlate with their healthcare-seeking behaviors. Other studies concur with our study findings (Birhanu et al., 2012; Saberi et al., 2012; Budkaew and Chumworathayi, 2014).

Also lack of regular Pap-smear test taking is the challenge. Findings of other studies (Jalilian et al., 2011; Saberi et al., 2012) in Iran confirm our claim. According to these results health policy makers in Iran should focus on this issue.

This study showed that the socio-cultural issue affects the health care seeking behaviors of women. Most women do not like to talk about their genital tract diseases even cancer and sexual transmitted disease. This result is consistent with the reports from other countries (Birhanu et al., 2012). Extra marital relationship can affect on incidence of cervical cancer with increasing risk of HPV. In the other studies also having multiple sexual partners increased risk of cervical cancer (Kaya and Akin, 2009; Hanley et al., 2014).

Cultural invasion and imitation of the satellite can influence on relationships on youth and adolescents with increasing prevalence of STDs linking with cervical cancer such as HPV. Several studies resulted an increased HPV infection among people engaging in sexual activity with multiple partners (Yilmazel and Duman, 2014). Due

to this issue the solution of socio cultural problems should be considered.

The findings of this study also showed that one of the main challengeable issues is deficit in information system about cervical cancer. Most epidemiological data for HPV infection, cervical neoplasia, abnormal cervical cytology and normal Pap smears come from local studies in different hospitals or laboratory assays of different geographical areas. But in fact for the fulfillment of health policy strategies for the prevention of cervical cancer is required to the data on cervical cancer is collected in the general population (Eghbali et al., 2012).

In Iran, there are no guidelines for strategies that improve cancer screening rates. In this study failure to monitoring the screening process was one of the burdens related to CCPP. But effective strategies as a result of monitoring process of cervical cancer screening improve screening rates.

Sano et al. (2014) believed that effective strategies that motivate people to be screened need to be successfully implement. Besides proficiency testing including internal or external quality control is not performed for most cytology laboratories. Our finding is consistent with finding of Arrossi et al study (2010). In deed interpretation of smears obtained from some patients is a difficult duty that requires a high level of skill. Developing proficiency requires continues education through workshops, supervision and control programs.

In the present study physicians and health managers stated that inter sect oral and cross sect oral collaboration and innovative partnerships should be performed in CCPP. Other study (Binagwaho et al., 2013) concurs with our study finding. In cytology-based screening programs it is need to obtain the Pap smear in health centers by midwife and to transport them to laboratories for interpretation. Lack of communication between referring health centers, women and laboratory clinics is known to be a significant barrier to screening, because majority of women don't return for Pap smear results.

While the HPV vaccine is recommended by the majority of specialist as one of the greatest tools in cancer prevention, some participants mentioned that would not be rushed to mandate the HPV vaccine. Many studies have shown conflicting results about requirement vaccination against HPV infection in Iran (Eghbali et al., 2012; Haghshenas et al., 2013). On the other hand insurance companies do not cover specific cancer screening tests and this is another challengeable issue in CCPP.

Disability of integration between knowledge and practice was mentioned as a challenge. In this study specialists in cervical oncology mentioned that many of the cancers are diagnosed in a late stage and this was attributed to a lack of knowledge of health care providers to exact diagnosis and as well as mismanagement of patients. This finding is confirmed by Kivuti-Bitok. (2013).

In the present study, similar to a study conducted by Kivuti-Bitok. (2013) health care providers have a low motivation for participation in CCPP.

The motivation of employees is influenced by several factors Such as salary and other verbal and non-verbal

encouragement (Chen et al., 2004). According to statement of one participant it seems that paying additional money or encouragement are ways that create some positive motivation in health care providers.

This study also demonstrated that employee's empowerment is an issue that is not considered. Health care providers' participation and self- determination are the ways that lead to promotion of the organization performance. On the other hand employee's empowerment is mainly concerned with motivation and decision making. Results of a study in Iran showed that duration of occupation of midwives did not affect on their knowledge about cervical cancer. It seems that educational workshops about CCPP should be performed for all health care providers (Esmailpour et al., 2011).

In the present study limitation in accessibility to and availability of appropriate health services such as colposcopy, radiography and chemotherapy only in referral hospitals in the provincial centers are common challenge. When an abnormal result is detected in a smear of a woman, she needs a referral for colposcopic assessment or other specialized procedure provided by specialists. Colposcopy, radiotrasy and chemotherapy cervices are located in tertiary, urban-based institutions and provided in subspecialty centers. This necessity establish problems of access for women (especially poor women) living in remote areas.

Also cytological screening test is available only in urban health center or private laboratory; and access to these sites is difficult for rural women. This finding concurs with other studies (Birhanu et al., 2012; Kivuti-Bitok, 2013) .

In our qualitative study purposive sampling and small number of participants are considered as limitation for study. Hence generalization of the results is limited.

In Conclusion the results of this study provide an insight into challenges faced in cervical cancer management programs in health system. These challenges are pertaining to individuals, health care providers and health system. Individual's challenges including the low level of knowledge and negative attitudes need urgent attention. There is need to address Poor intersectional collaboration, financing problems and competency of health care providers.

Acknowledgements

This work was funded by grants from Mashhad University of Medical Sciences with code of 910380. We are also grateful of all participating in this project. Authors of the manuscript declare that they have no conflict of interest.

References

- Al-Meer F, Aseel M, Al-Khalaf J, Al-Kuwari M, Ismail M (2011). Knowledge, attitude and practices regarding cervical cancer and screening among women visiting primary health care in Qatar. *Eastern Mediterranean Health Journal*, **17**, 855-61.
- Arrossi S, Paolino M, Sankaranarayanan R (2010). Challenges faced by cervical cancer prevention programs in developing

- countries: a situational analysis of program organization in Argentina. *Revista Panamericana Salud Pública*, **28**, 249-57.
- Binagwaho A, Ngabo F, Wagner CM, et al (2013). Integration of comprehensive women's health programmes into health systems: cervical cancer prevention, care and control in Rwanda. *Bull WHO*, **91**, 697-703.
- Birhanu Z, Abdissa A, Belachew T, et al (2012). Health seeking behavior for cervical cancer in Ethiopia: a qualitative study. *Int J Equity Health*, **11**, 83-90.
- Budkaew J, Chumworathayi B (2014). Factors associated with decisions to attend cervical cancer screening among women aged 30-60 years in Chatapadung contracting medical unit, Thailand. *Asian Pac J Cancer Prev*, **15**, 4903-7.
- Cavalli F (2006). Cancer in the developing world: can we avoid the disaster? *Nature Clinical Practice Oncology*, **3**, 582-3.
- Chen L, Evans T, Anand S, et al (2004). Human resources for health: overcoming the crisis. *Lancet*, **364**, 1984-90.
- Eghbali SS, Amirinejad R, Obeidi N, et al (2012). Oncogenic human papillomavirus genital infection in southern Iranian women: population-based study versus clinic-based data. *Virology J*, **9**, 1-6.
- Esmailpour N, Mirblouk F, Shodjaei Tehrani H, Poorseyad Reza A, Dalil Heirati S (2011). Survey the knowledge, attitude and practice on popsmear in nurses and midwives. *J Gilan Univ Medical Sciences*, **19**, 81-8.
- Fort VK, Makin MS, Siegler AJ, Ault K, Rochat R (2011). Barriers to cervical cancer screening in Mulanje, Malawi: a qualitative study. *Patient Preference Adherence*, **5**, 125-131.
- Hadi N, Azimirad A (2012). Knowledge attitude and practice of women in shiraz about cervical cancer and Pap Smear. *Iranian J Cancer Prev*, **3**, 117-26.
- Haghshenas M, Golini-moghaddam T, Rafiei A, et al (2013). Prevalence and type distribution of high-risk human papillomavirus in patients with cervical cancer: a population-based study. *Infectious Agents Cancer*, **8**, 20-25.
- Hanley SJB, Yoshioka E, Ito Y, et al (2014). An exploratory study of Japanese fathers' knowledge of and attitudes towards HPV and HPV vaccination: does marital status matter? *Asian Pac J Cancer Prev*, **15**, 1837-43.
- International Agency for Research on Cancer (2012). Estimated incidence, mortality and prevalence worldwide in 2012. Available at: [http:// globocan.iarc.fr](http://globocan.iarc.fr). Accessed on 2014 march,1.
- Jalilian F, Emdadi S (2011). Factors related to regular undergoing Pap-smear test: application of theory of planned behavior. *J Res Health Sciences*, **11**, 103-8.
- Karimi M, Shamsi M, Araban M, Gholamnia Z, Kasmai P (2012). Health beliefs and performance regarding Pap Smear test in zarandieh city women's. *J Guilan Univ Medical Sciences*, **20**, 42-8.
- Kawonga M, Fonn S (2008). Achieving effective cervical screening coverage in South Africa through human resources and health systems development. *Reprod Health Matters*, **16**, 32-40.
- Kaya M, Akin A (2009). Cervical cancer and public health approaches. HUKSAM Publication Ankara. p.1-60
- Khan G, Naeem H, Khan S, et al (2014). Understanding and responsiveness level about cervical cancer and its avoidance among young women of Pakistan. *Asian Pac J Cancer Prev*, **15**, 4877-83.
- Kivuti-Bitok LW, Pokhariyal GP, Abdul R, McDonnell G (2013). An exploration of opportunities and challenges facing cervical cancer managers in Kenya. *BMC Res Notes*, **6**, 136-145.
- Murillo R, Almonte M, Pereira A, et al (2008). Cervical cancer screening programs in Latin America and the Caribbean. *Vaccine*, **26**, 37-48.
- Polit D, Beck C, Hungler B (2006). Essentials of Nursing Research, Methods, Appraisal and Utilization. Lippincott Williams & Wilkins, Philadelphia, 11-23.
- Reis N, Bebis H, Kose S, et al (2012). Knowledge, behavior and beliefs related to cervical cancer and screening among Turkish women.? *Asian Pac J Cancer Prev*, **13**, 1463-70.
- Saberi f, Sadat Z, Abedzadeh M (2012). Factors associated with cervical cancer screening and its barriers among women: Kashan, Iran. *Payesh*, **11**, 365-70.
- Sano H, Goto R, Hamashima C (2014). What is the most effective strategy for improving the cancer screening rate in Japan? *Asian Pac J Cancer Prev*, **15**, 2607-12.
- Urasa M, Darj E (2011). Knowledge of cervical cancer and screening practices of nurses at a regional hospital in Tanzania. *Afr Health Sci*, **11**, 48-57.
- Vaisy A, Lotfinejad S, Zhian F (2012). Relationship between urine cervical carcinoma and oral contraceptives. *J Gorgan University of Med Sci*, **14**, 98-103.
- World Health Organization (WHO) (2008). Are the number of cancer cases increasing or decreasing in the world? April 2014.
- Wongwatcharanukul L, Promthet S, Bradshaw P, Jirapornkul C, Tungsrithong N (2014). Factors affecting cervical cancer screening uptake by hmong hilltribe women in Thailand. *Asian Pac J Cancer Prev*, **15**, 3753-6
- Yilmazel G, Duman NB (2014). Knowledge attitudes and beliefs about cervical cancer and human papilloma virus vaccination with related factors in Turkish university students. *Asian Pac J Cancer Prev*, **15**, 3699-704.
- Zareai M (2014). Women's knowledge and practice about pap smear test and it's barriers in Jahrom city. *Jahrom Medical Journal*, **12**, 16-21.