

RESEARCH ARTICLE

Cervical Cancer Prevention Knowledge and Attitudes among Female University Students and Hospital Staff in Iran

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Abstract

Background: Cervical cancer is a major preventable cancers. The, current study aimed to assess relevant knowledge and attitude of female students and hospital staff in Iran. **Method:** This cross-sectional study was conducted in Medical and Nursing faculties and hospitals of East-Azerbaijan Province of Iran. Participants were medical and paramedical female students and female staff in hospitals selected by stratified random sampling techniques. Tools for data collection were questionnaires for which validity and reliability had been verified ($\alpha=0.8$). Descriptive and inferential statistics were used to analyze data with SPSS.16. **Result:** Response rates were 71 % (426 from 600) and 63.5% (254 from 400) for students and staff, respectively. Some 29.1% admitted that they had no information about cervical cancer, only 70 (10.3%) thinking their knowledge as high, 360 (52.9%) as intermediate, and 237 (34.9%) as low. While 93% of participants considered cervical cancer as a severe health problem, the only statistically significant relationships with knowledge were for education ($p<.001$) and occupation ($p<.001$) variables. **Conclusion:** Given the importance of the roles of medical students and personnel as information sources and leaders in health and preventive behavior, increasing and improving their scientific understanding seems vital. Comprehensive and appropriate education of all people and especially students and personnel of medical sciences and improving attitudes towards cervical cancer and its monitoring are to be recommended.

Keywords: Uterine cervical neoplasms- knowledge- attitude- medical staff- Iran

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Introduction

Today, the vision of diseases has changed from infectious to chronic disease and one of the most important diseases is the issue of “cancer”. In 2003 cancers have led to the death of 1.5 million people all around the world and unfortunately ,despite significant developments in medical sciences, therapeutic methods of cancers are not yet useful enough and the economic burden of these disease is very heavy (Hoque and Hoque, 2009; Wong et al., 2009).

One of the most important types of cancers is “cervical cancer” which is known as one of the preventable cancers. The reasons are its long-term precancerous stage and also ease of access to screening methods in this cancer. On the other hand, nowadays there are relatively effective methods available in therapy of cervical cancer (Vrscaj et al., 2007; Vanslyke et al., 2008; Ali et al., 2010; Fakhrjou et al., 2013; Aliasgarzadeh et al., 2014; Amirnia et al., 2014).

After breast cancer, cervical cancer is the second mortality cause of women in ages 15-44. Even in most of developing countries it is the most common cause

of cancer-related mortality in women. Annually half a million cases of cervical cancer is diagnosed in the world and about 250 thousands cases of death occurs resulted from it (Nganwai et al., 2008; Saha et al., 2010; Karami et al., 2013; Mohammadzadeh et al., 2013; Rostamizadeh et al., 2013).

Heretofore various tests and methods have been provided to early diagnosis of cervical cancer and secondary prevention, among which Pap smear is one of the most effective and useful ones, since it is a simple, cheap, painless, and relatively highly efficient method (Greenberg and Glick, 2003; Roy and Tang, 2008; Abedian and Mohammadi 2012; Balogun et al., 2012; Ghोजazadeh et al., 2012a; Ghोजazadeh et al., 2012b). This screening method has been 79% successful in reducing incidence of cervical cancer and 70% successful in reducing mortality caused by this type of cancer (Emirates, 2004). In this screening method precancerous lesions are diagnosable in 10 to 20 years prior to development of cervical cancer (Mutuyaba et al., 2006). Unfortunately in spite of advantages of Pap smear screening method, most

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of women do not conduct it as a common and effective method. Results of lots of studies in this field showed that women do not possess required knowledge and awareness on using and conducting Pap smear test and also on cervical cancer (Gamarra et al., 2005; Esmailpour et al., 2011; Singh et al., 2012; Ghojzadeh et al., 2013; Kumar et al., 2014; Onsory et al., 2014).

Knowledge and attitude is one of the most important predictive factors for health behaviours and an effective factor in increasing screening rate (Mosavel, 2011). Unfortunately in Iran, like most of countries with middle and low income, there isn't enough information about knowledge and attitude of women about cervical cancer and Pap smear test, and limited studies have been conducted on this field (Williams et al., 1994; Lambert, 2001; Han et al., 2007; Lee et al., 2007; Klug et al., 2008; Bingham et al., 2009; Oh et al., 2010; McCarey et al., 2011; Ghojzadeh et al., 2014).

Objectives

To investigating knowledge and attitude of female students in majors of midwifery, nursing, and medical and also hospitals staffs in these fields.

Materials and Methods:

This cross sectional study, which was conducted in Medical and Nursing faculties of East-Azerbaijan Province of Iran and hospitals of Tabriz University of Medical Sciences in 2014. Participants were composed of female students in majors of midwifery, nursing, and medical sciences of Medical and Nursing faculties of East-Azerbaijan Province of Iran and female staff in hospitals of Tabriz University of Medical Sciences in fields of midwifery, nursing, and medical sciences. The reason for choosing these fields was relation and interaction of these people with cancer patients especially women cancers in present and future.

The sample size was calculated using a formula for a finite population (Underhill and Bradfield, 1998). Assuming that 50% of the university students had sufficient knowledge of cervical cancer, a sample of 600 students and 400 hospitals and faculty's staff was selected

by stratified random sampling techniques with 95% confidence and 5% reliability. Faculties of the university were considered as strata. From each faculty, a number of students were selected based on the proportion of students who were in the faculty according to the year of study.

Tools for data collection such as questionnaires fulfilled the fact that they have been designed using text reviews and similar studies (Mutyaba et al., 2006; Han et al., 2007; Oh et al., 2010; Al-Meer et al., 2011; Balogun et al., 2012). Validity of questionnaire has been measured via comments of 15 persons of experts in field of women and cancer. Its reliability was also calculated through test-retest with participation of 30 people ($\alpha=0.8$). Questionnaire consists three parts. The first part is for demographic information (4 questions), the second part is for awareness-related questions (14 questions), and the third part is for attitude-related questions (16 questions).

The researcher explained the aims and proposed method of research to the female students before being asked for consent and to fill in the questionnaire. The questionnaires were self-administered and anonymous. Those who voluntarily consented to complete the form were part of the study. Ethical permission for the study was obtained from the ethics task committee of the Tabriz University of Medical Science.

Descriptive statistics (Frequency, Percentage, Mean \pm Standard Deviation), independent samples T-test, One Way ANOVA, Spearman's correlation coefficient, and linear regression model were used to analyze data by SPSS.16 software package. A p-value of %5 was considered statistically significant.

Results

Of 600 questionnaires distributed to the students 426 ones were returned (response rate of 71%) and of 400 questionnaire distributed among hospitals and faculty staff 254 ones were returned (response rate of 63.5%). Mean age of participants was 25.6 ± 7.7 . Mean marriage age of participants was 21.7 ± 4 and 277 participants (65.02%) were married. The minimum marriage age was 11 and the maximum one was 35. Other demographic variables of participants have been shown in Table 1.

Table 1. Demographic Variables of Participants in the Study (Female Students of Midwifery, Nursing, and Medical Sciences and Female Staff of Hospitals) (N=680)

Variable	Level	Number (%)	Variable	Level	Number (%)
Marital status	Single	339 (49.9)	Age of marriage	15-Oct	16 (2.4)
	Married	266 (39.2)		16-20	104 (5.3)
	Lost	75 (10.9)		21-25	109 (16.0)
Education	High school diploma and associate	192 (28.2)		26-30	30 (4.0)
	B.A.	344 (50.6)		30>	7 (1.0)
	M.S	28 (4.1)	Number of pregnancy	1	72 (10.6)
	PhD/specialty	72 (9.1)		2	72 (10.6)
	Lost	54 (7.9)		3	25 (33.7)
Occupation	Student	426 (62.6)		4	11 (1.6)
	Staff	215 (31.6)		4>	4 (0.5)
	Lost	39 (5.8)			

Table 2. Results Related to Awareness of Participants in the Study (Female Students of Midwifery, Nursing, and Medical Sciences and Female Staff of Hospitals) about Prevention of Cervical Cancer (N=680)

Field	Options	Number (%)	Field	Options	Number (%)		
Prevention of cervical cancer	Drugs	96 (14.1)	Source of information	Parents	44(6.5)		
	Vaccination	56 (8.2)		Classrooms	325 (47.8)		
	Healthy nutrition	97 (14.3)		Internet	124 (18.2)		
	sports	87 (12.8)		Books and journals	163 (24.0)		
	Proper personal hygiene	377 (55.4)		Providers of health services	110 (16.2)		
Diagnosing cervical cancer	Safe sexual behaviours	362 (53.2)	Risk factors	Mass media (T.V., radio...)	98 (14.4)		
	Pap smear test	466 (68.5)		Early marriage	265 (24.3)		
	Papilloma virus test	142 (20.9)		Early pregnancy	125 (18.4)		
	Scan	25 (3.7)		Having several sex partners	341 (50.1)		
	Not identifiable	16 (2.4)		Cigar	124 (18.2)		
Symptoms of cervical cancer	I don't know	115 (16.9)	Groups at risk of cervical cancer incidence	Family history	143 (21.0)		
	Menstrual irregularities	209 (45.4)		human Papilloma virus	200 (29.4)		
	Vaginal destruction	137 (20.1)		HIV	73 (10.7)		
	Pain	148 (21.8)		Bacteria	36 (5.3)		
	Bleeding after intercourse	281 (41.3)		Genetic	69(10.1)		
	Weight loss	79 (11.6)		I don't know	94 (13.8)		
	Decreased appetite	54 (7.9)		Poor women	164 (24.1)		
	Renal problems	20 (2.9)		Wealthy women	32 (4.7)		
	Without clear symptoms	16 (2.4)		Housewives	24 (3.5)		
	I don't know	143 (21.0)		Women with outdoors job	43 (6.3)		
Controlling cervical cancer	Oral drugs	61 (9)	Consequence of lack of cervical cancer control and therapy	Prostitutes	345 (50.7)		
				Traditional medicine/herbal medicine	57 (8.4)	No difference	122 (17.9)
				Sport	111 (16.3)	I don't know	103 (15.1)
	Considering advices of physician	402 (59.1)		Renal problems	49 (7.2)		
				Trust in God	105 (15.4)	Not to have baby	262 (38.5)
Routes of papilloma virus transmission (HPV)	I don't know	96 (14.1)	Ways for diagnosing Papilloma virus	Death	327 (48.1)		
				Mouth	42 (6.2)	I don't know	125 (18.4)
	Sexual relationships	432 (63.5)		Blood test	82 (12.1)		
				Blood	102 (15.1)	Pap smear	374 (55)
				Environment	21 (3.1)	PCR	66 (9.7)
				I don't know	137 (20.1)	Biopsy	65 (9.6)
				I don't know	166 (24.4)		
	Minimum time period to run Pap smear	1 year		188 (27.6)			

Table 3. Attitudes of Participants on Cervical Cancer and on Conducting Diagnostic Test

Row	Statements	Completely agree	Agree	Disagree	Completely disagree
1	Cervical cancer could lead to death.	217 (31.9)	344 (50.6)	95 (14)	16 (2.4)
2	Cervical cancer is one of the severe health problems.	278 (40.9)	350 (51.9)	43 (6.3)	3 (0.4)
3	Cervical cancer could lead to chemotherapy or radiotherapy.	256 (37.6)	322 (48.8)	70 (10.3)	3 (0.4)
4	Cervical cancer is one of the most common cancers among women.	262 (38.5)	290 (42.6)	97 (14.3)	14 (2.1)
5	Cervical cancer is a social hallmark.	89 (13.1)	189 (27.8)	230 (33.8)	142 (20.9)
6	I feel secure by conducting diagnostic tests.	286 (42.1)	297 (43.7)	46 (6.8)	15 (2.2)
7	Abnormal diagnostic tests could lead to cervical cancer in case of lack of monitoring.	175 (25.7)	311 (45.7)	145 (21.3)	22 (3.2)
8	Diagnostic tests could move IUD.	96 (14.1)	266 (39.1)	219 (32.2)	55 (8.1)
9	Diagnostic tests could be alongside with severe pains.	105 (15.4)	304 (44.7)	197 (29.0)	37 (5.4)
10	Diagnostic tests could prevent severe health problems.	219 (32.2)	310 (45.6)	99 (14.6)	18 (2.6)
11	If a girl or a widow conduct diagnostic tests people will think that she has illegal sexual relationships.	117 (17.2)	189 (27.8)	230 (33.8)	131 (19.3)
12	Conducting diagnostic tests makes me ashamed.	39 (20.4)	175 (25.7)	213 (31.3)	137 (20.1)
13	I prefer a woman to conduct my diagnostic tests.	279 (41.0)	291 (42.8)	64 (9.4)	23 (3.4)
14	Diagnostic tests could diagnose cervical cancer in treatable stage.	242(35.6)	343 (50.4)	63 (9.3)	16 (2.4)
15	Spouse or other family members could have an effective role to encourage for conducting diagnostic tests.	295 (43.4)	326 (47.9)	38 (5.6)	15 (2.2)
16	I don't conduct diagnostic tests, since I fear from positive results.	129 (19.0)	198 (29.1)	205 (30.1)	135 (19.9)

In this study 198 of participants (29.1%) represented that they had no information about cervical cancer. On rate of awareness about cervical cancer 70 (10.3%) of participants expressed their knowledge as high, 360 cases (52.9%) as intermediate, and 237 cases (34.9%) it as low. Data about information of participants has been shown in Table 2.

As it is seen in table 2 the most frequent information source of participants is classrooms and the least frequent one is parents. Most of the participants (55.4%) consider proper personal hygiene as the most important factor to prevent cervical cancer. Having several sex partners is the main risk factor of cervical cancer incidence from perspective of half of participants. For 59% of participants also considering physician advices is the most important strategy for controlling cervical cancer.

Results of attitudes of participants on cervical cancer and on conducting diagnostic test have been shown in Table 3.

As it is seen in table 3, about 93% of participants consider that cervical cancer as one of the severe health problems. More than half of participants disagree to consider cervical cancer as a social hallmark. About 46% of participants also expressed that conducting diagnostic tests makes them ashamed. About 90% of participants also represented that spouse or other family members could have an effective role to encourage for conducting diagnostic tests.

Relationship between participants' awareness and attitudes and demographic variables has been shown in Table 4.?????

As it is seen in table 4 there is only statistically significant relationship between variables of education and occupation.

Discussion

Current study has been conducted aiming at investigating awareness and attitudes of female students in midwifery, nursing, and medical sciences and also of hospital staff in these majors. According to the obtained results, about one third of samples expressed that they have no information about cervical cancer. Although higher percentages of lack of awareness have been observed in various studies (Hoque and Hoque, 2009; Wong et al., 2009) but according to the point that participants of this study were students and staff of medical sciences and also since cervical cancer is considered as the second major cancer related mortality factor among women of developing countries (Ali et al., 2010), unawareness of the one third of samples is very important and could not be neglected. In this research information of people on cervical cancer was evaluated as intermediate for about half of the samples (52.9%) and as low for about one third of samples (34.9%) and only 10% of people had high knowledge on this issue. It seems that these findings are comparable with other similar studies since most of the similar studies on medical staff or public have shown the average score of awareness of people about cervical cancer and its monitoring methods especially Pap smear as low (Vrscaj et al., 2007; Nganwai et al., 2008; Roy and Tang, 2008; Vanslyke et al., 2008; Hoque and Hoque, 2009; Saha et al., 2010; Balogun et al., 2012), and some as intermediate (Emirates, 2004; Abedian and Mohammadi 2012), and only a few as high (Gamarra et al., 2005; Mutyaba et al., 2006; Esmailpour et al., 2011). Low awareness of participants about this issue becomes highly important when we notice that studies have reported that awareness level of common

people about cancer and prevention methods is lower than medical science society (Vrscaj et al., 2007; Vanslyke et al., 2008). In other words low information of samples of this study who were students and personnel of medical sciences could reflect worse knowledge condition in society and among other women. This problem shows the importance of a comprehensive and public education.

In this study the most frequent information source of participants were classrooms. Since samples were students and personnel of medical sciences and especial titles and courses on cancer are presented for these especial groups, this finding was not surprising. Abedcjan et al., (2012) have also declared classrooms as the most important information sources; of course public media and medical personnel have also been introduced as information sources (Onsory et al., 2014). In this research only 16.2% of samples named health service providers as source of information. A study in India also showed that health personnel have the minimum role in education of cervical cancer and preventive methods (Singh et al., 2012). While it is expected that health personnel have highest information on this field and due to importance of this cancer, take benefits of any opportunity to teach about this issue but results of current study doesn't satisfy this expectation.

The minimum information source of this study has been reported as parents. It seems that these findings are justifiable with cultural issues since in some cultures such as that of Iran, due to "flagrancy of sexual issues" little conversation is transacted on this subject among family members; for instance in a study 92% of girls expressed that their mothers had never told them about Pap smear. Important point was that these girls tend to speak to their mothers about this (Mosavel, 2011). Also results of studies showed that low rate of participants received their information from mass media which emphasizes the flagrancy of sexual issues in traditional societies. Considering the importance of mass media and easy access of all people to these resources, creating culture and informing from public media could play an important role in increasing awareness of people and improving their health status.

More than half of the samples considered personal hygiene as the most important factor in preventing cervical cancer. These findings had also been observed in previous studies (Wong et al., 2009; Saha et al., 2010). Although knowledge of samples about relationship of vaginal infections and cervical cancer has been reported as low, but caring of personal hygiene by samples could "unknowingly" prevent this cancer.

In this study, having more than one sex partner was the main risk factor of developing cervical cancer from viewpoint of about half of the samples. This finding is in accordance with results of the most of similar studies (Williams et al., 1994; Nganwai et al., 2008; Ali et al., 2010; Saha et al., 2010; McCarey et al., 2011; Balogun et al., 2012). Of course since it has been emphasized on the role of HPV in cervical cancer, most of the people consider HPV as the main risk factor (Lambert, 2001; Hoque and Hoque, 2009). But in this study only 29.4% of people considered HPV as risk factor, and worse than

it, is the point that only 9.7% of samples declared PCV as diagnostic method of HPV. In study by Ali et al although 89% of people remarked the role of HPV but less than half of them, were aware of PCR test too (Ali et al., 2010). It seems that in studies conducted in developing and Asian countries awareness about the role of HPV has been reported weaker (Han et al., 2007; Lee et al., 2007; Klug et al., 2008; Bingham et al., 2009; Oh et al., 2010; Saha et al., 2010) and it is while the prevalence of this cancer is higher in developing countries. For instance 40% of participants of a study in USA in 2001 (Lambert, 2001) in contrast with 0% of participants in Malaysia in 2009 (Wong et al., 2009) were aware of relationship between HPV and cervical cancer.

In this study more than half of participants declared that compliance with doctor's recommendations is the most important strategy to control cervical cancer. Soltan Ahmadi et al also considered the highest reason for lack of women's participation in cervical cancer monitoring program as lack of doctor's recommendation (Soltanahmadi et al., 2010). This finding is also observed in some of similar studies (Gamarra et al., 2005; Abedian and Mohammadi 2012).

Most of participants (93%) considered cervical cancer as one of the severe and main problems. A report from India has also reported that about one fourth of participants consider cervical cancer as a malignant and incurable disease (Singh et al., 2012). In contrast with this finding, most of the nurses and interns in the study of Ali et al, despite awareness about the load of this disease on health care system, did not severely take it into account (Ali et al., 2010). Schwarzer says that for people to be able to acquire information on a specific field, they should feel somehow stressed about it so that they could convince themselves to conduct preventive actions against it (Schwarzer, 1992). So it seems that it is possible to use this finding to encourage people to acquire information on this field and to consider preventive issues.

In this study most of the participants didn't consider cervical cancer as a social hallmark. While it was expected that due to specific oriental culture and importance of the role of sexual activity in developing cervical cancer, samples consider it as a social hallmark with improper stigma. As in India unmarried girls don't want to run Pap smear test due to improper stigma and fear from hallmark of "being sexually active" (Singh et al., 2012). Current finding increases the possibility for more rational reaction of people against prevention and early diagnosis of cervical cancer; of course about half of participants consider running diagnostic tests as a shameful action. This finding was already observed in Iran (Asgharnia et al., 2009).

According to the results of this study, %90.5 of people declared the role of spouse and family members in running Pap smear tests as important. In Africa also 74% of women declared that they had conducted Pap smear test after advices from their daughters (Mosavel, 2011). According to this finding and considering unique supportive role of the family members, necessity of informing about cervical cancer and preventive methods becomes clear not only for women but also for public of society.

Menstrual irregularities (45.4%) and post-intercourse bleeding (41.3%), have been stated as the main symptoms of cervical cancer in this study. It seems that one of the most suitable results in this field has been observed in research by Nganwaie et al where the most prevalent symptoms have been considered as menstrual irregularities (92.4%) and post-intercourse bleeding (77.7%) (Nganwai et al., 2008). Although in one of the studies 89% of medical personnel were uninformed about the symptoms of this cancer, but in other studies where the samples were of medical staff, most of the responses are similar to those of current study (Anya et al., 2004; Shah et al., 2012).

In this research only two variables of education and occupation had statistically significant relationship with awareness of samples in a way that nursing and midwifery students and persons with education higher than M.S had higher information on this case. It seems that these groups of people as the most active health and medical personnel are more involved with this type of cancer and due to their education and updated knowledge have acquired higher awareness in this field. There are also other studies which claim that higher levels of education are alongside with higher awareness on cancer and preventive methods (Al-Meer et al., 2011; Balogun et al., 2012; Onsory et al., 2014). According to the finding that students had higher information in comparison with personnel, the importance of holding in-service education for medical personnel and frequent updating of knowledge of personnel in this case becomes clear.

According to the obtained results level of awareness and attitude of samples to cervical cancer was intermediate. According to the importance of the role of medical students and personnel as educational source and imitable patterns in conducting health and preventive behaviors, necessity of increasing and improving scientific level of samples seems vital and crucial. Low information of samples on cancer related factors and its diagnostic methods were also of significant results. Of limitations of current study was lack of categorization between participants, so we could have compared results between them. Also, low rate of response among participants among participants might had affected the results. According to the findings comprehensive and proper education of all people especially students and personnel of medical sciences and improving attitudes of people towards cervical cancer and its monitoring, are recommended.

Conflict of interests

The authors report no conflict of interests. The authors alone are responsible for the content and writing of the paper.

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