

## RESEARCH ARTICLE

# Understanding and Responsiveness Level about Cervical Cancer and its Avoidance among Young Women of Pakistan

Ghulam Jilany Khan<sup>1,5\*</sup>, Hafiza Sadaf Naeem<sup>2</sup>, Sara Khan<sup>3</sup>, Talha Jamshaid<sup>4</sup>, Muhammad Imran Sajid<sup>5</sup>, Irfan Bashir<sup>5</sup>, Muhammad Jamshaid<sup>5</sup>

## Abstract

Cervical cancer is one of the leading causes of morbidity and mortality amongst the gynecological cancers worldwide, especially in developing countries. There are few to no initial symptoms and signs. This study was conducted to assess the awareness level of young Pakistani women about cervical cancer and to educate them about this deadly disease. A detailed questionnaire regarding demographic data and information about cervical cancer was distributed in different cities of Punjab. A total of 873 women took part in this survey and 70.1 percent were totally unaware of this cancer. Only 8.5% of the whole surveyed population knew accurately about cancer of cervix, 7% of the surveyed respondents correctly specified the human papilloma virus as the causative agent. Only 5.2% respondents were able to identify the Pap smear test as a diagnostic measure. Out of all the surveyed population only 4.3% of individuals were found to be vaccinated against this disease and the majority was found from the medical profession. Medical professionals, students, working women, housewives and uneducated individuals took active part in this survey. This study demonstrates a low level of awareness among Pakistani women and a need for an active campaign by media and government to increase understanding as well as introducing measures for improved prevention and treatment of cervical cancer.

**Keywords:** Cervical cancer - Pap smear test - human papilloma virus - vaccination - Pakistan

*Asian Pac J Cancer Prev*, 15 (12), 4877-4883

## Introduction

Cervical cancer is a malignant neoplasm arising from cells originating in the cervix uteri (Turkistanli et al., 2003). One of the most common symptoms of cervical cancer is abnormal vaginal bleeding (Berraho et al., 2012), but in some cases there may be no obvious symptoms until the cancer has progressed to an advanced stage (Kumar et al., 2007). Treatment usually consists of surgery (including local excision) in early stages, and chemotherapy and/or radiotherapy in more advanced stages of the disease (Farhath et al., 2013).

The global burden of cervical cancer is 500,000 cases every year (Tas et al., 2010), with 270,000 women dying of it globally that is one death every two minutes (Ferlay et al., 2001; Schoueri-Mychasiw et al., 2013). Approximately 80 per cent of deaths related to cervical cancer occur in developing countries such as Pakistan (Moosa et al., 2014). Typically in Pakistan and Asia, a woman would be susceptible to this cancer from marriage to onwards, with commencement of sexual relations (Sankaranarayanan, 2009).

A study published in 2008 by GLOBOCAN, a WHO project for cancer-related research, reveals that in Pakistani women, cervical cancer incidence is 19.5 per 100,000 in 2008 as compared to less than 9 per 100,000 in 2002 (a clearly rising trend). The same study shows deaths from the cancer at 12.9 per 100,000 (Ferlay et al., 2010). Risk levels for young girls are much higher today than before (Demirtas and Acikgoz, 2013). Pakistan has in fact moved from a low risk to a moderate risk country for cervical cancer and the increasing incidences are seen especially in younger women with the disease at an advanced stage when they go to the doctor for diagnosis. (Khan et al., 2007).

Cancer screening using the Pap smear can identify precancerous and potentially precancerous changes in cervical cells and tissue (Ozkahraman and Yildirim 2012). In developed countries, the widespread use of cervical screening programs has dramatically reduced the incidence of invasive cervical cancer (Canavan and Doshi, 2000).

Cervical cancer is one of the most preventable cancers afflicting the female population (Akinjemiju, 2012). The

<sup>1</sup>Pharmacology and Therapeutics, <sup>5</sup>Faculty of Pharmacy (FOP), University of Central Punjab, and Community Pharmacy Section, New Mehmood Pharmacy, Lahore, Pakistan, and also Scientific Research And Marketing Associates, Punjab, <sup>2</sup>Pharmacoeconomics Section, New Mehmood Pharmacy Lahore, <sup>3</sup>University College of Pharmacy, University of the Punjab, (P.U), Lahore, Pakistan, <sup>4</sup>University of Lyon, F- 69622, Lyon, Lyon 1 University, Villeurbanne, CNRS, UMR 5007, Laboratoire d'Automatique et de Génie des Procédés, Villeurbanne, France \*For correspondence: u4574904@hotmail.com

development of Human Papilloma Virus (HPV) testing and vaccination are expected to contribute greatly in curbing the potential disease process (Munoz et al., 2004; Villa et al., 2006). Human Papilloma virus (HPV) infection appears to be a necessary factor in the development of almost all cases (90+%) of cervical cancer (Kumar et al., 2007; Ghojazadeh et al., 2012). HPV vaccines that are effective against the two strains of this large family of viruses that currently cause approximately 70% cases of cervical cancer have been licensed in the U.S, Canada, Australia, and the EU (Lowy and Schiller, 2006). Since the vaccines only cover some of the cancer-causing (high-risk) types of HPV, women should seek regular Pap smear screening, even after vaccination (HPV vaccine, 2008; Hong et al., 2013).

Typically, early cervical cancer is asymptomatic, but abnormal vaginal bleeding can occur, once the cancer becomes invasive (Petignat and Roy, 2007). Cervical cancer is the second most common cancer among women and the third leading cause of cancer deaths among women globally in low-resource settings (Zhao et al., 2012), affecting women at a time of life when they are critical to social and economic stability (Goldie et al., 2005). Causal role of infection with high risk Human Papilloma Virus (HPV) strains in cervical cancer has been targeted in the past two decades (Chen et al., 2012). A number of Primary and Secondary preventive approaches have been developed to prevent and treat infection with HPV (Wheeler, 2007; Raychaudhuri and Mandal, 2012).

This study was conducted with an aim to know about the awareness level of young Pakistani women related to any field of study or profession about cervical cancer and to educate them about this deadly disease of females as well. The purpose of this study was to describe the knowledge and beliefs about the cervical cancer. Our findings are useful in facilitating the formulation of realistic public health strategies that are synchronized with women’s cultural upbringing, psychological responses, and preferences.

**Materials and Methods**

*Experimental design*

A cross-sectional, interview- based survey was

conducted from May 2013 to March 2014 in Punjab (province of Pakistan). A questionnaire, having twenty questions was designed, out of which, 14 questions were close ended, and 6 questions were of open ended type.

*Study population*

Female population of three educational sectors (medical, non-medical professionals and public which included uneducated persons) from different cities of Punjab participated in this survey.

*Sample size*

On total 1100 survey questionnaires were distributed out of which 873 individuals responded, only female subjects were included in the study.

*Data collection tools and analysis*

Questionnaire was designed, based on study objectives, taking help from the previous literature and studies available on the topic added with content specific questions. The questionnaire was divided into two main parts, first dealing with the demographic profile of subjects and second consisted of the questions regarding the knowledge and awareness about different aspects of cervical cancer.

*Statistical analysis*

Microsoft Excel and SPSS 16 were used for organizing the collected data obtained from the survey.

*Ethical considerations*

The respondents were assured of the confidential nature of this survey, and were given the right to hide or show their names upon their own wish.

**Results**

Women from different fields e.g. medical, pharmacy, dentistry, physiotherapy, veterinary, nursing, business studies, mass communication, sociology, economics, and other professions e.g. house wives and teachers took part in this study. Uneducated labor, field workers, house maids, and villagers were also included in this study after simplifying questions in easy and understandable language

**Table 1. Demographic Data of Respondents**

Characteristics	Educated		Age		Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical- n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
18-22	55 (16.300)	158 (18.098)	213 (24.398)	137 (15.693)	350 (40.091)
23-27	65 (7.445)	130 (14.891)	195 (22.336)	127 (14.547)	322 (36.884)
28 +	31 (3.550)	109 (12.485)	140 (16.036)	61 (6.987)	201 (23.024)
Total	151 (17.296)	397 (45.475)	548 (62.772)	325 (37.227)	873

Characteristics	Educated		Marital Status		Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
Single	75 (8.591)	193 (22.107)	268 (30.698)	127 (14.547)	395 (45.246)
Married	65 (7.445)	178 (20.389)	243 (27.835)	184 (21.076)	427 (48.911)
Divorced/ Separated	11 (1.260)	26 (2.978)	37 (4.238)	14 (1.603)	51 (5.841)
Total	151 (17.296)	397 (45.475)	548 (62.772)	325 (37.227)	873

(Urdu or Punjabi).

40.1% subjects were of age lying between 18-22 years from all fields. 36.9% subjects were of the age lying between 23-27 years. Rest were of age 28 years. 45% females were single, 48.9% females were married (Table 1).

Out of all the respondents (873), just 254 (29.1%) individuals responded as if they know about the term "cervical cancer". Out of this (29.1%), the share of medical professionals is 7.1% (62/873), non-medical but educated individuals have a share of 15.5% (135/873) and only 57 uneducated females were aware of this type of cancer (Table 2, Figure 1).

Those who knew about cervical cancer term, only 35/254 (13.8%) medical professionals were aware about its exact location in the body, while some of the other individuals also pointed the right option. Overall (including medical, non-medical and un-educated respondents), 15.4% females identified this cancer as the cancer of breast, 29.1% as cancer of cervix, 26% as cancer of abdomen and 29.5% as cancer of vagina.

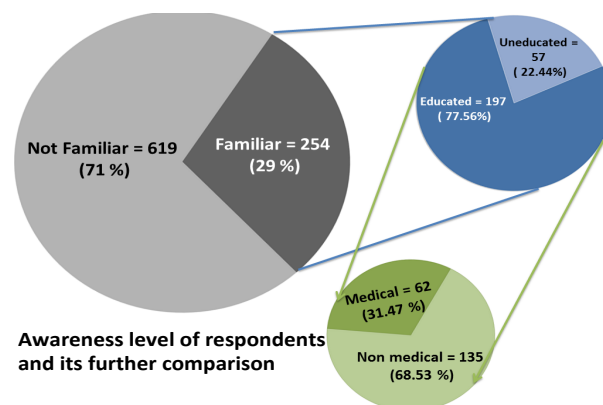
24% of the respondents who have heard about cervical cancer from all fields said HPV is the causative agent, 21.6% recognized poor hygiene as the cause and 16.1% considered unprotected sex as a root cause of cervical cancer. While 38.2% do not have any knowledge about the cause (Table 2).

18.1% (of the population who claimed to be familiar

with cervical cancer) answered correctly as Pap smear test for diagnosis of cervical cancer, 24% respondents were not aware of proper diagnostic measures while 57% individuals had no idea about the diagnosis of this disease (Table 2).

From our studies we got to know that only 38 individuals out of all the respondents were vaccinated against this disease, majority of which was from medical profession (Table 3).

Overall 28.3% respondents have absolutely no idea



**Figure 1. A Comparison of Awareness Level of the Respondents, with Respect to Education (Educated or Uneducated), and Field of Education (Medical or Non-Medical)**

**Table 2. Knowledge of Respondents about Familiarity with Disease, Affecting Body Part, and About the Diagnosis of Cervical Cancer**

Characteristics	Have you ever heard about this disease-1				Total (%)
	Medical-n <sup>1</sup> (%)	Non-Medical-n <sup>2</sup> (%)	Total- n <sup>3</sup> (%)	Uneducated n <sup>4</sup> (%)	
Yes	62(7.101)	135(15.463)	197 (22.565)	57(6.529)	254(29.095)
No	89(10.194)	262(30.011)	351 (40.206)	268(30.698)	619(70.904)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Characteristics	Familiarity with body part involved in the disease				Total (%)
	Medical-n <sup>1</sup> (%)	Non-Medical-n <sup>2</sup> (%)	Total- n <sup>3</sup> (%)	Uneducated n <sup>4</sup> (%)	
Breast	1(0.393)	12(4.724)	13 (5.118)	26(10.236)	39(15.354)
Cervix	35(13.779)	33(12.992)	68 (26.771)	6(2.362)	74(29.133)
Abdomen	15(5.905)	42(16.535)	57 (22.441)	9(3.543)	66(25.984)
Vagina	11(4.330)	48(18.897)	59 (23.228)	16(6.299)	75(29.527)
Total	62(24.409)	135(53.149)	197 (77.556)	57(22.440)	254

Characteristics	Familiarity with the cause of disease				Total (%)
	Medical-n <sup>1</sup> (%)	Non-Medical-n <sup>2</sup> (%)	Total- n <sup>3</sup> (%)	Uneducated n <sup>4</sup> (%)	
Don't know	11(4.330)	51(20.078)	62 (24.409)	35(13.779)	97(38.188)
Human Papiloma Virus	36(14.173)	22(8.661)	58 (22.834)	3(1.181)	61(24.015)
Unprotected Sex	9(3.543)	25(9.842)	34 (13.386)	7(2.755)	41(16.141)
Poor Hygiene	6(2.362)	37(14.566)	43 (16.929)	12(4.724)	55(21.653)
Total	62(24.409)	135(53.149)	197 (77.559)	57(22.440)	254

Characteristics	Familiarity with the diagnostic test				Total (%)
	Medical-n <sup>1</sup> (%)	Non-Medical-n <sup>2</sup> (%)	Total- n <sup>3</sup> (%)	Uneducated n <sup>4</sup> (%)	
Don't Know	13(5.188)	98(38.582)	111 (73.700)	36(14.173)	147(57.874)
Pap Smear Test	32(12.598)	12(4.724)	44 (17.323)	2(0.787)	46(18.110)
Others	17(6.692)	25(9.842)	42 (16.535)	19(7.480)	61(24.015)
Total	62(24.409)	135(53.149)	197 (77.559)	57(22.440)	254

about the treatment and prevention methods against the disease. While the rest of the respondents who knew at least about this cancer indicated some sort of treatments like surgery (17%), medication (19.7%) and vaccination (78.7%). Out of all the respondents, 1.6% individuals had family member or a closely known individual suffered from cervical cancer (Table 3).

Pakistani women do not have enough knowledge about the danger of this disease, but just superficial information about the disease. 14.6% of the total surveyed population

had some sort of knowledge about the disease, while the rest of the population do not have any clue about this disease by any means of knowledge sharing, interview, literature, media or some other means. (Table 4).

Overall 15.7% considered illiteracy as a major reason behind ignorance about the knowledge of disease, 14% individuals considered the reason of busy routine, 23.5% specified as unawareness about its dangerous and alarming effects, 29% respondents indicated the reason behind, is the shy nature of the women to discuss about such diseases.

**Table 3. Knowledge of Respondents about Familiarity of Prevention, Vaccination and Treatment, being Vaccinated and any Known Victim of Disease**

Characteristics	Vaccination against the disease			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Yes	19(7.480)	17(6.692)	36 (14.173)	2(0.787)	38(14.960)
No	43(16.929)	118(46.456)	161 (63.385)	55(21.653)	216(85.039)
Total	62(24.409)	135(53.149)	197 (77.559)	57(22.440)	254

Characteristics	Familiarity with the treatment and prevention			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Don't know	11(4.330)	45(17.716)	56 (22.047)	16(6.299)	72(28.346)
Vaccination	21(8.267)	41(16.142)	62 (22.409)	11(4.33)	73(78.740)
Chemotherapy (medication)	15(5.905)	16(6.299)	31 (12.204)	19(7.480)	50(19.685)
Surgery	10(3.93)	26(10.236)	36 (14.173)	8(3.149)	44(17.322)
Others	5(1.968)	7(2.755)	12 (4.724)	3(1.181)	15(5.905)
Total	62(24.409)	135(53.149)	197 (77.559)	57(22.440)	254

Characteristics	Any relative or closely known patient of cervical cancer			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Yes	3 (1.181)	0	3 (1.181)	1(0.3937)	4 (1.575)
No	59(23.228)	135	194 (76.378)	56(22.047)	250 (98.4252)
Total	62(24.409)	135(53.149)	197 (77.559)	57(22.440)	254

**Table 4. Knowledge of Respondents about Familiarity of Reason behind Ignorance of Disease, Media Playing any Role, Government Playing any Role and Have you Shared Knowledge with Other**

Characteristics	Disease education and knowledge sharing with others			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Yes	29(3.321)	76(8.705)	105 (12.027)	23(2.634)	128(14.662)
No	122(13.974)	321(36.769)	443 (50.744)	302(34.593)	745(85.337)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Characteristics	Efforts for Knowledge (tried to know about this disease in detail)			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Yes	38(4.352)	126(14.432)	164 (18.756)	8(0.916)	172(19.702)
No	113(12.943)	271(31.042)	384 (43.986)	317(36.311)	701(80.297)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Characteristics	Reason behind ignorance about the disease knowledge			Uneducated n <sub>4</sub> (%)	Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)		
Busy Routine	12(1.374)	83(9.507)	95 (10.882)	30(3.436)	125(14.318)
Unawareness	37(4.238)	75(8.591)	112 (12.829)	93(10.652)	205(23.482)
Illiteracy	34(3.894)	39(4.467)	73 (8.361)	64(7.331)	137(15.693)
Shyness	37(4.238)	119(13.631)	156 (17.869)	89(10.194)	245(29.095)
Poverty/ lack of resources	31(3.550)	81(9.278)	112 (12.829)	49(5.612)	161(18.442)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

While 18% individuals stated lack of resources and poverty as the reason behind the ignorance of information about this deadly disease (Table 4, Figure 2).

Upon further, the respondents claimed that our media is not playing enough role to create the awareness about the disease (93.%) and even government is not playing its active role for creating the awareness about this disease in public (91.5%). Besides the cultural, economic

and social limitations, all the respondents appreciated the role of women in creating the awareness about the disease by means of face to face discussion with peers (23.%), by means of social networking websites and other electronic communication methods e.g SMS (17%), and by conducting active discussions as well as educational sessions at institutional level (11.8%). Majority of the respondents (47%) are in the favor of all these roles by the women to create awareness about the disease (Table 5).

In our survey questionnaire, the respondents were asked to give their suggestions about the awareness creating activities. 14.5% of the respondents suggested conducting the awareness creating campaign in hospitals. 14.4% suggested to on-air talk shows on TV and radio. 27% suggested the distribution of health bulletin and its explanation through lady health visitors, while 44% suggested to adopt all these means to create awareness in public about this deadly disease (Table 6).

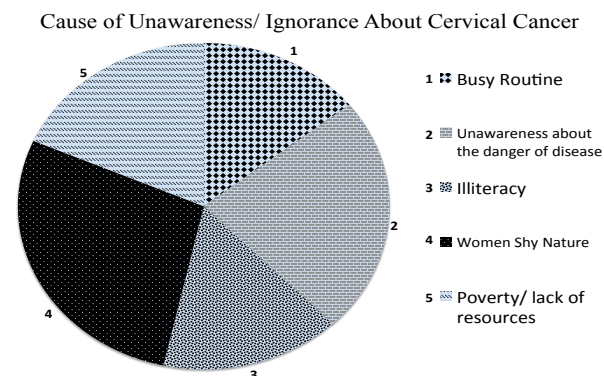


Figure 2. Possible Reasons behind the Ignorance and Awareness of Disease

Discussion

The majority of respondents in our survey were unable to recognize cervical cancer as a dangerous public

Table 5. Awareness Creating Measures about the Disease

Characteristics	Role of women in creating awareness about the disease				Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
Sharing the knowledge with peers physically	27(3.092)	81(9.278)	108 (12.371)	95(10.882)	203(23.253)
Knowledge sharing via SMS and social network websites	43(4.925)	41(4.696)	84 (9.629)	64(7.331)	148(16.953)
Suggesting the educational institutes to conduct the seminars on this topic	23(2.634)	67(7.674)	90 (10.309)	13(1.489)	103 (11.798)
All of the above	52(5.956)	205(23.482)	257 (29.438)	151(17.296)	408(46.735)
Any other	6(0.687)	3(0.343)	9 (1.031)	2(0.229)	11(1.260)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Characteristics	Active role of media for creating awareness about the disease				Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
Yes	13(1.489)	23(2.634)	36 (4.123)	28(3.207)	64(7.331)
No	138(14.891)	374(42.840)	512 (58.648)	297(34.020)	809(92.668)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Characteristics	Active role of Govt. / Public Health Organizations for creating awareness about the disease				Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
Yes	14(1.603)	31(3.550)	45 (5.154)	29(3.207)	74(8.476)
No	137(15.693)	366(41.924)	503 (57.617)	296(34.020)	799(91.523)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

Table 6. Suggestions to Create the Awareness about the Disease

Characteristics	What steps should be taken By Govt. and Media for the awareness of disease				Total (%)
	Medical-n <sub>1</sub> (%)	Non-Medical-n <sub>2</sub> (%)	Total- n <sub>3</sub> (%)	Uneducated n <sub>4</sub> (%)	
Public hospital Campaign	12(1.374)	58(6.643)	70 (8.018)	57(6.529)	127(14.547)
Awareness programs / talk shows on TV and radio	37(4.238)	47(5.383)	84 (9.621)	42(4.810)	126(14.432)
Health bulletin and LHV education	24(2.749)	79(9.049)	103 (11.798)	133(15.234)	236(27.033)
All of the above	78(8.934)	213(24.398)	291 (33.333)	93(10.652)	384(43.986)
Total	151(17.296)	397(45.475)	548 (62.772)	325(37.227)	873

health problem. Only about a 41% of the professionals interviewed were able to correctly identify cervical cancer as being the most common gynecological cancer, as also reported for India (Lee et al., 2007).

It was clear from our findings that the participants' knowledge on cervical cancer and HPV is inadequate. Majority of the respondents were unaware of the term cervical cancer. Pitts and his colleague also reported that majority of women surveyed had less or no information about what cervical cancer was (Pitts and Clarke 2002).

Another study regarding the assessment of level of knowledge about cervical cancer was conducted in Nunavik, Quebec in which 175 women were interviewed, also indicated less or no proper awareness about Cervical Cancer (Cerigo et al., 2012).

Another study to assess the knowledge and awareness about Cervical Cancer and its prevention amongst interns and nursing staff was conducted in tertiary care hospitals in Karachi, Pakistan. This study showed that out of 400 subjects interviewed 23.4% correctly recognized that cervical cancer is the most common malignancy in gynecological cancers, while 52.0% thought that it's moderately common and 23.3% thought that it is least common (Ali et al., 2010).

As the studies by Bhurgi and his colleagues, almost same types of results have been observed in our findings for example, huge percentage of those who were aware of the term were unable to identify the body part where this cancer takes its roots. Some women considered it as a cancer of uterus and some thought it as a cancer of breasts, a few correctly identified it as a cancer of cervix. The respondents who answered correctly about the causative agent were mostly from health related fields, respondents who were from the fields other than health sciences had little to no idea about causative agent. Most of the respondents considered poor hygiene and unsafe sexual practice as risk factors. Only a few percentages were aware of the vaccine and the importance of being vaccinated (Bhurgi et al., 2007).

The most disappointing point of this survey was the fact that in the view of all respondents' media and government are playing no role and that is the basic reason why Pakistani women are unaware about such a deadly disease. Majority of women considered shyness and illiteracy a reason for this ignorance.

Almost all female students were of the view that government should organize seminars in educational institutes as a part of awareness programs which is also suggested by Giles and Garland in 2006 (Giles and Garland, 2006).

The results of this study reflect fact that the young women of Pakistan are not aware to a satisfactory level about this deadly disease of female genital tract. In this study a fact has come to the surface that females who are from bio sciences related field knew more about cervical cancer but females from other fields had virtually no idea about this deadly disease which can kill any women. A great percentage of women are not aware of diagnosis, treatment, prevention etc. which is certainly alarming. It is therefore imperative to create awareness in all the urban and rural areas of Pakistan to save our women from

this easily preventable devastating disease. Media and Government authorities must start awareness programs. Syllabi that are taught in schools colleges and universities must be updated with such health issues. In a year, one day must be celebrated as cervical cancer day. Moreover the cost of vaccine, facilities for the diagnosis must be maintained at an affordable level. Those women who are aware of this disease should play their active and positive role in educating other females in their circle. When this issue will be raised at individual and national level we shall be very soon be able to have a strong control over the prevalence of this disease.

A pleasing outcome of this survey was to make all the women agree to play their role in creating awareness about cervical cancer. They will pass on what so ever knowledge they have gained about this disease to all the women they know. This is to be done either by sending them emails, text messages or verbally.

## Acknowledgements

This study was conducted with the encouragement and participation of Faculty of Pharmacy University of Central Punjab, Lahore, Pakistan.

## References

- Akinyemiju TF (2012). Socio-economic and health access determinants of breast and cervical cancer screening in low-income countries: analysis of the World Health Survey. *PLoS One*, **7**, 48834.
- Ali SF, Ayub S, Manzoor NF, et al (2010). Knowledge and awareness about cervical cancer and its prevention amongst interns and nursing staff in Tertiary Care Hospitals in Karachi, Pakistan. *PLoS One*, **5**, 11059.
- Berraho M, Bendahhou K, Obtel M, et al (2012). Cervical cancer in Morocco: epidemiological profile from two main oncological centers. *Asian Pac J Cancer Prev*, **13**, 3153-7.
- Canavan TP, Doshi NR (2000). Cervical cancer. *American family physician*, **61**, 1369-76.
- Cerigo H, Macdonald ME, Franco EL, Brassard P (2012). Inuit women's attitudes and experiences towards cervical cancer and prevention strategies in Nunavik, Quebec. *Int J Circumpolar Health*, **71**.
- Chen Q, Luo ZY, Lin M, et al (2012). Prevalence and genotype distribution of human papillomavirus infections in women attending hospitals in Chaozhou of Guangdong province. *Asian Pac J Cancer Prev*, **13**, 1519-24.
- Demirtas B, Acikgoz I (2013). Promoting attendance at cervical cancer screening: understanding the relationship with Turkish womens' health beliefs. *Asian Pac J Cancer Prev*, **14**, 333-40.
- Farhath S, Vijaya PP, Mumtaj P (2013). Cervical cancer: is vaccination necessary in India? *Asian Pac J Cancer Prev*, **14**, 2681-4.
- Ferlay J (2001). GLOBOCAN 2000: cancer incidence, mortality and prevalence worldwide. IARC press.
- Ferlay J, Shin HR, Bray F, et al (2010). Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer*, **127**, 2893-917.
- Ghojzadeh M, Azar ZF, Saleh P, Naghavi-Behzad M, Azar NG (2012). Knowledge and attitude of Iranian university students toward human papilloma virus. *Asian Pac J Cancer Prev*, **13**, 6115-9.
- Giles M, Garland S (2006). A study of women's knowledge

- regarding human papillomavirus infection, cervical cancer and human papillomavirus vaccines. *Aust N Z J Obstet Gynaecol*, **46**, 311-5.
- Goldie SJ, Gaffikin L, Goldhaber-Fiebert JD, et al (2005). Cost-effectiveness of cervical-cancer screening in five developing countries. *N Engl J Med*, **353**, 2158-68.
- Hong Y, Zhang C, Li X, Lin D, Liu Y (2013). HPV and cervical cancer related knowledge, awareness and testing behaviors in a community sample of female sex workers in China. *BMC Public Health*, **13**, 696.
- Khan S, Jaffer NN, Khan M N, et al (2007). Human papillomavirus subtype 16 is common in Pakistani women with cervical carcinoma. *Int J Infect Dis*, **11**, 313-7.
- Kumar V, Abbas AK, Fausto N, Mitchell RN (2007). Robbins Basic Pathology (8th ed.) Saunders Elsevier. pp. 718-21.
- Lee PW, Kwan TT, Tam KF, et al (2007). Beliefs about cervical cancer and human papillomavirus (HPV) and acceptability of HPV vaccination among Chinese women in Hong Kong. *Prev Med*, **45**, 130-4.
- Lowy DR, Schiller JT (2006). "Prophylactic human papillomavirus vaccines". *J Clin Invest*, **116**, 1167-73.
- Moore MA, Ariyaratne Y, Badar F, et al (2010). Cancer epidemiology in South Asia-past, present and future. *Asian Pac J Cancer Prev*, **11**, 49-66.
- Moosa NY, Khattak N, Alam MI, et al (2014). Comparison of Cervical Cell Morphology Using Two Different Cytology Techniques for Early Detection of Pre-Cancerous Lesions. *Asian Pac J Cancer Prev*, **15**, 975-81.
- Munoz N, Bosch FX, Castellsague X, et al (2004). Against which human papillomavirus types shall we vaccinate and screen? The international perspective. *Int J Cancer*, **111**, 278-85.
- Ozkahraman S, Yildirim B (2012). Knowledge levels of Turkish nurses related to prevention and early diagnosis of cancer. *Asian Pac J Cancer Prev*, **13**, 6105-8.
- Petignat P, Roy M (2007). Diagnosis and management of cervical cancer. *BMJ: Br Med J*, **335**, 765.
- Pitts M, Clarke T (2002). Human papillomavirus infections and risks of cervical cancer: what do women know? *Health Education Research*, **17**, 706-14.
- Raychaudhuri S, Mandal S (2012). Current status of knowledge, attitude and practice (KAP) and screening for cervical cancer in countries at different levels of development. *Asian Pac J Cancer Prev*, **13**, 4221-7.
- Sankaranarayanan R, Nene BM, Shastri SS, et al (2009). HPV screening for cervical cancer in rural India. *N Engl J Med*, **360**, 1385-94.
- Schoueri-Mychasiw N, McDonald PW (2013). Factors Associated with Underscreening for Cervical Cancer among Women in Canada. *Asian Pac J Cancer Prev*, **14**, 6445-50.
- Tas F, Isler A, Esenay FI, Aksit S, Basbakkal Z (2010). Awareness of Turkish nursing students about risk factors for cervical cancer and prophylactic human papillomavirus vaccine. *Sex Disabil*, **28**, 245-53.
- Turkistanlı EC, Sogukpınar N, Saydam B K, Aydemir G (2003). Cervical cancer prevention and early detection; the role of nurse and midwives. *Asian Pac J Cancer Prev*, **4**, 39-44.
- Villa LL, Costa RLR, Petta CA, et al (2006). High sustained efficacy of a prophylactic quadrivalent human papillomavirus types 6/11/16/18 L1 virus-like particle vaccine through 5 years of follow-up. *Br J Cancer*, **95**, 1459-66.
- Wheeler CM (2007). Advances in primary and secondary interventions for cervical cancer: human papillomavirus prophylactic vaccines and testing. *Nature Clinical Practice Oncology*, **4**, 224-35.
- Zhao FH, Tiggelaar SM, Hu SY, et al (2012). A multi-center survey of HPV knowledge and attitudes toward HPV vaccination among women, government officials, and medical personnel in China. *Asian Pac J Cancer Prev*, **13**, 2369-78.