

# Impact of health education on knowledge and attitude of school teachers regarding cervical cancer, HPV vaccine and cervical cancer screening

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## RESEARCH

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## ABSTRACT

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### Background

Cervical cancer is one of the most preventable cancer yet it is the third most common gynaecological cancer worldwide due to lack of knowledge of the risk factors, screening methods and preventive measures.

### Aims

As teachers play a vital role in spreading awareness among the community via educating the young minds. This study aims at assessing the knowledge of the school teachers regarding the risk factors, preventive measures, screening methods and HPV vaccination and the impact of health education on their attitude.

### Methods

An interventional study where a semi-structured self-administered questionnaire was given to the participants and their knowledge and attitude pre and post health education session was assessed.

### Results

In the study 85.5 per cent of the participants were postgraduates and above yet only 5.5 per cent of their family members were vaccinated for HPV. Only 36.4 per cent had heard about HPV infection and 22.7 per cent were aware of HPV Vaccine. Around 60.9 per cent had heard about cervical cancer. Out of all 34.5 per cent had heard about the screening for cervical cancer. 61.8 per cent had never got the health check-ups done and 85.5 per cent had never got the Pap smear done. There was a significant increase in both, knowledge (10 per cent to 82.7 per cent) and attitude (54.5 per cent to 66.4 per cent) after health education session.

### Conclusion

School teachers who play an important role in disseminating information have poor knowledge about cervical cancer and its prevention. In developing nations imparting knowledge to them may help in spread of information to the students and parents and increase the participation of target population in prevention and screening programs resulting in minimizing the burden of morbidity and mortalities associated with cervical cancer.

### Key Words

HPV, cervical cancer, screening

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### What this study adds:

#### 1. What is known about this subject?

Association of HPV to cervical cancer is well established. Preventive role of HPV vaccination in young girls is also documented.

#### 2. What new information is offered in this study?

We have assessed the knowledge and attitude of the school teachers regarding risk factors, available screening methods and HPV vaccination.

### 3. What are the implications for research, policy, or practice?

Empowering the school teachers with knowledge about cervical cancer and its prevention may help the target population to participate in prevention and screening programs and thus help reduce the burden of the disease.

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#### Background

Cervical Cancer is one of the leading causes of illness and death amongst the gynaecological cancers worldwide. In the year 2018 alone around 569847 new cases and 311365 deaths were reported due to cancer cervix.<sup>1</sup> Around 84 per cent of all the cases and 88 per cent of the deaths due to cancer cervix occurred in low resource countries.<sup>2</sup> It is also one of the most preventable cancers with availability of both primary and secondary prevention.<sup>3</sup>

The HPV vaccination has the potential to reduce the incidence of cervical cancer worldwide by 70 per cent; the remaining 30 per cent of cancers can be prevented through regular cervical cancer screening.<sup>2,4-6</sup>

Women's attitudes towards cervical cancer screening have been found to have an impact on the adoption of cervical cancer screening in many developing countries.

A study in Thailand found that female sex workers with negative attitudes about Pap smear services were less likely to have ever had a cervical smear taken than those with a positive attitude.<sup>7</sup>

Most women were found to be unaware of possible prevention of the disease, including screening services for early detection and treatment of precancerous lesions.<sup>8</sup>

Despite definitive evidence of the role of screening in cervical cancer and well established role of vaccination as effective modes of primary prevention, the uptake of these services remains very poor in many developing countries. Many factors are implicated including lack of knowledge/ignorance, negative attitudes, cost of services, fear of the procedure and problem with the facilities and logistics for the testing. The deficiency of knowledge of causal relationship between HPV and cervical cancer, and negative attitude towards HPV vaccination and screening among the masses is an important reason for poor take up of these services.

Health education has proved to be an effective intervention in assisting people to take positive actions to achieve health. School teacher's play an important role in not only

educating the students but also have influence over the parents. Educating the teachers could help in transfer of knowledge to students and their parents leading to better acceptability of HPV vaccination and screening for cervical cancer. This study was conducted to know the pre-existing knowledge and attitude of school teachers about cancer cervix, HPV vaccine & cervical cancer screening and the impact of health education on their existing knowledge and attitudes.

#### Method

An interventional study was conducted in six schools of northwest Delhi over a period of six months. Permission from the school Principals was obtained and 110 teachers of the designated schools consented to participate in the study.

The participants were subjected to the pretest through a pre-designed, semi-structured self-administered questionnaire. Study participants were assessed about their knowledge regarding HPV infection, cervical cancer, HPV vaccine, cervical cancer screening and attitude towards HPV prevention.

This was followed by a one hour health education session in which information about HPV, its association with cervical cancer, screening for cervical cancer and prevention with HPV vaccination was imparted.

The participants were given a post-test, through a pre-designed, semi-structured self-administered questionnaire. Same scoring method was adopted for knowledge and attitude scores in pre and post-test. One mark was given for each item responded correctly or affirmatively. List of scores of all participants were made and grouped in three groups for score percentage comparison i.e., 75 per cent or more, 50 per cent to 74 per cent and less than 50 per cent. Finally, number of participants were compared in three scoring groups between pre and post-test.

#### Results

In the present study around 52.7 per cent of the participants were less than 40 years old (Table1). Majority of them (93.6 per cent) were Hindu and the remaining few belonged to other religions. Most of the participants (85.5 per cent) were postgraduates and others were graduates. About 87.3 per cent were married and only 3.6 per cent had more than 2 children. Around 45.5 per cent were using some form of contraception. When enquired about family history of cervical cancer, none of their family members had cervical cancer.

None of the participants gave any history of sexually transmitted diseases and mostly had only 1 or 2 lifetime sexual partners. Only few had indulged in smoking (2.7 per cent) and took alcohol (7.3 per cent) occasionally. Out of all only 5.5 per cent participants had a family member who had got HPV vaccination.

They were enquired about their knowledge regarding HPV infection, cervical cancer, HPV vaccine and cervical cancer screening (Table 2).

Of total 110 participants, 40 (36.4 per cent) had heard about HPV infection and only 19 (47.5 per cent) of these were aware that HPV is transmitted via close skin to skin contact.

Out of those who had heard about HPV infection (40) over 80 per cent knew it's a very common infection in India and that it was a type of sexually transmitted disease.

About 67.5 per cent participants were aware that smoking was associated with increased risk of getting HPV infection.

Over 95 per cent of these 40 participants knew that HPV infection can be present in a person for long time without a person being symptomatic and knew its association with genital warts.

Around 67 participants (60.9 per cent) had **heard about cervical cancer** and were asked further about it in detail regarding causes, risk factors, symptoms, screening and prevention.

Thirty eight (34.5 per cent) participants had heard **about Cervical Cancer Screening** and showed good knowledge regarding screening.

Only Twenty five of the 110 participants (22.7 per cent) had ever **heard about HPV vaccine** and had good knowledge regarding this vaccine.

Further questioning was done to assess **the attitude of the participants** towards cervical cancer screening and HPV vaccination. Most of the study participants were concerned and motivated for prevention of cervical cancer and responded as affirmatively.

Some participants had some hesitations regarding adoption of cervical cancer screening i.e. cervical cancer screening might be painful (57.3 per cent), need of consent of husband (42.7 per cent).

Around 94.5 per cent of the participants said cervical cancer is a fatal disease and should be prevented at any cost and were ready to get their daughters vaccinated for HPV (Table 3).

While assessing practices needed to prevent cervical cancer it was found that 68 (61.8 per cent) had never had a health check-up for cervical or other genital cancers; 94 (85.5 per cent) had never got a Pap test and 104 (94.5 per cent) had never got HPV vaccination. Lack of awareness was most common reason quoted for non-participating in cervical cancer screening i.e. I am not aware (35.4 per cent). No particular reason (30.0 per cent) and No symptoms (22.7 per cent) were the other reasons (Table 4).

Scoring for Knowledge and Attitude was done using Pre and Post Test results (Table 5). After health education session knowledge and attitude score improved and visible in comparison of pre and post-test scoring. It was seen that in knowledge domain, participants scoring 75 per cent or more increased from 11 (10 per cent) in pre-test to 91 (82.7 per cent) in post-test and in attitude domain, participants scoring 75 per cent or more increased from 60 (54.5 per cent) in pre-test to 73 (66.4 per cent) in post-test.

## Discussion

Cervical cancer, one of the leading public health problem worldwide especially in the developing countries is preventable and treatable cancer. At seventy third world health assembly WHO has adopted a Global strategy to accelerate the elimination of the cervical cancer through vaccination against HPV, screening and treatment of the precancerous lesions and by providing treatment and palliative care for invasive cervical cancer. Despite of all these efforts still every two minutes one woman dies of cervical cancer in developing countries. Along with limited resources, poor health infrastructure and accessibility to available screening and treatment facilities, lack of knowledge and wrong attitude towards the adoption of the available services is the most important factor for underutilization of the available services, leading to failure of such health programs.

For the success of the vaccination and screening program it's important to educate adolescent girls and their parents. This can be brought about by dissemination of knowledge about prevention and screening modalities for cancer cervix by school teachers.

Since teachers play a very important role in education this study was done with the purpose to assess the knowledge

and attitude of the school teachers about cervical cancer, risk factors, screening strategies available and HPV vaccination. Researchers have also tried to find the impact of health education on the attitude and knowledge of the participants in all these domains.

In the present study it was observed that despite having a highly qualified study population only 60.9 per cent had heard about cervical cancer, 36.4 per cent had heard about HPV infection, 34.5 per cent knew about cervical cancer screening. 22.7 per cent were aware about the HPV vaccination.

Similar findings were seen in the studies done by other authors.<sup>10-14</sup> Based upon this the only 10 per cent of the participants achieved a score of 75 per cent and more in the knowledge domain.

In the present study group the exposure to the different risk factors was also less which could be because of high literacy level emphasizing the role of education in the modification of the behaviour.

HPV vaccination has a definitive role in the prevention of cervical cancer and was introduced in India in 2008, but it is still not part of the national immunization schedule. Even in the present study only 5.5 per cent of the participants have people known to them who were vaccinated for HPV. Though 80 per cent of participants were aware of pap smear, only 14.5 per cent of the women had got a pap smear test done for the screening of cervical cancer and a large number (61.8 per cent) had never got any health examination done. Such findings concurred with the study publicized by Julia Mutambara et al. and Al-Meer et al. on women in Zimbabwe and in the United Arab Emirates respectively. In these studies too women had significant knowledge about Pap smear but did not undergo screening.<sup>1,15</sup>

Humariya Heena et al. in her study on health care professionals stated that only 4.0 per cent participants appeared to have good level knowledge of cervical cancer (in terms of risk factors, vulnerability, signs and symptoms, ways of prevention, and ways of screening) and 14.7 per cent participants had fair level knowledge. Though 86.8 per cent participants believed that Pap smear test was a useful test for the detection of cervical cancer only 26 per cent participants had undergone Pap smear testing.<sup>10</sup>

In the present study it was observed that after giving the information about the above mentioned aspects of cervical

cancer and preventive strategies both the knowledge and attitude score increased from 10 per cent to 82.7 per cent and from 55.4 per cent to 66.4 per cent respectively in the above 75 per cent category.

Ghadeer Khaled Al-Shaikh also concluded in his study that Health education was effective in improving the level of knowledge on human papillomavirus in Saudi female healthcare students.<sup>16</sup>

Thus, it is evident that even in the highly educated population the knowledge and awareness regarding cervical cancer, risk, symptoms, its prevention and screening modalities is less and there is a definitive role of education programs in overcoming these barriers.

## Conclusion

Carcinoma cervix is a dreadful yet preventable cause of deaths across the globe. Education of adolescent girls and women regarding the risk factors, symptoms, screening modalities and vaccination program can help develop a positive attitude towards the adoption of the services, resulting in elimination of this deadly disease. School teachers who play an important role in disseminating information have poor knowledge about cervical cancer and its prevention. In developing nations imparting knowledge to them may help in spread of information to the students and parents and increase the participation of target population in prevention and screening programs resulting in minimizing the burden of morbidity and mortalities associated with cervical cancer.

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### PEER REVIEW

Not commissioned. Externally peer reviewed.

### CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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None

### ETHICS COMMITTEE APPROVAL

The study was conducted with approval from the Ethical committee of Baba Saheb Medical College and Hospital, Rohini, Delhi.

**Table 1: Demographic profile of the study group**

Variables		N=110	Percentage
Age (Years)	Less than 30	20	18.2
	30 to 39	38	34.5
	40 or more	52	47.3
Religion	Hindu	103	93.6
	Jain	2	1.8
	Sikh	5	4.5
Education	Graduation	16	14.5
	Post-Graduation	91	82.7
	PhD	3	2.7
Marital Status	Un Married	12	10.9
	Married	96	87.3
	Divorce	1	0.9
	Widow	1	0.9
Number of children	0	13	11.8
	1	30	27.3
	2	63	57.3
	More than 2	4	3.6
Use of Contraception	Yes	50	45.5
	No	46	41.8
	Not applicable (not couples)	14	12.7
Do you have a family member who has had cervical cancer?	No	110	100
	Yes	0	0
Do you have a family member who has got HPV vaccination?	Yes	6	5.5
	No	104	94.5
Do you have a history of sexually transmitted diseases?	No	110	100
	Yes	0	0
Number of lifetime sexual partners	None	11	10
	1 or 2	98	89.1
	3 or More	1	0.9
Smoking	Never	107	97.3
	Occasionally	3	2.7
Drinking alcohol	Never	102	92.7
	Occasionally	8	7.3
	Total	110	100

**Table 2: Knowledge of the study group**

(A) Knowledge about HPV infection		
Heard About HPV Infection (N=110): 40(36.4%)	Correct Response (n=40)	%age
1. HPV Infection is very common in India (True)	34	85
2. HPV is a sexually transmitted infection (True)	33	82.5
3. HPV is transmitted via close skin to skin contact (True)	19	47.5

4. Smoking can increase the risk of getting HPV infection (True)	27	67.5
5. People can get HPV for a long time without knowing it (True)	39	97.5
6. HPV can cause genital warts (True)	38	95
7. Men can also be infected with HPV (True)	31	77.5
8. Men also have a potential to develop cancer due to HPV infection (True)	26	65
<b>(B) Knowledge about cervical cancer</b>		
Heard about cervical cancer (n=110): 67(60.9%)	Correct Response (n=67)	%age
1. HPV can lead to cervical cancer (True)	59	88.1
2. Cervical cancer only affects females (True)	61	91
3. Cervical cancer is one of the commonest cancer in females in India (True)	64	95.5
4. HPV types 16 and 18 will most likely cause cervical cancer (T/F)	56	83.6
5. Pap smear is a screening test to detect cervical cancer (True)	54	80.6
6. Cervical cancer is an easily preventable cancer (True)	52	77.6
7. Early diagnosis increases survival rate of cervical cancer (True)	58	86.6
8. Family history of cervical cancer a risk factor of cervical cancer (True)	53	79.1
9. Having sex at an early age increase the risk for cervical cancer (True)	47	70.1
10. Multiple sexual partners increase the risk of cervical cancer (True)	49	73.1
11. Previous history of any sexually transmitted disease increase the risk of cervical cancer (True)	48	71.6
12. Multiple pregnancies increase the risk of cervical cancer (True)	50	74.6
13. Usually, cervical cancer has no symptom at all (specially in early stage)(True)	57	85.1
14.The following can be the symptom of cervical cancer:		
a) Vaginal bleeding between menses (True)	62	92.5
b) Dyspareunia (Pain during sexual contact) (True)	56	83.6
c) Vomiting (True)	34	50.7
d) Bleeding during sexual contact (True)	58	86.6
<b>(C) Knowledge about HPV Vaccine</b>		
Ever heard about HPV vaccine (n=110): 25 (22.7%)	Correct response (n=25)	%age
1. HPV vaccine can prevent the development of genital warts (True)	25	100
2. HPV vaccine can prevent most of the cervical cancer (True)	24	96
3. HPV vaccine is most effective on someone who is not sexually active (True)	22	88
4. HPV vaccine can be given from 9 years till 26 years of age (True)	21	84
5. HPV vaccine can treat cervical cancer (False)	2	8
6. HPV vaccines come by the names of Gardasil & Cervarix (True)	20	80
7. HPV vaccine can be given to both males & and; females (True)	13	52
<b>(D) Knowledge about cervical cancer screening</b>		
Ever heard about Cervical Cancer Screening (N=110): 38 (34.5%)	Correct Response (n=38)	%age
1. Pap test is a relatively painless screening test for cervical cancer (True)	38	100
2. HPV test is also done for cervical cancer screening (True)	34	89.5
3. Screening should be done in married women every 3 years (True)	36	94.7
4. Regular screening is very effective in stopping the progression of cervical cancer (True)	38	100

5. Screening should be done in the middle of the menstrual cycle (True)	29	76.3
6. Screening should be done by a doctor or trained nurse (True)	37	97.4

**Table 3: Attitude of study group**

Statement	Supports Statement (n=100)	%age
1. Anyone can get cervical cancer, including me	98	89.1
2. I do not need cervical cancer screening	8	7.3
3. I will get my daughter vaccinated against cervical cancer	104	94.5
4. I am afraid of the cervical cancer screening because of the result	36	32.7
5. I need consent of my husband for cervical cancer screening	47	42.7
6. The cervical cancer screening might be painful	63	57.3
7. Cervical cancer is a fatal disease and should be prevented at any cost	104	94.5

**Table 4: Practice of the study group**

Questions	Responses	Responses (n=110)	%age
1. How often do you have health check-up for cervical or other genital cancers?	Every year	7	6.4
	Once in three years	8	7.3
	No fixed time	27	24.5
	Never	68	61.8
2. Have you ever got a PAP test?	Yes	16	14.5
	No	94	85.5
3. What is the reason for non-participating in cervical cancer screening? (Can tick multiple answers)	I am not aware	39	35.4
	No particular reason	33	30
	No symptoms	25	22.7
	Busy Schedule	5	4.5
	I take care of how I live	5	4.5
	Not yet prepared	3	2.7
4. Have you ever got HPV vaccination?	Yes	6	5.5
	No	104	94.5
	Total	110	100

**Table 5: Knowledge and attitude score in pre and post test**

		Pre Test		Post Test	
		Participants (n)	%	Participants (n)	%
Knowledge Score	75% or more	11	10	91	83
	50% to 74%	30	27	16	15