

**A study on the Impact of Cancer Awareness Program in improving the awareness and vaccine uptake for Cervical cancer in Nursing students of a tertiary care hospital of Bhubaneswar**

*Banerjee Ankita<sup>1</sup>, Esther Angeleena<sup>2</sup> & Mohapatra Ipsa<sup>3\*</sup>*

**Abstract**

Despite the evidence of Human Papilloma Virus vaccination, as an effective mode of primary prevention of cervical cancer, the uptake of vaccine is very less. There being a lot of gaps regarding knowledge about HPV vaccination, its safety, efficacy and availability, the study was done to assess the effect of awareness programs in the acceptance of safe practices for prevention of cervical cancer. Using a longitudinal study design, a study was conducted among 152 B.Sc. nursing students of a tertiary care teaching hospital; using a researcher-made questionnaire. An awareness session was organized to educate them on cervical cancer prevention. The same questionnaire was re-administered as a post- test after a period of one month. Data collected was entered into Microsoft excel spreadsheet; analyzed using EpiInfo software. Data was represented using appropriate statistical tests; taking a p-value of < 0.05 as statistically significant. The mean-age of the study participants was  $20.92 \pm 1.68$  years. As few as 15.1% knew that “HPV infection is generally asymptomatic”, pre-awareness session. There was considerable improvement in the knowledge regarding the symptoms of carcinoma of cervix post the awareness drive, results were also statistically significant ( $p < 0.001$ ). Similarly, their knowledge regarding various risk factors of carcinoma cervix, PAP smear test as a screening tool, also had a marked improvement, post the awareness session. 52.6% were hesitant to take the HPV vaccine pre-awareness session, whereas 73.6% agreed for the same after the awareness program. Although prior to the awareness drive their knowledge about cervical cancer was poor, but there was a significant improvement in their level of knowledge after it. Thus awareness programs can be conducted to inculcate safe lifestyle practices. For wider dissemination, more numbers of awareness drives and at frequent intervals should be done.

*Keywords:* HPV, cervical, cancer, nursing, awareness, knowledge

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<sup>1</sup>: Banerjee Ankita, Senior Resident, Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024

<sup>2</sup>: Ex Senior Resident, Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024

<sup>3\*</sup>: Associate Professor, Department of Community Medicine, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, Odisha- 751024

\*Corresponding author: ✉ [dr\\_ipsa@yahoo.co.in](mailto:dr_ipsa@yahoo.co.in)

Cervical cancer is the fourth common cancer in women globally; in 2018 it accounted for 570,000 new cases and 311,000 deaths, 90% of these occurred in the low-middle income countries (Ferlay et al., 2019). It continues to be a major health problem with an incidence of 75,209 diagnosed new cases and a projected cumulative risk of 1 in 75 women, in 2020, in India (Mathur et al., 2020). The high-income countries have vaccination against Human Papilloma Virus (HPV), which helps girls to get vaccinated (WHO, 2020<sup>b</sup>). The World Health Assembly, having adopted the global strategy to accelerate the elimination of cervical cancer has its goals and targets for 2020–2030 (WHA 73.2); it has a target of vaccinating 90% of the girls before the age of fifteen years (WHO, 2020<sup>a</sup>)

Despite definitive evidence of HPV in cervical cancer and the well-established role of HPV vaccination as an effective mode of primary prevention, the vaccine acceptance and uptake is very poor in many of the developing countries, India being one of them (Palmer et al., 2015). Nurses, the front-line workers of any medical team, should be adequately equipped with knowledge regarding HPV infections, cervical cancer and vaccines available to combat grave infections. Studies have identified several gaps regarding HPV vaccination, some of the major concerns being its safety and efficacy; availability and cost of the vaccine are also matter of concern (Jeyachelvi et al., 2016; Khanna et al., 2015; Tay et al., 2015; Topan et al., 2015; Yanikkerem & Koker, 2014).

### **Objective:**

To assess the effect of awareness programs in the acceptance of safe practices for prevention of cervical cancer.

## **Method**

### **Research design**

A longitudinal study was conducted for a period of 3 months among students enrolled for B.Sc. Nursing (160) in Kalinga Institute of Nursing Sciences.

### **Participants**

All the B.Sc. Nursing students enrolled (160) in the institute were asked to participate in the study. On the day of data collection 152 students were present; making a final of 152 as the sample size. Data were collected using convenient sampling.

### **Procedure**

A pretest using a researcher-made questionnaire was administered to the students; the questionnaire assessed their knowledge, attitudes and practice regarding HPV and cervical cancer. An awareness session was organized to educate them on cervical cancer and its prevention. Following this session, the same questionnaire was re-administered as a posttest after a period of one month. The HPV vaccine was made available to the students interested in taking the vaccine, at a subsidized cost at the immunization clinic of the institute. The Institutional Research committee and Institutional Ethics committee permission was taken prior to conducting the study. The study was approved by the institutional Ethics committee with letter no. KIIT/KIMS/IEC/347/2020. B.Sc. Nursing students who were willing to participate and who consented were included.

### **Study tool**

A researcher-made questionnaire with two sections- demographic details and questions on knowledge related to cervical cancer, HPV, and vaccination, was used for the purpose of study.

## Data Analysis

Collected data was entered in Microsoft excel and analysis was done using EpiInfo software (LANGUAGE en-US version 7.2.3.1). Categorical variables were represented as frequencies and percentages. For continuous variables mean & standard deviation was used. The chi-square or fisher exact test were used where appropriate as tests of association; with a p-value of < 0.05 considered statistically significant.

## Results

Out of 160 nursing students, the 152 students who were present on the day of data collection gave consent to be a part of the study. 95% was found to be the overall response rate. The mean-age of the participants was 21 years ( $20.92 \pm 1.68$ ). 43 % of the students were males and majority (86.1%) were Hindus. Of the 152 students, 147 participants were single or unmarried (96.7%), 3 were married (1.9%) and 2 students (1.3%) were in a live – in relationship.

## Nurses knowledge towards HPV vaccination

Nurses knowledge before education or awareness program showed that, as pre-test findings, only 15.1% knew that “HPV infection is generally asymptomatic”, 50.6% stated that “HPV infection could occur in both males and females” and 1.3% recognized “HPV as an infection which resolved on its own”.

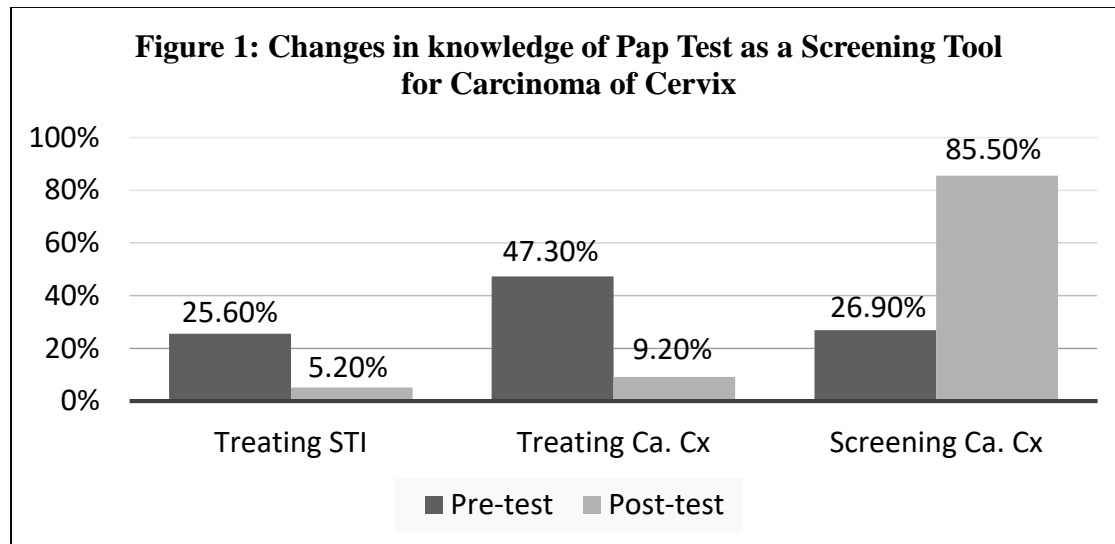
Knowledge regarding the symptoms of carcinoma of cervix is one of the most important measures to prevent the disease and the same among students is presented in details in table1. In pre-test findings, only 23.7% and 19.7% of the students knew about “vaginal discharge” and “menstrual abnormality” as symptoms of cancer cervix respectively, whereas 91.4% and 76.3 % of the same study participants were aware of the same when assessed as post-test findings. 89.4 %

knew pelvic pain as a symptom after the awareness session. Hence, after the awareness drive, the participants' knowledge regarding symptoms of carcinoma of the Cervix showed a significant increase and this difference was found to be statistically significant ( $p < 0.001$ ).

**Table 1**

*Knowledge Regarding Symptoms of Carcinoma of the Cervix*

Symptoms Of Cervical Cancer	Number (%)		p-value
	Pre-test (n =152)	Post-Test(n=152)	
Menstrual abnormality	30(19.7)	139 (91.4)	<0.0001
Vaginal discharge	36(23.7)	116(76.3)	<0.0001
Pain (pelvic,back,leg)	21(14)	136 (89.4)	<0.0001
Bleeding from rectum or bladder	33(22)	120(79)	<0.0001



*Figure 1: Changes in knowledge of PAP test as a Screening Tool for Carcinoma of Cervix*

PAP smear test acts an important screening tool in carcinoma cervix and Figure1 shows the changes in knowledge regarding Pap smear Test after the awareness session was conducted. The pre-test and post test results showed that after the awareness drive, the participants' knowledge on PAP smear, its uses for screening and in treatment of carcinoma cervix showed a significant increase. These differences were also found to be highly significant statistically ( $p < 0.001$ ).

Table 2 shows kknowledge regarding various risk factors of Carcinoma of the Cervix, findings shows that the awareness drive significantly increased the knowledge among the study participants about various risk factors like HPV, multiple sexual partners, smoking, decreased immunity and others. And these differences were found to be significant statistically as well.

**Table 2***Knowledge Regarding Various Risk factors of Carcinoma of the Cervix*

Risk factor of Cervical Cancer	Number (Percentage %)		p-value
	Pre-test (n = 152)	Post-test(n=152)	
Human papilloma virus infection	123(81)	152(100)	<0.0001
Multiple sexual partners	80(53)	123(81)	<0.0001
Smoking	45(30)	145(95.3)	<0.0001
Decreased immunity	2(1.3)	123(81)	<0.0001
Oral contraceptives	18(12)	120(79)	<0.0001
Early marriage	13(9)	36(24)	0.0003
Early pregnancy	19(12.5)	148(97.3)	<0.0001
Multiple pregnancies	22(14.5)	136(89.4)	<0.0001
Genital hygiene	53(35)	152(100)	<0.0001
Family history of cervical cancer	71(47)	150(99)	<0.0001

Knowledge regarding preventive measures of carcinoma cervix when assessed was found to be poor prior to the awareness session and when association was established with pre and post findings (Table 3), it showed increased knowledge among the students regarding various preventive measures. Only 47.3% knew about vaccination prior and 74% were aware of the same after the session and these differences were also found to be significant statistically (<0.0001)

**Table 3***Knowledge Regarding Various Preventive measures for Carcinoma of the Cervix*

Preventive measures for Cervical Cancer	Number (Percentage %)		p-value
	Pretest (n = 152)	Post-Test (n=152)	
Good genital hygiene	53(35)	152(100)	<0.0001
Use of condom	62(41)	130(85.5)	<0.0001
Pap test	103(68)	141(93)	<0.0001
Vaccination	72(47.3)	112(74)	<0.0001

**Nurses attitude towards HPV vaccination:**

In the pre-test, maximum number of the participants (52.6%), were hesitant to take the HPV vaccine. After the training on HPV and cervical carcinoma, 112(73.6%) of the total participants were interested in the HPV vaccine (44 (40%) male participants and 68 (60%) female participants).

**HPV vaccination status among the nurses:**

Prior to the education, none of the participants had taken the HPV vaccine and figure 2 shows the reasons stated for it. 16.4 % stated the reason to be “too expensive” and majority (19.7%) stated that either they didn’t know enough about it or doctor didn’t recommend. Post the education, 38 (25%) participants received the HPV vaccine at the immunization clinic of the Institute.



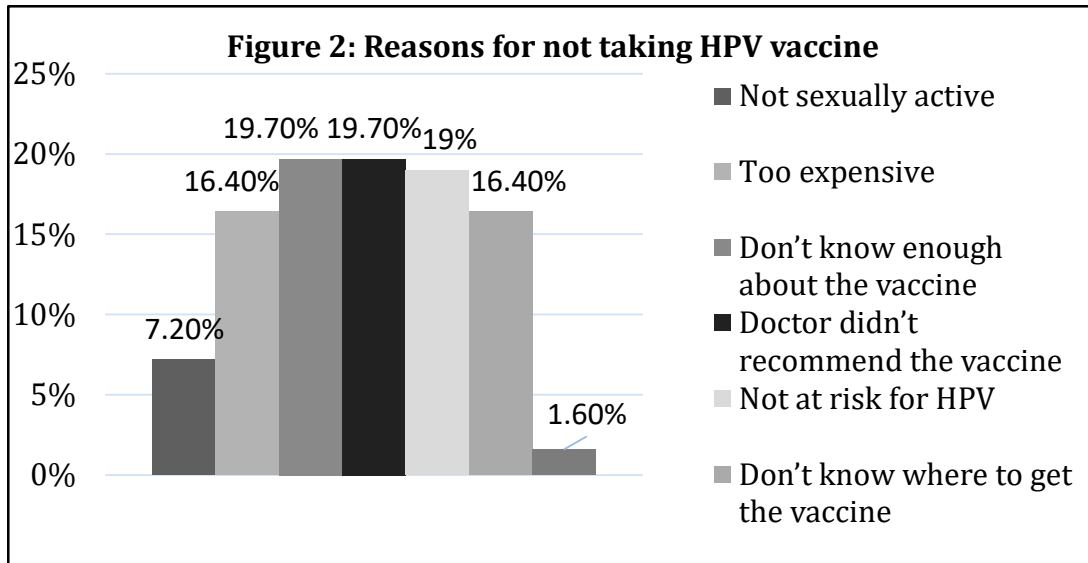


Figure 2: Reasons for not taking HPV vaccine

### Discussion

This study was done among 152 nursing students of a tertiary care teaching hospital to assess the effect of awareness programs in the acceptance of safe practices for prevention of cervical cancer. The mean-age of the study participants was  $20.92 \pm 1.68$  years, majority were Hindus and 43% were males. In a longitudinal study among nurses in Turkey by Yanikkerem & Koker (2014), the mean age of the participants was  $39.8 \pm 5.4$  years and response rate was found to be 87.5%. This difference could be due to the current study being done among students, while the latter was done among the working age group of nurses who had children in the age group of nine to twenty-six years.

In this study, 80.3% were unmarried or single compared to 23.4% in a study done by Khanna et al. (2015) in Odisha among women aged 18 to 49 years. This difference can be attributed to the

different study groups on which the study was undertaken. While the former study was on a homogeneous group of students, the latter comprised of a heterogeneous group of urban, rural and tribal population.

In the present study, only 15.1% knew that “HPV infection is generally asymptomatic” as compared to 53.9 % study participants in a study conducted in Malaysia among primary health clinic nurses by Jeyachelvi et al. (2016) being students and into the learning process would have been the reason of knowledge deficit among the participants of the present study.

In pretest findings, around 36.2% of nurses had the knowledge that HPV infection occurs in both women and men; 12.4% of nurses knew that HPV as an infection resolved on its own in 1 to 2 years; in a study done by Yanikkerem & Koker (2014) whereas 50.6% stated that “HPV infection could occur in both males and females” and 1.3% recognized “HPV as an infection which resolved on its own” in the present study.

In the present study, awareness drive acted as a significant factor in increasing the participants’ knowledge regarding symptoms of Carcinoma of the Cervix, which was also found to be significant statistically. Similar findings were noted in various studies conducted among nurses to assess the knowledge about HPV vaccination (Jeyachelvi et al., 2016; Khanna et al., 2015; Tay et al., 2015; Topan et al., 2015; Yanikkerem & Koker, 2014).

Knowledge regarding Pap smear Test as a screening tool for carcinoma of cervix after the awareness session conducted, showed a significant increase in the current study and similar findings were noted in the study done by Yanikkerem & Koker (2014) where in the pretest question, “If both Pap smear and HPV test is negative, women should continue to get Pap test at least once every 3 years” was answered correctly by 39.0% of nurses in the pre-test and after awareness session it was as high as 97.1% nurses. There were significant differences in nurses’ pretest and posttest result ( $p < 0.001$ ).

In the current study findings, knowledge regarding various risk factors like HPV, multiple sexual partners, smoking, decreased immunity and others of Carcinoma of the Cervix, significantly increased post the awareness drive similarly when a study was conducted in Turkey among nurses, it was found that HPV infection is transmitted by genital skin to skin contact was known only to 41.9% of the nurses and 13.3% of nurses knew correctly the statement “HPV could transmit through only sexual intercourse” and 65.7% answered correctly “having multiple sex partners and starting to have sex at an early age increases the risk of HPV infection” as pre-test findings, which again increased significantly after the education was provided (Yanikkerem & Koker, 2014).

Increased knowledge among the students regarding various preventive measures post the awareness session was a common finding among all study participants of various studies conducted across the countries (Jeyachelvi et al., 2016; Tay et al., 2015; Topan et al., 2015; Yanikkerem & Koker, 2014). In the present study, and only 47.3% knew about vaccination prior and 74% were aware of the same after the session and these differences were also found to be significant statistically.

52.6% of the nursing students were hesitant to take the HPV vaccine prior whereas 73.6% of the total participants were interested in the HPV vaccine after the session in the current study and 25% participants received the HPV vaccine at the immunization clinic of the Institute as compared to a study conducted in Singapore among nurses of a general hospital by Tay et al where 9.6% had received vaccination, 13.5% planned to take vaccination within the next 12 months, 48.9% remained undecided and 28.0% declined vaccination. This difference in results might have been due to increased sample size and being conducted among working nurses who had better knowledge than the students in the current study (Tay et al., 2015)

In the present study, 16.4 % stated the reason for not taking vaccine to be “too expensive” and 19.7% stated that either they didn’t know enough about it or doctor didn’t recommend, similar findings were also noted in the study conducted by Tay et al. (2015), where findings showed that

the most common reasons for refusing vaccination were inadequate information (56%), vaccine effectiveness unproven (20.8%) and the high vaccine cost (12.8%).

### **Conclusion**

The initial awareness about cervical cancer was poor but there was a significant increase in their awareness levels post the session on cervical cancer. Vaccine hesitancy with regards to HPV vaccine, also saw a great difference post awareness program. Cost of the vaccine, being one of the reasons for decreased vaccine uptake, can be addressed as a policy issue by the government, either by providing the vaccine free in the national immunization schedule or at a subsidized rate. Thus to bring about a change in the behavioral safe lifestyle practices, awareness programs should be considered as a method; and such sessions should address a wider audience more frequently.

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