Section A -Research paper

"Awareness and Knowledge of Cervical Cancer Screening and HPV vaccination among Women Health Care Worker at Tertiary Care Centre."

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ABSTRACT

Aim-To study the knowledge and awareness of the women health care workers about HPV and HPVvaccine to establish the need of more aggressive educational programmes.

Method- A descriptive cross sectional study was conducted at Saraswati medical College, Unnao among 250 women health care workers. A structured questionnaire was usedto gather information regarding sociodemographic characteristics, awareness and knowledge toward cervical cancer and its screening . Results were assessed depending upon their scores.

Result- Out of 244 participants, 66.8% (n = 163) of them had previously heard about the disease. 35.2 % of the participants answered "don't know" when asked if HPV is sexually transmitted. 34.0 % (n = 83) did not know whether HPV causes cancer. Only 10.4 % (n = 26) answered correctly that HPV infection occurs in both men and women. Although 62.7%(n=153) were aware of the fact that cervical cancer is very much responsible for the cancer related deaths in females, still only 48% of them knew about the screening facility available nearby.

Conclusion- The knowledge of the participants in the our study with respect to HPV and cervical cancer is not very high and their awareness related to HPV vaccination is relatively low. This study suggests that there is a need of advocating more aggressive educational and promotional activities on HPV and HPV vaccination at health care facilities as well as in the community.

Keywords- HPV, Screening, Vaccination, Cancer Cervix.

Introduction:

Health care worker are the connecting link between the community and health professionals and they could be the main pillars to increase the knowledge and awareness about the cervical cancer in the community as cervical cancer remains a significant cause of morbidity

and mortality among women globally, even though it is the cancer with the greatest potential for secondary prevention. In some regions of the world the incidence is alarmingly high, which includes India[1,2].

Cervical cancer is most common cancer in Indian women though breast is the leading cancer site globally. In India, cervical cancer had increased from 0.11 million in 2000 to 0.16 million in 2010[3]. The proportion ranged from 15% to 55% of female cancers from different parts of the country. Over 80% of the cervical cancer present at a fairly advanced stage and annually around 80,000 deaths are reported in India[4]. According to global cancer statistics, cervical cancer is now the third most commonly diagnosed cancer and the fourth leading cause of cancer death in females worldwide, accounting for 9% (529,800) of the total new cancer cases and 8% (275,100) of the total cancer deaths among females in 2008. More than 85% of these cases occur in developing countries. India, the second most populous country in the world, accounts for 27% (77,100) of the total cervical cancer deaths[5]. The disproportionately high burden of cervical cancer in developing countries and elsewhere in medically underserved populations is largely due to a lack of screening that allows detection of precancerous and early stage cervical cancer[5,6]

In 2020, an estimated 604000 women were diagnosed with cervical cancer worldwide and about 342000 women died from the disease. Cervical cancer is the most commonly diagnosed cancer in 23 countries and is the leading cause of cancer death in 36 countries. The vast majority of these countries are in sub-Saharan Africa, Melanesia, South America, and South-Eastern Asia [7].

Approximately 30 HPVs that infect the ano–genital tract, of these 15 HPV types classified as 'high-risk' types (HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73 and 82) are associated with high grade cervical cancer precursor lesions and invasive cervical cancers.

Molecular and clinico-epidemiological studies have demonstrated that HPV types 16 and 18 are the two most common oncogenic HPV types found in invasive cervical cancer and high-grade cervical intraepithelial neoplastic (CIN) lesions. On the other hand, 11 different HPV types classified as 'low-risk' types (HPV types 6, 11, 40, 42, 43, 44, 54, 61, 70, 81 and CP6108) are mainly associated with genital warts and benign cervical lesions. Among these,

HPV6 and HPV11 cause approximately 90% of genital warts. In addition to HPV infection, co-factors such as parity, early age of marriage, genital hygiene, promiscuity, use of oral contraceptives, smoking, immune suppression (eg HIV), infection with other sexually transmitted agents and poor nutrition have been associated with the development of cervical cancer[8,9]

Recently, it has been shown that a single round of HPV screening can cause a significant reduction in the severity and mortality of the disease[10]. In India, approximately 90% of invasive cervical cancer cases are squamous cell carcinoma, while 10–12% is adeno-carcinomas. In a national HPV mapping study in India, prevalence of HPV16 was found to be highest in Chennai (88%), and lowest in Jammu and Kashmir (14.2%)[11,12].

The most effective secondary preventive strategy for cervical cancer is systematic screening of women through an organized program along with treatment and follow-up of the screen

detected precursor lesions. Cervical screening should be advocated for all ever sexually active women within a certain age group irrespective of whether they have any complaints, because there are often no signs and symptoms of cervical precancers. The national guideline for cervical cancer screening in India advocates screening of women between 30 years to 59 years of age. The focus on detection and prevention of cervical cancer must be emphasized in a highly populated country like India.

Accredited Social Health Activist (ASHA) workers are best suited for this job. The launch of operation framework of India for cancer screening in 2016 has designated ASHA workers as key motivators for cervical cancer screening of women. ASHA are grass‐level health workers under National Rural Health Mission, the flagship centrally aided largest health program of India[13]. Each ASHA covers a thousand population where her key role is healthcare mobilizer[14].

Despite sufficient evidence supporting the use of screening as an effective intervention, there are still few large-scale screening programs being implemented in India. Knowledge about disease and early screening is the most effective measure for Cervical Cancer prevention.

Lack of awareness, negative attitude, and poor practice about Cervical Cancer and screening and preventive methods are the major causes to increase the incidence of disease.

In spite of a dedicated cancer control program in place in India, screening has not been effective to decrease the burden of disease. The studies show that women have suboptimal level of knowledge of Cervical Cancer, their attitude is also favourable however the uptake of actual practice is low due to social stigma. So this study was conducted to assess the knowledge, attitude and awareness of the disease in the assigned community.The outcome of this study provides information regarding current awareness about Cervical Cancer and screening, which is helpful for designing population-based educational program leading to knowledge enhancement about Cervical Cancer and its screening.

Materials and Method

A descriptive cross sectional study was conducted at Saraswati medical college ,Unnao Uttar Pradesh, India, during the period of March to June 2022. Based on the approximate number of healthcare workers within the medical college, considering the knowledge to be 50 % with 95 % confidence level, the sample size to be studied was calculated to be 250. Women health care workers (including nursing and allied staff, health assistants and administrative female staff) age group(18-49 yrs) who were willing to participate were enrolled for the study irrespective of their cervical cancer screening status. A total of 250 women health care workers were enrolled. A structured questionnaire was used to gather information regarding socio-demographic characteristics, awareness and knowledge toward cervical cancer and its screening. All the participants were provided with an information sheet explaining the study and a signed informed consent was taken from them. The questionnaire had a total of 24 questions containing 3 questions on the participant's basic socio-demographics and 21 questions testing their knowledge/awareness on hpv. These 21 knowledge and awareness testing questions had three possible options (Yes/No/Don't know). The options don't know or not sure was considered a wrong answer. Based on the scores, the participants scoring less than 25 % were considered to have poor knowledge, participants with 25–50 % were

considered to have average knowledge and participants scoring above 50 % were considered to have good knowledge and awareness of HPV.

Statistical analysis -The filled 24 item questionnaire was collected from the participants and the details were entered in the Microsoft excel in a prescribed format. Descriptive data were presented as percentage.

Results

Demographic profile of participants A total of 250 questionnaires were distributed to the women health care workers at the hospital.Out of them 244 completed questionnaires were collected with a response rate of 97.6 %.The majority of the participants (n = 191, 78.2 %) were in the age group of 20–40 years and 81.2 % (n = 198) of the study population were married. In total, 45(18.4%) had secondary education, 81.6% (n = 199) had higher education. (Table 1).

Table 1- Demographic Profile- n=244

s.no	Variables		Number(N)	Percentage(%)
1.	**Age (in years)**	**<20**	**25**	**10.2%**
		20-40	**191**	**78.2%**
		>40	**28**	**11.4%**
2.	**Marital status**	**Married**	**198**	**81.2%**
		Unmarried	**46**	**18.8%**
3.	**Education status**	**Secondary**	**45**	**18.4%**
		Higher education	**199**	**81.6%**

Awareness of HPV -Out of 244 participants surveyed 66.8% (n = 163) of them had previously heard about the disease.HPV being the most common sexually transmitted infection, we expected more women to know about it. But our survey revealed that 35.2 % of the participants answered "don't know" when asked if HPV is sexually transmitted. 34 % (n = 83) did not know whether HPV causes cancer. About 10.4 % (n = 26) answered correctly that HPV infection occurs in both men and women. Although 62.7%(n=153) were aware of the fact that cervical cancer is very much responsible for the cancer related deaths in female still only 50.8% of them knew about the screening facility available nearby.(Table 2)

Table- 2-Awareness questionnaires

Q. no	Statement	Yes	No	Don't know
1	**have you ever heard of HPV and cervical cancer?**	163(66.8%)	81(33.2%)	
2	**HPV infection causes cervical cancer?**	158(64.8%)	3(1.2%)	83(34.0%)

3	**HPV infections are rare in India?**	56(22.9%)	40(16.4%)	148(60.7%)
4	**HPV is sexually transmitted?**	106(43.4%)	52(21.3%)	86(35.2%)
5	**Cervical cancer can be early detected by pap test.**	98(40.1%)	57(23.3%)	89(36.5%)
6	**Pap test is invasive and painful.**	40(16.4%)	44(18.0%)	160(65.8%)
7	**HPV infection can occur as early in 20s**	51(20.9%)	67(27.4%)	126(51.6%)
8	**Cervical cancer is main cause of cancer related death in women.**	153(62.7%)	16(6.5%)	85(34.8%)
9	**HPV can infect both men & women**	26(10.6%)	63(25.8%)	157(64.3%)
10	**Screening availability nearby**	124(50.8%)	120(49.1%)	

Knowledge of HPV infection and disease presentation-In our study 51.6%(n=126) women had the concept that HPV infection means you have carcinoma cervix .Although 47.9% (n=117) were aware of its primary presentation i.e. abnormal bleeding per vaginum only 53.3%(n=103)women knew that early detection of carcinoma cervix can be managed with minimal interventions. Majority of them 39.3%(n= 96) had the idea of need of hysterectomy only in HPV positive patients. Only 10.7%(n=26)knew that HIV positive patients have high risk of developing cervical cancer. (Table 3)

Table 3-Knowledge of HPV infection and disease presentation

Q. no	**Statement**	**Yes**	**No**	**Don't know N (%)**
1	**HPV infection always causes ca cervix**	**126(51.6%)**	**19(7.8%)**	**99(40.5%)**
2	**Abnormal bleeding per vaginum –primary sign**	**117(47.9%)**	**26(10.6%)**	**103(42.2%)**

3	**Early detection- can be managed by minimal intervention**	**103(53.3%)**	**44(18.0%)**	**97(39.8%)**
4	**Hysterectomy needed in all cases of Positive HPV infection**	**96(39.3%)**	**77(31.6%)**	**71(29.1%)**
5	**Hiv positive has high risk of developing cervical cancer.**	**26(10.7%)**	**36(14.7%)**	**182(74.5%)**

Awareness of treatment of HPV, prevention and HPV vaccines- In any general sense, antibiotics are the class of medicines that are used to treat bacterial infections and they don't have any effect on the viruses. In our survey the question read "Can HPV infection be treated by antibiotics?" Shockingly, only 36.9 % (n = 90) gave a correct response with 16.4 % (n = 40) giving a wrong response and another 46.7 % (n = 114) giving a response as "don't know". 38.9% of the study population did not know whether HPV vaccines are available in India .Only 5.3% (n=13) were aware of the fact that HPV vaccine is available for both men in women in india and surprisingly 78.7 % (n = 192) of them still answered "don't know" indicating how poorly they were informed about the vaccines. Another shocking revelation was that 24.6 % of the participants were not sure how HPV transmission could be prevented. A few of them (25 %) opined that HPV could be prevented either by the use of condoms and even practising abstinence.Majority (86.9%)of them are not aware that HPV vaccine can be given as early as 9 yrs of age. (Table 4).

Table4-Knowledge of HPV treatment, prevention and vaccines.				
Q. no	**Statement**	**Yes**	**No**	**Don't know N (%)**
1	**Is HPV preventable?**	79(32.3%)	87(35.6%)	60(24.6%)
2	**Using condoms during sexual intercourse prevents the spread of HPV**	61(25.0%)	86(35.2%)	97(39.8%)

3	**Can HPV infection be treated by antibiotics?**	40(16.4%)	90(36.9%)	114(46.7%)
4	**Are HPV vaccines available in India?**	149(61.0%)	21(8.6%)	74(30.3%)
5	**HPV vaccine available for both male & female both**	13(5.3%)	39(16.0%)	192(78.7%)
6	**HPV vaccine can be given as early as 9 yrs of age**	17(6.9%)	15(6.1%)	212(86.9%)

Depending upon their scores assessment was done .Majority (117, 61%) of them had average knowledge scoring between 25-50%.

Table 5

Score	Number (n=244)
<25%	61(25%)
25-50%	117(61%)
>50%	34(13.9%)

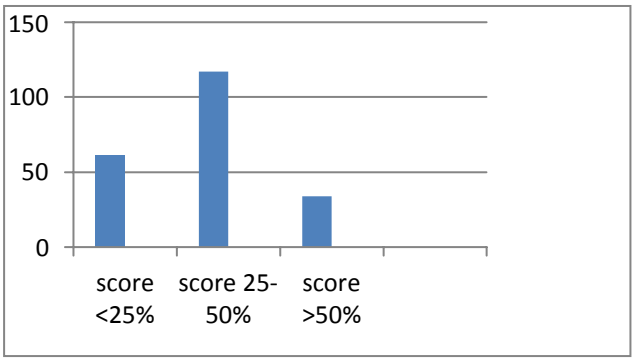

Fig 1-bar representation of scrores

Discussion

This present study was conducted to assess the knowledge and awareness of women attending gynaecology OPD at tertiary care centre unnao. Overall, the study showed that the participants had relatively poor knowledge regarding HPV, except few questions. In this

study, 66.8% participants had heard of cervical cancer which is lower to a report from Qatar (85.0%) and Cambodia (74%) and comparable that reported in Korea, Nepal and India where it ranged between 60 and 66% [15-19].

In a similar survey in Karnataka, India, almost half of the sample population was aware that cervical cancer is a sexually transmitted disease[20].Increasing the awareness of the HPV associated diseases among women is beneficial to the society. There are previous reports from other countries which explored the knowledge participants about HPV and HPV vaccination. According to Al- Dubai et al., the level of knowledge regarding HPV infections, HPV vaccines, and attitude towards HPV vaccination among 300 Malaysian women were found tobe low and suggested that the public should be educated regarding the HPV-OSCC link and HPV vaccination[21].

A cross-sectional study conducted across five cities in India in the focused age groups aged 13–19 years, majority of the participants had little knowledge and understanding of HPV infections or HPV vaccination. This study demonstrated that 72 % of the study participants had not heard of HPV but were willing to know more about the vaccine[22]. With regard to signs and symptoms of Cervical Cancer, 47.9% knew abnormal bleeding per vaginum, as common symptoms of Cervical Cancer. Similarly a study done by Singh et al[23] reported that 79% females knew vaginal bleeding between menses as symptom of Cervical Cancer and 66% knew symptom as foul-smelling vaginal discharge.

A study done by Shah et al[24] found that 94.2%respondents stated vaginal discharge as one of the symptoms, 86.9% as menstrual abnormality and 66.6% as pain as symptoms. Also a study conducted by Narayana et al[25] (2017), among the 403 women who completed the survey, 64.2% had some knowledge about signs and symptoms.

Lack of awareness about Cervical Cancer in women residing at rural and urban areas emphasizes the need for conducting campaigns to improve their knowledge regarding symptoms, risk factors, and preventive measures. Women who are aware about Cervical Cancer they are more likely to take up measures of prevention by seeking medical attention and early screening[26]. It is necessary to assess the knowledge and awareness about HPV in college students as well as young .In our review it was observed that 61% participants had knowledge of HPV vaccination .

Similarly in a study by Narayana et al[25] (2017) participants believed that early screening and HPV vaccination could prevent Cervical Cancer; yet, the majority of the women (86.6%) had never been screened.

Similarly, our study also revealed significant gaps in knowledge. For example, only 5.3% of the participants were aware that HPV vaccines should be administered to both males and females and half of them were also unaware that HPV is a sexually transmitted infection. 16.4% of participants thought HPV can be treated using antibiotics and about half of the participants have no idea about it which demonstrated how misinformed and confused the participants were.

Importantly, the present study revealed that there is a lack of knowledge on HPV vaccination even if they are of HPV infection or ca cervix. Even though the development of the HPV vaccine has been a major breakthrough in science, only 61% of subjects participating in the

study stated that they know if vaccine against HPV is available in India. This gap in the knowledge emphasises on raising awareness regarding HPV vaccination.
In our survey, 78.7 % women did not know about vaccine availability for both male and female. Overall, the false perceptions seen in the participants regarding HPV vaccination could be mainly due to inadequate information and or fear of adverse outcomes.

Conclusion

The knowledge of the participants in the our study with respect to HPV,cervical cancer and HPV vaccination is not very high but average. This study suggests that there is a need of advocating more aggressive educational and promotional activities on HPV and HPV vaccination in the health care workers as well as in the community also. Although they know about the availability of vaccine against HPV but not in detail.Health care workers should be educated about the most common sexually transmitted infection as they are the backbone of our health care system and can play a major role to bring change in the knowledge of the community as well. Overall these results emphasize that education about HPV and HPV vaccination is urgently needed to focused to fill the gaps so that we can overcome this major challenge of our health care system.

References

1.GLOBOCAN 2012, Cancer Incidence, Mortality and Prevalence Worldwide in 2008, International Agency for Research on Cancer, World Health Organization.

2.Jemal, A., Bray, F., Center, M.M., Ferlay, J., Ward, E., et al., Global cancer statistics, CA: A Cancer Journal for Clinicians 61 (2011) 69–90. .

3. Sankaranarayanan R, Black RB, Parkin DM, Cancer survival in developing countries. Editors-Lyon; IARC Press; 1998 (IARC Scientific Publications #145)

4. Ferlay J, Shin HR, Bray F, Forman D, Mathers CD, Parkin D. Cancer Incidence and Mortality Worldwide GLOBOCAN 2008,: IARC cancerBase No. 10. Lyon, France: International Agency for Research on Cancer; Year. Available at: http://globocan.iarc.fr. 2010.

5. Mathew A, George PS. Trends in incidence and mortality rates of squamous cell carcinoma and adenocarcinoma of cervix– worldwide. Asian Pac J Cancer Prev. 2009; 10:645-650.

6. Vizcaino AP, Moreno V, Bosch FX, et al. International trends in incidence of cervical cancer: II. Squamous-cell carcinoma. Int J Cancer. 2000; 86:429-435

7.Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021:71:209–49. doi:10.3322/caac.21660.

8. Das BC, Gopalkrishna V, Hedau S, Katiyar S. Cancer of the uterine cervix and human papillomavirus infection. Curr. Sci. 2000; 78(1): 52–63

9. Bharti AC, Shukla S, Mahata S, Hedau S and Das BC. Human papillomavirus and cervical cancer control in India. Expert Rev. Obstet. Gynecol; 2010: 5(3), 329–346

10. Sankaranarayanan R, Nene BM, Shastri SS et al. HPV screening for cervical cancer in

rural India. N Engl J Med; 2009: 360 (14), 1385-1394.
11. Das B C, Hussain S, Nasare V, Bhardwaj M. Prospects and prejudices of human papillomavirus vaccines in India. Vaccine; 2008: 26(22), 2669-2679
12. Gopalkrishna V, Hedau S, Kailash U, Das BC. Human papillomavirus type 16 in cancer of the uterine cervix in different geographical regions of India (PS011). Presented at: 18th International papillomavirus Conference. Barcelona, Spain, 23-28 July 2000
13. Bagcchi S. India launches plan for national cancer screening programme. Br Med J (Online) 2016;355.
14. Hariprasad R, Mehrotra R. Role of accredited social health activists in cancer screening in India: Brightest 'ray of hope'.Asian Pac J Cancer Prev 2016;17:3659.
15. Al-Meer FM, Aseel MT, Al-Khalaf J, Al-KuwariMG, IsmailMFS. Knowledge, attitude and practices regarding cervical cancer and screening among women visiting primary health care in Qatar.East Mediterr Health J. 2011;17:855–61.
16. Touch S, Oh J-K. Knowledge, attitudes, and practices toward cervical cancer prevention among women in Kampong Speu Province,Cambodia. BMC Cancer. 2018;18:294.
17. Tran NT, Choe SI, Taylor R, KoWS, Pyo HS, So HC. Knowledge,attitude and practice (KAP) concerning cervical cancer and screening among rural and urban women in six provinces of the democraticPeople's Republic of Korea. Asian Pac J Cancer Prev.2011;12:3029–33.
18. Shrestha J, Saha R, Tripathi N. Knowledge, attitude and practice regarding cervical cancer screening amongst women visiting tertiary centre in Kathmandu, Nepal. Nepal J Med Sci. 2013;2:85–90.
19. Ramaiah R, Jayarama S. Knowledge, attitude and practices about cervical cancer among rural married women: a cross sectional study. Int J Commun Med Public Heal. 2018;5:1466.
20. Montgomery MP, Dune T, Shetty PK, Shetty AK. Knowledge and Acceptability of Human Papillomavirus Vaccination and Cervical Cancer Screening among Women in Karnataka. Indian J Canc Educ.2015;30:130-7
21. Al-Dubai SA, Alshagga MA, Al-Naggar RA, et al. Knowledge, attitudes and barriers for human papilloma virus (HPV) vaccines among Malaysian women. *Asian Pac J Cancer Prev APJCP*. 2010 Jan 1;11(4):887–892.
22. Ramavath KK, Olyai R. Knowledge and awareness of HPV infection and vaccination among urban adolescents in India: a cross-sectional study. *J Obstet Gynaecol India*. 2013 Dec;63(6):399–404.
23. Singh S, Narayan N, Sinha R, Sinha P, Sinha V, Upadhye J.Awareness about Cervical Cancer risk factors and symptoms. Int J Reprod, Contracept, Obstetr Gynecol. 2018;7(12):4987-4991.doi:10.18203/2320-1770.ijrcog20184953
24. Shah V, Vyas S, Singh A, Shrivastava M. Awareness and knowledge of Cervical Cancer and its prevention among the nursing staff of a tertiary health institute in Ahmedabad, Gujarat, India. Ecancermedicalscience. 2012;6:270.
25. Narayana G, Suchitra MJ, Sunanda G, Ramaiah JD, Kumar BP,Veerabhadrappa KV. Knowledge, attitude, and practice toward cervical cancer among women attending obstetrics and gynecology department: a cross-sectional, hospital-based survey in South India. Indian J

Cancer. 2017;54(2):481.

26. Dhodapkar S, Chauhan R, Thampy S. Knowledge and awareness of Cervical Cancer and its prevention among nursing staff of a tertiary care teaching institute in South India. Int J Reprod, Contracept, Obstetr Gynecol. 2014;3(4):1056.