

Knowledge, Attitude, And Practices of The Educated Women of North India Toward Cervical Cancer

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Abstract

Cervical cancer is a largely preventable disease that claimed the lives of more than 300 000 women in 2018. Hesitation to adopt cervical cancer screening strategies motivated us to find out the knowledge gaps and attitudes of the educated section toward these practices. An in-depth knowledge of this aspect will help us comprehend the barriers that are deterring women from accepting these practices. A cross-sectional survey was conducted from November 1, 2021, to November 30, 2021, to assess the public knowledge, attitudes, and practices regarding cervical cancer. The self-designed online questionnaire was shared on social media such as Telegram, WhatsApp, LinkedIn, and Facebook. Girls and women aged 15 years and more studying in educational institutions or those who have completed their graduation were asked to fill out the questionnaire if willing to do so anonymously. 824 respondents filled out the online survey. 75% of the respondents had good knowledge about pap smear and HPV vaccination. Only 80 respondents (9.7%) were vaccinated against HPV. 255 (30.9%) had been screened with a pap smear at least once in their lifetime. Screening with pap smear was never performed in 412 subjects, which constituted 50% of the respondents. A poor knowledge about the eligibility of pap smear and the availability of HPV as a screening modality may have contributed to a poor conversion to the regular practice of screening modalities. Awareness drives need to focus on these issues.

Keywords: Attitude, cervical cancer, knowledge, online survey, pap smear, practices

INTRODUCTION

Cervical cancer is a largely preventable disease that claimed the lives of more than 300 000 women in 2018. So, in May 2018, the WHO Director-General announced a global call for action to eliminate cervical cancer, and in August 2020, the World Health Assembly adopted the Global Strategy for cervical cancer elimination. According to this strategy, all countries must reach and maintain an incidence rate of below four per 100 000 women to eliminate cervical cancer. Achieving that goal rests on three key pillars and their corresponding targets:

- Vaccination: 90% of girls fully vaccinated with the HPV vaccine by the age of 15.
- Screening: 70% of women screened using a high-performance test by the age of 35 and again by the age of 45.
- Treatment: 90% of women with precancer treatment and 90% of women with invasive cancer managed.

Each country should meet the 90-70-90 targets by 2030 to eliminate cervical cancer.^[1] Globocan 2020 data showed that

there are more than six lakh new cases of cervical cancer globally, reflecting the huge magnitude of the disease.^[2] This data also highlighted that cervical cancer is indeed a major public health problem in India, with an incidence of 1,23,907 cases and a mortality of 77,348 cases every year. Carcinoma cervix is the second most common gynecologic malignancy among Indian women aged 25-44 years, with an incidence of 9.4% after carcinoma breast (13.5%).^[2]

Developed countries have effectively used primary (human papilloma virus vaccination) and secondary (cervical screening: Pap test, HPV test, Cotest, visual inspection by acetic acid) preventive strategies to significantly reduce the incidence of cervical cancer. However, there is a huge abyss in this arena in

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How to cite this article: Miglani I, Gandhi U, Lau P. Knowledge, attitude, and practices of the educated women of North India toward cervical cancer. *Indian J Community Med* 2025;50:202-6.

Received: 23-04-23, **Accepted:** 03-06-24, **Published:** 23-01-25

Access this article online

Quick Response Code:



Website:
www.ijcm.org.in

DOI:
10.4103/ijcm.ijcm_258_23

developing countries like India. To increase the effectiveness of the preventive strategies, the acceptability of the various modalities has to be increased across all strata of society. Awareness talks, communication exercises, and nukkad natak are increasingly being performed to increase the knowledge among the illiterate and lower socioeconomic strata, as it is often presumed that the educated section of the society is well aware of the same. Hesitation to adopt these strategies in our close social circle motivated us to find out the knowledge gaps and attitudes of the educated section in this regard. An in-depth knowledge of this aspect will help us comprehend the barriers that are deterring women from accepting these practices.

MATERIALS AND METHODS

Study design

Cross-sectional survey.

Study setting and duration

Online survey from November 1, 2021, to November 30, 2021.

Study population

All females aged 15 years and more are residents of North India with access to online platforms.

Methodology

To assess the public knowledge, attitudes, and practices regarding cervical cancer, the self-designed online questionnaire was shared on social media such as Telegram, WhatsApp, LinkedIn, and Facebook. We also tried to distribute this questionnaire on social media channels in the related cities of Northern India to increase the response rate. Girls and women aged 15 years and more studying in educational institutions or those who have completed their graduation were asked to fill out the questionnaire if willing to do so anonymously. On average, the questionnaire took 5 to 8 minutes to be completed.

Sample size calculation

Assuming a 95% confidence level, 6 standard deviation, and a margin of error (confidence interval) of $\pm 4\%$, the sample size comes to be 588.

Necessary Sample Size = $(Z\text{-score})^2 \times \text{StdDev} \times (1 - \text{StdDev}) / (\text{margin of error})^2$ ^[3]

Statistical testing was conducted with the statistical package for the social science system version SPSS 28.0 (SPSS, Chicago, Illinois). Categorical variables are presented as absolute numbers and percentages. The association between sociodemographic characteristics with good knowledge of cervical cancer and its screening and positive attitude and good practice of cervical cancer screening modalities were compared using the Chi-squared test. For all statistical tests, a *P* value less than 0.05 was taken to indicate a significant difference.

RESULTS

Eight hundred twenty-four respondents filled out the online survey. They belonged to Delhi, Uttar Pradesh, Punjab, Haryana,

and Rajasthan. The majority of the women (39.1%) were more than 40 years of age and were postgraduates (62.9%). Teacher, staff nurses, and architects were the most common professions among the respondents. The sociodemographic features of the subjects are shown in Table 1.

75% of the respondents had good knowledge about pap smear and HPV vaccination. Their knowledge of preventive and screening modalities and the relation of sociodemographic features with good knowledge are depicted in Tables 2 and 3, respectively. The attitude of the subjects toward preventive and screening modalities is shown in Table 4.

Practices about preventive and screening modalities

Only 80 respondents (9.7%) were vaccinated against HPV. 255 (30.9%) had been screened with a pap smear at least once in their lifetime. Screening with pap smear was never conducted in 412 subjects, which constituted 50% of the respondents. The screening was not applicable to the remaining subjects. The association of sociodemographic characteristics with positive attitudes and good practice of cervical cancer screening modalities is depicted in Table 5. On analyzing the causes for not getting the pap smear performed, the most frequent (362 subjects) was the perception of being perfectly healthy, negating the need for a pap smear [Table 6].

Table 1: Sociodemographic profile

| Parameter | Number | Percentage |
|------------------------------------|--------|------------|
| Age | | |
| <20 Years | 82 | 9.9 |
| 20-30 Years | 238 | 28.8 |
| 30-40 Years | 181 | 21.9 |
| >40 Years | 323 | 39.1 |
| Education | | |
| Student | 75 | 9.1 |
| Undergraduate (Nonmedical courses) | 291 | 27.9 |
| Postgraduate | 519 | 62.9 |
| Profession | | |
| Teacher | 164 | 19.9 |
| Staff nurse | 170 | 20.6 |
| Paramedic | 123 | 14.9 |
| Research assistant | 89 | 10.8 |
| Medical/nursing student | 75 | 9.1 |
| Architect | 143 | 17.3 |
| Miscellaneous* | 60 | 7.2 |

*Entrepreneur, NGO worker, accountant, chef, sportsperson

Table 2: Knowledge about preventive and screening modalities

| Parameter | Good Knowledge |
|---------------------------|----------------|
| HPV vaccination | 626 (75.9) |
| Cervical cancer | 735 (89.1) |
| Pap smear | 620 (75.2) |
| HPV as screening modality | 73 (8.8) |

Table 3: Association of sociodemographic characteristics with good knowledge of cervical cancer and its screening

| Variable | Total Number (n=824) | Good knowledge of HPV Vaccination | Good knowledge of Pap Smear | Good knowledge of Eligibility of Pap smear | Good knowledge of Warning signs of cancer |
|----------------------------|-------------------------|--------------------------------------|--------------------------------|---|--|
| Age | | | | | |
| <20 yrs. | 82 | 64 (78%) | 26 (31.7%) | 2 (2.4%) | 2 (2.4%) |
| 20-30 yrs. | 238 | 196 (82.4%) | 135 (56.7%) | 35 (14.7%) | 46 (19.3%) |
| 30-40 yrs. | 181 | 144 (79.6%) | 168 (92.8%) | 125 (69.1%) | 75 (41.4%) |
| >40 yrs. | 323 | 222 (68.7%) | 297 (92%) | 27 (8.4%) | 190 (58.8%) |
| P | | 0.001* | <0.001** | <0.001** | <0.001** |
| Education | | | | | |
| Student | 75 | 64 (85.3%) | 26 (34.7%) | 2 (2.7%) | 2 (2.7%) |
| Undergraduate | 230 | 160 (69.6%) | 204 (88.7%) | 43 (18.7%) | 49 (21.3%) |
| Postgraduate | 519 | 402 (77.5%) | 390 (75.1%) | 146 (28.1%) | 262 (50.5%) |
| P | | 0.009* | <0.001** | <0.001** | <0.001** |
| Profession | | | | | |
| Teacher | 164 | 92 (56.1%) | 112 (68.3%) | 20 (12.2%) | 56 (34.1%) |
| Staff Nurse | 170 | 148 (87.1%) | 155 (91.2%) | 56 (32.9%) | 102 (60%) |
| Paramedic | 123 | 96 (78%) | 102 (82.9%) | 44 (35.8%) | 76 (61.8%) |
| Research assistant | 89 | 62 (69.7%) | 65 (73%) | 15 (16.9%) | 28 (31.5%) |
| Medical or Nursing Student | 75 | 64 (85.3%) | 26 (34.7%) | 2 (2.7%) | 2 (2.7%) |
| Architect | 143 | 118 (82.5%) | 117 (81.8%) | 27 (18.9%) | 20 (14%) |
| Miscellaneous | 60 | 46 (76.7%) | 43 (71.7%) | 25 (41.7%) | 29 (48.3%) |
| P | | <0.001** | <0.001** | <0.001** | <0.001** |

*Not significant, ** Highly significant

Table 4: Attitude about preventive and screening modalities

| Parameter | Positive attitude |
|---|----------------------------------|
| Willingness to get pap smear done | 599 |
| Willingness for HPV Vaccination | 601 (72.9) |
| Would answer change if supplied by the government | Yes :90 (10.9) No: 133 (16.1) |
| Willingness for Daughter's HPV Vaccination | 613 (74.3) |

DISCUSSION

The present study explored the knowledge, attitude, and practices regarding cervical cancer preventive strategies among the less studied educated strata of North India. Out of the 824 respondents to the online survey, the majority were more than 40 years of age. As expected, most of them were postgraduates. The group had a diverse composition spanning various occupations.

Being educated, more than three-fourths of the respondents had knowledge about cervical cancer, pap smear, and HPV vaccination. However, the knowledge regarding the eligibility of pap smear and HPV as a screening test was poor. On review of the literature, no study with a similar profile of study group was found. However, the results are similar to a study conducted in North India among an educated section of the hospital (102 staff nurses). They found that though more than 90% were aware of cervical cancer and pap smears, a significant proportion (68.5%) had the wrong information about eligibility for pap smear.^[4] Goyal *et al.*^[5] and Arulogun and Maxwell^[6] also reported similar results. Also, evidence

reiterates that the knowledge of the educated respondents is better than that of a general study group.^[7,8]

Around 70% of the subjects had a positive attitude toward pap smear, HPV vaccination, and also HPV vaccination of their daughters. Another 10% would be willing for HPV vaccination if it is supplied free by the government. This emphasizes the need to include HPV vaccination in our national programs to ensure maximum utilization of this primary preventive strategy. The proportion of women with positive attitudes is higher than the results found in a recent study,^[4] thus pointing to the success of our education and motivation drives.

It is however disappointing to see that such a good knowledge and positive attitude transformed into a regular practice of pap smear in just 30% of the subjects. The present study also assessed the association of sociodemographic characteristics with good knowledge, positive attitude, and regular practice toward cervical cancer screening activities. Women aged more than 40 years had good knowledge about pap smears, and younger females had significantly good knowledge about pap smears, and younger females had significantly better knowledge about HPV vaccination, though all the age groups reflected a good attitude toward screening practices. This shows increased receptivity of the women regarding screening strategies suitable to their age, though no study has analyzed data on these stratifications. Also, it emphasizes that awareness drives have successfully instilled positive attitudes in women across all age groups. Though all the respondents were educated, it was observed that knowledge, attitude, and practice of screening activities increased significantly as the education level

Table 5: Association of sociodemographic characteristics with positive attitude and good practice of cervical cancer screening modalities

| Variable | Total Number (n=824) | Good attitude of Pap smear (n=599) | Good attitude of HPV Vaccination (n=601) | Regular Practice of Pap smear (n=255) | Regular Practice of HPV Vaccination (n=80) |
|----------------------------|----------------------|------------------------------------|--|---------------------------------------|--|
| Age | | | | | |
| <20 yrs. | 82 | 60 (73.2%) | 24 (29.3%) | 0 (0%) | 18 (22%) |
| 20-30yrs | 238 | 190 (79.8%) | 130 (54.6%) | 36 (15.1%) | 50 (21%) |
| 30-40 yrs. | 181 | 134 (74%) | 158 (87.3%) | 75 (41.4%) | 12 (6.6%) |
| >40 yrs. | 323 | 215 (66.6%) | 289 (89.5%) | 178 (55.1%) | 0 (0%) |
| P | | 0.006* | <0.001** | <0.001** | <0.001** |
| Education | | | | | |
| Student | 75 | 60 (80%) | 20 (26.7%) | 2 (2.7%) | 18 (24%) |
| Undergraduate | 230 | 148 (64.3%) | 199 (86.5%) | 43 (18.7%) | 20 (8.7%) |
| Postgraduate | 519 | 391 (75.3%) | 382 (73.6%) | 146 (28.1%) | 42 (8.1%) |
| P | | 0.003* | <0.001** | <0.001** | <0.001** |
| Profession | | | | | |
| Teacher | 164 | 90 (54.9%) | 86 (52.4%) | 20 (12.2%) | 12 (7.3%) |
| Staff Nurse | 170 | 146 (85.9%) | 145 (85.3%) | 56 (32.9%) | 18 (10.6%) |
| Paramedic | 123 | 90 (73.2%) | 92 (74.8%) | 44 (35.8%) | 6 (4.9%) |
| Research assistant | 89 | 58 (65.2%) | 58 (65.2%) | 15 (16.9%) | 4 (4.5%) |
| Medical or Nursing Student | 75 | 60 (80%) | 60 (80%) | 2 (2.7%) | 32 (42.7%) |
| Architect | 143 | 115 (80.4%) | 116 (81.1%) | 27 (18.9%) | 4 (2.8%) |
| Miscellaneous | 60 | 40 (66.7%) | 44 (73.3%) | 25 (41.7%) | 4 (6.7%) |
| P | | <0.001** | <0.001** | <0.001** | <0.001** |

*Not significant, ** Highly significant

Table 6: Causes for not getting a pap smear

| Reason | Number |
|--------------------------------------|-------------|
| Don't feel need as perfectly healthy | 362 (43.9%) |
| Fear of Pain | 263 (31.9%) |
| Didn't reply or Not Eligible | 115 (13.9%) |
| Don't think it is useful | 57 (6.9%) |
| Embarrassing | 27 (3.2%) |

increased, except for HPV vaccination, for which students had significantly better knowledge. This observation is supported by a meta-analysis by Gianfranco Daminai *et al.* that reflected the positive influence of education on screening practices for both cervical and breast cancer^[9] and was reiterated by several other studies.^[4,10,11] Also, staff nurses and paramedics have significantly better knowledge than other groups.

On review of the literature, it was observed that none of the studies have attempted to assess reasons for poor practices of screening strategies despite good knowledge. The foremost reason reflected by the present study was “absence of need to do it” as the respondents had the notion of being perfectly healthy followed by fear of pain. This points to the fact that there are some serious lacunae in the knowledge of even the most educated strata of the society. With this information in the backdrop, we need to channel identified knowledge slits. Our health and paramedic professionals need to emphasize the use of screening strategies in perfectly healthy and asymptomatic women to increase the detection of precancerous lesions (in

their health talks), besides focusing on other parameters like warning signs of cervical cancer.

On analysis of data, it was revealed that the knowledge of being able to space the test by 5 years using HPV or 3 years using pap will motivate them to get it performed. As recommended by WHO, while transitioning to a program with a recommended regular screening interval, screening even just twice in a lifetime is beneficial among both the general population of women and women living with HIV.^[12] Undoubtedly, the correct knowledge of the eligibility of a pap smear and its efficacy when performed even twice in a lifetime will definitely go a long way in bridging this bench to the bedside abyss in cervical screening practices.

Limitations

The sample size is small to generalize the results. Larger population-based surveys are required for a better understanding of the knowledge, attitude, and practices of the educated strata of the society.

CONCLUSION

Knowledge gaps and apprehensions need to be addressed even in educated women for compliance to a regular practice of screening modalities. Awareness drives need to focus on these issues.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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