

ORIGINAL ARTICLE

An Epidemiological study on early detection of cervical cancer and barriers for seeking preventive Healthcare among rural females in North India

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ABSTRACT

Lack of sufficient knowledge about detection and prevention of cervical cancer has made it one of the fastest growing cancers among Indian women. 200 rural women, ages 30 to 60, were evaluated as part of this cross-sectional research that took place in Jawan Village. Information was gathered via a standardized questionnaire that examined sociodemographic, awareness of cervical cancer, and barriers to receiving healthcare. IBM SPSS 26.0 was used for statistical analysis. The majority of the participants were homemakers and uneducated. Only 28.5% knew about cancer, and 71% had no idea that it can be cured if diagnosed early. 11% of respondents felt that tobacco use had a minimal impact on cervical cancer. Domestic responsibilities (61%) were mirrored in barriers to healthcare access. Moreover, 68% of respondents were unaware of the availability of HPV vaccine for prevention of cervical cancer. The critical need for focused health education initiatives and increased access to healthcare in rural regions is highlighted by this study. Comprehensive public health programs should target sociocultural obstacles, increase public knowledge of government institutions, and close knowledge gaps about cervical cancer.

KEYWORDS

Cervical Cancer, Screening, Cancer Awareness, Women's Health, Health Education

INTRODUCTION

Cervical cancer is caused by Human Papilloma Virus (HPV), which is a sexually transmitted infection affecting skin, genital region and throat. The immune system often rids the body

of HPV, although High-risk HPV infections can persist and lead to the development of aberrant cells that eventually turn into cancer. With 604,000 new instances of cervical cancer in 2020, it is the fourth most frequent

malignancy in women worldwide. Roughly 90% of the 342,000 cervical cancer-related fatalities took place in low- and middle-income nations. South-East Asia, Central America, and sub-Saharan Africa (SSA) have the greatest incidence and fatality rates of cervical cancer. Variations in the incidence of cervical cancer among regions are associated with disparities in the availability of immunization, screening, and treatment programs; risk factors such as the prevalence of HIV; and social and economic variables including gender stereotypes, poverty, and sex. (1)

About 6–29% of all female malignancies in India are related to cervical cancer. According to recent data published by National Family Health Survey-5 (NFHS-5), only 2.2% of the females in urban area and a mere 1.7% females in rural area have ever undergone screening for cervical cancer between the age group 30-49 years. (2) In the state of Uttar Pradesh, this percentage is even lesser at 1.1% for urban and 1.7% for rural screening of cervical cancer. (3) Lack of awareness about symptoms, early detection, and knowledge about better prognosis in case of early detection among rural females remains low, despite the existence of screening guidelines in the country. (4,5) Sociocultural, economic, and environmental variables further jeopardize a rural woman's health and her ability to seek medical care. The majority of people in India live in rural areas—nearly 72%. (5) There is a dearth of research to assess appropriate knowledge about early detection of cervical cancer, its symptoms and availability of HPV vaccine for cervical cancer prevention, particularly in the rural areas of the country. Therefore, the current study was carried out with the objectives to assess knowledge regarding early detection of cervical cancer among rural females, barriers to early detection of cervical cancer and to suggest ways to increase awareness in order to improve screening among the rural population.

MATERIAL & METHODS

Study type and study Design: This cross-sectional study was conducted in Jawan Village, a field practice area under the

Department of Community Medicine, J.N. Medical College, Aligarh Muslim University, Aligarh. The department's Rural Health Training Centre (RHTC) is a healthcare facility that caters to the requirements of the rural populace. Families that register with the centre are eligible to receive services at no cost or for a reduced fee. **Sample size and study duration:** Through purposive sampling, 200 resident females from the village between the ages of 30 and 60 from June to August of 2023 were included in the current study. **Inclusion and exclusion criteria:** The study did not include any female participants who did not provide their agreement to participate and who were already afflicted with one or more non-communicable illnesses. The data was collected through a predesigned questionnaire adopted from a previously conducted study on rural females. (6)

The questionnaire consisted of three sections—one for socio demographic information of the study participants along with anthropometric indices, second part consisted of information regarding knowledge of cervical cancer, while third part included information about barriers to access healthcare for non-communicable diseases. The questionnaire was checked for validity and reliability through a pilot study before administering to study population.

Consent: Informed consent was taken from all participants included in the study. They were assured of the confidentiality of their personal information and the data collected.

Ethical consideration: Ethical clearance was obtained prior to the study from the Institutional Ethics committee (IECJNMC/954). The participants of the study were assured about the confidentiality of the information and their identity during the examination and interview.

Statistical analysis: The collected data was entered in IBM SPSS 20.0 and was analysed by descriptive analysis.

RESULTS

The mean age of the study participants was found to be 41.19 ± 10.7 years. The mean age at first child was reported to be 21.3 ± 3.3 years. The mean number of children borne by females reported among study population was

3±1.4. The mean family size was 5.88±2.3 people. The mean BMI of the population at the time of study was found to be 24.97±4.57 kg/m². The mean systolic blood pressure was 121.81±17.10 mmHg, while the mean diastolic blood pressure was 77.69±9.61 mmHg. Majority of the females were found to be

illiterate (42%, n=84), were home makers (80%, n=160), and belonged to lower middle class (37%, n= 34) as per Modified B.G. Prasad scale 2023(7). The other sociodemographic details of the study participants can be found in Table 1.

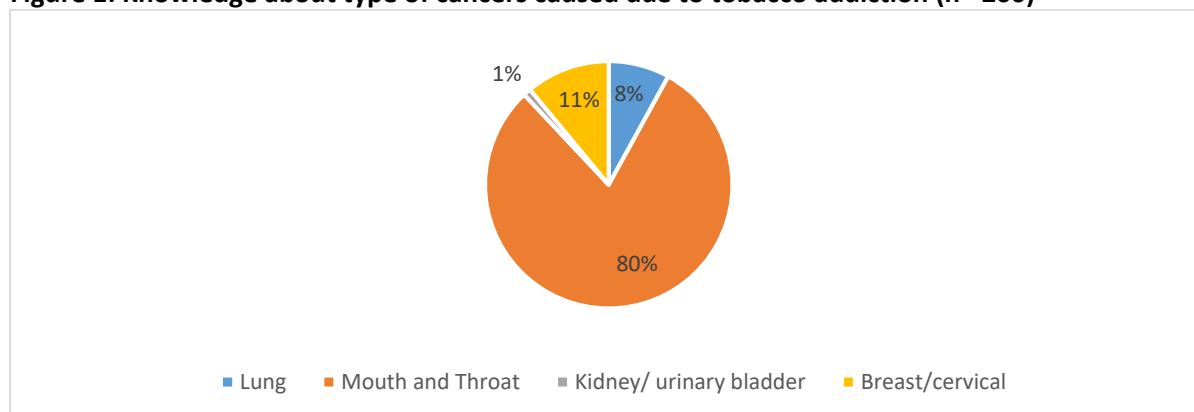
Table 1: Socio Demographic Details of Study Participants (N=200)

Marital status	Frequency (n)	Percentage (%)
Married	192	96.0
Unmarried	1	0.5
Divorced/ widowed	7	3.5
Educational status		
Up to primary school	28	14.0
High School	53	26.5
Intermediate	12	6.0
Graduate And above	23	11.5
illiterate	84	42.0
Occupational status		
Home maker	160	80.0
Working	40	20.0
Housing type		
Pucca	181	90.5
Semi pucca	12	6.0
Kutchra	7	3.5
Socio-economic class		
Upper class (I)	4	2.0
Upper middle class (II)	20	10.0
Middle class (III)	38	19.0
Lower middle class (IV)	74	37.0
Lower class (V)	64	32.0

On asking about the causation of cancers due to tobacco addiction (either smoked or chewed), it was found that 84% (n= 168) knew about tobacco as being the causative agent behind cancer, while 4.5% (n=9) did not agree that tobacco had an adverse effect on health. While 11.5% (n=23) had no idea regarding ill

effects of tobacco addiction. On asking whether participants had any knowledge what kind of cancer tobacco addiction can cause, Majority (80%, n= 160) knew that mouth and throat cancers could be caused. Knowledge about causation of other typer of cancer is presented in the following figure (Figure 1).

Figure 1: Knowledge about type of cancers caused due to tobacco addiction (n= 200)



With regard to knowledge about cervical cancer, although 28.5% (n=57) participants had heard about it, a staggering 71% (n= 142) participants did not know that it can be diagnosed early. Offensive vaginal discharge was considered to be most common

presentation of cervical cancer among almost half of the study population (55.5%, n= 111), while almost two third (76.5%, n= 153) females had never undergone gynecological examination for screening of cervical cancer. (Table 2).

Table 2: knowledge regarding cervical cancer among study participants (N= 200)

Knowledge about Cervical cancer	Frequency (n)	Percentage (%)
Nothing at all	119	59.5
Heard about it	57	28.5
Know a little about it	20	10
Quite familiar with it	4	2
Cervical cancer can be cured if caught early		
Disagree	142	71
Unsure	12	6
Agree	46	23
Early symptoms of cervical carcinoma		
Pain during dyspareunia	39	19.5
Vaginal bleeding after menopause	40	20
Vaginal bleeding between menstrual cycles	10	5
Offensive vaginal discharge	111	55.5
Had gynecological examination in the past 5 years		
No	153	76.5
Yes	47	23.5

Upon enquiring if the females felt there might be some barriers for accessing healthcare for early detection of breast cancer, majority females responded as domestic responsibilities being the prime reason (n=122,

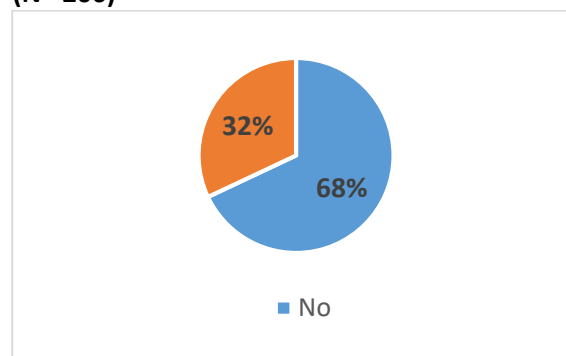
61%) followed by lack autonomy (n=24, 12%) and having a child at home or having disability/ injury (n=16, 8%) as few factors which limit them in accessing healthcare (Table 3).

Table 3: Perceived barriers in access to healthcare among study participants (N=200)

Barrier in access to healthcare	Frequency (n)	Percentage (%)
Domestic responsibilities	122	61.0
Disability/injury	16	8.0
Young child at home	16	8.0
Work	10	5.0
Lack of autonomy	24	12.0
Feeling tired	7	3.5
Safety concerns	2	1.0
Unfavourable weather	3	1.5

The participants were also asked if they had information about Human Papilloma Virus (HPV) Vaccine which can prevent cervical cancer, in the response to which two-thirds of the study population did not have information for cervix cancer prevention (n= 136) while only 64 females knew about it (Figure 2).

Figure 2: Awareness Regarding availability of HPV vaccine for cervical cancer prevention (N= 200)



These results highlight the critical need for focused education campaigns and increased access to healthcare in remote regions in order to raise awareness of cervical cancer and promote early detection.

DISCUSSION

It has been documented by various studies conducted earlier that tobacco misuse has been found to be causally linked to causation of cervical cancer due to its immunosuppression and direct carcinogenic effect in females (8–10). In our study, however, it was found that females had poor knowledge regarding association of tobacco usage with cervical cancer, as has been reported in another study conducted in northern India and Uganda (11,12). This lack of knowledge could be attributed to the fact that campaigns regarding cancer caused by tobacco are mostly focussed on oral cancer, inefficient media campaigns to promote awareness and lack of screening activities among the population. (13)

More than half the females in our study had no knowledge about cervical cancer, only a one-third had heard about it, which is in contrast to studies conducted previously (11,13). Although in another study, it was reported that participants had no knowledge about the disease (6,14). Lack of information that cervical cancer can be cured if diagnosed early emphasizes the importance of widespread screening activities which can prevent mortalities due to cervical cancer. (15) Regarding symptoms for early presentation of cervical cancer, offensive vaginal discharge was reported as the most common in our study, similar to another study conducted in Uganda (12), while almost one third participants attributed inter menstrual bleeding, post-menopausal bleeding or dyspareunia to being early symptoms of cervical cancer as reported by a similar study. (14) In the current study, rural women's vaccination knowledge is essentially non-existent. There is a need to reduce the cost and length of vaccine usage prior to the HPV vaccination being included to the National Immunization Program. Therefore, lowering the incidence of cervical cancer among Indian women will be possible with an efficient vaccination campaign based on the region's epidemiological profile of HPV. (16)

Lack of autonomy, including fulfilling domestic roles and responsibilities even for accessing healthcare has been documented as an

important barrier, similar to our study. (17) This highlights the glaring gender inequity in case of females who are often burdened to take permission from their husbands or head of the family to access healthcare. (18)

One significant component of the implementation issues regarding the health program in India is highlighted by the lack of knowledge screening facilities for cancer detection among females living in rural areas. It is important to ascertain whether program activities are not integrated at the level of the health system and to promptly take the necessary measures to address the issue. Effectively addressing socioeconomic disparities, the stigma associated with accepting screening, and public understanding about cancer screening are also crucial. Without the development of infrastructure and human resources, public education and awareness campaigns, and adequate training for medical professionals on cancer screening and prevention at primary and community health centers, population-wide screening cannot be conducted effectively in India. Social media platforms may be an excellent tool for boosting public awareness about cancer screening, early diagnosis, and prevention on a large scale. (19)

Apart from these, appropriate counselling of women regarding hazards and risk factors of cervical cancer and advantage of early detection and cure, increasing health literacy, counselling about easy and effective way of screening through pap smears and striving to achieve a change in attitude of the women so that they are comfortable in reporting to health facilities for early screening could be some methods by which improvement in prevalence of cervical cancer can be brought about. (4,20) Rural community health workers should be trained appropriately and a comprehensive and culturally suitable communication approach aimed at educating the community will aid in removing some of the obstacles that have been observed. (6)

CONCLUSION

In conclusion, this study highlights the serious gaps in the information and awareness that

rural female population has about cervical cancer. The results highlight the critical need to address the low rates of cervical cancer screening and awareness through focused educational efforts and improved access to healthcare facilities. The urgent need for comprehensive public health initiatives is highlighted by the lack of understanding regarding the link between tobacco use and cervical cancer, as well as the lack of awareness of the government-provided early detection and screening facilities. The study also shows how important it is for sociocultural variables, gender norms, and a lack of autonomy to influence rural women's healthcare-seeking behavior. It is imperative that culturally appropriate education programs, community health worker training, and programs encouraging women to prioritize their health be implemented in order to reduce the incidence of cervical cancer in these areas. These results provide important new information for the design of focused initiatives meant to lower the incidence of cervical cancer in rural regions and improve public health outcomes in general.

LIMITATIONS

Despite notable findings, our study is not without limitations. Firstly, as the study was conducted on a small and highly selected sample population, the results cannot be generalized to a larger population. Secondly, possibility of informer's bias cannot be ruled out in this kind of study. Further studies could be conducted after implementation of an educational package among the population to improve health literacy and outcomes among rural population.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the author (s) used (Quill bot and Chat GPT).

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