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Original Research Article

Factors influencing the attitudes of rural women in Uttarakhand towards cervical cancer screening

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Abstract

Background: Cervical cancer is a significant public health concern, particularly in low- and middle-income countries such as India. The uptake of cervical cancer screening is alarmingly low, especially in rural areas. The aim of the study was to assess the knowledge of rural women in Uttarakhand regarding cervical cancer, its screening and to identify factors influencing the uptake of screening methods.
Materials and Methods: A cross-sectional study was conducted for one year among 446 married women, aged 21-65 years, attending the outpatient department of a rural health training centre under community medicine department. Participants were interviewed using a pre-structured and pre-tested questionnaire covering socio-demographic details, knowledge and attitudes towards cervical cancer screening. Data was analysed using SPSS v23 applying logistic regression.
Results: The mean age of respondents was 38.1 years. Only 39% of women had heard of cervical cancer and just 19% were aware of the Pap test. Mere 10.8% women understood its correct purpose. The most common source of information were healthcare providers. Key barriers to screening included negligence, perceived good health, embarrassment, and financial or time constraints. Women's inclusion in family decision making and women with gynaecological complaint were significantly more likely to take screening.
Conclusion: Awareness and uptake of cervical cancer screening among rural women is critically low, primarily due to lack of knowledge and socio-cultural barriers. Targeted health education, empowerment of women in health-related decision-making and opportunistic screening during healthcare visits are recommended to improve screening of cervical cancer.

Keywords: Cervical cancer, Awareness, Prevention, Screening, Pap test.

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1. Introduction

Cervical cancer is the fourth most frequent cancer in women globally, with an estimated 662,301 new cases and 348,874 deaths in 2022.[1] Higher number of cases and deaths from cervical cancer occurred in low and middle-income countries.[1] Of all new cases and deaths globally in 2020, India accounted for approximately one-fifth of new cases and nearly one-fourth of deaths due to cervical cancer, making it a major contributor to the global burden of cervical cancer. In India, cervical cancer is the second most common cancer in both incidence (18.3%) and cancer mortality (18.7%) among women in 2020, with a 5-year prevalence of 18.8%.[2] Global cancer statistics shows a decline in the age-standardized incidence rates, deaths, and disability-adjusted life years (DALYs) associated with cervical cancer from 1990 to 2019. However, despite this improvement, cervical cancer remains a significant health concern due to its persistently high absolute numbers of patients. These figures highlight the ongoing burden of cervical cancer in India, which necessitates continued efforts in prevention, early detection and treatment.[3] Based on the GLOBOCAN 2022 findings, the Age-standardized Mortality Rate (ASMR) for cervical cancer across the globe stands at around 7.1 per 1,00,000

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women. In contrast, India exhibits an ASMR of approximately 11.2 per 100 000 women for cervical cancer, indicating a significantly elevated mortality rate compared to the global average.[4] The high mortality rate from cervical cancer could be reduced by effective screening and treatment. Screening aims to detect precancerous changes, which, if not treated, may lead to invasive disease. Visual inspection with acetic acid (VIA), Visual inspection with Lugol Iodine (VILI), visual inspection by magnification, Pap smear and HPV DNA testing are all recommended cervical cancer screening tests.[5,6] Screening of cervical cancer will also help towards realization of the Sustainable development goal 3.4 (SDG 3.4) i.e. to reduce premature mortality from non-communicable disease, including cancer by one-third by 2030.[7] Screening for cervical cancer in India has been implemented through the National Programme for Prevention and Control of non-communicable diseases [NP-NCD].[8,9] Despite the availability of screening program, the coverage of cervical cancer screening has been extremely poor, with only 1.9% (2.2% in urban areas and 1.7% in rural areas) of women aged 15–49 years ever having been screened for cervical cancer in India.[10,11] There is disparity in the cervical cancer screening coverage in various states of India. National Family Health Survey reflected that in Uttarakhand, only 0.4% women had ever undergone cervical cancer screening test.[10] It has been studied that screening of cervix can significantly reduce the risk of dying from cervical cancer.[12] Unfortunately in India, there is a lack of awareness about the cervical cancer screening.[13-15] It is the need of the hour that the barriers and facilitators for cervical cancer screening should be identified and solutions to be sought so that the targets of cervical cancer elimination can be achieved in a timely manner. With the above background, the present study was done with the aim to assess the knowledge of women about cervical cancer, its screening and to explore the factors influencing uptake of cervical cancer screening among women in rural areas of Uttarakhand.

2. Aim and Objectives

Aim of the study was to find out the knowledge of cervical cancer and its screening among women residing in rural area of Dehradun and factors influencing its utilization.

1. To assess the knowledge of women about cervical cancer and its screening.
2. To enumerate the factors influencing uptake of cervical cancer screening among women.

3. Material and Methods

3.1. Study design and setting

This was a cross-sectional study conducted over a period of one year in outpatient department (OPD) of Rural Health Training Centre (RHTC).

3.2. Study participants

Married women aged 21-65 years attending the OPD.

3.3. Inclusion criteria

All married women aged 21-65 years, who gave time and consent for the interview.

3.4. Exclusion criteria

Women <21years of age, unmarried, >65 years of females, women who had previous hysterectomy, diagnosed cases of cancer cervix, pregnant women, those using douching or other vaginal tablets, currently menstruating.

3.5. Ethical consideration and consent

Prior approval was taken from the Institutional Ethics Committee of the Institute before starting the study. Participants were informed and consent was taken before starting the interview. They were told that the data will be kept anonymous and used for research purposes only.

3.6. Methodology

Out of 482 women who attended the OPD, 36 women did not give the consent. Hence a total of 446 women were interviewed using a pre structured and pretested questionnaire. The questionnaire consisted of two parts. The first part consisted of socio-demographic and fertility details and the second part contained questions to assess their knowledge of cervical cancer, its screening and attitude for getting the test done, to explore barriers and facilitators of screening. They were interviewed in Hindi, taking utmost care of their privacy and confidentiality. Their responses were noted by the interviewer. The data obtained after the interview was entered in the statistical software SPSSv23 and analyzed. Odds ratios and confidence interval (C.I.) were calculated to know important factors influencing cervical cancer screening. Hosmer Lameshow (HL) test was applied to see the goodness of fit.

4. Results

Out of total 446 women who were interviewed, mean age of respondents was 38.1 years (38.1±9.2), majority being aged 30-40 years 184 (41.3%). Literacy assessment reveals that 58 (13%) were illiterate, 62 (13.9%) were literate up to 5th class, 84(18.8%) were educated up to 10th, 90 (20%) up to 12th and 152 (34%) of them were graduate and above. Half 226 (50.7%) of them belonged to socio-economic class I, 102 (22.9%) to socio-economic class II, 72 (16.1%) belonged to class III. Husbands of approximately half of the women 204 (46.8%) were graduate and 22 (5%) were illiterate. Out of total, 76 (17%) women were employed and remaining 370 (84.9%) were home makers. Majority of them were from nuclear family 258 (57.8%).

Most of the women 344 (77.1%), married at age of 19-25 years, 56 (12.6%) got married before age of 18 years.

More than half 236 (52.9%) of the study participants were second para, 120 (26.9%) were having parity >2 and 16 (3.6%) were nullipara. Barrier contraceptive was the commonest method used by 200(44.8%) women, followed by Tubal Ligation 120 (26.9%). Approximately 1/5th i.e. 96 (21.5%) women were not using any reliable contraceptive method. **(Table 1)**

When asked about awareness of cervical cancer from the participants, it was observed that only 174(39%) women heard of cervical cancer and 107(61.5%) were aware about its symptoms. Those who had some knowledge of symptoms gave more than one response about the symptoms. 85(19%) women heard about Pap test. Only 48(10.8%) women knew that Pap test was used for screening of cervical cancer. 56(12.6%) women ever had taken Pap test earlier. After explaining the nature of test, 223(50%) women showed willingness to take Pap test, but 172 (77.1%) women agreed for the test. Source of information of Pap test were doctors 29(34.1%), social media 19 (22.3%), friends 18(21.1%) and newspaper 8(9.4%). **(Table 2)**

Table 1: Participants' profile

Variables	Category	Number	%
Age	20-30	106	24
	30-40	184	41
	40-50	110	25
	50-60	36	8.1
	>60	10	2.2
Women's education	Illiterate	58	13
	Up to Class 5	62	14
	Higher Secondary	84	19
	Senior Secondary	90	20
	Graduate and above	152	34
Socio-Economic Classification (Modified B G Prasad Socio-economic Status Scale)	I	226	51
	II	102	23
	II	72	16
	IV	32	7.2
	V	14	3.1
Husband's education	Illiterate	22	5
	Up to Class 5	24	5.5
	Higher Secondary	90	21
	Senior Secondary	96	22
	Graduate and above	204	47
Women's occupation	Working	76	17
	Housewife	370	85
Type of family	Nuclear	258	58
	Joint	188	42
Women's age at marriage	≤18	56	13
	19-25	344	77
	>25	46	10
Parity	0	16	3.6
	1	74	17
	2	236	53
	>2	120	27
Contraception	Ligation	120	27
	Barrier	200	45
	Oral Contraceptive Pills	12	2.7
	Intra Uterine Device	14	3.1
	Injectables	4	0.9
	None	96	22

Table 2: Participant's knowledge about cervical cancer and Pap test

Factors	Responses	Number	%
Awareness about cervical cancer (Heard of it)	Yes	174	39
	No	272	61
Awareness about symptoms (n= 174)	Yes	107	61.5
	No	67	38.5
Awareness about Pap test	Yes	85	19
	No	361	80.9
Know correctly why Pap test is done	Yes	48	10.8
	No	398	89.2
Ever had Pap test in past	Yes	56	12.6
	No	390	87.4
Willingness for Pap test in the same visit	Yes	223	50
	No	223	50
Agreed for Pap test in same visit (n=223)	Yes	172	77.1
	No	51	22.8
Source of information for Pap test (n=85)	Doctor	29	34.1
	Friend/ neighbor	18	21.1
	Health worker	11	12.9
	Internet/ social media	19	22.3
	Newspaper	8	9.4

Table 3: Facilitators and barriers for taking Pap test

Pap test	Underlying Reasons	Number	%
Facilitators (n=172)	Physician's advice	82	47.7
	For protection against serious diseases	58	33.7
	Fear of detection of serious problem	21	14.8
	Avoiding economic burden of disease	10	5.8
Barriers (n=274)	Witnessed no symptoms	95	34.7
	Embarrassing	30	10.9
	Not required	40	14.6
	Fear of cancer	10	3.6
	Time constraint	34	12.4
	Money constraint	22	8
	Already had it	33	12
	Need to ask husband	10	3.6

Table 4: Socio-demographic factors affecting uptake of Pap test by the study participants

Factors	Category	Total Participants number (%)	Participants who underwent Pap test number (%)	Odds Ratio	95% CI (Lower Limit - Upper Limit)
Women's age	<45 yrs.	344 (77.1)	136 (39.5)	1.042	0.941-1.153
	>45 yrs.	102 (22.9)	36 (35.3)	0.869	0.607-1.244
Women's education	Illiterate	58 (13)	24 (41.3)	1.124	0.691-1.829
	Literate	388 (87)	148 (38.1)	0.982	0.911-1.059
Women's working status	Home maker	370 (83)	144 (38.9)	1.015	0.932-1.106
	Working	76 (17)	28 (36.8)	0.929	0.607-1.422
Socio-Economic Class	Class I-II	328 (73.5)	116 (34.5)	0.872	0.772-0.988
	Class III-V	118 (26.5)	56 (47.5)	1.439	1.059-1.956
Husband's education	Illiterate	22 (4.9)	8 (36.4)	0.91	0.390-2.124
	Literate	424 (95.1)	164 (38.7)	1.005	0.963-1.049
Women's age at marriage	≤ 18 yrs.	56 (12.6)	28 (50)	1.593	0.978-2.595
	> 18 yrs.	390 (87.4)	144 (36.9)	0.933	0.863-1.007

Table 5: Results of binary logistic regression (DV: Uptake of Pap test) (n=172)

Variables	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Inclusion in Family Decision Making	0.674	0.225	8.93	1	0.003	1.962	1.26	3.05
Gynecological Complaint	2.145	0.227	89.34	1	0.000	8.54	5.47	13.32
Constant	-0.949	0.198	22.90	1	0.000	0.387		

Out of all 446 women interviewed, 274 (61%) women refused for getting Pap test even after counseling for the same. The most common reason to refuse the test was that they had no symptoms 95(34.7%) of the disease. 40(14.6%) women said that they are perfectly healthy so they don't need the test. 30(10.9%) women considered the test to be embarrassing. 34(12.4%) of them had time constraint. 22 (8%) had money constraint. 10(3.6%) women seek husband's approval for the test. Out of the women who actually underwent the test, 82(47.7%) took the test because of the advice by the physician. 58(33.7%) understood the serious nature of the disease and took the test as a preventive step. 21(14.8%) women took the test as they wanted screening of the disease. 10(5.8%) women considered the test as economical as its cost was in their budget. **(Table 3)**

Lower age of women, being homemaker and husband's higher education showed maximum odds of getting the Pap test done on counselling for the same. (**Table 4)**

A logistic regression was performed to ascertain the effects of women's participation in the decision making for undergoing the test and presenting complaint, on the likelihood that participants will take Pap test. The logistic regression model was statistically significant, $\chi 2_{(2)} = 111.489$ ($p<0.05$). Further HL test predicts the model fits perfectly with the observed data, $\chi 2_{(2)} = 0.012$($p>0.05$). The uptake of Pap test is correctly predicted by decision making for undergoing the test and presenting complaint in 74% of cases (accuracy). The model reported a sensitivity of 73.7% and specificity of 74.4%. The Wald test was considered to determine statistical significance for each of the independent variables. Women participating in the decision making related to undergoing test on their own or with their spouse have 1.962 times ($p<0.05$) and with gynecological complaints have 8.54 times ($p<0.05$) more likelihood for uptake of Pap test respectively. **(Table 5)**

5. Discussion

Cervical cancer morbidity and mortality can be prevented by detecting it early at an initial stage and effective management. Cervical cancer screening is a promising intervention to reduce the morbidity and mortality associated with it. Awareness of screening among women is a pre-requisite for its uptake. Increasing the screening may benefit the society and nation to achieve elimination of cervical cancer (incidence of cervical cancer <4 per lac women).[16] In the present study, awareness of screening test was low (19%), though only 10.8% knew exact purpose of it showing a knowledge and awareness gap. Awareness about cervical cancer screening in other studies shows wide ranges[14,15] with 77% being among nurses in a study conducted by Shekhar et al.[17] This highlights the need of effective awareness program for women in India.

WHO recommends that 70% women should be screened for cervical cancer till age of 35 years and again by 45 years of age.[17] In our study 56(12.6%) women ever had pap test in their life and 50% of them showed willingness to take the test when counseled. In a study in Delhi, 18% women had Pap test and 58% were willing to take the test if offered free which are similar to our finding.[18] Even in a study conducted among nurses, though they had excellent (88%) Pap test knowledge, but test uptake was low (11.6%).[13] A study in rural area of Himachal Pradesh found that no women screened previously and only 5% had the knowledge of screening test of cervical cancer.[14]

In our study physician's advice was (47.7%) the most common reason for taking the test. This finding is concordant with other study by Coughlin S among US women[19] and Dsouza et al in India.[20] Medical officers may take the responsibility to increase the awareness among the women in form of counseling and opportunistic screening at minimal cost.[21] Staff at the screening sites needs to be empathetic to patient's need to increase acceptance of the test. Women should be encouraged to take care of their own health. Women's autonomy and their position in the family and society plays an important role as is seen from the results. More women who were included in the decision making in family took the test. Similar results were seen in other studies.[22] Education of husband plays a role as more uptake was seen among women whose husbands were educated in our study. Though this was not statistically significant. Effect of education on cervical cancer screening is reported by other studies.[22,23]

In our study it was found that the most common reason for refusing Pap test was unawareness in 34% of women. Our finding is consistent with the findings of Tripathi N in rural area of Maharashtra,[15] Nigudgi et al in Rewa Madhya Pradesh[24] and Singh K in New Delhi.[25] Therefore, health education programs on cervical cancer screening including media, doctors and other health care providers is the need of

the hour to increase women's participation to curb the problem of this preventable malignancy.

6. Limitation of the Study

As the study is conducted among the women who visited hospital, it may not be generalized to the whole geographical area.

7. Conclusion

Cervical cancer is a preventable disease. Pap smear testing is a very useful, simple, economical, and safe tool to detect pre invasive Cervical intrapithelial neoplasia (CIN). Therefore, in the present study, an attempt has been made to analyze awareness of Pap test. We can tap its benefits only when we identify and remove the hurdles and encourage positive environment to increase awareness, women empowerment through self-reliance and decision-making power. Health promotion activities through awareness will significantly influence utilization of cervical cancer screening. Mass media could be used to educate the women for its importance. There is a need to sensitize medical officers to counsel every eligible woman about cervical cancer.

8. Recommendation

The study recommends for opportunistic screening of all women of age 21-65 years at minimal cost, so that all the CIN cases are not missed. If diagnosed in this stage, the life of the patient can be saved. Simple Pap screening can reduce the burden of disease to a great extent. The role of the attending doctor in offering the test can't be ignored. Increased Information, education, communication (IEC) to increase the awareness of women about the availability of Pap test. Self Pap test kits can be a promising method to increase the uptake of the screening.[26-27] Pap self-sampling should be integrated and implemented by the government and private sector in addition to other screening strategies for achieving the goal of cervical cancer elimination in India.[28] Rural women can also be sensitized to use the self-kit to empower them for their own health.

9. Source of Funding

None.

10. Conflict of Interest

None.

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