

## RESEARCH ARTICLE

# Cervical Cancer Screening: Knowledge, Attitude and Practices among Nursing Staff in a Tertiary Level Teaching Institution of Rural India

Shashank Shekhar<sup>1</sup>, Chanderdeep Sharma<sup>2\*</sup>, Sita Thakur<sup>2</sup>, Nidhi Raina<sup>2</sup>

### Abstract

**Background:** Assessment of the nursing staff knowledge, attitude and practices about cervical cancer screening in a tertiary care teaching institute of rural India. **Materials and Methods:** A cross sectional, descriptive, interview-based survey was conducted with a pretested questionnaire among 262 staff nurses of a tertiary care teaching and research institute. **Results:** In this study 77% respondents knew that Pap smear is used for detection of cervical cancer, but less than half knew that Pap smear can detect even precancerous lesions of cervix. Only 23.4% knew human papilloma virus infection as a risk factor. Only 26.7% of the respondents were judged as having adequate knowledge based on scores allotted for questions evaluating knowledge about cervical cancer and screening. Only 17 (7%) of the staff nurses had themselves been screened by Pap smear, while 85% had never taken a Pap smear of a patient. Adequate knowledge of cervical cancer and screening, higher parity and age >30 years were significantly associated with self screening for cervical cancer. Most nurses held a view that Pap test is a doctor procedure, and nearly 90% of nurses had never referred a patient for Pap testing. **Conclusions:** The majority of nursing staff in rural India may have inadequate knowledge about cervical cancer screening, and their attitude and practices towards cervical cancer screening could not be termed positive.

**Keywords:** Pap smear - cervical cancer - cancer screening programme - screening attitudes - nursing staff

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### Introduction

Cervical cancer is the second leading cancer among women worldwide, and India shares a staggering one fifth of this global burden, with one out of every five women in the world suffering from cervical cancer being an Indian (Government of India - World Health Organization Collaboration Programme 2004-2005). A disproportionate 88% of worldwide deaths due to cervical cancer occurred in developing countries in 2008 (Ferlay et al., 2008). Cervical cancer and its mortality have been proven preventable by various screening and treatment strategies aimed at sexually active women. Developed countries have demonstrated significant reduction in cervical cancer mortality through their extensive organized population based cervical cancer screening programmes (CCSP) (Denny et al., 2005). Cytological screening is the established method for cervical cancer screening worldwide. In developed countries, proportion of women screened by Pap test is reported to vary between 68-84% (Swan et al., 2003; Harry et al., 2006) compared to an appalling 2.6-5% in India (WHO, 2003; Gakidou et al., 2008). No wonder that more than three fourth cases of cervical cancer are detected at an advanced stage in

India (Government of India - World Health Organization Collaboration Programme 2004-2005), thus reducing the chances of cure and survival considerably. The predominant reason for absence of cytology based cervical cancer screening programme in developing countries like India, is the staggering cost of infrastructure and trained manpower required for repeated cytological testing done over a wide age range. Hence, a low cost, effective and sustainable cervical cancer screening approach for low resource settings was urgently needed. The National Cancer Control Program (NCCP) formulated and funded by the Ministry of Health, Government of India developed guidelines for undertaking cervical cancer screening with the existing health system. This new strategy is based primarily on visual inspection based techniques. Visual inspection after acetic acid (VIA) has been established as an effective alternative to cytology based screening, by a large number of studies (Sankaranarayanan et al., 1998; 1999; Kitchener et al., 1999; University of Zimbabwe/JHPIEGO Cervical Cancer Project, 1999). Besides its high sensitivity and low-cost, VIA is simple enough to be performed by nurses, even at low levels of health care (Gaffikin et al., 2003), which is advantageous given the low doctor to patient ratio of 1:2000 in India (Press

Department of Obstetrics and Gynecology, <sup>1</sup>AIIMS Jodhpur, Rajasthan, <sup>2</sup>Dr RPGMC Tanda, HP, India \*For correspondence: cdsharma2006@yahoo.co.in

Information Bureau, Government of India, Ministry of Health and Family Welfare, 29 November 2011). Given a large workforce of nursing staff in India, their integration and participation in any of the cervical cancer screening approaches would be a strategically big advantage. As a first step in this direction, their current knowledge, attitude and practice towards cervical cancer screening needs an assessment, so that important amendments could be made wherever needed. This was the reason why we performed this study. Besides that, their knowledge, attitude and practice regarding cervical cancer screening, has a bearing on their own health as well.

**Materials and Methods**

The study was conducted as a descriptive cross sectional survey, among nursing staff of a tertiary care teaching and referral institute of rural India.

Data was collected through survey forms, by interviews conducted by researchers. A questionnaire was developed to assess the demographic characteristics of nurses, their knowledge, vis-a-vis risk factors for cervical cancer development, role of Papanicolaou (Pap) smear in detection of cancerous as well as precancerous lesions of cervix, curability of precancerous lesions, timing of Pap test, its periodicity and alternative modalities of screening. To objectively quantify the knowledge, each question evaluating knowledge was given a score of 0.5 to maximum of 1, with a total score of 6. A score of less than three was considered inadequate, and a score of three or more was considered to depict adequate knowledge. Most of the questions used for the evaluation of knowledge were prompted recall or recognition types, and only few questions were of unprompted recall. The questionnaire was pretested on a small group of randomly selected nurses, for comprehensibility, accuracy, language and sensitivity of questions. Few modifications were made in the questionnaire before final survey.

The survey was conducted in the department of obstetrics and gynecology, between October 2012 to November 2012, after obtaining approval from the institutional ethics committee. Of the total 368 nursing staff, only 316 could be contacted and were invited for interview based survey. They were informed about the purpose of survey and were told that participation was totally voluntary. Only 262 nurses turned up and were interviewed in small groups by the researchers over two months. Before answering the questionnaire a verbal informed consent was obtained. Participants were given clear instructions on how to fill out the questionnaire. Completed questionnaire was placed anonymously in a collection box. Twenty three questionnaires were discarded as they were incompletely filled or had personal information written on them thus limiting the final size of the study to 239 (Figure1).

Knowledge about eligibility for screening and screening interval was assessed according to American College of Obstetricians and Gynecologists (ACOG) guidelines (Hainer et al., 2009).

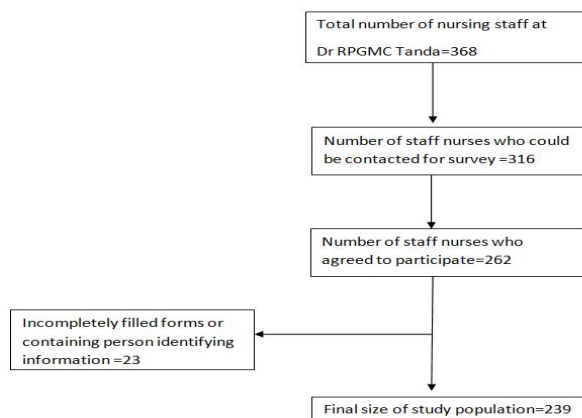
Microsoft office excel software was used to compute frequency and descriptive statistics related to demographic

data. We compared the characteristics of nurses who did and did not report a Pap test on self. Statistical methods included the chi-square test. A p value of <0.05 was considered statistically significant.

**Results**

Majority of participants (57%) were young females in their twenties, with an average age of 32.1±8.2 years. Married women represented 86.6% of the participants, and only 32 participants were unmarried. Two third (167) of respondents were using some method of contraception, with barrier (25.9%) and IUCD (25.1%) being used equally. Surprisingly no one in the study population had got tubal ligation done (Table 1).

A large number (184) of participants perceived cancer of cervix as a public health problem; however their knowledge about the risk factors for development of cancer cervix was not adequate. Less than a quarter (23.4%) knew human papilloma virus as a risk factor and only one third (36%) were aware of four or more risk factors. None of them knew all the risk factors for cancer cervix. Majority (81%) of nurses knew that Pap smear is used for cervical cancer screening, however



**Figure 1. Consort Flow Chart**

**Table 1. Socio-demographic Characteristics of Participating Staff Nurses (n=239)**

Sociodemographic Characteristics		No	%
Age	20-29	137	57.3
	30-39	54	22.5
	40-49	34	14.2
	≥50	14	5.8
Marital status	Married	207	86.6
	Unmarried	32	13.3
Parity	P0	90	37.6
	P1	87	36.4
	P2	58	24.2
	P3	4	1.6
Contraception used <sup>a</sup>	Natural	46	19.2
	Pills	27	11.3
	Injectables	4	1.6
	Barrier	62	25.9
	IUCD	60	25.1
	Ligation	0	0
	None	62	30.1

<sup>a</sup>Married women only and more than one answer possible for each participant (sum>100%)

less than half (48.9%) of them knew that Pap smear can also detect precancerous lesions of the cervix. Two third (71.7%) of respondents knew that early cervical changes are easily curable. On being asked about the timing of the Pap test, only 34% participants gave a correct answer. On periodicity of Pap test, majority (79%) of the respondents believed that Pap smear should be repeated only in the presence of symptoms. Almost all of them (225) knew cervical biopsy as an alternate modality, however only 34% were aware of the visual inspection after acetic acid as a tool for cervical cancer screening (Table 2). Only 25% of participants had heard of vaccines to prevent cervical cancer. When scores were counted for questions related to knowledge about cervical cancer and its prevention, only 26.7% of nurses were adjudged as having adequate knowledge.

Two third (72%) of the participating nursing staff credited their nursing training for the knowledge they had about cervical cancer screening, and only one third (34.7%) of them cited hospital as the source of their knowledge. Nearly 60% of participants were routinely managing female patients; however only 24% of them were doing vaginal examinations frequently and only few (8%) were using speculum while doing vaginal examination. Most of participants (85%) had never taken a pap smear, 70% never asked patients about their cervical

**Table 2. Knowledge about Cervical Cancer and Screening (n=239)**

	No	%
Cervical cancer is a disease of public health concern	184	76.9
Risk factors for cancer of cervix		
Knew HPV infection as a risk factor	56	23.4
≥4 risk factors known	86	35.9
≤3 risk factors known	153	64
Knew all risk factors	0	0
Cervical cancer presentation		
Asymptomatic	32	13.3
Foul smelling vaginal discharge	156	65.2
Abnormal vaginal bleeding	165	69
Post coital vaginal bleeding	48	20.1
Pap test is used for detection of cervical cancer	193	80.7
Pap test can detect precancerous lesions	117	48.9
Early cervical changes are easily curable	169	70.7
Who should be screened for cancer cervix		
Married women	60	25.1
Women ≥30 yrs of age	97	40.5
Women ≥ 21 yrs of age or those who are sexually active for last 3 years (whichever is earlier)	82	34.3
Screening interval		
One year	68	28.4
Two years	10	4.1
Three years	12	5
Screen only when symptoms	149	79.4
Diagnostic Modalities other than pap smear		
VIA	34	14.2
Colposcopy	38	15.8
Cervical biopsy	225	94.1
Knowledge about cervical cancer acquired from <sup>a</sup>		
Nursing Training	172	71.9
Dr RPGMC Tanda	83	34.7
Other	26	10.8
HPV Vaccine Known to	61	25.5
Knowledge Scores		
≥3 (adequate)	64	26.7
<3	175	73.2

\*HPV, human papilloma virus, <sup>a</sup>more than one answer possible for each respondent (sum>100%)

cancer screen status, and 90% of the respondents had never referred patients for screening of cervical cancer (Table 3).

Despite reporting a family history of cervical cancer by 21 respondents, only 17 (7.1%) had got Pap smear done on them. Most (43.5%) of respondents cited "no reason" for not undertaking a Pap test, while nearly half of never screened respondents believed that they were not vulnerable to the disease. Most (70%) of nurses who participated, believed that Pap smear is a procedure to be done by a doctor only (Table 4). Only 6% reported lack of speculum as a reason for not doing Pap smear.

Nine out of the 17 nurses who reported self screening for cervical cancer, had knowledge scores adjudged as adequate (Table 5), and this association was statistically significant (p=0.01). Majority (14 out of 17) of the Pap test done on self were reported by nurses aged more than 30 years (Table 5), and this association was found to be significant (p=0.003) and so was the association between higher parity and likelihood of getting a Pap smear done on self (Table 5, p=0.02).

**Table 3. Practices about Cervical Cancer Screening**

Practices	No	%
Staff nurses routinely managing female patients	143	59.8
Performing vaginal examinations frequently	58	24.2
Using speculum during vaginal examination	20	8.3
Taken a pap smear	36	15
Not routinely asking patients whether screened for Cervical cancer	167	69.8
Not referring patients for screening	215	89.9
Respondents themselves screened (at least once)	17	7.1

**Table 4. Attitudes among Staff Nurses about Cervical Cancer Screening**

Attitudes	No	%
Responses for not Screening Patients <sup>a</sup>		
Absence of Indication	41	17.1
Lack of vaginal speculum	6	2.5
Pap smear is a doctor's procedure	170	71.1
Not applicable	36	15
Reasons for not getting self pap smear		
No reason	104	43.5
Not feeling at risk	40	16.7
Lack of symptoms	73	30.5
Feeling shy to have pap smear	3	1.2
Afraid of outcome	1	0.4
If I am destined to get pap smear, I will	1	0.4
Not applicable <sup>b</sup>	17	7.1

<sup>a</sup>More than one answer possible for each participant (sum>100%). <sup>b</sup>underwent Pap testing at least once in lifetime

**Table 5. Association of Participant's (Knowledge, Age and Parity) and Self Screening for Cervical Cancer**

		Pap test not done	Pap test done	Total	p-value
Knowledge	Adequate	55	9	64	0.01
	Inadequate	167	8	175	
	Total	222	17	239	
Age Group	<30 years	134	3	137	0.003
	>30 years	88	14	102	
	Total	222	17	239	
Parity	P <sub>0</sub>	88	2	90	0.02
	P <sub>1-3</sub>	134	15	175	
	Total	222	17	239	

## Discussion

Knowledge is an essential first step in the development of behavior. Most of the participants knew that Pap smear is used for cervical cancer detection, however only half of the participants knew that it can detect pre cancerous lesions as well, which resembles the finding of two previously published studies (Ertem 2009; Singh et al., 2012). Compared to an earlier study from India (Singh et al., 2012), a higher percentage of participants (36% vs. 26%) in our study knew more than three risk factors for development of cancer cervix. This might be due to recognition type question used to assess this aspect of the knowledge in our study. However, only 23% of participants were aware of HPV infection as a risk factor despite listing sexual activity and sexually transmitted diseases as a risk factor by many.

A unique aspect of our study was an attempt to quantify the knowledge, by allotting scores to the responses related to knowledge, and a score of three or more indicated adequate knowledge. Surprisingly, only 26.7% of participants demonstrated knowledge which can be adjudged as adequate.

Although knowledge is considered to be a precursor of behavior, it is not a straightforward one. Intermediary factor like attitude play important role in formulating behavior (Waller et al., 2004). Although the association between knowledge and self screening was found to be significant in our study, yet a large number of the study participants having adequate knowledge about cervical cancer and screening had not had self screening done. Nearly one third of the study participants perceived even the precancerous stage of cervix as an incurable and fatal illness. This pessimistic attitude of cancer fatalism needs to be addressed, as it has been long identified as a barrier to participation in cancer screening, detection and treatment (Freeman, 1989). In the departments other than gynecology, the practice of not screening female patients for cervical cancer can be attributed to busy routines, lack of speculum or consumables for cytological smear, but this would not explain the practice of not even asking or referring the female patients for Pap testing by a large number of staff nurses surveyed. Majority of participants held a view that Pap test is doctor's procedure. Such attitudes that screening is to be done by a doctor or a gynecologist only, needs to change for the success of any kind of cancer screening programme, in particular the low cost visual inspection based approaches.

Only 7% of participants reported a self Pap test done, despite majority of them being eligible. Our finding that older (>30 years), married and parous women are more likely to be screened (Table 5) is consistent with previous studies from India (Sankaranarayanan et al., 2003; Nene et al., 2007; Aswathy et al., 2012). There are two predominant reasons for this; firstly these women are likely to approach a health facility for obstetric, gynecologic or other reasons, where they would be offered opportunistic screening during these visits. Secondly, sexual relationships outside marriage are not socially accepted in most parts of India, and Pap test is seen associated with sexual activity. Hence an unmarried woman is unlikely to get herself screened

out of fear of potential social stigma.

A large number of participants (40%) cited no reason for not undertaking the screening test, and nearly half of these non screened participants felt that they were not vulnerable to cancer cervix, either due to lack of symptoms or absence of risk factors. Main reason for this lack of depth on knowledge of cervical cancer among staff nurses is their training curriculum. Moreover, cervical cancer prevention issue has largely been perceived as the concern of physicians. Despite existence of national guidelines for cervical cancer screening for more than six years, their effective implementation is yet to be seen. For effective implementation of any low cost sustainable CCSP, one important aspect is sensitization of staff nurses about cervical cancer prevention. Knowledge is a precursor of behavior, and even in our study the association between knowledge and self screening was found to be statistically significant. Hence, as a first step towards sensitization of staff nurses, cervical cancer prevention issues need to be included in nurse's training curriculum.

Assessing the cancer knowledge related to behavioral outcome is complicated, and different measures might have different outcomes. It may be argued by the reader that using mostly prompted recall or recognition questions might have overestimated the knowledge (despite figures to the contrary) as it could lead to guessing. As a counter argument, it can be said that recognition questions might equally elicit actual knowledge that the respondent would otherwise be too unsure of to produce in a recall task (Waller et al., 2004). But whether such knowledge is a predictor of behavior is debatable. Another limitation of this study was that it was quantitative study and hence more reasons for not undertaking the screening test could not be explored in depth. And lastly, despite randomization of the sequence of questions, the priming effect they can have cannot be totally eliminated.

In present scenario, the onus of preventing cervical cancer in India is on the women themselves. Besides the conspicuously absent CCSP, lack of awareness and pessimistic attitudes among nurses and other health workers are also responsible for this sorrow state of affairs. Staff nurses if properly trained can constitute a model of health promotion for women, by not just making them aware of the cervical cancer but also by screening all the eligible women at any level of health care.

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