

Knowledge, attitudes and practice toward cervical cancer screening among Sikkimese nursing staff in India

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ABSTRACT

Objectives: To assess baseline knowledge of cancer cervix, screening and practice of Pap smear screening among Sikkimese staff nurses in India. **Materials and Methods:** Between April 2012 and February 2013, a predesigned, pretested, self-administered multiple responses questionnaire survey was conducted among staff nurses' working in various hospitals of Sikkim. Questionnaire contained information about their demographics, knowledge of cervical cancer, its risk factors, screening methods, attitudes toward cervical cancer screening and practice of Pap smear amongst themselves. **Results:** Overall, 90.4% nurses responded that they were aware of cancer cervix. Three quarter of the staff nurses were not aware of commonest site being cancer cervix in women. Of the 320 participants, who had heard of cancer cervix, 253 (79.1%) were aware of cancer cervix screening. Pap smear screening should start at 21 years or 3 years after sexual debut was known to only one-third of the nursing staff. Age was found to be a significant predictor of awareness of Pap smear screening among nursing staff. Awareness was significantly more prevalent among older staff ($P < 0.007$). Married nursing staffs were significantly more likely to be aware of screening methods, and nursing staff of Christian and Buddhist religion were 1.25 times and 2.03 times more likely to aware of screening methods than Hindu religion respectively. Only 16.6% nurses, who were aware of a Pap smear (11.9% of the total sample), had ever undergone a Pap smear test. Most common reason offered for not undergoing Pap smear test were, they felt they were not at risk (41%), uncomfortable pelvic examination (25%) and fear of a bad result (16.6%). **Conclusion:** Knowledge of cancer cervix, screening and practice of Pap smear was low among Sikkimese nursing staff in India. There is an urgent need for re-orientation course for working nurses and integration of cervical cancer prevention issues in the nurses' existing curriculum in India and other developing countries.

Key words: Cervical cancer, knowledge, nursing staff, Pap smear, screening

INTRODUCTION

Worldwide, cervical cancer is the second most common (12%) cancer in women, however, in developing countries; it is the most common cancer among women.^[1] With 528,000 new cases detected every year, cervical cancer is most notable among lower resource countries of sub-Saharan Africa. It is also the fourth most common cause of cancer death in women worldwide with 266,000 deaths in 2012. Almost 70% of the global burden falls in areas with

lower levels of development.^[2] India bears about one fifth of the world's burden of cervical cancer, and >100,000 new cases are detected every year in India, which causes 20% of all female deaths in India.^[2,3] According to 3 year report (2009-2011) of population based cancer registries in India, cancer cervix continues to be leading site of cancer in India and Sikkim, and two-thirds of the cases are reported in advanced stage.^[4]

The key to reducing cervical cancer morbidity and mortality is early detection and treatment of cervical precancerous lesions. Among all malignant tumors, cervical cancer is the one that can be most effectively controlled by organized screening programs.^[5] An organized screening program can reduce incidence and mortality by 80% as shown in developed countries.^[6] Despite being effective, most of the women in developing and under-developed countries do not have access to Pap

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smear screening. The major problem is low participation in the screening program.^[7,8]

In India also, both early detection and screening remains a major area of concern coupled with poor literacy and low level of awareness amongst Indian women. Because of low doctor patient ratio in India, nursing staff are the major workforce in rural public health centers and Sub centers of India. The staff nurses are responsible, as primary gate keepers for giving information about cervical cancer and creating and conducting Pap smear screening tests among rural Indian women.^[9]

To have a successful cancer control program, nursing staff must be aware of facts about cervical cancer and screening tests themselves. Furthermore, negative attitude toward and inaccurate knowledge of cervical cancer and screening methods among health care providers especially among nurses can pose substantial barriers to cervical control program in India and other developing countries. Moreover, if nurses themselves undergo screening tests regularly, they can be role models for other females in carrying out cervical cancer screening tests.

It is with this in mind, the aim of this study was to assess knowledge of cancer cervix, screening methods, attitude toward and practice of Pap smear screening among nursing staff working in Sikkim.

MATERIALS AND METHODS

Sikkim is a small state of Indian union located in the eastern Himalayas. The population of Sikkim is different in their culture, religion, customs and traditions from other states of India. The three different communities living in Sikkim-the Nepalis, Bhutias and Lepchas, constitute a homogeneous blend. There are two referral hospitals in Sikkim, Central Referral Hospital-teaching hospital of Sikkim Manipal Institute of Medical Sciences (SMIMS), and the Sir Thutob Namgyal Memorial Hospital at Gangtok, four district hospitals, 24 primary health centers and 147 sub centers in Sikkim. These hospitals provide comprehensive health care to the population of different communities of Sikkim.

It was a cross-sectional study conducted between April 2012 and February 2013. The study was approved by SMIMS institutional ethics committee. Initially major hospitals nursing staff (including trainee nursing staff, that is, nursing students, who were in their final year internship and yet to obtain their full registration) were invited in a group in a big hall and explained about the nature and purpose of the research. The staff nurses who agreed to participate were given a consent form along with a predesigned, pretested, self-administered multiple response

questionnaires with both closed and open ended questions. The staff nurses, who could not come in groups and those who were working small hospitals; to them, an invitation letter along with consent form and questionnaire was sent in a sealed envelope to participate. Those who agreed to participate were requested to fill the questionnaire along with consent form and send back to the principal author.

The questionnaire items consisted of various basic facts about cervical cancer and screening, attitude of nursing staff toward screening, and about their practice habits. The questionnaire items were standard items that are very much important in practical aspects. Some items were modified, and some were adapted from review articles and added to the questionnaire by the principal investigator to suit the context of the study.

The data collected were thoroughly screened and entered into MS-excel (Microsoft, Redmond, WA, USA) spread sheets for analysis. The procedures involved were transcription, preliminary data inspection, and interpretation. The data were analyzed by computer software Instat Graph Pad version 3 (GraphPad Software, La Jolla, CA, USA). Descriptive statistics Chi-square tests were done, and the significance of tests was decided at $P = 0.05$. Data were analyzed using both univariate and multivariate analysis/binary logistic regression.

RESULTS

A total of 396 questionnaires were distributed during the study period of which 354 nursing staff returned the questionnaire in completed form with a response rate of 89.4%. Majority of the nursing staff were between 21 and 40 years of age, married, Hindu and belonged to Nepali community. Among the participants, 28.8% were trainee staff. Table 1 presents their socio-demographic characteristics.

To the question “are you aware of cancer cervix” 320 of 354 nursing staff (90.4%) responded that they knew about it. Those who were aware of cancer cervix proceeded with further questions about cancer cervix. Table 2 shows the detailed knowledge of the participants who had heard of cancer cervix. Three-quarter of the nursing staff were not aware that commonest site of cancer cervix is ectocervix. Although almost half of the participants were aware of cervical intraepithelial neoplasia (CIN), they had poor knowledge about association of CIN with cancer cervix. Most common risk factors identified by participants were multiple sex partners (52%), early age of coitus (35%) and multiple births (24%). Most common symptom responded by participants were offensive foul-smelling vaginal discharge (63%). Only half of the participants knew that the treatment of cancer cervix is radiotherapy or surgery.

Table 1: Socio demographic characteristics of 354 nursing staffs from the state of Sikkim, India who participated in the survey

Socio demographic profiles	Number (%)
Age (years)	
<20	41 (11.6)
21-30	155 (43.8)
31-40	97 (27.4)
41-50	49 (13.8)
>50	12 (3.4)
Marital status	
Unmarried	194 (54.8)
Married/live in	160 (45.2)
Family	
Nuclear	231 (65.3)
Joint	123 (34.7)
Religion	
Hindu	208 (58.8)
Christian	57 (16.1)
Buddhist	88 (24.9)
Others	1 (0.3)
Community	
Nepali	209 (59.0)
Bhutia	53 (15.0)
Lepcha	30 (8.5)
Others	62 (17.5)
Residence	
Urban	215 (60.7)
Rural	139 (39.3)
Profession	
Nursing staff	252 (71.2)
Trainee staff	102 (28.8)
Ever had sex	
Yes	166 (46.9)
No	188 (53.1)

Of the 320 participants those who heard of cancer cervix, 253 (79.1%) were aware of cancer cervix screening or a Pap smear screening [Table 2]. Of these 62.5% ($n = 158$) responded that they had heard about it from doctors. Other source of knowledge were medical text book 47.4% ($n = 120$), television, radio or internet 22.1% ($n = 56$), print media 14.6% ($n = 37$) and friends, spouse and colleagues 5.1% ($n = 13$). Table 3 presents detailed knowledge of and attitudes toward Pap smear screening of the participant nursing staff. That Pap smear screening should start at 21 years or 3 years after sexual debut was known by one-third nursing staff, while recommended Pap smear interval of 3 years were known to 60% of the staff [Table 2]. Only 61% staff nurses were willing to attend Pap smear screening.

Table 3 presents the unadjusted associations between participants' socio-demographic characteristics and

Table 2: Detailed knowledge among 320 nursing staff who ever heard of cancer cervix

Variables	n (%)
Cancer cervix is caused by virus	227 (70.9)
Commonest site of cancer cervix ectocervix	84 (26.3)
Heard of CIN	157 (49.1)
CIN is precancerous lesion of cervix	149 (46.6)
Cancer cervix occurs many years after CIN	65 (20.3)
CIN occurs at women in their 30s	56 (17.5)
Cancer cervix occurs in advanced age of women	159 (49.7)
Cancer cervix does not occur in women who are not sexually active	62 (19.4)
High risk factors for cancer cervix*	
Early sexual debut	113 (35.3)
Early age of first pregnancy	57 (17.8)
Multiple sex partners	167 (52.2)
Multiple births	79 (24.7)
Poor genital hygiene	70 (21.9)
Common symptom(s) of cancer cervix*	
Offensive foul-smelling discharge	204 (63.8)
Postmenopausal bleeding	83 (25.9)
Post coital bleeding	70 (21.9)
Irregular bleeding	162 (50.6)
Treatment of cancer cervix*	
Radiotherapy	160 (50.0)
Surgery	183 (57.2)
Chemotherapy	247 (77.2)
Don't know	39 (12.2)
Awareness of pap smear screening ($n=320$)	
Ever heard of pap smear screening	253 (79.1)
Never heard of pap smear screening	67 (20.9)
Source of knowledge of pap smear ($n=253$)*	
Doctor	158 (62.5)
Medical text book	120 (47.4)
Television/radio	56 (22.1)
Newspaper/magazine	37 (14.6)
Friends/spouse	13 (5.1)
Other	13 (5.1)
Detailed knowledge about pap smear ($n=253$)	0.0
When should pap smear screening start	84 (33.2)
Recommended pap smear screening interval	152 (60.1)

*Multiple responses were allowed; CIN – Cervical intraepithelial neoplasia

awareness of Pap smear and results of multivariate analysis of selected independent variables and their associations with awareness of Pap smear. Age was found to be a significant predictor of awareness of Pap smear screening among nursing staff. Awareness was significantly more prevalent among older staff ($P < 0.007$) and awareness increased with advancing age. Married nursing staff were significantly more likely to be aware of screening, and nursing staff of Christian and Buddhist religion were 1.25 times and 2.03 times more likely to be aware of screening methods than Hindu religion respectively. When the nursing staff was categorized by community, 85%

Table 3: Unadjusted associations between participant’s socio demographic characteristics and awareness of pap smear screening and results of multivariate binary logistic regression analysis to determine factors independently associated with awareness of pap smear screening among the participants

Characteristics	Aware of pap smear <i>n</i> = 253 (71.5%)	Not aware of pap smear <i>n</i> = 101 (28.5%)	<i>P</i>	OR (95% CI)
Age				
<20	22 (53.7)	19 (46.3)	0.0007	0.60 (0.29-1.20)
21-30	102 (65.8)	53 (34.2)		1.0 (reference)
31-40	78 (80.4)	19 (19.6)		2.13 (1.17-3.89)
>41	51 (83.6)	10 (16.4)		2.65 (1.25-5.64)
Marital status				
Unmarried	130 (67.0)	64 (33.0)	0.04	0.61 (0.38-0.98)
Married/live in	123 (76.9)	37 (23.1)		1.0 (reference)
Family				
Nuclear	167 (72.3)	64 (27.7)	0.647	1.0 (reference)
Joint	86 (69.9)	37 (30.1)		0.89 (0.55-1.44)
Religion				
Hindu	140 (67.3)	68 (32.7)	0.059	1.0 (reference)
Christian	41 (71.9)	16 (28.1)		1.25 (0.65-2.37)
Buddhist	71 (80.7)	17 (19.3)		2.03 (1.11-3.71)
Community				
Nepali	155 (74.2)	54 (25.8)	<0.0001	1.0 (reference)
Bhutia	45 (84.9)	8 (15.1)		1.96 (0.87-4.42)
Lepcha	24 (80.0)	6 (20.0)		1.39 (0.54-3.59)
Others	29 (46.8)	33 (53.2)		0.31 (0.17-0.55)
Residence				
Urban	160 (74.4)	55 (25.6)	0.126	1.44 (0.90-2.29)
Rural	93 (66.9)	46 (33.1)		1.0 (reference)
Profession				
Nursing staff	174 (69.0)	78 (31.0)	0.112	1.0 (reference)
Trainee staff	79 (77.5)	23 (22.5)		1.54 (0.90-2.63)
Ever had sex				
Yes	128 (77.1)	38 (22.9)	0.027	1.0 (reference)
No	125 (66.5)	63 (33.5)		0.59 (0.37-0.94)

OR – Odds ratio; CI – Confidence interval

Bhutia staff were aware of Pap smear that made them most aware of Pap smear screening. Bhutia staff was 1.96 times, and Lepcha staff was 1.39 times more likely to be aware of Pap smear. Sexually active staffs were significantly more aware of Pap smear screening [Table 3].

Only 16.6% (*n* = 42) of the 253 nursing staff who were aware of Pap smear had actually undergone a Pap test. Of these three-fourth (76%) staff underwent test only once, 21.4% twice, while only one (2.4%) staff underwent the test thrice. Thirty one percentage (*n* = 13) nursing staff were not satisfied with the test [Table 4].

Table 4: Practice of pap smear among 253 nursing staffs who were aware of pap smear screening test

Question	<i>n</i> (%)
Have you ever undergone a pap smear test?	
Yes	42 (16.6)
No	211 (83.4)
If you have undergone how many times (<i>n</i> =42)?	
Once	32 (76.2)
Twice	9 (21.4)
≥thrice	1 (2.4)
Satisfied with the test?	
Yes	29 (69.0)
No	13 (31.0)
Reasons for not undergoing pap smear test (<i>n</i> =211)?	
I do not see reason for the test	87 (41.2)
Feel uncomfortable for pelvic examination	53 (25.1)
Fear of a bad result	35 (16.6)
Other	36 (17.1)

Among the participant staff nurses, who were aware of Pap smear test 83.4% (*n* = 211) had never undergone a test. The most common reason offered were—they felt that they were not at risk (41%). Twenty five percentage (*n* = 53) nurses offered uncomfortable pelvic examination as the reason for not undergoing the test, while 16.6% (*n* = 35) never underwent Pap smear for fear of a bad result [Table 4].

DISCUSSION

The findings of the present study show that knowledge of cancer cervix and Pap smear screening is low among the participant nursing staff. This study also shows that awareness about cancer cervix and Pap smear screening is lower among Sikkimese nursing staff than staff from high income countries,^[10] but slightly higher than that had been reported from other Indian states.^[11]

An important finding is the low level of awareness of cancer cervix and Pap smear screening among younger nursing staff. When 80% cervical cancer cases occur in developing countries including India and increasing importance has been given for controlling cervical cancer, it is worrying to find a low level of awareness about cancer cervix and Pap smear screening among young nursing staff. This also implies that more importance in teaching curriculum and training programs should be incorporated about cancer cervix and screening.

Cancer cervix is preventable, and one of the important aspects in prevention is detection of the premalignant lesions by screening.^[10] Although 49% of the participants had heard of CIN, only 17% knew CIN occurs in younger

women, which if left untreated may progress to advanced carcinoma. In our study, 52% participants were aware that multiple sexual partner is an important risk factor for cervical cancer, while in a study of Ali *et al.* 45% nursing staff mentioned multiple partners and other promiscuous behavior as the most common risk factor.^[12]

The most common symptom of cancer cervix reported by nursing staff in our study were offensive foul-smelling discharge (63.8%), irregular bleeding (50.6%) and postmenopausal bleeding (26%) while in a study by Nganwai *et al.*^[13] 77.7% and 92.4% knew that common symptoms of cervical cancer include postcoital bleeding, inter-menstrual bleeding and abnormal blood-stained vaginal discharge. About 57% knew that the cervical cancer could be treated by surgery while only 50% aware of radiotherapy as treatment options. These results are not surprising since most patients suspected or diagnosed of having cancer are referred to higher oncology centers for confirmation of diagnosis and treatment. The nurses, therefore, do not get to see the management of cervical cancer.

Only 79% of the staff nurses, who had known cervical cancer, was aware of Pap smear. Similar observations were made by Ali *et al.*^[12] where 75% nursing staff knew that Pap smear is a screening test for cervical cancer. Most of the nurses (67%) were not aware of recommended timing of Pap smear. Comparatively a larger proportion of Thai nurses could correctly identify the timing was found by Nganwai *et al.*^[13] The recommended Pap smear screening interval was known to only 60% nurses.

Our finding that elderly and married nurses were more likely to be aware and undergo screening was also reported by other authors.^[14] The proposed reason is that elderly and married women may receive more frequent gynecological care and the common belief that cervical cancer only occurs in older women, making them more responsive to their health.^[15]

An interesting finding of the present study was that the Buddhist and Christian's staff were more aware of cervical cancer screening compared to Hindus. This is possibly due to the fact that the Orthodox Christians and Buddhists may have benefitted from the health awareness programs or discussions at their religious institutions.

Nurses have an important role in cancer prevention and health education. Therefore, knowledge and awareness of cervical cancer are the most important for general women, who are educated by nurses. In the literature, some studies have shown that nurses who knew very well about symptoms, risk factors, and screening methods of

cancer were more likely to use cervical cancer screening methods.^[16] However, although 72% nursing staff were aware of Pap smear only 16.6% (11.9% of total nurses participated) had ever undergone a Pap smear test. A more disappointing low level of Pap smear test was reported by other authors from developing countries, 7% by Shekhar *et al.*^[11] in Indian nurses and 5.5% by Udigwe^[17] among Nigerian nursing staff. All the staff nurses, who underwent Pap smear in our study were married. Because sexual relationships outside marriage are not culturally accepted in India,^[18] unmarried sexually active women would refuse to undergo screening out of fear of the potential social stigma they would suffer if they had a test perceived to be used for married women.

Among the eligible respondents 83.4%, had never undergone Pap smear test. Most common (41%) had never screened themselves because they did not feel at risk to the disease. Additionally, one fourth of the eligible nursing staff offered uncomfortable pelvic examination as the reason for not undergoing test could be attributed to their routines, but this would not explain the reluctance to get screened themselves despite the availability of a free service almost any time they wished to. Sixteen percent never underwent Pap smear for fear of a bad result. The belief that cervical cancer is a terminal illness and death is inevitable when cancer is detected has been identified as a barrier to participation in cancer screening, detection and treatment.^[19] It is unlikely that this staff will ever motivate others or advise them until their doubts are cleared.

The lack of depth on knowledge of cervical cancer in staff nurses can be explained by their training curriculum. In the present study also, only 47% participants obtained knowledge of cervical screening from their curriculum book. Until recently, cervical cancer prevention issue has been the concern of physicians.^[20] In the proposed cervical cancer prevention strategies, there is an urgent need to integrate cervical cancer prevention issues in the nurses' training curriculum. The attitudes that screening has to be done only by doctors or gynaecologists needs to change. Studies have shown it is possible to train nurses or other health care workers to screen for cervical cancer, and they play an important role in successful screening against cancer cervix.^[6,21] Nurses are the backbone of health care system in developing countries including India. This calls for a re-orientation course for nurses to give more importance on cervical cancer screening methods.

The strength of the present study is that it is the first to assess knowledge and practice about cervical cancer screening among nursing staff in eastern India, where incidence of cervical cancer is high.^[4] On the other hand, the study has some limitations. Firstly, some questions

were recognition, and some were recall type. Both the recall and recognition questions have limitations. Recall underestimates awareness because it is limited by memory, while recognition overestimates awareness because participants find it easy to guess. Secondly, the method used for estimating the practice of Pap smears were self-reported history, which may not give the actual picture due to inaccurate recall or desirability bias.^[20]

CONCLUSION

Knowledge about cancer cervix, screening and practice of Pap smear is low among nursing staff working in Indian state of Sikkim. There is an urgent need for integration of cervical cancer prevention issues in the nurses' existing training curriculum. Nursing staff, if properly aware of cervical cancer and screening methods, can educate the women in the community and increase health-seeking behavior among eligible women.

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