

Educational intervention on cervical and breast cancer screening: Impact on nursing students involved in primary care

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ABSTRACT

Introduction: Nurses are the foundation of the Indian health system. They play a crucial role in primary care and implementation of community-centered government health initiatives such as cancer screening. The purpose of this manuscript is to share the experience of this educational intervention study and emphasize the need for drastic medical education reforms to include curricula to strengthen knowledge about cancer screening among nursing students. **Methods:** A one-day workshop on “Cervical and breast cancer screening” was conducted for nursing students pursuing BSc Nursing (Group 1) and General Nursing and Midwifery (GNM) (Group 2) in India. A structured, self-administered questionnaire was administered among consented participants before and after the workshop to assess their knowledge and awareness on the subject at the baseline and the improvement they gained after the workshop. **Results:** Ninety-one students attempted both pre and post-surveys, of which 56 were from Group 1 and 35 from Group 2. Students demonstrated statistically significant improvements in knowledge on cervical and breast cancer screening after participating in the workshop. **Conclusion:** Undergraduate nursing education curricula must undergo medical education reform to include education and training for nurses in cancer screening and further motivate their increased participation in preventive cancer screening programs.

Keywords: Awareness workshop, cancer screening, medical education reform, pre and post knowledge survey, undergraduate nursing education

Introduction

India introduced a nationwide cancer screening plan for oral, breast, and cervical cancer in 2016, wherein nurses perform the cancer screening procedures.^[1] Currently, practicing nurses are less aware of cancer screening procedures.^[2-5] Training them on cancer screening would be an extra workload for physicians

involved in rural health services and on the Government of India's (GOI) health system.

To showcase the importance of reinforcement of knowledge on cancer screening during undergraduate nursing education, we conducted an interventional pre and post-awareness survey among the nursing students in a semi-urban town of Uttar Pradesh, India.

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Method

This interventional study with pre and post-questionnaire was conducted by our institute as part of its routine activities in

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creating community awareness in the prevention of common cancers and capacity building of medical professionals.

To observe the cervical cancer awareness month in January 2020, a one-day interventional pre and post-awareness workshop survey on “Cervical and breast cancer screening” was conducted at an institute of nursing in Greater Noida, Uttar Pradesh, India.

Nursing students pursuing third-year BSc Nursing (BSc N) course and General Nursing and Midwifery (GNM) participated in the study.

Before the commencement of the awareness workshop, the consented participants were provided a self-administered questionnaire-based survey to assess their knowledge on cancer screening (breast, cervical). The survey consisted of a structured questionnaire of 14 multiple choice questions comprising ten questions on knowledge and four on intentions and acceptability towards the screening. Five knowledge questions each were on breast and cervical cancer screening. The questionnaire queried basic demographic data about the participants like – their age, gender, name of the course they were studying, and the year of education.

After completing the pre-training survey, the students attended cervical and breast cancer screening lectures. The topics covered were:

Cervical cancer screening

- The burden of cervical cancer in India
- Risk factors, signs, and symptoms of cervical cancer
- Importance and necessity of screening for cervical cancer
- Types of screening tests available for cervical cancer screening
- The government guidelines for population-based cervical cancer screening

Breast cancer screening

- Breast cancer burden in India
- Risk factors, signs, and symptoms of breast cancer
- Why is screening important?
- Breast cancer screening tests
- The government guidelines for population-based breast cancer screening

After the workshop, the participants who completed the pre-workshop survey were asked to answer a post-workshop questionnaire. The post-workshop questionnaire was intended to assess the improvement in their knowledge about the topics and evaluate their intentions/acceptability to get screened for both cervical and breast cancers.

In both the surveys, the questions on knowledge with correct responses were scored as ‘one,’ and the incorrect responses and unattempted questions were scored as ‘zero.’

The evaluation questions on getting screened in the future were not scored.

Statistical analysis

A hundred out of a total of 124 students consented to the survey. Among the 100 consented participants, 91 (56 BSc N and 35 GNM) who had taken both the pre and the post-workshop evaluation were included in the analysis. Data entry and analysis were done in the SPSS version 19 software. Descriptive statistics were applied to illustrate respondents’ demographic characteristics, intentions, and willingness to screen. Categorical variables are expressed as percentages, and continuous variables are expressed as mean standard deviation (SD). The paired t-test was applied on the continuous variable for calculation of mean, SD, mean difference, *P* value, and 95% CI of mean difference for pre and post-test scores.

Results

Demographic characteristics of the participants

Among the 91 students, 96% were between the age group of 17 to 20 years, of which 63% (55/91) were from BSc Nursing (Group 1) and 37% (32/91) from GNM (Group 2). All the participants were unmarried females.

Details of pre and post awareness survey on knowledge of the participants

The mean score on general information on cancer screening in pre-test among Group 1 is 1.1, and post-test is 1.9 with a mean difference of 0.9, (95% CI [0.6 – 1.0]; (*P* value 0.000), while the mean score in pre-test among Group 2 is 0.9, and post-test is 1.8 with a mean difference of 0.9, (95% CI [0.7 – 1.1]; *P* value 0.000).

In the topic of basic knowledge on cervical cancer screening, the mean score in pre and post-test among Group 1 is 2.2 and 3.9, respectively, with the mean difference of 1.6, (95% CI [1.3 – 2.0]; *P* value 0.000). On the other hand, while the mean score in the pre-test among Group 2 is 3.1, and the post-test is 3.7, with a mean difference of 0.6, (95% CI [0.3 – 0.9]; *P* value 0.000).

The participants in Group 1 got a mean score of 2.8 in the pre-test and 3.8 in the post-test on the topic of breast cancer screening with a mean difference of 1.0, (95% CI [0.8 – 1.3]; *P* value 0.000). In contrast, Group 2 got a mean score of 2.9 in the pre-test and 3.5 in the post-test with a mean difference of 0.6 (95% CI [0.3 – 0.9]; *P* value 0.001).

The total mean score combined for pre-test and post-test among Group 1 is 6.1 and 9.6 respectively, with the mean difference of 3.5 (95% CI [2.9 – 4.0]; *P* value 0.000), while the mean score in pre-test and post-test among Group 2 is 6.9 and 9.3 respectively with the mean difference of 2.1 (95% CI [1.5– 2.6]; *P* value 0.000) [Table 1].

Participants' willingness for future screening

Before the awareness talk, 9% (5/56), 34% (19/56) from Group 1 and 26% (9/35), 74% (2/35) from Group 2 were willing for BSE and cervical cancer screening, respectively. After the awareness talk, 92% (51/56) of Group 1 students and 91% (32/35) from Group 2 were willing for BSE. In Group 1 – 98% (55/56) and Group 2 – 100% (35/35) were willing for cervical cancer screening.

The interest in creating awareness improved from 32% (18/56) to 98% (55/56) in Group 1 and from 86% (30/35) to 100% (35/35) in Group 2.

Post-lecture, 96% (54/56) participants from Group 1 and 89% (31/35) from Group 2 students were ready to motivate and mobilize the community for cervical and breast cancer screening [Table 2].

Discussion

In this study, an important observation is that cancer screening was a new concept to the participants. The pre-awareness survey found the nursing students' knowledge level on cervical cancer to be on par with previous studies.^[6,7] However, post awareness intervention, their knowledge level on cervical cancer screening substantially improved.

At the baseline, our study participants demonstrated good knowledge about signs and symptoms of breast cancer, which concur with results from earlier studies.^[8,9] Their knowledge about breast cancer screening procedures like CBE and BSE was quite low at the baseline, which improved significantly after the intervention.

The modest intervention that we made in the form of awareness lectures on specific topics resulted in a significant enhancement in their knowledge. The majority of students exhibited more awareness towards the concept of cancer screening, and a drastic change was observed in their approach toward cancer screening.

Every year, India loses over 1.5 million of its women to two preventable cancers—breast and cervical cancer. Estimated

deaths due to breast cancer read to over 90,408, while cervical cancer counts for over 77,348 deaths.^[10] A strategic and comprehensive approach comprising awareness, prevention, early detection, and timely treatment can drastically reduce the number of lives that are lost to these diseases.

Awareness generation among community members is the most important key component for the seamless execution of any national-level program. This is where the involvement of community health workers (CHWs), physicians catering to the rural population, and doctors involved in various health-related programs is required.

Family physicians are the primary focal contact to the community for general health ailments, resulting in a trusted bond between family physicians and their patients. Hence, family physicians and primary care physicians could utilize this trusted doctor-patient bond opportunity to educate patients about the importance of cancer screening and motivate them to uptake cancer screening services provided by the Government of India (GOI). This will be the most effective approach to create awareness on cancer screening in the community.

In all the stages of patient care from primary care to critical care, it is always the physician-nurse teamwork that ensures success and this applies to cancer screening in population-based cancer screening as well.

This awareness creation initiative must be taken up voluntarily by family physicians, rural physicians, CHWs, community obstetricians, emergency physicians, and public health specialists to promote cancer screening and support the GOI in this tremendous initiative.

According to guidelines, primary health care staff nurses would perform cervical and breast cancer screening. This implies the criticality and magnitude of the nursing staff's responsibilities in the implementation of population-based cancer screening (PBCS). Nurses are pivotal in community sensitization and improving cancer screening uptake.^[11-15] These factors make it imperative to make nurses aware of the current guidelines on cancer screening and empower them with the knowledge and skills required to implement cancer screening at

Table 1: Details of Pre and Post Awareness Survey on Knowledge of the Participants

Characteristics	Qualification	Pre Mean (SD)	Post Mean (SD)	P	Mean difference mean (SD)	95% CI of mean difference
General information on cancer and cancer screening (Max marks-2)	BSc Nursing (n=56)	1.1 (0.76)	1.9 (0.35)	0.000	0.9 (0.8)	0.6-1.0
	GNM (n=35)	0.9 (0.53)	1.8 (0.47)	0.000	0.9 (0.6)	0.7-1.1
Basic knowledge on Cervical Cancer Screening (Max marks-4)	BSc Nursing (n=56)	2.2 (1.26)	3.9 (0.33)	0.000	1.6 (1.3)	1.3-2.0
	GNM (n=35)	3.1 (0.93)	3.7 (0.52)	0.000	0.6 (0.8)	0.3-0.9
Basic knowledge on Breast Cancer Screening (Max marks-4)	BSc Nursing (n=56)	2.8 (0.94)	3.8 (0.46)	0.000	1.0 (1.0)	0.8-1.3
	GNM (n=35)	2.9 (0.80)	3.5 (0.61)	0.001	0.6 (0.8)	0.3-0.9
Total (Max marks-10)	BSc Nursing (n=56)	6.1 (1.85)	9.6 (0.68)	0.000	3.5 (2.0)	2.9-4.0
	GNM (n=35)	6.9 (1.71)	9.3 (1.00)	0.000	2.1 (1.6)	1.5-2.6

*BSc Nursing: Group 1; †GNM: Group 2

Table 2: Details of the Participants' Willingness in Future Screening

Pre awareness survey		
	BSc. (Nur) (n=56) n (%)	GNM (n=35) n (%)
Will you practice Breast self-examination?		
Yes	5 (9)	9 (26)
No	10 (18)	10 (29)
Do not know	41 (73)	16 (46)
Will you get screened for cervical cancer?		
Yes	19 (34)	26 (74)
No	9 (16)	0 (0)
Do not know	28 (50)	9 (26)
Will you create awareness on screening for cervical and breast cancer?		
Yes	18 (32)	30 (86)
No	1 (2)	0 (0)
Do not know	37 (66)	5 (14)
Will you motivate and mobilize the community for cervical and breast cancer screening?		
Yes	14 (25)	21 (89)
No	20 (36)	14 (11)
Do not know	22 (39)	0 (0)
Post awareness survey		
Will you practice Breast self-examination?		
Yes	55 (98)	35 (100)
No	0 (0)	0 (0)
Do not know	1 (2)	0 (0)
Will you get screened for cervical cancer?		
Yes	55 (98)	35 (100)
No	0 (0)	0 (0)
Do not know	1 (2)	0 (0)
Will you create awareness on screening for cervical and breast cancer?		
Yes	55 (98)	35 (100)
No	0 (0)	0 (0)
Do not know	1 (2)	0 (0)
Will you motivate and mobilize the community for cervical and breast cancer screening?		
Yes	54 (96)	31 (89)
No	1 (2)	4 (11)
Do not know	1 (2)	0 (0)

their undergraduate level. The current nursing curriculum focuses more on treatment and nursing care for cancer patients, and very minimal emphasis has been given to cancer screening and information about the national cancer screening program. These are currently not part of the current curriculum.^[16,17]

The concept of cancer screening is an upcoming field in the Indian health system. Awareness of the etiology, risk factors, signs and symptoms of the disease, and nurses' positive attitude towards screening will improve the acceptability of the screening services among the community.^[18]

Paramedics, like nurses, are the foundation of the Indian health system. They work in close association with the community and have a good rapport with the beneficiaries. In India, most female patients prefer being examined by female nurses rather than by male medical officers, especially when it comes to breast and cervical examination.^[19] Various national and international studies on KAP show that nursing staff had low to moderate knowledge on cancer screening (breast, cervical).^[2-5]

To overcome this barrier, physicians providing services to rural population viz. physicians in NRHM, and primary care physicians catering to primary health centers must educate their support staff (nurses and community health workers) in cancer screening to strengthen the health system in terms of capacity building of the nurses involved in cancer screening. This will meet the critical necessity of making staff nurses aware of cervical, breast cancers, the importance of cancer screening, and reflect in developing the nation's trained primary care workforce in cancer screening, thus contributing to the GOI cancer screening program.

However, teaching and training support staff may further overburden physicians at the primary care level. Hence awareness about cancer screening, teaching good clinical practices, and bringing a positive attitude towards screening will be both practical and beneficial if done among nursing students rather than training practicing nursing professionals. This study demonstrates the critical significance and importance of medical education reforms to include cancer screening in the nursing education curricula.

Key points

The awareness program on cancer screening has resulted in significant improvement in the knowledge about cancer screening among nursing students.

The knowledge on cancer screening should be imparted at the undergraduate level.

Key take-home message

Medical educational reforms must be introduced in the undergraduate nursing education curricula to educate and train nurses in cancer screening.

New knowledge emerging from this manuscript

The curricula on cancer screening, if included in the undergraduate level, the sustainability of the knowledge may be possible. It can avoid the burden of training on the practicing nurses and the physicians training them.

Conclusion

Medical educational reforms must be introduced in the undergraduate nursing education curricula to educate and train nurses in cancer screening in order to motivate their increased participation in preventive cancer screening. Family physicians and primary care physicians must utilize their trusted doctor-patient relationship to educate patients about the importance of cancer screening and motivate them to uptake cancer screening services provided by the GOI.

Ethical consideration

The study was conducted with prior approvals from the institute. The survey's purpose and the right to withdraw from the survey at any stage were explained to the participants. Participating students also signed written informed consent forms.

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Conflicts of interest

There are no conflicts of interest.

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