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Acceptability and Self-Motivated Take Up Rate of Cancer Screening Strategies Among Nurses in A Tertiary Care University Hospital In Kerala, India

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ABSTRACT

Background: Breast and cervical cancer are the leading causes of cancer and cancer deaths among women in India. Though effective modalities for prevention of these are available by screening, the utilisation of these services is dismal in India. The study aims to determine the knowledge, awareness, attitude and utilization of cervical and breast cancer screening among nurses working in a tertiary care institute.

Methods: Cross-sectional survey conducted among 266 nurses working at Government Medical College Kozhikode, a 1500 bedded hospital. Nurses working at our institute were provided with a pre-designed questionnaire designed to test their knowledge, awareness and attitude about utilization of screening facilities available in institution.

Results: Approximately 77% who participated were aware about cervical cancer screening and 92% about breast cancer screening. Although 71% of them have advised Pap smear to general population, only 27% of them have undergone it themselves. 78% of them knew about screening of breast cancer but only 56% do regular breast self-examination. Only one had undergone a Mammogram.

Conclusions: Knowledge about screening tests for breast and cervical cancer were appreciable in nursing staffs but utilization of screening programmes for themselves were very less. Non-utilization of screening modalities in spite of availability at a low cost highlights the importance of identifying less realized barriers such as emotional, cognitive

and cultural ones. Attitude about screening has to be addressed in awareness programmes that reinforce the benefits of screening.

Keywords: *nurses, screening, pap smear, mammogram*

INTRODUCTION

In India the cancer burden among women are predominantly due to breast and cervical cancers [1] . Though both of these can be detected early by effective screening tests, yet majority of the patients present with advanced disease [2][3][4] resulting in low cure rates. This may be because of poor knowledge about the disease and availability of screening methods among general population. Other complex factors for underutilization of screening programs are also seen across various social segments and are a poorly understood phenomenon. Apart from inadequate resources and lack of awareness, barriers to take up a screening program also exists which include cultural, emotional and financial ones [5]. We wanted to analyse the take up rate of screening modalities among nurses working in a tertiary level hospital. We selected this population for study because they come close to a hypothetical population where practical, financial and cognitive (knowledge) barriers are likely to be minimal. Being in an adequately resourced environment and having knowledge of the benefits of screening programs they are also an integral part of communication with students and general population.

METHODS

This is a cross sectional study where a custom made questionnaire with both open and closed ended questions on various aspects of cervical and breast cancer screening were administered to the nursing staff members at Government Medical College, Kozhikode, Kerala, India which is a tertiary care 1500 bedded hospital with 600 Nurses. The sample size was calculated using the formula Zα2 pq/d2, taking Pap smear practice of 11.6% from a study by Rahman and Kar,[5] absolute precision of 5% and the desired confidence level of 95%. The sample size came out to be 158. The sample size was 189 after assuming a non-response rate of 20%, which was approximated to 200. The participants were selected using convenience sampling. The institution has facility for Pap smear and mammogram at a highly subsidized rate. The Institution has tertiary level cancer care facilities with surgical, medical and

radiation oncology services. Approval from the institutional ethics committee was obtained before commencing the study. Individual informed consent and ethics committee approval were obtained from GMCK (Institutional Ethics Committee, Government Medical College Kozhikode, ref. no GMCAKD RP 20191EC244, dated OCT 18, 2019). The study was conducted in November 2019. Women with history of cervical cancer and those who did not give consent were excluded from the study. The questionnaire was designed to cover the study objectives, based on the published literature on this topic with 19 content specific questions and relevant alternatives of which one or more were the correct answer. The questionnaire contained the socio demographic profile of Nursing staff, their knowledge of symptoms, risk factors, screening methods, preventive aspects for breast and cervical cancer and the utilisation of screening methods for these two cancers were assessed The questionnaire was pretested on a smaller sample size, which was not included in the present study. In order to access face validity and content validity. Verbal informed consent for filling the questionnaire was taken before administering the questionnaire. Those who agreed to participate were requested to fill the questionnaire and the filled forms were collected later from the nursing superintendent.

Data entry was done using Windows Excel and the data was analyzed using Microsoft Excel software. Descriptive statistics were used for data presentations. Discrete variable frequency was expressed in numbers and percentages. Percentages and proportions were calculated for all variables Continuous variables were expressed using mean / median. Analysis was done using SPSS 11.

RESULTS

The total number of participants was 262. The age group ranged from 22 to 58 years. The mean age of the participants was 39 years. Majority (84%) of them were sexually active and 70 % of the nurses who participated in the study were married.

86% of the nurses had knowledge that cervical cancer could be prevented and 76% had knowledge about the right time of initiation of screening. 97% of the nurses were aware that Pap smear was a screening test for cervical cancer .95% were aware of the viral aetiology of cancer cervix while 45 % knew that there was a vaccine to prevent cancer of cervix . The results are given in the Tables. 1, 2 and 3.

While 95% of the participants were aware of screening tests for breast cancer, 78% of them knew that self-breast examination (SBE), clinical breast examination (CBE) and mammogram were all screening methods, only SBE was chosen by 6%, only CBE by 7% and only mammogram by 9% of the respondents. 54% knew that a screening mammogram should be done after 40 years .25% said it was below 40 years and 21% felt it was to be done only when there was a lump. 86% of the nurses had done self-breast examination, but only 34% of them did it every 1-3 months, while 11% did it once in 6 months and 55% of them were irregular with the examination.

64% of the respondents said they had advised Pap smear to relatives, while only 21% had underwent the test themselves .Regarding why they didn't undergo a Pap screening test 4% said they were unaware of the test, 63% were aware of it but didn't undergo because they were reluctant to have an internal examination, 33% believed that it was a test done only in symptomatic women. Majority of them gained knowledge of the screening test from the awareness programs conducted in the institution (60%), 36% from nursing books and 4% from media. Only one of the respondents had undergone a screening mammogram (0.4%).

Table 1. Knowledge About Cervical Cancer

Questionnaire	Response	Percentage
1. Can cervical cancer be prevented by screening?	YES	86%
	NO	14%
2. When should screening be initiated?	21 years	40%
	After initiation of sexual intercourse	36%
	>50 years	24%
3. Do you know PAP smear is the screening test for cervical cancer?	YES	97%
	NO	3%
4. Can PAP smear detect cancerous as well as pre-cancerous lesions?	YES	90%
	NO	10%
5. What is the etiology of cervical cancer?	Human papilloma virus	95%

	Genetically determined	3%
	Bacterial infection	2%
6. Is there a vaccine to prevent cervical cancer?	YES	45%
	NO	25%
	UNAWARE	30%

Table 2. Knowledge About Breast Cancer

1. Can breast cancer be detected at an early stage by screening?	YES	95%
	NO	5%
2. Screening of breast cancer is done by?	Breast self-examination	6%
	Clinical Breast examination	7%
	Mammogram	9%
	All of the above	78%
	None of the above	0%
3. When should a Screening Mammogram be done?	25years	6%
	25 – 40 years	19%
	>40 years	54%
	When there is a lump?	21%

Table 3. Attitude And Practice Toward Screening

1. Have you ever advised PAP smear to your relatives?	YES	64%
	NO	36%
2. Have you ever undergone a PAP smear?	YES	21%
	NO	79%
3. Why have you not taken a PAP smear yet?	*I was unaware of it*	3%

	I was aware but reluctant to go for a gynecological examination	63%
	I thought it is done only in symptomatic women	33%
4. Have you ever done Breast self-examination	Yes	56%
	No	44%
4. How often do you do Breast self-examination?	Every 1- 3 months	34%
	Once in 6months	11%
	Irregular intervals	55%
5. How did you gain this knowledge and awareness about cancer screening?	Magazines& Media	4%
	Medical books & literature	36%
	Cancer awareness programmes at institute	0.4%
Have you ever undergone a screening Mammogram		0.4%

DISCUSSION

Knowledge about the preventable aspects of cervical cancer were very high with 95% of participants having awareness of HPV as the aetiology agent leading to cervical cancer which is much higher than other studies [5][6][7]. 97% of participants had perception regarding PAP smear as the screening test which was again high compared to other studies [6][7][8][9]. Majority of the participants had a fairly good knowledge of the correct time to start screening (76%). Regarding Primary prevention only 117 participants (45%) were aware of existence of an effective vaccine against HPV which too was however higher than other studies [5][6][9].

The attitude and practice of the participants toward cervical screening

was in contrast to knowledge. Though 64% had been involved in disseminating information to the community, only 21% had themselves undergone Pap smear. This was comparable to other studies from India [5] [7][8] and from outside India [9],[10][11]. To the question as to why you haven't undergone Pap smear, the majority answered as "*reluctant to go for a gynaecological examination"*. Other studies shows embarrassment and discomfort of a internal examination as the reason for not undergoing Pap smear [7],[10][12]

Knowledge about the preventable aspects of breast cancer too was high with 204 participants (78%) having awareness regarding the breast cancer screening. (BSE, CBE, Mammogram) which was comparable with other studies [13],[14]. However only 54% were found to be aware of the correct age for initiation of mammogram. Only one person among the study subjects had undergone a Mammogram which was less compared to other studies [15][16]

60% of the participants have mentioned that they have gained this knowledge from Institute based cancer awareness programmes. This highlights the responsibility of doctors and medical institutions to carry out regular and repeated awareness programmes and seminars on this subject.

The study shows a relatively higher fraction of subjects having awareness regarding cervical cancer screening but uptake of it was shockingly low with only one fifth undergoing Pap smear. The awareness of nurses about availability of screening and Pap smear as a screening test was high and comparable to other studies in India and other parts of the world. [6],[7],[8],[9]

Slightly less than half of the participant knew about HPV vaccine which is comparable to other studies conducted in the developing countries. Knowledge regarding prevention of HPV infection by vaccination is high among participants in the studies conducted in USA and Australia but remains low in less developed countries such as Thailand, Turkey and Pakistan [6],[7],[10]. HPV vaccine is available in India though not very commonly used.

This 'knowledge-implementation gap' was identified to be present at a much larger scale in other studies like the one by Jain et al where only 3% had undergone a Pap smear[6].This result is in agreement with another study conducted in Nigeria that found that improved awareness of Pap smear may not affect its use, in which all respondents were aware of the Pap smear but only 18% had used it before [17] only 19% of the nurses from a study in Nigeria underwent Pap

smear despite 73% being aware [18] In an Indian study by Shekhar et al. among Indian nurses only 7% underwent PAP smear [8]. Another study from India also reported negative attitude toward screening among nurses [5]. This reluctance on the part of nurses to undergo a Pap smear, based on the reason of avoiding a gynaecological examination needs to be addressed from an socio-cultural point of view. The view held toward clinical examination by health providers reflect at large the thinking pattern of women in India, who are likely to underutilize the resources even when provided at a subsidized rate or free of cost. The hospital environment present an experimental setting where this hypothesis can be addressed whether a particular modality of screening will or will not be taken up by beneficiary apart from lack of availability or due to financial constraints. This puts into the relevance physician independent, patient centered screening programs that has become available in the recent years. HPV testing in self-collected vaginal samples is a viable modality for cervical cancer screening because any other modality would invariably include a gynaecological examination .HPV testing is the screening test which the patient can collect by herself at her convenience. In a study conducted at AIIMS, Delhi, self-collected HPV sampling compares favourably with physician sample and cytology. [19,20].The mindset the Indian woman carries, not to expose herself unless it becomes an absolute necessity, seems to be relevant and this cultural barrier was a challenge to address as it didn't significantly change despite of knowledge. In a low-resource setting even a single round of HPV testing was associated with a significant reduction in the numbers of advanced cervical cancers and deaths from cervical cancer [21].

Emotional barriers (fear, embarrassment) and low perceived risk by the population might also explain the lower cervical screening coverage among nurses. The cultural barrier may be intricately linked with the emotional barrier but need to be assessed in a more objective way. This is especially found to be relevant among women of Asian origin [22].Another significant barrier in the cohort seems to be Cognitive where 33% of women thought it need to be done in symptomatic women. Other barriers such as practical barrier, financial barrier seem to be irrelevant in this cohort. Procedure related (previous procedure related bad experience) barriers were not assessed in this study.

Self-motivated take up rate by the possible beneficiaries is likely to be low in the absence of community based

screening programs. In India cancer screening reaches only 1-2 per cent of female population [23], which are largely concentrated in the urban setting. Government of India is scaled up for massive nationwide project to screen women for Breast and cervical cancer using VIA. [24]. VIA has to be considered as a stepping stone for implementation of HPV DNA based nationwide screening program in countries like India which is classified as having "Basic Setting" [25]. While implementing HPV based screening program in India, due considerations should be given to cultural and emotional barriers that play a key role in uptake of service even among educated class of women. [26]

The study is based on Recognition questions which overestimates awareness because participants with a medical background find it easy to guess. The study was based on convenience sampling, thus the professionals interviewed may not reflect the awareness and knowledge of the entire centre. A third limitation is that the sample frame does not represent rural areas and may not be generalizable to these areas. But considering the poor screening uptake by health professionals in an urban medical centre the outlook is likely to be bleak in rural areas which is where 60% of Indian population live.

CONCLUSION

Our study shows that although the knowledge about screening tests for breast and cervical cancer were appreciable in nursing staffs but the self utilization of the screening programmes, though these tests were available at their work place at a low cost, were very less. This Non-utilization of important screening modalities in spite of availability at a low cost highlights the importance of identifying less realized barriers such as emotional, cognitive and cultural ones. Attitude about screening has to be addressed in awareness programmes that reinforce the benefits of screening. Alternative, suitable and effective screening strategies with due considerations to likely barriers in the society will help to increase uptake and thereby reduce the cancer burden of the country. At the same time Institutions should also invest more resources and time in imparting knowledge and awareness among health professionals and increase the utilisation of service by them.

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