

RESEARCH ARTICLE

Awareness of Breast Cancer Warning Signs and Screening Methods among Female Residents of Pokhara Valley, Nepal

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Abstract

Background: Breast cancer is the second most common cancer in the world and by far the most frequent cancer among women. **Objective:** The present study was undertaken to assess the awareness of breast cancer warning signs and screening methods among the women of Pokhara valley, Nepal. **Materials and Methods:** A cross-sectional questionnaire survey was carried out in a community setting with the female population. The questionnaire was administered in face-to-face interviews by trained research assistants. **Results:** Nepalese women demonstrated poor awareness of warning signs like a breast lump, lump under the armpit, bleeding or discharge from the nipple, pulling of the nipple, changes in the position of the nipple, nipple rash, redness of the breast skin, changes in the size of the breast or nipple, changes in the shape of the breast or nipple, pain in the breast or armpit, and dimpling of the breast skin. While 100% of nurses were aware about breast self-examination (BSE), mammography and warning signs of breast cancer. Levels of knowledge were significantly poorer in women with other occupations. Graduates were more aware about BSE, mammogram and warning signs of breast cancer compared to those with other educational levels. **Conclusions:** The findings indicated that the level of awareness of breast cancer, including knowledge of warning signs and BSE, is sub-optimal among Nepalese women.

Keywords: Questionnaire - breast cancer - breast self-examination - mammogram - warning sign - Nepal

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Introduction

Breast cancer is the second most common cancer in the world and, by far, the most frequent cancer among women with an estimated 1.67 million new cancer cases diagnosed in 2012 (25% of all cancers). It is the most common cancer in women both in more and less developed regions with slightly more cases in less developed (883,000 cases) than in more developed (794,000) regions (Ferlay et al., 2014). Evidence suggests that early diagnosis and screening interventions might help to improve outcomes.

In developing countries like Nepal with a lower number of women who are university graduates (UGs), education and beliefs have vital importance in the early diagnosis of breast cancer. Studies have shown that the majority of women in the developing countries do not

perform regular breast self-examination (BSE). The reasons for the low rate of BSE among these women include the fear of finding that they have breast cancer, inadequate knowledge regarding how to perform BSE, and lack of awareness about what to do if a lump is found. Studies have reported that these barriers can be eliminated by BSE education (Yadav and Jaroli, 2010; Sreedharan et al., 2010; Rosmawati, 2010; Shallwani et al., 2010; Ravichandran et al., 2010; Parsa and Kandiah, 2010; Serey et al., 2011; Loh and Chew, 2011; Kanaga et al., 2011; Amin et al., 2012; Wu et al., 2012; Norsa'adah et al., 2012; Yoo et al., 2012; Radi, 2013; Sreedevi et al., 2014; Karadag et al., 2014; Uysal-Sonmez et al., 2014; Andsoy and Gul, 2014).

Early detection plays an important role in reducing mortality rates and improving prognosis. There are three

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recommended screening methods for early detection of breast cancer: mammography, clinical breast examination and breast self-examination (BSE). None of these methods are ideal for screening breast cancer; each has its own benefits and drawbacks. The goal of the health care system should be to make women aware of the various screening methods of breast cancer and to upgrade their knowledge about the warning signs of breast cancer. The present study was conducted to assess the awareness of breast cancer warning signs and screening methods in the women of Pokhara valley, Nepal.

Materials and Methods

Study design

It is a cross-sectional study conducted amongst female residents of Pokhara valley, Nepal through a semi-structured questionnaire. A questionnaire was administered during one to one interactions by trained research assistants. Convenient sampling methodology was adopted for the study.

Questionnaire design

Semi-structured questionnaire in English was developed after an extensive review of the literature and a pilot study. It encompassed the questions related to breast cancer warning signs and different screening methods.

Data collection

This study was conducted during July to December 2013. A total of 1420 female subjects were included in the study; The sample size calculation suggested that at 95% confidence interval the required sample size was 1217; the following was considered for sample size calculation $\alpha=5\%$, $p=24\%$, $Q=76\%$, allowable error=10%, where p =awareness of BSE in the pilot study (Sathian et al., 2010).

The trained research assistants described the purpose and process of the interview to the subjects, and emphasized the confidentiality and anonymity of the responses. For the purpose of this study an informed consent was taken from all subjects.

Data management and statistical analysis

The response to the questions was coded in 'yes' or 'no' format. The age, religion and ethnicity were included as demographic factors which may affect dependent variables. The data collected were entered in Excel 2003 and analysed using R 2.8.0 Statistical Package for the Social Sciences (SPSS) for Windows Version 16.0 (SPSS Inc; Chicago, IL, USA) and EPI Info 3.5.1 Windows Version. Descriptive statistics was used to interpret the data.

Ethics

Ethics approval was obtained from the Institutional Research and Ethics Committee of Manipal College of Medical Sciences, Pokhara, Nepal (affiliated to Kathmandu University) which is authorized by Nepal Health Research Council (NHRC) (IEC Letter no./ Ref no. MEMG/NHRC/GA).

Results

Characteristics of subjects

The response rate was 94.66% (n= 1420); the subjects age ranged from 15 to 68 years. The age at menarche of the selected population ranged from 12 to 17 years.

The main religion of the subjects was Hindu, followed

Table 1. Socio Demographic Characteristics

Variable	No.	(%)	
Religion	Hindu	1118	78.7
	Muslim	47	3.3
	Christian	45	3.2
	Buddhist	210	14.8
	Caste	Brahmin	303
Chettri		338	23.8
Newar		99	7.0
Gurung		127	8.9
Dalit		351	24.7
Magar, pun, lama		83	5.8
Other		119	8.4
Education	Illiterate	122	8.6
	Primary	369	26.0
	Class12	513	36.1
	Graduate	416	29.3
Occupation	Bank employee	60	4.2
	Chemist	20	1.4
	College teacher	30	2.1
	Computer technician	20	1.4
	Cook	60	4.2
	Farmer	29	2.0
	Housemaid	32	2.3
	Housewife	160	11.3
	Librarian	13	0.9
	Primary school teacher	37	2.6
	Restaurant owner	20	1.4
	Shopkeeper	200	14.1
	Staff nurse	60	4.2
	Student	480	33.8
	Sweeper	94	6.6
Vegetable vendor	60	4.2	
Waitress	45	3.2	
Total	1420	100.0	

Table 2. Knowledge about Warning Signs of Breast Cancer and BSE (N=1420)

Variables	No.	(%)
Warning signs		
Breast lump	65	4.6
Lump under armpit	68	4.8
Bleeding or discharge from the nipple	63	4.4
Pulling of the nipple	66	4.6
Changes in the position of the nipple	69	4.9
Nipple rash	64	4.5
Redness of the breast skin	65	4.6
Changes in the size of breast or nipple	66	4.6
Changes in the shape of breast or nipple	65	4.6
Pain in the breast or armpit	68	4.8
Dimpling of the breast skin	68	4.8
Do you aware about breast self examination	344	24.2
Do you heard about mammogram	283	19.9
Do you have family history of breast cancer	57	4
Have you had clinical breast examination in the last year	61	4.3

Table 3. Awareness on BSE (N=344) and Mammogram (N=283) Shown Socio Demographic Wise

		Aware of BSE No. (%)	Aware of Mammogram No. (%)
Education	Illiterate	0 (0%)	0 (0%)
	Primary	0 (0%)	0 (0%)
	Class12	31 (9.0%)	31 (10.9%)
	Graduate	313 (91.0%)	252 (89.1%)
Occupation	Bank employee	45 (13.1%)	45 (15.9%)
	Chemist	14 (4.1%)	14 (4.9%)
	College teacher	28 (8.1%)	28 (9.9%)
	Computer technician	18 (5.2%)	18 (6.4%)
	Cook	0 (0%)	0 (0%)
	Farmer	0 (0%)	0 (0%)
	Housemaid	11 (3.2%)	11 (3.9%)
	Housewife	30 (8.7%)	30 (10.6%)
	Librarian	0 (0%)	0 (0%)
	Primary school teacher	30 (8.7%)	30 (10.6%)
	Restaurant owner	0 (0%)	0 (0%)
	Shopkeeper	0 (0%)	0 (0%)
	Staff nurse	60 (17.4%)	60 (21.2%)
	Student	108 (31.4%)	47 (16.6%)
	Sweeper	0 (0%)	0 (0%)
	Vegetable vendor	0 (0%)	0 (0%)
Waitress	0 (0%)	0 (0%)	
Total		344 (100.0%)	283 (100.0%)

by Buddhist, Muslim and Christian. The main religion of the subjects were Hindu and Buddhist. The caste to which majority belonged were Dalit, Chettri and Brahmin. Education levels attained by most of them were class 12 and graduation. Majority of them were students, shopkeepers and housewives by occupation (Table 1).

The Nepalese women had poor awareness of warning signs viz. breast lump, lump under armpit, bleeding or discharge from the nipple, pulling of the nipple, changes in the position of the nipple, nipple rash, redness of the breast skin, changes in the size of breast or nipple, changes in the shape of breast or nipple, pain in the breast or armpit, dimpling of the breast skin (Table 2).

The women with nursing profession were completely aware about BSE, mammogram and warning signs of breast cancer. Graduates were more aware about BSE, mammogram and warning signs of breast cancer compared to other educational levels (Table 3).

Discussion

To the best of our knowledge, this is the first study conducted in Nepal to assess the awareness of BSE among women. Majority, of the women were not aware about the recommended steps of BSE. Presumably, it is ideal for women to examine and feel their breasts for its shape, size and consistency. Any deviation from the normal should lead to a suspicion of breast related disorders or cancer. The best period for BSE is after the completion of menstrual period.

Our study supports the study done in Saudi Arabia which states awareness of breast cancer warning signs, breast lump was the most frequently identified symptoms of breast cancer by participants, also they were aware of other breast cancer warning signs such as bleeding or discharge from the nipple, dimpling of the breast skin,

changes in the size of breast or nipple and pulling in the nipple. Knowledge of other warning signs of breast cancer was poor as only few females knew that nipple rash and redness of the breast skin are warning signs of breast cancer (Radi, 2013).

Our finding is consistent with what was reported by Radi in Saudi Arabia, which revealed that females were aware of painless lump in the breast, bloody or any discharge from the nipple and changes in the skin of the breast as the most common warning signs of breast cancer (Radi, 2013).

A higher education showed an increase in the awareness level consistent with previous studies (Sreedharan et al., 2010; Norlaili et al., 2013; Sreedevi et al., 2014; Karadag et al., 2014). These women are exposed to health-related issues through mass media, internet and a better socioeconomic status enables support of screening services.

However, practice of mammography was 19.9% in comparison to other studies which was 19% among Malaysian women (Kanaga et al., 2011). Barriers to mammography as reported by previous studies were embracement, low income, non availability and lack of health insurance coverage (Kanaga et al., 2011).

The limitations of the study were number of respondents and sampling done in few areas. However, the results of this study provided the factors that influence awareness of breast cancer warning signs and screening among Nepalese women.

The poor awareness of breast cancer warning signs, BSE and mammography among the Nepalese women in Pokhara are of concern and suggest that increased awareness and subsidised mammography be given to the population in general.

Breast cancer affects younger women in Nepal unlike in other developing countries where it is predominant in menopausal and post-menopausal women (Chauhan et al., 2011). A public health education program designed to focus on younger women is essential to generate awareness and reduce fear, denial, myths and misconceptions of breast cancer among Nepalese women. Immediate measures should be taken to increase the awareness through campaigns by non-governmental organizations focussed on rural areas and the family physician may be called upon to raise awareness and perform opportunistic screening. Findings from this study may be useful in helping the clinicians understand perceptions of patients regarding breast cancer and screening procedures.

In conclusion, the findings of the present study suggested that Nepalese women's level of awareness of breast cancer i.e. knowledge of breast cancer warning signs and BSE were sub-optimal. Immediate measures are needed to build the capacity of women towards BSE.

References

- Amin TT, Al-Wadaani HA, Al-Quaimi MM, et al (2012). Saudi women's interest in breast cancer gene testing: possible influence of awareness, perceived risk and socio-demographic factors. *Asian Pac J Cancer Prev*, **13**, 3879-87.
- Andsoy II, Gul A (2014). Breast, cervix and colorectal cancer knowledge among nurses in Turkey. *Asian Pac J Cancer*

- Chauhan A, Subba SH, Menezes RG, et al (2011). Younger women are affected by breast cancer in South India - a hospital-based descriptive study. *Asian Pac J Cancer Prev*, **12**, 709-11.
- Ferlay J, Soerjomataram I, Ervik M, et al (2012). Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: <http://globocan.iarc.fr>, accessed on 11/05/2014.
- Kanaga KC, Nithiya J, Shatirah MF (2011). Awareness of breast cancer and screening procedures among Malaysian women. *Asian Pac J Cancer Prev*, **12**, 1965-7.
- Karadag G, Gungormus Z, Surucu R, Savas E, Bicer F (2014). Awareness and practices regarding breast and cervical cancer among Turkish women in Gaziantep. *Asian Pac J Cancer Prev*, **15**, 1093-8.
- Loh SY, Chew SL (2011). Awareness and practice of breast self examination among Malaysian women with breast cancer. *Asian Pac J Cancer Prev*, **12**, 199-202.
- Norlaili AA, Fatihah MA, Daliana NF, Maznah D (2013). Breast cancer awareness of rural women in Malaysia: is it the same as in the cities? *Asian Pac J Cancer Prev*, **14**, 7161-4.
- Norsa'adah B, Rahmah MA, Rampal KG, Knight A (2012). Understanding barriers to Malaysian women with breast cancer seeking help. *Asian Pac J Cancer Prev*, **13**, 3723-30.
- Parsa P, Kandiah M (2010). Predictors of adherence to clinical breast examination and mammography screening among Malaysian women. *Asian Pac J Cancer Prev*, **11**, 681-8.
- Radi SM (2013). Breast cancer awareness among Saudi females in Jeddah. *Asian Pac J Cancer Prev*, **14**, 4307-12.
- Ravichandran K, Mohamed G, Al-Hamdan NA (2010). Public knowledge on cancer and its determinants among Saudis in the Riyadh Region of Saudi Arabia. *Asian Pac J Cancer Prev*, **11**, 1175-80.
- Rosmawati NH (2010). The usage and knowledge of mammography among women in sub-urban area in Terengganu, Malaysia. *Asian Pac J Cancer Prev*, **11**, 767-71.
- Sathian B, Sreedharan J, Baboo NS, et al (2010). Relevance of Sample Size Determination in Medical Research. *Nepal J Epidemiol*, **1**, 4-10.
- Serey VH, Kim ES, Monchy D (2011). Preliminary data about female malignant breast tumours in Cambodia. *Asian Pac J Cancer Prev*, **12**, 383-5.
- Shallwani K, Ramji R, Ali TS, Khuwaja AK (2010). Self examination for breast and testicular cancers: a community-based intervention study. *Asian Pac J Cancer Prev*, **11**, 383-6.
- Sreedevi A, Quereshi MA, Kurian B, Kamalamma L (2014). Screening for breast cancer in a low middle income country: predictors in a rural area of Kerala, India. *Asian Pac J Cancer Prev*, **15**, 1919-24.
- Sreedharan J, Muttappallymyalil J, Venkatramana M, Thomas M (2010). Breast self-examination: knowledge and practice among nurses in United Arab Emirates. *Asian Pac J Cancer Prev*, **11**, 651-4.
- Uysal-Sonmez O, Tanriverdi O, Uyeturk U, et al (2014). Awareness of cancer screening during treatment of patients with renal failure: a physician survey in Turkey. *Asian Pac J Cancer Prev*, **15**, 2165-8.
- WMA, (2013). WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects. Available at: <http://www.wma.net/en/30publications/10policies/b3/index.html> [Accessed February 6, 2014].
- Wu TY, Chung S, Yeh MC, et al (2012). Understanding breast cancer screening practices in Taiwan: a country with universal health care. *Asian Pac J Cancer Prev*, **13**, 4289-94.
- Yadav P, Jaroli DP (2010). Breast cancer: Awareness and risk factors in college-going younger age group women in Rajasthan. *Asian Pac J Cancer Prev*, **11**, 319-22.
- Yoo BN, Choi KS, Jung KW, Jun JK (2012). Awareness and practice of breast self-examination among Korean women: results from a nationwide survey. *Asian Pac J Cancer Prev*, **13**, 123-5.