

ORIGINAL ARTICLE

Knowledge and Awareness of Breast Cancer Risk Factors and Symptoms among Female Teachers in Selected Government Schools of the Embilipitiya Educational Zone, Sri Lanka

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ABSTRACT

Introduction: Knowledge and awareness of breast cancer and screening practices are important for the prevention and early detection of the disease. This study evaluated the knowledge and awareness among female schoolteachers of breast cancer risk factors and symptoms. **Method:** A survey was conducted at two selected government schools in the Rathnapura district, using a self-administered questionnaire. **Results:** A total of 117 teachers participated in this study. The most frequently identified risk factor was the family history (76.1%), while having large breasts was recognised as a risk factor by 24.8% participants. Most of the teachers identified a lump in the breast as a symptom of breast cancer (94.9%), and the least recognised symptom was nipple retraction (51.3%). The obtained mean knowledge scores were 7.18 ± 1.95 (out of 10) for symptoms and 5.53 ± 2.24 (out of 9) for risk factors. No significant associations ($p > 0.05$) were found between participant demographic characteristics and knowledge and awareness of breast cancer risk factors and symptoms in this study. **Conclusion:** The majority of participants had adequate knowledge and awareness of breast cancer symptoms but average knowledge and awareness of risk factors. Therefore, the results highlight the importance of implementing educational programmes for schoolteachers to enhance their knowledge and awareness of risk factors for breast cancer.

Keywords: Breast cancer, Schoolteachers, Risk factors, Symptoms, Knowledge, Awareness

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INTRODUCTION

Breast cancer is recognised as one of the common causes of cancer death among women in developing countries (1,2). Breast cancer risk factors include advancing age, obesity, physical inactivity and family history (3,4). According to the GLOBOCAN 2018 (5) database and the National Cancer Control programme of Sri Lanka (6,7), breast cancer is the most common cancer among females in Sri Lanka (approximately 24–27% of all cancers affecting females). Further, breast cancer incidence is rapidly increasing in Sri Lanka (8,9). According to the available statistics, the crude incidence rate (CR) per 100,000 population and age-standardised incident rate (ASR) per 100,000 world population of breast cancer among females in Sri Lanka are considerably higher than other cancers (5–7,10). In 2010, the CR and ASR of breast cancer among females were 23.1 and 23.0, respectively (6,10). In 2014, the reported CR and ASR of breast cancer among females

were 28.8 and 24.3, respectively (7). According to the literature, younger females are affected more in Sri Lanka compared to other countries, but most breast cancers are detected in later stages (6,11–13). The latter could be due to a lack of knowledge and awareness of the disease and screening (14–16). Breast cancer incidence has risen in many parts of Sri Lanka and is becoming an urgent problem in low-resource regions. However, no national screening programme has been implemented yet in Sri Lanka for breast cancer (8,16).

Teachers play an effective role in communicating with young students. Proper knowledge and awareness of breast cancer among schoolteachers is significant because they are the sources of knowledge. Some literature indicates a positive association between this profession and breast cancer risk (17,18), but other studies do not support this concept (19,20). Although breast cancer awareness programmes are being delivered throughout Sri Lanka, these have not primarily targeted school teachers. Adequate knowledge and awareness of breast cancer among school teachers could lead to minimising the incidence of breast cancer among themselves, colleagues and young students (14,21). The objective of this study was to assess the knowledge and

awareness of breast cancer risk factors and symptoms among female school teachers in the Embilipitiya educational zone in Sri Lanka. The association between the demographic characteristics of the participants and the level of knowledge and awareness of breast cancer risk factors and symptoms was also assessed.

MATERIALS AND METHODS

The study was conducted in the Embilipitiya educational zone in the Rathnapura district, Sri Lanka. In 2010, the Rathnapura district had an estimated CR of 14.4 among females. This was higher than the reported CR values of some of the other districts in Sri Lanka (6). Further, this study setting is a comparatively low-resource region in Sri Lanka. Based on a convenience sampling method, female teachers in two of the largest (higher number of students and teachers) government schools in the Embilipitiya educational zone were selected for this descriptive cross-sectional study.

The number of female teachers expected in both schools was around 140. Assuming that approximately 50% of females lack knowledge and awareness of breast cancer risk factors and symptoms, with a 5% margin of error, the minimum necessary sample size was estimated to be 103. Assuming a 10% non-response rate, it was estimated to be 114 (14,22).

A self-administered structured questionnaire developed by the investigators based on the literature was used to collect the data. The questionnaire was distributed among all the consenting teachers excluding any who had experienced any type of breast disease or breast cancer. The content validity of the questionnaire (readability, clarity, comprehensiveness and agreement to which items should be included in the final questionnaire) was checked with two experts working in the research field and a well women clinic in Sri Lanka. The questionnaire consisted of three sections on demographic data and knowledge and awareness of breast cancer risk factors and symptoms. Each correct response was given a score of 1 and each incorrect response was given a score of 0. The total score was calculated by adding all the scores, with a maximum attainable score of 22 and minimum attainable score of 0.

Ethical approval for the study was obtained from the Ethics Review Committee of the Faculty of Allied Health Sciences, University of Peradeniya (AHS/ERC/2017/013), and permission to conduct the study was obtained from all the relevant authorities. A convenient time for data collection without disturbing routine activities was decided after discussion with each participant. The data were analysed using SPSS (Statistical Package for the Social Science) version 20. All tests were conducted with a significance level of 0.05.

RESULTS

Demographic characteristics

A total of 117 female teachers consented to participate in this study, and their demographic characteristics are shown in Fig. 1. Most of the participants were aged over 40 years (55.6%, 65) and the majority were married (86.3% ,101) or had ever been married (1.7%, 2). Most (53.4%, 62) had studied up to the diploma level. Of the participants, 92.3 % (108) had no family history of breast cancer.

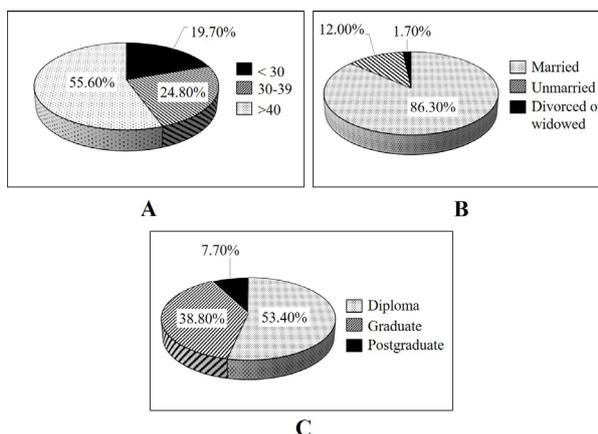


Figure 1: Demographic characteristics of the participants. A: Age distribution. B: Gender distribution. C: Education level

General knowledge of breast cancer

Three questions were included in the questionnaire to assess general knowledge of breast cancer. The majority (65%, 76) of the participants identified that breast cancer may be hereditary. However, 18% (21) and 26% (31) of participants believed that breast cancer affects only women and that it is the leading cause of death for Sri Lankan women, respectively.

Knowledge and awareness of breast cancer risk factors

Ten questions were included in the questionnaire to assess knowledge and awareness of breast cancer risk factors. The mean score was 5.53 ± 2.24. As shown in Fig. 2, the most identified (76.1%, 89) risk factor was a

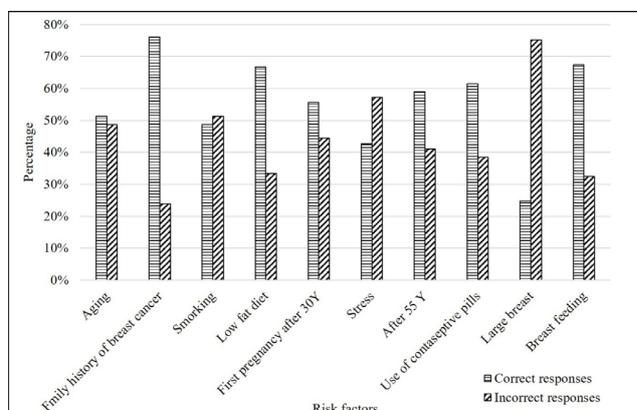


Figure 2: Knowledge and awareness of breast cancer risk factors

family history of breast cancer. Having large breasts was recognised as a risk factor by 24.8% (29) of participants. More than half of the women identified that use of oral contraceptives (61.5%, 72) and age greater than 55 years (59%, 69) increase the risk of breast cancer.

Knowledge and awareness of breast cancer symptoms

Nine questions were included in the questionnaire to assess knowledge and awareness of breast cancer symptoms. The mean score was 7.18 ± 1.95 , demonstrating that participants gave correct answers to more than half of the questions. As shown in Fig. 3, a lump in the breast (94.9%, 111) and a painless breast lump (89.7%, 105) were the most frequently identified symptoms. Nipple retraction was the least recognised symptom, identified by 51.3% (60) of participants. Pain in the nipple and enlargement of axillary lymph nodes were identified as symptoms of breast cancer by 83.8% (98) and 80.9% (95), respectively.

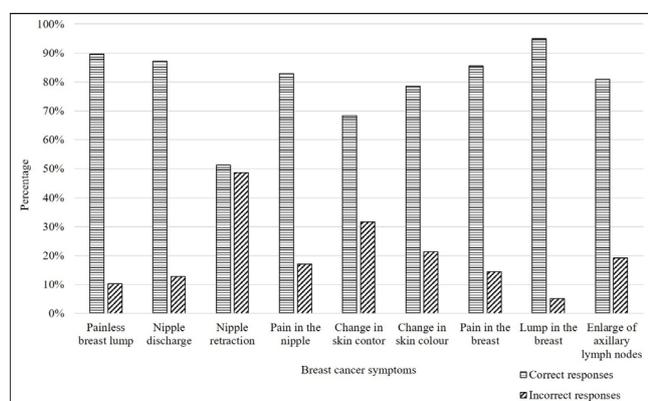


Figure 3: Knowledge and awareness of breast cancer symptoms

Overall knowledge and awareness of breast cancer

The mean score of the 22 questions was 14.91 ± 3.56 , indicating that correct answers were given to more than half of the questions. According to these results, most of the participants had excellent knowledge (Table I).

Association of breast cancer knowledge and awareness with demographic factors of participants

According to Chi square test results, the p-values for age, marital status, level of education, contraceptive usage and positive family history compared with level of knowledge and awareness were greater than 0.05 ($p > 0.05$). Therefore, there was no significant association between these variables and knowledge and awareness of breast cancer in this study (Table II).

Table I: Overall knowledge and awareness of breast cancer

Level of knowledge and awareness	Scores	Frequency	Percent (%)
Poor	0-5	4	3.4
Fair	6-10	7	6.0
Good	11-15	37	31.6
Excellent	15-22	69	59
Total	22	117	100

Table II: Association of breast cancer knowledge and awareness with demographic factors of participants

Variable	p-value
Age (in years)	0.43
Marital status	0.189
Level of education	0.457
Contraceptive usage	0.163
Positive family history	0.796

*Association was significant at $p < 0.05$

DISCUSSION

Many breast cancers are diagnosed at late stages, which may be due to a lack of knowledge and awareness of the disease and screening (14–16). If breast cancer is detected early, the effectiveness of the treatment and the likelihood of survival are greater (2). Sharing information about breast cancer among young people is a challenge, but it would be a major asset for the health of coming generations of females (15). Teachers play an effective role in communicating with and encouraging young students about healthy lifestyles. Therefore, the assessment of teachers' knowledge and awareness is essential, as it indirectly influences increasing the awareness of breast cancer among young students (14). Accordingly, this study aimed to assess the knowledge and awareness of breast cancer risk factors and symptoms among teachers in selected schools in the Embilipitiya educational zone using a self-administered questionnaire. The mean score in this study was high for the section on symptoms but average for the section on risk factors, with a wide variance among the responses.

According to the results, virtually all of the participants were aware of the symptoms of breast cancer to some extent. The most frequently recognised potential symptom was a lump in the breast (94.9%). Similar findings were observed among female teachers in studies by Alshareef et al. (23) in the Makkah region of Saudi Arabia (75%) and Ojewusi et al. (24) in the Ibadan region of Nigeria (71%). Further, a study that evaluated the awareness of breast cancer among adolescent girls in Colombo, Sri Lanka, also reported similar results, finding that 72.4% identified a breast lump as a potential symptom (12). A high degree of awareness about breast lumps could be a result of effective public health awareness programmes or other health education programmes that have been conducted around breast cancer (26).

A majority of the participants (76.1%) in this study identified positive family history as a cause of breast cancer. A majority of the participants (76.1%) in this study identified positive family history as a cause of breast cancer. Similar results were found in studies conducted among female teachers in Kuwaiti (54.2%) (14), Turkey (94.9%) (27), Palestine (63%) (21) and Malaysia (84.6%) (28). According to the current results, more than half of the respondents believed that avoiding the use of oral contraceptives (61.5%) is the best option

to lower the risk of breast cancer. Similarly, the majority of participants in the studies of Abu-Shammala et al. in Palestine (62.4%) (21) and Yaya et al. in Nigeria (64.6%) (29) recognised that oral contraceptives as a risk factor for breast cancer development. In contrast, the studies of Alharbi et al. (14) in Kuwait and Parsa et al. (28) in Malaysia found that only 38.2% and 32.2% of teachers had sufficient awareness of the association between breast cancer and oral contraceptives, respectively. These findings indicate variance in the knowledge and awareness of contraceptive use in connection to breast cancer development among teachers in different societies. Furthermore, Boulos et al. (15) found that 57.5% of female university students had no idea that oral contraceptives could be a risk factor for breast cancer, respectively. Similarly, Karayurt et al. (30) found that use of oral contraceptives was not known as a risk factor by most high school students. This evidence highlights the importance of implementing regular education programmes on breast cancer risk factors to educate teachers and thereby students.

No significant association was found between the demographic characteristics of the participants in this study and knowledge and awareness of breast cancer risk factors and symptoms. However, such associations have been identified in other studies (21,22). It is obviously expected that any woman with a higher level of education is more competent in acquiring more knowledge and awareness from various sources (31). It is also expected that women who are older, are married or have a family history of breast cancer could have a higher awareness of breast cancer due to their increased life experience (32). Therefore, the reason behind this variation could be the lack of power of the study to detect a true difference, because of an inadequate number of participants in the sample. In addition, the study participants were relatively homogeneous as a group. Hence, future studies are recommended with larger sample sizes and selection of diverse groups of female teachers to detect the true association.

When considering the overall knowledge and awareness of breast cancer in the current study, the majority (59%) had an excellent score of 15–21. Parsa et al. (28) found that overall knowledge of breast cancer varied from low (63%) to moderate (37%) in their study. Comparable with the current study, 58.5% of teachers had sufficient knowledge of breast cancer risk factors in Nur's study (27). However, the studies of female teachers in Kuwaiti (14), Saudi Arabia (22) and Nigeria (29) revealed insufficient knowledge of breast cancer. This inconsistency might be attributed to the differences in the local health education programmes directed to females and schoolteachers in each country. It perhaps was also due to the cultures and beliefs in the different societies.

The selected population for this study belongs to a

reputable profession in the country, and the participants were expected to be more highly educated than the general public. However, the study was designed specifically for schoolteachers for several reasons. First, the aim was to assess the teachers' awareness of breast cancer, because the general public is dependent on the advice and motivation of teachers. Second, breast cancer is a neglected public health problem due to a high burden of communicable diseases, but the situation is alarming. Most of the public are educated by teachers, so if this group can be motivated, then this neglected public health problem can be addressed more effectively.

This study has few limitations. The study examined only teachers in two selected government schools in one education zone. As a result, it does not represent the entire population of female teachers all over Sri Lanka. In addition, a larger sample size with a more diverse group may be required to investigate the true association between the variables. Therefore, the findings of this study cannot be generalised beyond the study sample. However, this study is notable because no published studies in Sri Lanka have related to this topic. Therefore, this study provides considerable baseline information to the literature about breast cancer knowledge and practice among teachers. Moreover, by assessing the awareness of breast cancer among teachers, it is possible to identify the current situation and the value of strengthening awareness programmes for teachers and the general public. Therefore, the findings of this study could be used to support designing education programmes to enhance knowledge and awareness of breast cancer risk factors and symptoms and the importance of early detection. Further studies are recommended to investigate the factors that hinder teachers' education on breast cancer and the variation in knowledge and awareness of breast cancer with their teaching experience.

CONCLUSION

This study provides important baseline information on the knowledge and awareness of breast cancer among female school teachers in the Embilipitiya educational zone, Sri Lanka. The study highlighted that the majority of participants had adequate knowledge and awareness of breast cancer symptoms but average knowledge and awareness of risk factors. These results suggest the importance of implementing educational programmes to enhance the knowledge and awareness of risk factors of breast cancer among school teachers.

ACKNOWLEDGEMENTS

The authors would like to thank the Ministry of Education in Sri Lanka for granting permission to collect data from teachers. The authors also wish to give their sincere appreciation to all the teachers who participated in this study and all the parties who contributed to complete this study successfully.

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