RESEARCH ARTICLE

Knowledge, Attitude and Practice of Breast Self-examination Among Female University Students from 24 Low, Middle Income and Emerging Economy Countries

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Abstract

   The aim of this study was to investigate the knowledge, attitude and practice of Breast Self-Examination (BSE) among female university students from 24 low, middle income and emerging economy countries. Using anonymous questionnaires, data were collected from 10,810 female undergraduate university students aged 16-30 (mean age 20.7, SD=2.9) from 25 universities in 24 countries across Asia, Africa and the Americas. Overall, 50.4% of the female students indicated that they knew how to conduct BSE. Among all women, 59.3% had never practiced BSE in the past 12 months, 21.3% 1-2 times, 10.3% 3-10 times, and 9.1% monthly. The proportion of monthly BSE was above 20% in Nigeria and Laos and below 2% in Bangladesh, India, Singapore, Russia, and South Africa. Logistic regression found that BSE importance or positive attitude was highly associated with BSE practice. BSE practices were found to be inadequate and efforts should be made to develop programmes that can increase knowledge related to breast cancer as well as the practice of breast self-examination.

Keywords: Breast self-examination - breast cancer - knowledge - attitude - practice - university students - multi-country

Introduction

   Breast cancer is the most prevalent type of cancer in women both in high income and in low and middle income countries (WHO, 2014). The incidence of breast cancer is increasing in low and middle income countries because of increased life expectancy, urbanization and adoption of western lifestyles (WHO, 2014). Early detection of breast cancer plays an important role in improving breast cancer outcome and survival (WHO, 2014). The only breast cancer screening method that has proven to be effective is mammography screening, but it is only recommended for high resource settings (WHO, 2014). According to the World Health Organization (2014) "There is no evidence on the effect of screening through breast self-examination (BSE).

   However, the practice of BSE has been seen to empower women, taking responsibility for their own health. Therefore, BSE is recommended for raising awareness among women at risk rather than as a screening method." The American Cancer Society (2014) recommends that BSE is an option for women starting in their 20s. Women should be told about the benefits and limitations of BSE. In a number of low and middle income and emerging economy countries BSE is monthly recommended, e.g. South Africa (Cancer Association

of South Africa), Jamaica (Jamaica Cancer Society), Mauritius (Cancer Association Mauritius), Namibia (Cancer Association of Namibia), Singapore (Singapore Cancer Society).

   In a previous survey among female university students from 20 European countries, 54% of women reported as never having practiced BSE and 8% practiced monthly (Wardle et al., 1995) and in a study in Korea (Shin et al., 2012) 27% of students reported engaging in breast self-examination. Studies among female university students in low and middle income and emerging economy countries found that in Egypt, 1.3% monthly BSE (Boulos & Ghali, 2013), in Malaysia 36.7%-55.4% had practiced BSE (Al-Naggar et al., 2011; Akhtari-Zavare et al., 2013), in Nigeria, 19.0% monthly BSE (Gwarzo et al., 2009), in the United Arab Emirates (UAE), 22.7% practiced BSE, 3% monthly BSE (Al-Sharbatti et al., 2013), and in Yemen, 17.4% BSE practice (Ahmed, 2010). Various factors, including lack of awareness of BSE and poor attitudes towards BSE were identified as barriers to BSE (Wardle et al., 1995; Ahmed, 2010; Shin et al., 2012; Al-Sharbatti et al., 2013).

   The aim of this study was to investigate the knowledge, attitude and practice of breast self-examination among female university students from low, middle income and emerging economy countries.

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Materials and Methods

Sample and procedure

This cross-sectional study was carried out with a network of collaborators in participating countries (see Acknowledgments). The anonymous, self-administered questionnaire used for data collection was developed in English, then translated and back-translated into languages (Arabic, Bahasa, Chinese, French, Lao, Russian, Spanish, Thai, Turkish) of the participating countries. The study was initiated through personal, academic contacts of the principal investigators. These collaborators arranged for data to be collected from 400 male and 400 female undergraduate university students aged 16-30 years by trained research assistants in 2013 in 1 or 2 universities in their respective countries. The universities involved were located in the capital cities or other major cities in the participating countries. Research assistants working in the participating universities asked classes of undergraduate students to complete the questionnaire at the end of a teaching class. Classes were recruited according to timetable scheduling in a quasi-random pattern. We included no incentive for participation, and there were no penalties for refusing to complete the survey. The students who completed the survey varied in the number of years for which they had attended the university. A variety of majors were involved, including education, humanities and arts, social sciences, business and law,

science, engineering, manufacturing and construction, agriculture, health and welfare and services. Informed consent was obtained from participating students, and the study was conducted in 2013. Participation rates were in most countries over 90%. Ethics approvals were obtained from all participating institutions.

Measures

BSE knowledge, practice, attitude

Women were asked, "Do you know how to examine your own breasts for lumps?" The response option was "yes" or "no". Those who responded with " yes" were asked, "about how many times a year do you examine your breasts for lumps?" Response options ranged from 1=never to 4=More than 10 times a year. Further, they were asked about how important it is "for women to examine their breasts at least once a month for possible signs of cancer." Response options ranged from 1=of very low importance to 10=of very high importance (Wardle and Steptoe, 1991; Wardle et al., 1995).

Data analysis

The data were analysed using IBM SPSS (version 20.0). The proportion of BSE knowledge, practice and attitude were calculated as a percentage and means and standard deviations, respectively. Logistic regression analysis was done with STATA to calculate the crude odds ratio (OR) with 95% confidence interval (CI) to determine

Table 1. BSE Awareness, Practice and Attitude by Country

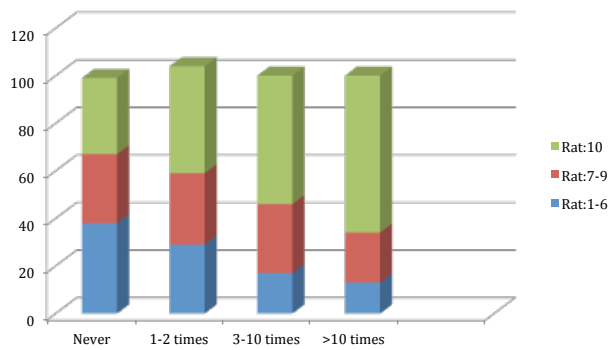| Country	Sample	BSE Awareness	BSE frequency in past 12 months				BSE Importance (range 1-10)
			Never	1-2 times	3-10 times	>10 times	
	N	%	%	%	%	%	M (SD)
All	10810	50.4	59.3	21.3	10.3	9.1	7.5 (2.9)
Caribbean and South America							
Barbados	247	55.5	55.1	24.3	13.4	7.3	7.9 (2.4)
Grenada	293	70.3	42.0	25.3	10.4	14.3	8.1 (2.4)
Jamaica	582	64.4	46.9	25.9	11.7	15.5	7.8 (2.6)
Colombia	456	73.7	32.2	32.2	19.3	16.2	8.6 (2.3)
Venezuela	338	69.8	42.0	31.4	16.0	10.7	7.6 (2.8)
Sub-Saharan Africa							
Ivory Coast	412	44.2	58.5	16.3	10.2	15.6	8.1 (3.6)
Madagascar	400	37.7	67.8	16.5	8.0	7.8	6.4 (3.3)
Mauritius	342	35.0	70.8	17.3	7.9	4.1	7.8 (2.5)
Namibia	343	57.8	44.6	25.1	13.4	16.9	8.3 (2.4)
Nigeria	375	71.7	36.5	21.1	20.8	21.6	6.1 (3.9)
South Africa	478	41.2	80.3	14.0	4.1	1.6	7.4 (3.1)
North Africa and Central Asia							
Tunisia	640	34.4	74.4	14.4	6.6	4.7	4.8 (3.7)
Turkey	400	58.7	50.3	19.0	18.0	12.8	6.2 (3.5)
Russia	406	35.9	75.9	19.0	3.7	1.5	7.2 (2.9)
Kyrgyzstan	479	74.5	43.6	37.0	9.2	10.2	7.7 (2.8)
South Asia and China							
Bangladesh	344	46.6	64.5	29.7	4.7	1.2	7.1 (3.0)
India	259	20.1	88.4	6.9	3.1	1.5	6.0 (3.8)
Pakistan	473	42.1	60.9	24.7	7.6	6.8	9.7 (1.1)
China	840	23.2	82.6	12.0	3.6	1.9	6.9 (2.1)
Southeast Asia							
Indonesia	519	76.3	35.3	30.3	21.2	13.3	9.1 (2.0)
Laos	533	63.2	41.8	22.3	14.8	21.0	8.2 (2.7)
Philippines	581	38.4	63.2	18.8	10.5	7.6	7.7 (2.4)
Singapore	442	32.9	80.3	14.0	4.1	1.6	6.4 (2.4)
Thailand	640	59.4	76.5	18.2	3.2	2.1	7.8 (2.5)

Figure 1. Breast Self-examination Frequency in Relation to Ratings of the Importance of BSE. Proportion practising breast self-examination

the associations between BSE attitude and BSE practice (any practice coded as 1, and no practice coded as 0) and age was adjusted for. The country was entered as the primary sampling unit for survey analysis in STATA in order to achieve accurate CIs, given the clustered nature of the data.

Results

The final sample included 10810 female undergraduate university students aged 16-30 years (mean age 20.7, SD=2.9). Overall, 50.4% of the female students indicated that they knew how to conduct BSE; this knowledge proportion was above 70% in Indonesia, Kyrgyzstan, Colombia, Nigeria and Grenada, while it was below 25% in China and India. Among all women, 59.3% had never practiced BSE in the past 12 months, 21.3% 1-2 times, 10.3% 3-10 times, and monthly BSE was 9.1%. The proportion of monthly BSE was above 20% in Nigeria and Laos and below 2% in Bangladesh, India, Singapore, Russia, and South Africa. The rating of the importance for BSE was overall on average 7.5, ranging from 1-10 (10 being the highest). There were also country variations in relation to BSE importance ratings, e.g., low ratings below 6.5 were found among female university students in India, Madagascar, Nigeria, Singapore and Turkey, and high ratings above 8.5 were found in Pakistan, Indonesia and Columbia (see Table 1).

BSE attitudes and practice

Logistic regression found that BSE importance or positive attitude was highly associated with the BSE practice (Odds Ratio=2.95; CI=2.67-3.28). Further, the relationship of BSE frequency and BSE importance ratings are shown in Figure 1, illustrating the increase of BSE frequency with increasing BSE importance ratings.

Discussion

The study found, among a large sample of female university students across 24 countries low levels of BSE, with 9.1% practicing monthly BSE, which compares with most previous surveys among female university students (Wardle et al., 1995; Al-Sharbatti et al., 2013; Boulos and Ghali, 2013). In this study, country variations in the regular practice of BSE were observed, with high rates (>20%) of

monthly BSE in Nigeria and Laos and low rates (<2%) in Bangladesh, India, Singapore, Russia, and South Africa. A previous study also found a high rate (19%) of monthly BSE among Nigerian female university students (Gwarzo et al., 2009), while studies in other countries also found low rates such as in Egypt (1.3%) (Boulos and Ghali, 2013) and in the UAE (3%) (Al-Sharbatti et al., 2013).

As found in previous studies (Wardle et al., 1995; Ahmed, 2010; Shin et al., 2012; Al-Sharbatti et al., 2013), this study also found that lack of awareness of BSE and poor attitudes towards BSE were identified as barriers to BSE (Wardle et al., 1995; Ahmed, 2010; Shin et al., 2012; Al-Sharbatti et al., 2013). Overall, female students gave a high importance rating (7.5, from 1-10) of BSE, and yet the prevalence of BSE practice was low. This could be because the study sample beliefs that BSE is important in general, but may be not for them at their young age (Wardle et al., 1995).

Study limitations

This study had several limitations. The study was cross-sectional, so causal conclusions cannot be drawn. The investigation was carried out with students from one or two universities in each country, and inclusion of other centres could have resulted in different results. University students are not representative of young adults in general, and the BSE knowledge, attitude and practice may be different in other sectors of the population.

In conclusion, results show that BSE practices among this large sample of female undergraduate university students was inadequate. Efforts should be made to develop educational programmes that can increase knowledge related to breast cancer as well as the practice of breast self-examination.

Acknowledgements

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