FACTORS ASSOCIATED WITH THE PRACTICE OF BREAST SELF EXAMINATION: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Breast Self-Examination (BSE) practice empowers women in taking control for their own breast health. It also has the potential in improving prognosis of breast cancer outcome. This narrative review aims to understand the factors associated with BSE practice. These information are pertinent to inform health professionals in designing and developing health educational programs for improving breast health status amongst women.

Materials and Methods: A scoping systematic literature review was conducted to assess factors associated with breast self-examination practice. The search for articles was performed in a systematic manner using different databases, including Public Domain databases and journal websites such as PubMed, MEDLINE, and ScienceDirect.com. Boolean operators were used, for combinations of the following keywords; factors associated, breast self-examination and breast self-awareness. Studies selected were based on a multi-stage screening of keywords, titles, abstracts, and the full-text of the articles, to ensure the relevance of the included articles. Included studies were quantitative studies written in English and published as free full-text articles. Studies with a qualitative approach, and those which did not deal with females or had an inadequate focus on knowledge, belief, and BSE practice were excluded.

Result: A total of 11 articles were included in the review. Careful analysis revealed that majority of the studies were involving female students, working women (healthcare employee), and a group of women from rural and city areas. Overall, the independent variables identified include socio-demographic characteristics, knowledge, belief, breast health history, and access to breast health promotion programme. All the included independent variables had shown significant associations with BSE practice (p<0.05).

Conclusion: The practice of BSE as part of breast self-awareness program was associated with several independent variables that include the demographic profile of the women as well as their understanding and belief towards BSE. It is important to identify all these variables to inform further intervention in improving breast health awareness among women.

Keywords: factors associated, breast self-examination and breast self-awareness
1.0 Introduction

Breast self-examination (BSE) used to be the screening method for early detection of breast cancer previously. The critical components of BSE are visual examination and palpation of the breast. Although formal training in BSE technique has not been shown to reduce mortality caused by breast cancer, BSE practice has been seen to empower women in taking control for their own breast health (UICC Global Cancer Control 2016). However, studies that focused deeply on formal BSE training showed that BSE leads to increase unnecessary breast biopsies which lead to anxiety, increase healthcare cost and visit, and do not reduce mortality caused by breast cancer (UICC Global Cancer Control 2016).

Besides, data from two large trials in Shanghai and Russia did not suggest a beneficial effect of screening by BSE but suggested that BSE has no benefit (Kosters & Gotzsche, 2003). According to the results, it does not mean that women are prohibited to practice BSE. Breast self-examination has its pro and cons, providing individuals with BSE for awareness education can maximise health through self-efficacy and have a significant impact on reducing breast cancer morbidity and/or mortality. Besides, it is an integral part of all early detection programmes.

In addition, American Cancer Society advised women to be familiar with their breasts normally look, feel for any lumps and response by reporting any changes to a health care provider right away (American Cancer Society 2015). So, BSE were practiced as part of breast self-awareness activities. This decision is made due to some debates over just how valuable BSE practice is. Women can still continue to practice BSE but they should be informed about the limitation of BSE and encouraged to seek medical advice if they detect any changes in their breasts. This allows inspired women to be in control of their health care and supports for patient education. There is also a possibility for BSE in detecting lump as a woman becomes comfortable with her own breasts. Nevertheless, as women seek expert opinions, anxiety felt can be reassured and unnecessary breast biopsies cannot be done.

Moreover, BSE was still practiced in some countries, especially in developing countries. Therefore, a literature search was performed to identify published studies related to factors associated with practicing BSE. All independent factors were checked for having an association with the BSE practice. Being cost-free and lifetime, BSE as part of breast self-awareness can remain a cost-effective tool and be beneficial to public health.

2.0 Methods

A literature search was performed between October 2017 and February 2018 to identify published studies related with factors associated with practice of breast self-examination. A systematic literature search was carried out to identify studies related to practice BSE and factors associated with it.

2.1 Search strategy
The search for articles was performed in a systematic manner using different databases including Public Domain database and journal websites such as PubMed, MEDLINE, and ScienceDirect.com. using the Boolean operators for combinations of the following key words: breast self-examination and breast self-awareness. Studies selected were based on a multi-stage screening of key words, titles, abstracts, and the full text of the articles, respectively, to ensure the relevance of the included articles.

In total, 272 papers were identified by all electronic databases (n=272). Duplicate records were excluded. A two-stage screening process, encompasses of title screening followed by abstract screening, led to the exclusion of many of the initially identified articles, leading to 200 papers being entered into full text screening. Full-text articles assessed for eligibility was 44 papers. From the results, 30 full-text articles was excluded with reasons, making a total of 14 to be relevant through full-text screening. The screening process is illustrated in Figure 1. At the end of the selection process, 3 studies with a qualitative approach were excluded which resulted in 11 studies for further analysis (Figure 1).

2.2 Inclusion and exclusion criteria

In this narrative review, only literature which discussed the following topics in respect to women in Malaysia was included: breast self-examination, prevalence, perception or attitudes towards breast cancer, help-seeking behaviours. Quantitative studies written in English and published from the inception of the databases up to the current date (February 2018) were included. Studies with a qualitative approach, and those which did not deal with females or which had an inadequate focus on knowledge, perception and health-seeking behaviour were excluded.
Records identified through Pubmed and Medline database search (n = 97+18)

Additional records identified through other sources (n = 157)

Records after the duplicates were removed (n = 200)

Screened records (n = 200)

Excluded records (n = 156)

Full-text articles assessed for eligibility (n = 44)

Excluded full-text articles with reasons (n = 30)

Studies included in qualitative synthesis (n = 14)

Studies included in quantitative synthesis (n = 11)

**Figure 1:** PRISMA flowchart

### 3.0 Result

The analyses results were presented in Table 1. Through this scoping systematic review it can be seen that there has not been many studies made to analyse the factors associated with BSE practice in the past five years. All studies using a cross sectional study design to determine the prevalence of BSE practice. The scope of this study is limited to the countries that still practice BSE as part of breast self-awareness activities.
Table 1: Summary of Review of Factors Associated with the BSE Practice

<table>
<thead>
<tr>
<th>Authors (Abolfotouh et al., 2015)</th>
<th>Participant: A convenient sample of adult Saudi female employees, working at King Abdulaziz Medical City, Riyadh, Saudi Arabia (n=225), and their non-working adult female family members (n=208)</th>
<th>Findings:</th>
<th>Access to breast health promotion programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors (Abolfotouh et al., 2015)</td>
<td>Work status (p=0.032)</td>
<td>Family history of breast cancer (p=0.011)</td>
<td>Knowledge of screening measures (p&lt; 0.001)</td>
</tr>
<tr>
<td>Age (p = 0.001), Marital status (p = 0.003), had significant association with BSE practice</td>
<td>Breast cancer nature (p&lt;0.001)</td>
<td>WARNING SIGNS (p&lt;0.001)</td>
<td>Women who practiced BSE had significantly higher benefits (p&lt;0.001)</td>
</tr>
<tr>
<td>Risk factors (p&lt;0.001)</td>
<td>Overall knowledge of breast cancer issues (p&lt; 0.001)</td>
<td>Motivation factors scores (p=0.002)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Authors (Akhtari-Zavare, Juni, Ismail, Said, &amp; Latiff, 2015)</th>
<th>Participant: A cross-sectional study was carried out among 792 female undergraduate students in public universities in Klang Valley, Malaysia, from January to April 2011.</th>
<th>Findings:</th>
<th>Access to breast health promotion programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents were educated about BSE by a doctor (p&lt;0.05), (OR=0.5, 95% CI= 0.3-0.8)</td>
<td>Perceived barriers of BSE (p&lt;0.05), (OR=0.9, 95% CI=0.8-0.9)</td>
<td>Respondents were checked breast by a doctor (p&lt;0.05)</td>
<td></td>
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<tr>
<td>Perceived susceptibility to breast cancer (p&lt;0.05)</td>
<td>Confidence (p&lt;0.05) (OR=1.0, 95% CI=1.0-1.0)</td>
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<tr>
<th>Authors</th>
<th>Participant</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akhtari-zavare, Latiff, &amp; Juni, 2015</td>
<td>Female undergraduate students. Only 155 (19.6%) of them practice BSE</td>
<td>Knowledge score of BSE (p&lt;0.00)</td>
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<td></td>
<td></td>
<td>Women who had knowledge of BSE</td>
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<td></td>
<td></td>
<td>(OR=1.15, 95% CI: 1.06-1.25) 1.15 times more likely to practice BSE.</td>
</tr>
<tr>
<td>Al-Azmy et al., 2013</td>
<td>Women attending primary care for maternity and child care in Kuwait (n=520).</td>
<td>Age (p&lt;0.03), Regular menstruation (p=0.01), History of breastfeeding</td>
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<td></td>
<td></td>
<td>The family history of breast cancer (p=0.01).</td>
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<td></td>
<td></td>
<td>Awareness of BC (p&lt;0.0001)</td>
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<tr>
<td>Azage, Abeje, &amp; Mekonnen, 2013</td>
<td>Health Extension Workers (HEWs) who were working at the time of the study in</td>
<td>H EWs who examined their breast by health professional (AOR: 2.69, 95% CI: 1.31, 5.52) were 2.69 times more likely to practice BSE</td>
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<td></td>
<td>West Gojjam Zone of Amhara regional state, Ethiopia. (n= 390)</td>
<td></td>
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<tr>
<td>Dahlui, Gan, Taib, &amp; Lim, 2013</td>
<td>A thousand households were selected randomly from 25 villages. Sample size</td>
<td>Being married (OR=1.40, 95% CI: 1.00–1.97) were the predictors for BSE.</td>
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<td></td>
<td>was 959 women</td>
<td>Moderate or good breast cancer knowledge, (OR=4.27, 95% CI: 2.88–6.33) were predictors for BSE</td>
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<td></td>
<td></td>
<td>Attending clinical breast examination were predictors for BSE (OR=3.02, 95% CI: 2.30–3.97)</td>
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<tr>
<td>Authors</td>
<td>Participant</td>
<td>Findings</td>
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<tr>
<td>(Akhtari-Zavare, Ghanbari-Bagherstan, Latiff, Matinnia, &amp; Hoseini, 2014)</td>
<td>Females living in the city of Hamadan, Iran n=384.</td>
<td>Marital status of respondents (p=0.010) Marital status of respondents (p=0.010) Breast cancer knowledge (p&lt;0.0001) Symptoms of breast cancer (p=0.009) Knowledge score of BSE (p=0.003)</td>
</tr>
<tr>
<td>(Hassan, Seedhom, &amp; Mahfouz, 2017)</td>
<td>Egyptian Women, Minia District</td>
<td>Participants with better knowledge were about 5 times to practise BSE than those with poor knowledge (OR=4.8, p=0.001*),</td>
</tr>
<tr>
<td>(Birhane K. et al. 2017)</td>
<td>Female Debre Berhan University Students</td>
<td>Knowing how to perform BSE (AOR = 11.2, 95% CI : 4.542–27.607), knowing when to perform BSE (AOR=3.5, 95% CI: 1.620–7.593)</td>
</tr>
<tr>
<td>(Nde, Clement, Assob, Kwenti, &amp; Njunda, 2015)</td>
<td>Female University of Buea Students</td>
<td>Had knowledge and tendency to practice BSE (p=0.029) Believing that BSE is important and useful to detect breast cancer (AOR=6.8, 95%CI :1.640–28.509)</td>
</tr>
</tbody>
</table>
4.0 Discussion

The careful analysis revealed that respondents of majority studies targeted were among female students, working women (healthcare employee), and a group of women from rural and city areas. Overall, several studies were determined factors associated with breast self-examination practice. Independent variables included socio-demographic characteristics, knowledge, belief, breast health history, and access to breast health promotion programme.

4.1 Socio-demographic Characteristics

Socio-demographic characteristics of a population were expressed statistically, such as age, gender, education level, ethnicity, marital status, and religion. In a previous study by Al-Azmy et al. (2013), several socio-demographic characteristics, such as age (p=0.03), regular menstruation (p=0.01), and history of breastfeeding (p=0.01) have shown associations towards practicing BSE. This study was designed according to a cross-sectional study by using self-administered questionnaire towards 520 women attending primary care for maternity and child care in Kuwait.

Dahlui, Gan, Taib, and Lim (2013) examined Malaysian women living in rural districts in Perak, Malaysia. A total of 959 women participated in the study. According to the study, the majority of the women were mostly married (80.7%) and were housewives (62.3%). The results showed that being married (OR=1.40, 95% CI: 1.00–1.97) were the strongest predictors for BSE. Additionally, a study by Akhtari-Zavare, Juni, Ismail, Said, and Latiff, (2015) examined socio-demographic background association with BSE practice among female undergraduate students in public universities in Klang Valley, Malaysia. They found that age (t=−3.21, p=0.001) and marital status (χ²=8.91, p=0.003) had a significant association with BSE practice.

Comparing between this three studies, it revealed that age and marital status had significant association with practicing BSE. This could be due to women self-awareness about their breast health and supportive spouse which results in BSE practice.

4.2 Breast Health History

Breast health history includes a personal history of breast disease and family history of breast cancer. A study by Abolfotouh et al. (2015) examined breast health history of adult Saudi female employees, working at King Abdulaziz Medical City, Riyadh, Saudi Arabia, and their non-working adult female family members. Their findings showed that having a positive family history of breast cancer (p=0.011) was significant predictors to practise BSE. While a study by Akhtari-Zavare, Juni, Ismail, Said, and Latiff (2015a) found that 1.1% of respondents had a personal history of breast disease (χ²=4.97, p=0.02) and an association with practising BSE. These results were probably due to the experience of a family member with breast cancer or personal experience of breast disease that made them aware and readily to get information regarding breast cancer and breast health from a health professional.

4.3 Knowledge

Knowledge status in terms of breast cancer includes risk factors and sign/symptoms of breast cancer and knowledge on BSE. The knowledge varies due to the difference in
accessibility to information. Previous studies show association between knowledge and BSE practice.

Abolfotouh et al. (2015) examined knowledge association with BSE practice among female adult in Saudi. Majority of the women in this previous study heard about BSE (91.2%). The source of information came from educational public campaigns (54.7%) while others get information from media. The result of the study showed significant differences in knowledge of screening measures (t=16.59, p<0.001), breast cancer nature (t=8.13, p<0.001), warning signs (t=6.15, p<0.001), risk factors (t=5.30, p<0.001), and overall knowledge of breast cancer issues (p< 0.001). But, this study revealed poor BSE practice. Only 21.1% was reported performing it in less than a month. The most common reason for not doing it is because women not know how to do it or not having a confidence to do it.

Studies by Akhtari-Zavare, Ghanbari-Baghestan, Latiff, Matinnia, and Hoseini, (2014) appraised the knowledge status of females living in the city of Hamadan, Iran. They discover that breast cancer knowledge was significantly associated with BSE practice (p=0.000) followed by symptoms of breast cancer (t=2.6, p=0.009) and knowledge score of BSE (t=2.9, p=0.003). Their findings were consistent with a study by Dahlui, Gan, Taib, and Lim (2013) in five rural districts of Perak They found that having moderate or good breast cancer knowledge was the strongest predictors for BSE. This study also discovered that women knowledge status below 50 years old of Malay ethnicity and had secondary education scored better compared to those older group of Chinese ethnicity and had a primary education (p<0.001). Findings from these several studies justify that having knowledge make women tend to perform BSE. Thus, these studies concluded that increase knowledge about breast cancer and BSE can give information and help women to change their attitude. Recommendation by doctors and health care professional can motivate women to actively practise BSE.

4.4 Belief

A study conducted by Birhane et al. (2017) aimed to assess the magnitude of BSE practices and associate factors among female Debre Berhan University students. Their findings clearly showed that trusting BSE is important and can be used for early detection of breast cancer (AOR = 6.8, 95% CI =1.640–28.509) were significant predictors for BSE practices.

These findings consistent with Abolfotouh et al. (2015), in which women who practiced BSE had significantly lower levels of perceived barriers (p=0.046) and higher confidence (p=0.001) towards BSE practice. Moreover, motivation (t=3.15, p=0.002) and perceived benefits (t= 3.69, p<0.001) were found had significant difference among women who practiced compared to those who did not practice BSE. Besides, Akhtari-Zavare, Juni, Ismail, Said, and Latiff (2015) discovered significant associations between perceived barriers (t=3.6, p<0.05), (OR=0.9, 95% CI=0.8-0.9), perceived susceptibility (t=3.7, p<0.05), and confidence (t=5.5, p<0.05) (OR=1.0, 95% CI=1.0-1.0) with practice BSE among female undergraduate students.

According to previous studies, the majority of these studies observed significant associations between belief and BSE practice. Therefore, future study is needed to examine the extent to which this variable might contribute to BSE practice and strategies needed in order to enhance respondent belief towards BSE.
4.5 Access to Breast Health Promotion Programme

Access towards breast health promotion programme includes doctor’s role towards BSE practice and respondents acceptance towards access to breast health promotion programme. For example, doctor ever recommended BSE, ever trained proper BSE techniques, ever talk about early detection of breast cancer and respondents ever checked any breast disease and ever attended any previous breast cancer education programme.

Previous studies show the association between access towards breast health promotion programme and BSE practice. A study was conducted by Azage, Abeje, and Mekonnen (2013) among health extension workers (HEWs). This study was a cross-sectional study using structured Amharic questionnaire. The findings of the study showed that respondents who let health professional examined their breast were (AOR: 2.69, 95% CI=1.31-5.52) 2.69 times more likely to practice BSE than those who do not practice BSE. These findings were consistent with a study by Dahlui, Gan, Taib, & Lim, (2013) in which attending clinical breast examination by a health professional were predictors for BSE (OR=3.02, 95% CI=2.30–3.97). This concluded that access towards breast health promotion programme contributed to the practice of BSE among the target population.

5.0 Conclusion and recommendation

This systematic review compiled information about factors associated with BSE practice. The systematic review also identified five common factors affecting BSE practice, which are socio-demographic characteristics, knowledge, belief, breast health history and access towards breast health promotion programme. All independent variables vary amongst population. However, findings of this systematic review are extremely limited due to only eleven studies being eligible for our review criteria. Further systematic reviews on local studies (Malaysia) should be done when more studies on this topic are available. It is important to have systematic reviews that focus on local studies as the knowledge, behaviours and attitudes of healthcare providers differ from region to region.

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Declaration

Authors declare that this manuscript has never been published in any other journal.
Authors contribution

Author 1: information gathering, preparation and editing of manuscript
Author 2: initiation of idea, review of manuscript and final editing
Author 3: review of manuscript and final editing

References


