

# Self Breast Examination: A Tool for Early Diagnosis of Breast Cancer

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**Abstract** Breast cancer is a global health concern and a leading cause of morbidity and mortality among women. It has been identified as a major public health problem in both developed and developing nations because of its high incidence-prevalence, over-burdened health system and direct medical expenditure. Studies have shown that in most of the developing nations breast cancer is diagnosed in advanced stages of the disease when compared with developed nations and thus has a poor outcome and high fatality rate. This paper aims to check the effectiveness of breast self-examination in early detection of the breast cancer. In addition, it plans to consider all the factors which hampers with the uptake of the technique and what all could be planned to improve the current scenario. An extensive search of all materials related to the topic was made using library sources including Pubmed, Medline and google scholar searches. Keywords used in the search include breast self-examination, barriers in breast self-examination and breast cancer. Breast self-examination (BSE) has been identified as the only realistic approach in early detection of breast cancer in developing nations. A wide knowledge-application gap has been observed across the globe between the knowledge and the actual practice of BSE. Multiple socio-demographic factors, myths, cultural beliefs, lack of accessibility to the health care services have been identified as the reasons for the poor uptake of BSE. Considering the potential of BSE, there is an immense need for a public health education program to inculcate the practice of breast self-examination among women to minimize the fear, denial, myths and misconceptions. This requires a sustained political commitment and further studies to recognize the perceived barriers which are interfering with the uptake of BSE so that the greatest challenge of late presentation can be curbed and the chances of survival improved.

**Keywords:** breast cancer, breast self-examination, risk factors, screening, awareness

## 1. Introduction

Breast cancer is a global health concern and a leading cause of morbidity and mortality among women [1,2,3,4]. It has been identified as a major public health problem in both developed and developing nations because of its high incidence-prevalence, over-burdened health system and added direct medical expenditure [5,6,7,8]. Trend analysis of breast cancer indicates a rise by 50-100% in the incidence of breast cancer in last 20 years [9]. Breast cancer in men is uncommon, accounting for less than 1% of all breast cancers but rise in incidence of male breast cancer has also been demonstrated [10,11]. Breast cancer can be distinguished from other cancers by the fact that it occurs at a site which can be easily noticed and thus liable for early detection & treatment [12]. The incidence, mortality and survival rates for breast cancer vary across the globe because of underlying differences in known risk factors, availability of organized screening programs and access to effective and affordable treatment modalities [1]. However, fatality rates tend to be higher in low-resource countries [13,14].

Breast cancer associated morbidity and mortality can be reduced through early detection by means of screening

programs [15], as it not only increases the chances for successful treatment and cure of the disease [16,17], but also improves chances of survival and lessens the need of invasive treatment [18]. Ensuring availability of early diagnostic & screening services and taking immediate steps have been regarded as the two main strategies for warranting improvement in the prognostic outcome [19,20,21].

Studies have shown that in contrast to the developed nations most of the developing nations have recorded a poor outcome and high fatality rate owing to diagnosis of the breast cancer in advanced stages [22,23,24,25,26,27,28]. In-fact, in a study done in India, five-year survival rate was 56% among patients diagnosed with breast cancer at a later stage in comparison to 85% for cases diagnosed early [29]. Implementation of the preventive measures has been acknowledged as the main tool in the fight against breast cancer worldwide. Globally, breast self-examination (BSE), clinical breast examination (CBE) and mammography are the recommended screening test for early detection of breast cancer. Due to lack of access to diagnostic facilities, especially for women in low resource settings, it is essential to empower them with BSE as a primary modality for screening [28,30]. This review article aims to review the effectiveness of breast self-examination in early detection of the breast cancer. In

addition, it plans to consider all the factors which hampers with the uptake of the technique and what all could be planned to improve the current scenario.

## 2. Materials and Methods

An extensive search of all materials related to the topic was made using library sources including Pubmed, Medline, World Health Organization website and Google scholar searches for one month. Relevant documents, technical publications series, systematic reviews, research articles focusing on practice of breast self-examination published in the period 1980 – 2013 were included for the review. The identified articles were then re-grouped into different sections viz. risk factors and clinical features of breast cancer; significance of breast self-examination; practice of breast self-examination; impact of socio-demographic factors on performance of breast self-examination; role of nurses' in advocating breast self-examination; impediments in breast self-examination; and implications for practice and research. Keywords used in the search include breast self-examination, barriers in breast self-examination and breast cancer.

## 3. Breast Cancer: Risk Factors and Clinical Features

The etiology of breast cancer is multi-factorial and studies have revealed significant interaction between endogenous (hormonal / genetic) and exogenous (drugs / radiation) factors [31]. Other factors like women's age [32,33]; parity [34]; practice of late initiation of breastfeeding [34,35]; oral contraceptives & hormone replacement therapy [31,33,36]; high dietary fat, excessive alcohol consumption, positive family history [33]; age at menarche, menopausal status, age at first live birth, genetic mutations and benign breast disease have also been cited [37,38,39,40]. With regards to symptoms of breast cancer, bloody discharge from the nipple and presence of lump in breast are well known [41].

## 4. Breast Self-examination: Background

Early diagnosis of breast cancer is of extreme significance in improving the survival rates and quality of life especially in low-income countries [42]. Although awareness about breast cancer has long been advocated across the world, unfortunately studies have revealed that a major proportion of women are still not breast aware [41,43]. As discussed earlier, techniques such as breast self-examination (BSE), clinical breast examination (CBE) and mammography have been advocated for bringing about a marked reduction in breast cancer associated morbidity and mortality [44,45,46,47,48]. As compared to CBE and mammography which require hospital visit and specialized equipment / technical expertise, BSE is helpful in the regard that it is cost-free, simple, non-invasive intervention carried out by women themselves [4,49,50].

Studies conducted in developing countries have established BSE as one of the most reasonable and feasible approach in early detection of breast cancer

[51,52,53]. BSE not only familiarize women with the appearance/feel of their breast but also aids in early detection of breast cancer [30]. Some of the studies have reported that BSE is highly effective in increasing sense of ownership about health, healthcare seeking behavior, encouraging adoption of preventive health behaviors and creating awareness about breast cancer among women [54,55]. Multiple studies have concluded that women, who regularly perform breast self-examination present with smaller neoplasm and rare involvement of axillary lymph nodes [29,30,56,57,58,59]. On the other hand, some researchers have seriously questioned the usefulness of BSE [60,61], while others have revealed no added benefits of BSE in improvement of survival rates [62,63].

## 5. Practice of Breast Self-examination

With the rising incidence of breast cancer and absence of any uniform breast screening strategy in most of the nations, it is important to assess the knowledge and practice of BSE in various age groups. Irrespective of the multiple benefits of BSE, various studies identified a wide knowledge application gap with regards to BSE, the practice of BSE remaining low and variable in different nations like 54% in England [59]; varying from 19% to 43.2% in Nigeria [50,64], and varying from 0 to 52% in India [29,65]. In a study done in Korea, 27% of students were engaged in BSE which was higher than what was observed in students (10.1%) from Nigeria [66,67].

Among the health-care providers, around 90.3% women performed BSE in Sao Paulo [68]; while in Turkey 28% of the nurses and 32% of physicians did not practice BSE [69]. Similarly, in a cross-sectional study conducted in Iran it was revealed that most of the female health care workers (63-72%) did not practice BSE [70]. Studies done with an aim to assess the knowledge about BSE among men have shown low level of knowledge [71,72]. This was mainly because most of the pamphlets and information-education-counseling materials usually deals only with women's breast cancer related issues [71,72].

## 6. Impact of Socio-Demographic Parameters on Breast Self-examination

Studies have indicated that major proportion of the women are not aware of what they need to do to protect themselves from breast cancer or even how to check themselves [73,74]. Further it has been reported that older age (>45 years) and married women were more likely to practice BSE than others [54,75]. In a study done in Turkey, significant association was observed between breast cancer knowledge and practice of BSE [54]. In addition, women with a positive family history of breast cancer had a better knowledge as well as higher frequency of BSE than those with a negative family history [74,76]. The importance of education in the adoption of BSE practice has been reported repeatedly [75,77,78]. Simultaneously the positive impact of educational interventions on BSE and breast cancer awareness have also been emphasized [79,80].

## 7. Role of Nurses' in Breast Self-examination

Health care providers, educational institutions and mass-media are the important resources in dissemination of any public health related information to masses. The nursing staff can play a pivotal role in educating women through specially designed learning programs in the health care setting, as well as, through community outreach approaches that suit the social and cultural settings [81]. A study done in Turkey emphasized that nurses' opinion about breast cancer screening programs was crucial in developing breast cancer educational programs [78]. It has been reported that nurses who own adequate knowledge about breast cancer can definitely contribute towards early detection of breast cancer [82,83]. It has been realized that nurses have an indispensable role in teaching women in the community and in influencing their behavior, especially those working in the rural healthcare set-up [12].

## 8. Barriers to Breast Self-examination

Though breast self-examination is considered an important tool in early detection of breast cancer, multiple barriers have been identified viz. awareness about breast cancer [52,54,77,84]; lack of time, shortage of self-confidence, fear of possible detection of a mass and feeling of awkwardness about breast handling [85]; health related assumptions [86]; anxiety and forgetfulness [29,87]; low socioeconomic status and poor access to health care facilities [88]; negative socio-cultural perception about breast cancer and strong belief in traditional medicine [89], and lack of motivational support from parents, spouse or friends [90].

## 9. Implications for Practice

There is an immense need for a public health education program to inculcate the practice of breast self-examination among women to minimize the fear, denial, myths and misconceptions. The messages and recommendations about breast cancer screening must be clear and the recognized barriers should be taken into consideration for maximization of the outcome. Every effort has to be taken to encourage the practice of BSE not only among women but also among men as there is visible increase in the incidence of male breast cancer. Healthcare professionals including grass root level health workers have to play a significant role in educating the public especially the high risk men & women. The involvement of community, family especially parents and spouse should be facilitated to maximize the understanding of BSE. Non-governmental organizations can be roped in rural areas for this initiative. Concurrently, family physicians should be encouraged to raise awareness; offer clear and specific instructions on practice of breast self-examination and promote referral as well.

## 10. Implications for Research

It is essential to plan and conduct community-based studies to find the knowledge, attitude and practices of BSE among both women and men as it will aid in identification of the perceived barriers. Further studies are needed to explore what customized interventions could be implemented to improve the uptake and practice of BSE and other methods for early breast cancer detection. Results derived from these studies will help the program managers and healthcare professionals to modify / emphasize / strengthen the existing strategies so that the greatest challenge of late presentation can be curbed and the chances of survival improved.

## 11. Conclusion

Breast self-examination has been identified as the only feasible and reasonable approach in early detection of breast cancer especially in developing nations. Considering the substantial role that can be played by BSE in low resource settings, there is an urgent need for interventions to implement and reinforce BSE in the existing cancer awareness and screening programs. Also, to bridge the wide knowledge - application gap, health education and awareness campaigns should be organized to empower the public on the causes, risk factors and prevention of breast cancer.

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