Knowledge, Attitude and Practice Regarding Breast Cancer Among Medical Students of Bangladesh. - A protocol study.

MUHAMMAD SOHEL MIA


Supervisor: Malin Eriksson
Department of Epidemiology, Public Health and Clinical Medicine, Umeå University, Umeå.

Umeå International School of Public Health
Epidemiology and Public health Sciences
Department of Public Health & Clinical Medicine
Umeå University

Contents

ACKNOWLEDGEMENT ............................................................................. 4

ABSTRACT .............................................................................................. 5

LIST OF ABBREVIATIONS ....................................................................... 6

1. INTRODUCTION .................................................................................... 7

1.1 Aim of the study ..................................................................................... 8

1.2 Structure of the thesis ............................................................................ 8

2. OVERVIEW OF BREAST CANCER SITUATION WORLD WIDE .......... 9

2.1 Prevalence and incidence ...................................................................... 9

2.2 Geographic variation of breast cancer .................................................. 10

2.3 Incidence by ethnic group ..................................................................... 10

3. BREAST CANCER SITUATION IN BANGLADESH .............................. 12

4. RISK FACTORS, SYMPTOMS AND SURVIVAL OF BREAST CANCER.... 14

4.1 Risk factors ........................................................................................ 14

4.2 Warning symptoms of breast cancer ..................................................... 16

4.3 Stages and survival .............................................................................. 17

5. PREVENTION .......................................................................................... 20

5.1 Primary prevention .............................................................................. 20

5.2 Secondary prevention .......................................................................... 20

6. TOOLS FOR EARLY DETECTION ...................................................... 21

6.1 Breast awareness ................................................................................ 21
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 Breast Self Examination (BSE)</td>
<td>22</td>
</tr>
<tr>
<td>6.3 Clinical Breast Examination</td>
<td>23</td>
</tr>
<tr>
<td>6.4 Mammography</td>
<td>23</td>
</tr>
<tr>
<td>7. LITERATURE REVIEW</td>
<td>24</td>
</tr>
<tr>
<td>7.1 Methods of search</td>
<td>24</td>
</tr>
<tr>
<td>7.2 Summary review of literatures</td>
<td>33</td>
</tr>
<tr>
<td>7.3 Conclusion</td>
<td>33</td>
</tr>
<tr>
<td>8. Description of the study</td>
<td>34</td>
</tr>
<tr>
<td>8.1 Introduction</td>
<td>34</td>
</tr>
<tr>
<td>8.2 General Objective</td>
<td>35</td>
</tr>
<tr>
<td>8.2.1 Specific Objectives</td>
<td>35</td>
</tr>
<tr>
<td>8.3 Methodology</td>
<td>35</td>
</tr>
<tr>
<td>8.3.1 Study design</td>
<td>35</td>
</tr>
<tr>
<td>8.3.2 Study place</td>
<td>36</td>
</tr>
<tr>
<td>8.3.3 Sample size</td>
<td>37</td>
</tr>
<tr>
<td>8.3.4 Research instrument</td>
<td>37</td>
</tr>
<tr>
<td>8.3.5 Data collection</td>
<td>37</td>
</tr>
<tr>
<td>8.3.6 Data Analysis</td>
<td>38</td>
</tr>
<tr>
<td>8.3.7 Ethical consideration</td>
<td>38</td>
</tr>
<tr>
<td>8.3.8 Estimated Budget</td>
<td>38</td>
</tr>
<tr>
<td>8.3.9 Limitation of the study</td>
<td>38</td>
</tr>
<tr>
<td>9. DISCUSSION</td>
<td>40</td>
</tr>
<tr>
<td>10. TIME TABLE</td>
<td>44</td>
</tr>
<tr>
<td>11. REFERENCES</td>
<td>45</td>
</tr>
<tr>
<td>12. APPENDIX</td>
<td>50</td>
</tr>
</tbody>
</table>
LIST OF FIGURES AND TABLES

Figures:

Figure 1: Breast cancer incidence world wide: Age-standardized rates (world population) 9

Figure 2: Geographic variation of Breast cancer 10

Tables:

Table 1: Variation of Breast Cancer Incidence Rate 11
Table 2: Advancing age is a risk factors for Breast cancer 14
Table 3: Stage and survival of breast cancer 18
Table 4: Overall survival rate 19
Table 5: Summary review of literatures 31
ACKNOWLEDGEMENTS

It is a great pleasure and at the same time an emotional moment for me to writing the acknowledgement for my thesis. I am happy that by the grace of almighty Allah I am finishing my thesis and MPH course but at the same time I am also feeling that the stipulated time is running out for this wonderful city and wonderful people in Umeå. I would like to express my heartiest gratitude to all the good people in Umeå.

I am grateful to my supervisor, Malin Eriksson, for her guidance, constructive advices valuable suggestion and patient correction of my thesis.

I would like to pay my gratitude to my teachers and all the staffs in the department of Epidemiology and Public Health for their academic, administrative, and personal support during my study period.

It would be injustice not to mention Birgitta Åstrom and Karin Johansson specially because without their continuous support and help it would be quite difficult to cope with problems.

I would like to thanks my 3 and half years old daughter Ramisa because without her cooperation it would not possible to stay in Sweden. She was with me alone without her mother for last 6month.

At last not least I am grateful to my beloved wife, she continuously inspired me and encourage me to go beyond my limit. Without her moral support it would not possible to continue my program and thesis.
ABSTRACT

Breast cancer in women is a major health burden both in developed and developing countries. It is the second leading cause of death in women worldwide as well as in Bangladesh. Recent global cancer statistics shows that global incidence is rising at a faster rate especially in developing countries like Bangladesh. But still breast cancer is not on the top of the priority list for the policy maker’s donors and health professionals. But the prevailing situation can be more devastated if early attention is not given. To concentrate on this fast growing health problem we need to know the overall situation concerning incidence, prevalence, risk group, diagnostic and treatment status survival and mortality rate first to make a comprehensive policy to cope with breast cancer situation in Bangladesh. This proposed protocol study is designed to assess the knowledge attitude and practice regarding breast cancer in medical student in Bangladesh. This study population is not only the health professionals but also represent the higher educated population of Bangladesh. Their level of knowledge will reflect or give us an idea about the mass general lower educated population in Bangladesh. The proposed study will be conducted during February 2008 to May 2008 on 3rd year to 5th year medical students of different medical colleges of Bangladesh through a cross-sectional study. Data will be collected by a self administered questionnaire.
### List of Abbreviation

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Name in Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS</td>
<td>American Cancer Society</td>
</tr>
<tr>
<td>BSE</td>
<td>Breast Self Examination</td>
</tr>
<tr>
<td>CBE</td>
<td>Clinical Breast Examination</td>
</tr>
<tr>
<td>HRT</td>
<td>Hormone Replacement Therapy</td>
</tr>
<tr>
<td>IARC</td>
<td>International Atomic Research Centre</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge Attitude and Practice</td>
</tr>
<tr>
<td>RCT</td>
<td>Randomised Control Trial</td>
</tr>
<tr>
<td>USA</td>
<td>United State of America</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>

#### 1. Introduction:


Breast cancer in women is a major health burden. It is the most common cause of cancer death among women in both high recourse and low recourse countries\(^1\). The incidence, mortality and survival rate in different parts of the world vary from 4 to 10 fold. Recent global cancer statistics indicate that breast cancer incidence is rising at a faster rate in populations of developing countries\(^1,2\). The incidence of breast cancer in Bangladesh seems to be very high. As we do not have any cancer registry with relevant data about age, sex, marital status, different types of cancers, diagnostic & treatment status and survival & mortality rate of cancer patients it is difficult to say the exact situation in Bangladesh. That is one reason why policy makers are not able to concentrate on this fast growing problem. However, it is easily predictable that the incidence of breast cancer is growing at a faster rate and that the overall situation is not promising.

The recent fall of death from breast cancer in western nations is particularly explained by earlier diagnosis as a result of early presentation. In most of the developing countries including Bangladesh patient comes for treatment in an advance stage when little or no benefit can be derived from any sorts of therapy. Early diagnosis can be successfully achieved by mass screening either by Mammography, Clinical Breast Examination (CBE) and Self breast examination (SBE) or by the combination of three. Though it is well documented that mammography is the best choice for screening, breast self examination is also equally important and beneficial for mass awareness especially in country with limited recourses.

In a developing country like Bangladesh and it is not a realistic approach to pursue a population based mass screening program. According to stepwise approach of Global Summit Panel 2002 \(^3\) Breast Self Examination would be the approach for early detection in limited resources countries.

Preventive behavior is essential for reducing cancer mortality. Knowledge is a necessary predisposing factor for behavioral change. Knowledge also plays an important role in improvement of health seeking behavior. Not only that knowledge might dramatically
improve the attitude, disbelieve, and misconception and consequently enhance screening practice. That’s why, to reduce the number of deaths from breast cancer, there was a shift in emphasis from breast self-examination to breast awareness after 1991. Beside this, several studies also shows that knowledgeable women are more likely to adhere to recommended breast cancer screening.

In Bangladesh, still Communicable and chronic diseases are the major health issues and all the efforts and recourses are engaged into it. Fighting against cancer and specially breast cancer is in the bottom of the priority list of the policy makers though breast cancer is the second leading cause of cancer death among women in Bangladesh.

1.1 Aim of the thesis:

The overall aim of the thesis is to develop a study plan for a cross sectional study to assess the knowledge, attitudes and practice regarding breast cancer among medical students of Bangladesh.

1.2 Structure of the thesis:

The thesis begins with a brief overview of the global breast cancer situation, according to prevalence, diagnosis and risk factors prevention, with a specific focus on the situation in Bangladesh. Thereafter follows a literature review that summarizes and characterizes the state of art concerning knowledge, attitudes and practice of breast cancer from an international perspective, followed by a description of the proposed study.

2. Overview of breast cancer situation worldwide
2.1 Prevalence and incidence

Cancer is a Pan societal problem that affects 2/3 of the world population. Among them Breast cancer is the most common cancer diagnosed in women, both in developing and developed countries. It is the 2nd leading cause of death in women worldwide.\textsuperscript{2,6} Proximately one out of eight women develops breast cancer all over the world.\textsuperscript{7} The burden of the disease both in developed and developing countries is increasing and if no action is taken it will go beyond our control. According to IARC 1.5 million new cases of Breast cancer was diagnosed in 2002, and among them approximately 411,000 died. Based on current estimate of an average annual increase in incidence ranging from 0.5% to 3% per year, the projected incidence increase in 2010 will be 1.4-1.5 million.\textsuperscript{8}

\textbf{Fig 1:} Breast cancer incidence world wide: age-standardized rates (world population). Source: [1].

2.2 Geographic variation of Breast cancer
Breast cancer incidence varies considerably, highest rate in developed world and lowest rate in developing world. Around 361,000 new cases of breast cancer occur in Europe and 210,000 in USA each year.⁹

Fig. 2: Geographic variation of Breast cancer. Source :[⁹]

2.3 Incidence by Ethnic group:
Ethnicity plays an important role in the risk of developing breast cancer. The annual incidence rate among Chinese women living in China is two third of the women living in Singapore or in Hong Kong and less than one half the rate the women living in USA.¹⁰ Same thing for Japanese women. Japanese women immigrating to USA thus lose the home advantage within 1-2 generation.¹¹ In USA African–American women develop breast cancer 10 years earlier than white women with higher stage.¹² Survival rates for white American is higher than African-American women at each stage of disease.¹³

Table 1: Variation of Breast Cancer Incidence Rate
### Group and place | Cases | Rate*  
---|---|---  
**Chinese**  
China, Shanghai | 6084 | 26.5  
Hong Kong | 5392 | 34.0  
USA, San Francisco | 459 | 55.2  
USA, Hawaii | 159 | 57.6  
**Japanese**  
Japan, Osaka | 7544 | 24.3  
USA, Los Angeles | 319 | 63.0  
USA, Hawaii | 903 | 72.9  

Source: [2]

*Per 10,000 women –years age adjusted using the world standard.

---

3. Breast cancer situation in Bangladesh
Bangladesh is facing a high burden of breast cancer disease. It is the 2nd leading cancer in women after cervical carcinoma. Late presentation with advance stage is the common feature of breast cancer patient in Bangladesh, when it is extremely difficult to manage the deadly disease. It is easily understandable that the incidence and mortality of breast cancer is growing at a fast rate. But as we do not have any cancer registry along with relevant data it is difficult to say the exact situation in Bangladesh. A survey done in 2001 showed that 22000 women were affected every year by breast cancer and 17000 (77%) of them died. However this figure is far more less than the real figure, simply because very few case is diagnosed and reported. Many patients die with unnoticed cancer. There may be many reasons behind this, but studies in many other countries show that poor or no knowledge, ignorance, lack of awareness and misbelieve is one of the leading cause of this fastest silent killer.

In Bangladesh where more than 80% of the rural women is illiterate, brought up in a conservative Muslim value or old traditional customs, it is not very easy to visit doctor or just informed the guardian either her husband or parents that she got a breast problem. Society is not very friendly and open to discuss about reproductive or and sexually transmitted diseases especially among women. It is clearly understandable why late stage breast cancer is the hallmark presentation in Bangladesh.

Health seeking behavior is one of the important aspects of late presentation. Several studies shows that misconception and disbelieve is a significant factor for delayed health seeking behavior in Bangladesh where educational level is low and more than 40% people live below one dollar per day. Further, women are not self dependent and cultural norms and religious values are unfavorable. More over government support is limited there delayed health seeking behavior is quite apparent. Furthermore, a mother or a woman is the sole care taker of the well being of their family and their children, so they can pay less attention to their own health. Most of the women are afraid of cancer. There is a general feeling of hopeless and helpless if they got cancer because they believe this is non curable and there is not much they can do until wait for death.
In Bangladesh, still communicable diseases, infectious diseases and chronic diseases is a major health issue. Government, non government organization and International partners all are giving their utmost effort to cope with these diseases. Cancer and particularly breast cancer is on the bottom of their priority list. That’s why there is no much infrastructure and facilities to fight against breast cancer. One Cancer research and treatment institute exists, but it is very limited in contrast to the growing needs. Due to lack of availability of diagnostic tools, cancer chemotherapy agent, modern radiation equipment and palliative care and rehabilitation, the existing institute is not functioning properly.

The value of diagnosis of breast cancer at an early stage is well documented. Early diagnosis not only influence the better prognosis and long term survival, it is also associated with stage of cancer and mode of treatment. Early detection can be successfully achieved through a population based mass screening program. In Bangladesh, there is no population based mammography screening program and it seems that it is not feasible and realistic approach for a limited resource country. However, there should be some sort of awareness program to educate mass people regarding breast cancer sign symptoms and BSE, so that women health seeking behavior can be improved and early diagnosis become possible.

4. Risk factors, symptoms and survival of Brest cancer
4.1 Risk factors and sign symptoms:

A risk factor is anything that increases your chance of getting a disease. For example, smoking is a risk factor for cancers of the lung, mouth, larynx, bladder, kidney, and ischemic heart diseases. But having a risk factor does not mean that the disease is certain. Risk factors also can be divided into risk determinants and risk modulators. Determinants cannot be changed or influenced on the other hand risk modulators can be changed or influenced.

A. Determinant risk factors:

Gender: Being a woman is a risk factor for breast cancer. Incidence of breast cancer in male is very low. Men account for approximately 1% of all breast cancer cases.\(^{16}\)

Growing age: Incidence of breast cancer is low before 40. In absolute term advancing age is the greatest risk for developing breast cancer. About 17% of the invasive breast cancer diagnoses are women in their 40s. While, 78% of the women diagnoses the same invasive breast cancer when they are in 50s or older\(^{17}\)

Table 2: Advancing age is a risk factor for Breast cancer.

<table>
<thead>
<tr>
<th>A Woman's Chances of Breast Cancer Increases With Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>From age 30 to age 39</td>
</tr>
<tr>
<td>From age 40 to age 49</td>
</tr>
<tr>
<td>From age 50 to age 59</td>
</tr>
<tr>
<td>From age 60 to age 70</td>
</tr>
</tbody>
</table>


Genetic predisposition: Recent studies have shown that about 5% to 10% of breast cancer cases are hereditary as a result of gene changes (called mutations). The most common mutations are those of the BRCA1 and BRCA2 genes.\(^{17}\)
**Family history of breast cancer:** Research has shown that women with a family history of breast cancer have a higher risk for developing the disease. Having 1 first-degree relative (mother, sister, or daughter) with breast cancer approximately doubles a woman's risk. Having 2, first-degree relatives increases her risk 5-fold.\(^{18}\)

**Personal history of breast cancer:** A woman with cancer in one breast has a 3- to 4-fold increased risk of developing a new cancer in the other breast or in another part of the same breast.

**Race:** White women are more susceptible to develop breast cancer than black African-American women. But the survival rates for white American is higher than African-American women at each stage of disease.\(^{19}\) Many experts now feel that the main reason for this is because African-American women have more aggressive tumors. The reasons for this are not known. Asian, Hispanic, and Native-American women have a lower risk of developing and dying from breast cancer.\(^{17}\)

**Early age at menarche and late menopause:** Early menarche and late menopause both increase the risk of developing breast cancer.

---

**B. Risk modulators** (Lifestyle-Related Breast Cancer Risk factors)

**First birth at late age and low parity:** Delaying childbirth or remaining childless increase the risk of developing breast cancer. The higher parities and earlier age at first pregnancy of women in many developing countries might account for lower incidence of breast cancer in relation to developed countries.\(^1\)

**Hormone Replacement Therapy (HRT):** It has become clear that long-term use (several years or more) of postmenopausal hormone therapy (PHT), particularly estrogen and progesterone combined, increases risk of breast cancer.\(^{20}\)

**Alcohol consumption:** Recent studies have shown alcohol consumption increase the risk of breast cancer. In a summary analysis of epidemiologic studies, breast cancer risk increased between 40 and 70 percent with about two drinks daily.\(^{21}\) Another study conducted by Paul Terry also found the same result specially the post menopausal women.\(^{22}\)
**Obesity and high-fat diets:** The relation between the obesity, high fat intake and breast cancer is complex. Most of the studies found obesity and high fat intake is the risk factors for developing breast cancer. But the relation seems to be not strong or consistent.¹

### 4.2 Warning symptoms of Breast cancer:

Early breast cancer is usually symptom less. But there are some symptoms develop as the cancer advances. Breast lump or breast mass is the main symptoms of the breast cancer. Lump is usually painless, firm to hard and usually with irregular borders. Every lump is not cancerous, sometimes some lumps or swelling in the breast tissue may be due to hormonal changes or benign (not harmful) in nature. Beside these some others symptoms are important, like:

- Lump or mass in the armpit
- A change in the size or shape of the breast
- Abnormal nipple discharge
  - Usually bloody or clear-to-yellow or green fluid
  - May look like pus (purulent)
- Change in the color or feel of the skin of the breast, nipple, or areola
  - Dimpled, puckered, or scaly
  - Retraction, "orange peel" appearance
  - Redness
  - Accentuated veins on breast surface
- Change in appearance or sensation of the nipple
  - Pulled in (retraction), enlargement, or itching
- Breast pain, enlargement, or discomfort on one side only
- Any breast lump, pain, tenderness, or other change in a man
- Symptoms of advanced disease are bone pain, weight loss, swelling of one arm, and skin ulceration

(Source: Medline plus Medical Encyclopedia: Breast Cancer.)²³
4.3 Stages and survival of Breast cancer:

Stages are the process physician use to assess the size and location of a patient’s cancer. This information is required for the determining the optimal form of treatment. Like other cancer, breast cancer also stages from 0 to stage IV.24

Breast cancer is divided into 0 to stage IV according to the size and nature of spread (Metastasis)

Stage 0: *(Carcinoma in Situ)* *Carcinoma in situ* is very early breast cancer. In this stage cancer has not invaded into the normal breast tissue and is contained in either the breast duct (ductal carcinoma in situ) or the breast lobule (lobular carcinoma in situ). By definition, this type of cancer is not invasive and is not able to travel to the lymph nodes or other parts of the body.

Stage I: In this stage the tumor size is not more than 2 cm in diameter and has not spread to distant parts of the body.

Stage II: In this stage the tumor is larger than the stage I that means 2-5 cm in diameter. Like stage I it indicates that it has not spread to distant parts of the body but it may or may not be spread to axillary lymph nodes.

Stage II (a) Tumor size is >5 cm in diameter but has not spread to axillary lymph nodes

Stage II (b) Tumor size is <2cm in diameter but has spread to less than 4 axillary lymph nodes.

Stage III (Locally advance cancer): in this stage cancer spread to axillary lymph nodes.

Stage III (a) Tumor size is >5cm and spread to axillary lymph nodes.
Stage III (b) tumor size is <2cm in diameter but the cancer has spread to axillary lymph nodes above the collar bones.

Stage IV: Tumor spread distant parts of the body like bones, liver an kidney.

[Source of information about stage is taken from US national Cancer Institute.]

The 5 years survival rate for breast cancer is calculated based on average. Each patient’s individual tumors characteristics, state of health, genetics background etc impact the survival. Some other factors like level of stress, immune functions, will to alive and other immeasurable factors play a significant role in a patient survival.

Table 3: Stage and survival of breast cancer

<table>
<thead>
<tr>
<th>Stage</th>
<th>5-years Relative Survival Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>I</td>
<td>100%</td>
</tr>
<tr>
<td>IIA</td>
<td>92%</td>
</tr>
<tr>
<td>IIB</td>
<td>81%</td>
</tr>
<tr>
<td>IIIA</td>
<td>67%</td>
</tr>
<tr>
<td>IIIB</td>
<td>54%</td>
</tr>
<tr>
<td>IV</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Source: American Cancer society. (2004-2005)*

Breast cancer survival also decline after 5 years. Survival even after 10 years depends on stages. Early stage breast cancer is associated with high survival rates than late stage cancer.
Table 4: Overall survival rate

<table>
<thead>
<tr>
<th>Overall Survival Rate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>After 5 years</td>
<td>88%</td>
</tr>
<tr>
<td>After 10 years</td>
<td>80%</td>
</tr>
<tr>
<td>After 15 years</td>
<td>71%</td>
</tr>
<tr>
<td>After 20 years</td>
<td>63%</td>
</tr>
</tbody>
</table>

*Source: American Cancer Society (2005-2006)*
5. Prevention:

5.1 Primary prevention:  
The aim of primary prevention is to eliminate or modify established risk factors for developing breast cancer. Some of these risk factors are genetically, environmental and behavioral. It is really impossible or difficult to alter or modify genetically and environmental risk factors like age, positive family history, race or ethnicity. But there are some behavioral risk factors like using HRT and consumption of alcohol that can be altered. It is obvious that knowledge and awareness about the breast cancer can impact directly upon behavior leading to modify breast cancer risk.

5.2 Secondary prevention:  
Secondary prevention comprises the diagnosis and treatment of early cancer. It is proved that detection of breast cancer in an early stage has a potential value. Early detection could mean earlier diagnosis of symptomatic breast cancer, as well as the detection of occult breast cancer through the mammography screening in an asymptomatic women. In 2002, the Global summit consensus Conferences, recommended a step wise process for building the foundation for achieving earlier detection. Their recommendations underlined the importance to promote the empowerment of women to seek and obtain health care; to create the infrastructure for diagnosis and treatment of breast cancer and to promote early detection through breast cancer education and awareness. Their report also recommended that if recourses become available, early detection effort should be expanded to include mammography screening. However, programs for early detection have little value if the existing health care services cannot provide proper breast cancer treatment. Breast cancer treatment must be available, promptly accessible and affordable.

6.1 Breast awareness:
Education and awareness alone may contribute in a favorable shift in the stage of breast cancer at presentation. Education can be achieved with very low costs, simple, and popular means, such as radio and television advertisement and programs. Education need to be culturally appropriate and targeted toward the individual population so that highest benefit can be gained. It is also important to educate men as well as women because men can facilitate early detection in their partner and help to reduce the barrier to seek care.8

In the United Kingdom, Stockton et al. found that in the 1980s before the national breast cancer screening program began; the rate of advance stage cancer was reduced dramatically. It is believed that this down staging was due to increased awareness that resulted from the greater presence of public education messages about early education.26

The important aspect of awareness is the dissemination of knowledge about that breast cancer is curable and if diagnosed early survival rate is good. With earlier stage at presentation and with good treatment facilities it is not a big problem.3

It is also important to educate health care providers, especially those who come in regular contact with women. These providers may be physicians, nurses, midwives, medical students. Evidence suggest, for example that nurses can play an important role providing the information regarding breast cancer in countries with limited resources.27

6.2 Breast self Examination:

Breast self examination (BSE) is a simple and cost effective method of breast cancer screening in limited resources countries. BSE is a formalized practice that a women is taught to examine her own breast regularly (usually monthly after 20 years.) During the breast self examination (BSE), a women systematically inspect, and palpate her each breast using her controlateral hand with her ipsilateral arm raised above her head. She
performs her examination both in lying and standing position. Usually it is better to examine the breast in front of mirror so that she can inspect any sort of asymmetry or dimpling.

The BSE is done in an attempt to find out breast cancer earlier and reduce mortality. Several studies based on breast cancer patient’s retrospective self reporting on their BSE have shown a positive relation with early detection of breast cancer and BSE. There are also evidence that most of the early breast cancer is self-discovered. On the other hand, evidence from recent studies has raised the question of efficacy of teaching BSE. Two randomized control trial of BSE that was conducted in St. Petersburg, Russia and Shanghai, China showed no clear evidence to support the role of routine BSE. Neither of these studies showed a reduction in the risk of dying from breast cancer in women who were taught BSE. Based on these result, plus the result of multiple observational studies, a working group of IARC concluded that there is inadequate evidence that BSE can reduce mortality from breast cancer. However, other researchers do not agree on this issue. Their view is that “The absence of evidence of a benefit is not the same as evidence of no benefit”. In the Shanghai Trail there are some points worth noting. First, it was a trial of BSE instruction, not on BSE. Secondly, half of the tumors among women in the control group were stage 1 or in a better position compared to the other population. Finally trial showed 8% reduction in node positive disease and an 11% reduction in stage T2 in group offered BSE training. This suggest that in the future if follow up continued, a reduction in the mortality of similar size would be possible.

The global summit early detection panel does not positively recommend the BSE on the basis of current evidence but they also not discourage to use it either. BSE may have great value in terms of awareness and motivating women to see a health care provider when they find a lump. And the earlier response to symptoms may reduce the cancer stage at diagnosis. In addition, BSE may be an effective primary tool in breast health education.
6.3 Clinical Breast Examination:

Clinical Breast Examination (CBE) is a standardized procedure whereby a health care provider examines a women’s breast, chest wall, and axillae. The examination consist of 1) Visual inspection of the breast while the women in upright position and her arms relaxes and then raised above her head. 2) Palpation of the axillae and supraclavicular fossae when the women in the upright position and 3) palpation of the breasts while the women both in upright and supine positions. The examiner inspects the breast visually for symmetry, skin of the breast, areola, and nipple for oedema, erythema, puckering, dimpling, or ulceration, all of which can be evidence of underlying masses. The provider palpates the regional axillary nodes. Enlarged hard, matted or fixed nodes can indicate cancer. CBE training is necessary as a key contributor to prompt diagnosis of symptomatic disease. In addition, it is likely to be use in area where mammography examination is unavailable.³

The Canadian national breast cancer screening study found no significant difference in breast cancer mortality between the group offered mammography and the group offered CBE.⁸

6.4 Mammography:

At present time mammography is the gold standard for early detection of breast cancer but there are two limitations of mammographic screening. One is its cost and another is its technical complexity ³As a result mammography is not recommended for countries with limited resources. One big criticism against Mammography is false positive results which might lead to range of adverse consequences among women without breast cancer. That’s why the implementation of mammographic screening also demands strong quality assurance.
7. Literature review:

7.1 Methods of literature search

A literature review was conducted by using the Pubmed and Medline databases with the keywords: Breast cancer knowledge, attitude and Breast cancer screening. A hand search was also undertaken to relevant journals identified by the electronic search and additional articles identified from the reference list of the key articles. A number of articles have been found on breast cancer knowledge, attitude and practice. But no article was found regarding Bangladesh perspective on breast cancer knowledge attitude and practice.

Literature on Breast cancer Knowledge, Attitude and Practice:

**Olumuyiwa O,Odusanya and Olufemi O.Tayo**\(^{31}\) conducted a cross sectional survey among nurses in general hospital in Lagos. 204 nurses were included in the study.

Knowledge about symptoms methods of diagnosis, and Self breast Examination was above 60%. In response to question on 5 risk factors more than 50% identified positive family history and that bruising the breast is a potential risk factor for developing breast cancer. The nurses were well informed about frequency of Breast Self Examination (BSE). More than one third (39.7%) of the respondents knew that BSE should be done monthly interval. Majority (78.4%) of the respondents agreed that breast cancer is a curable disease if diagnosed and treated early. Majority (90%) considered that the disease is serious and would see a doctor within one month. BSE was most frequently done (89%). Among them 39 % conducted the procedure at monthly interval. Use of all 3 methods of screening was more common among those who had a greater knowledge about breast cancer. Perceived cancer risk assessment was done, 61% claimed not at risk.

Another cross-sectional study was conducted among one thousand community-dwelling women from a semi-urban neighborhood in Nigeria by **Michael N Okobia**\(^{6}\) and et al to elicit knowledge, attitude and practices towards breast cancer. The Study result showed poor knowledge on breast cancer. Mean knowledge score was 42.3% and only 214
participants (21.4%) knew that breast cancer present commonly as a painless breast lump. In response to questions about etiology of breast cancer, 40% believed that evil spirit causes breast cancer and 259 (25.9%) indicated that breast cancer result from an infection. In terms of methods of diagnosis 432(43.2%) were able to answer correctly identified that BSE is a method of diagnosis. There was an indication of positive health seeking behavior as a majority of the participants mentioned that visiting the doctors was the best approach for breast cancer treatment. In terms of practices, 34.9% participants practice BSE. Only 91 participants (9.1%) had clinical breast examination (CBE) in the past year and no one had the history of mammography examination. Majority of the respondents did not take part in BSE or clinical breast examination due to having no breast problem.

A study entitled “Breast cancer risk factors knowledge among nurses in teaching hospitals of Karachi, Pakistan: a cross sectional study” conducted by Ahmed F32 and et al in 2003 found that 35% had good knowledge, 40% had fair knowledge while 25% had poor knowledge of breast cancer risk factors. Majority (99%) of the nurses could identify that breast cancer is a non communicable disease and 96% answered that breast feeding is not the cause of developing breast cancer. Majority agreed that evil spirit had nothing to do with breast cancer. However, only 23% nurses knew that overweight increase the risk of breast cancer.

Mehregan Hahi Mahmoodi et al 33 conducted a cross-sectional study on female health care workers in Tehran, Iran to examine the knowledge of breast cancer, ad the attitude and practice towards BSE. In the study, they found that75% of the women knew about the prevalence of breast cancer 27% knew that breast pain is not a symptom of breast cancer. Regarding attitude toward BSE, 63% believed that BSE is not difficult and 72% agreed that BSE is time consuming or troublesome. Only 6% of the women performed BSE monthly on a regular basis. 50% performed occasionally and 44% never practiced BSE. The researcher also found that women more than 50 years of age, with higher education and professional status, positive personal history about breast problems and
those who had more knowledge about BSE were more likely to practice BSE than other female health worker.

A survey was conducted by P N Chong, M Krishnan, CY Hong, T S Swah on 447 public health nurses in Singapore, regarding knowledge and practices of Breast cancer screening. In their study they found that the nurses knew the answers to most of the questions on risk factors of the breast cancer except for smoking (24.6%) and oral contraceptives (21.6%) Out of 431 participants 401 (93.0%) nurses practiced BSE and 7% nurses never practiced BSE. The most common reason for not to practice BSE were “too busy” “forgot” and “not necessary”. More than half (53.6%) of the nurses had their breast examination by a doctor in the past one year, 69.7% by a specialist and 30.3% by their family physician. 68.8% nurses who were more than 50 years of age and 31.1% who were less than 50 years of age had history of mammography test.

E A Grunfeld et al conducted a survey on 1830 general female population of UK to elicit knowledge and believe about breast cancer. In the study it was found that women had limited knowledge on risk factors and breast cancer related symptoms. Only 23% correctly indicated that 1 in 10 have a chance to developed breast cancer. Less than one third recognized the role of advancing age as a potential risk factor. More than 70% of the sample identified that painless breast lump, lump under armpit, nipple discharge are potential symptoms.

Another telephone survey was conducted on Cantonese Hong Kong women by Margareet S. T Chua aged 18-69 years to assess the women level perception and attitude on screening mammography and early breast cancer management. In the study it was found that 58% had never heard of mammographic screening. 47% of the women had a misconception that mastectomy was the only curative treatment.

A study entitled “Breast cancer risk factors and screening awareness among women Nurses and Teachers in Amman, Jordan.” was conducted by Madanat H among 163
nurses and 178 teachers. The study result found that profession, age and family history significantly influenced breast cancer screening awareness. The adjusted mean general awareness score for nurses was significantly different from that of Teacher (P= 0.8470). Nurses were more aware than teachers about the importance of breast cancer screening. The adjusted mean screening awareness score for nurses was 88.3% compared with 73.1% for teachers (P<0.0001).

Maria A et al\textsuperscript{38} conducted a study on breast cancer knowledge beliefs and misconceptions among Latinas in Houston, Texas and found that more than one-third of the participation had negative or fatalistic view of breast cancer. 29% believed that pain in the breast is the warning sign for breast cancer and 11.1% had never heard of breast cancer. In response to a question regarding breast cancer screening, over 60% of the women either did not respond or did not know about the breast cancer screening test. 7% of the respondents believed that screening is a painful examination that burns cancer.

Joaquin et al\textsuperscript{39} in their study, “Cancer knowledge and misconception among college undergraduates: A pilot study” found that overall 82.3% of the respondents answered more than half of the questions correctly regarding breast cancer knowledge. Among them 66.6% male student answered more than half of the question correctly, conversely 90% of female student answered half of the question correctly. Majority (82.5%) correctly identified the positive causative relationship between family history and breast cancer, while 75.9% correctly identified the role of mammography in detecting early breast cancer.

Christine Paul et al\textsuperscript{40} conducted a telephone survey on Australian women to explore the knowledge in relation to breast cancer incidence, fatality, risk factors, risk perception, and level of concern. They found that one third were able to answer approximately correct estimate of incidence of breast cancer in Australia. Most of the women (55.9%) rated themselves in low to moderate risk group of developing breast cancer. Question regarding to risk factors surprisingly, only 5% women nominated that “age” is a risk factors whereas 49.4% women agreed that family history is a potential risk factor.
Abdul Bari Bener et al. conducted a cross sectional community base line survey to explore the knowledge, attitude and practice related to breast cancer screening among women of United Arab Emirates. They found that only 30% of the women agreed that family history was a risk factor, and 45% incorrectly stated that most of the breast lump would become cancerous. One third (33%) of the women knew that early breast cancer was painful. Most of the women (79%) agreed to have breast examination by a doctor but only 14% had experienced a clinical breast examination. Only 13% performed breast self examination regularly on monthly basis.

Ngelangel CA et al. conducted a cross sectional study on nurses an midwives of different health centers in Metro Manila to determine the baseline knowledge about breast cancer and the attitudes on breast examination. They conducted a training seminar and judged the pre and post training knowledge, attitude and practices. They found that correct pre-test knowledge on breast cancer symptoms, risk factors, treatment and screening were 83%, 64%, 86%, and 82%, respectively, which after training improved to 93%, 75%, 93%, and 92%, respectively. Trends in attitudes regarding implementation of breast examination were favorable.

Pinar Erbay et al. in their study “The knowledge and attitude of breast self examination and mammography in a group of women in a rural area in western Turkey” found that majority (76.6%) had heard about breast cancer but only 56.1% of them had sufficient knowledge about breast cancer. TV and radio programs were identified as the main source (39.3%) for information. Most of the respondents (72.1%) had knowledge about Breast self Examination but only 40.9% of the women had practiced BSE in the previous 12 month. 10.6% of the study group stated that they had mammography test and 25.0% had Clinical Breast examination.

U G Pöhls et al. conducted a study on “Awareness of breast cancer incidence and risk factors among healthy women” in Düsseldorf, Germany found that 78.8% were well aware of breast cancer in general terms. Most of the women (94.9%) considered that
former history of breast cancer is a risk factor Interestingly 37.1% considered breast feeding 32.0% considered age at menopause and 23.7% considered childlessness as a potential risk factors. Two -third of the participant estimated their personal risk of developing breast cancer was low to average. Gynecologists were the main source of information (59.9%) on breast cancer.

O Abimbola Oluwatosin and Oladimeji Oladepo 45 conducted a study on rural women of Ibadan, Nigeria and found that 73.7% of the respondents claimed that they did not know any warning signs of breast cancer. Only 1.9% identified that painless lump could be a warning sign. Majority (90.7%) of the respondents did not know anything about treatment of breast cancer. More than half of the participants (55.2%) however agreed that early detection and effective treatment can prevent death. Moreover, only 6.4% identified that BSE while 1.2% identified Clinical breast examination and no one could identify that mammography is an early detection measure. In response to the question “Have you ever examined your breast for early detection of breast cancer?” only 10.9% answered yes. Among the 300 sample size only 54 claimed that they had ever heard of BSE and the leading source of information was “elders” “neighbors” and “friends”. Only 22 referred the source of information was radio.

Jebbin NJ and Adotey JM 46 conducted a study on “Attitude, knowledge and practice of breast self-examination (BSE) in port Harcourt, Nigeria” and found that 85.5% of the respondent had heard of Breast self examination but 39.0% practiced BSE only occasionally. The news media nurses and physicians were the commonest sources of information on BSE.

Jahan S et al 47 conducted a cross sectional study on 300 Saudi female in Qassim region of Saudi Arabia. They found that 76% of the respondents had 3 or more correct answers out of total 7 questions. 26% did not know the presenting symptoms of the breast cancer. 69% of the women had never heard of BSE though the participant had positive attitude towards learning Breast self examination. 19.7% reported that they had practiced BSE in 57% of them had performed it in the last 12 month.
Another study was conducted by Alam AA 48 in Riyadh to assess knowledge of breast cancer and sources of information. He found that knowledge on breast self examination was high. 82% knew about BSE and 61& knew about mammography but only 41.2% performed BSE and 18.2% had mammography screening. Knowledge on breast cancer risk factors was moderate.

Choudhry UK, Srivastava R and Fitch MI 49 conducted a study to explore knowledge, attitude, beliefs and practices regarding breast cancer among South Asian women lives in Canada. They found that 12% of the participant practice Breast self examination monthly, 49% had undergone at least one Clinical Breast examination during their lives and 47% had never had mammography screening. 21% of the respondents noticed that detecting early was important and only 5% reported that cancer could be cured.

Pham CT and Mcphee SJ 50 conducted a study on” Knowledge , attitude and practice of breast cancer and cervical cancer screening among Vietnamese women” In their study they found 1/3 did not know that a breast lump could be a sign of breast cancer. Many (55%) did not know family history was a risk factor for developing breast cancer. Among the respondents 52% indicated that little could be done to prevent breast cancer. More than one third (33%) reported that breast cancer is caused by poor hygiene and that it is contagious. Only 13% had heard about Breast self examination.

WA Milaat 51 conducted a cross sectional study on 6380 female secondary-school student in Jeddah to identify their knowledge of breast cancer and attitude towards breast self-examination (BSE). Knowledge of risk factors was very low. Over 80% of students failed to answer 50% of the questions correctly. Only 47.1% of students reported that they had heard of or read some scientific information about breast cancer in various media and 39.1% reported that lump in the breast is the warning sign of breast cancer. Only15.2% agreed that use of contraceptive pill is a potential risk factor. Few (16.2%) knew that breast cancer could appear as a change of or bleeding from the nipple
### 7.2 Summary – review of literatures

<table>
<thead>
<tr>
<th>Author</th>
<th>Type of study</th>
<th>Study population, sample size &amp; Country</th>
<th>Knowledge About symptoms, risk factors and diagnosis</th>
<th>Attitudes &amp; Health seeking behaviour</th>
<th>Practice % conducting SBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olumuyiwa et al(^{31})</td>
<td>Cross sectional</td>
<td>204 Nurses Lagos</td>
<td>High (60%)</td>
<td>90% would see a doctor within a month</td>
<td>High (89%)</td>
</tr>
<tr>
<td>Okobia And et al(^{6})</td>
<td>Cross sectional</td>
<td>1000 community dwelling women Nigeria</td>
<td>Low (42.3%)</td>
<td>Positive (majority)</td>
<td>Low (34.9%)</td>
</tr>
<tr>
<td>Ahmed F and et al(^{32})</td>
<td>Cross sectional</td>
<td>609 Nurses, Pakistan</td>
<td>Low (35%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mehregan hahi mahmoodi(^{33})</td>
<td>Cross Sectional</td>
<td>410 Female health care workers, Iran</td>
<td>Relatively poor</td>
<td>Attitude towards breast cancer is not positive</td>
<td>Very low (6%)</td>
</tr>
<tr>
<td>P N Chong, M Krishnan,CY Hong, T S Swah(^{34})</td>
<td>Cross-sectional (postal survey)</td>
<td>447 Nurses Singapore</td>
<td>High (58.3%)</td>
<td>-</td>
<td>High 93.7%</td>
</tr>
<tr>
<td>E A Grunfeld (^{35})</td>
<td>Cross sectional</td>
<td>1830 general women, UK</td>
<td>Limited knowledge</td>
<td>Older women more likely to delay in help seeking.</td>
<td>-</td>
</tr>
<tr>
<td>Hala madanat &amp; Ray M. Merrill(^{37})</td>
<td>Cross sectional</td>
<td>163 Nurses and 178 teacher, Amman, Jordan</td>
<td>Nurses knowledge were better (88.3%) than Teachers (73.1%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>O Abimbola Oluwatosin &amp; Oladimeji Oladepo(^{45})</td>
<td>Cross-sectional (Multistage sampling Technique)</td>
<td>420 rural women, Ibadan, Nigeria</td>
<td>Poor (55.4±5.4 SD)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study</td>
<td>Methodology</td>
<td>Sample Size</td>
<td>Characteristics</td>
<td>Attitude Finding</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------</td>
<td>-------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Jeanne Carter and et al 52</td>
<td>Survey</td>
<td>1280</td>
<td>disadvantaged women, South Bronx</td>
<td>High (85% in Black and 82% in Hispanic Women) Attitude was not positive. Over half of the respondents believe that breast cancer is non curable.</td>
<td></td>
</tr>
<tr>
<td>Christine Paul et al 40</td>
<td>A telephone survey</td>
<td>14450</td>
<td>general women, Australia</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Abdul Bari Bener et al 41</td>
<td>Cross-sectional</td>
<td>1445</td>
<td>Arabic women, UAE</td>
<td>Not good Attitude was positive. Majority agree to have breast examination by doctors. Poor 13%</td>
<td></td>
</tr>
<tr>
<td>Ngelangel CA et al 42</td>
<td>Cross-sectional</td>
<td>225</td>
<td>Nurses and midwives,Manila, Philippine</td>
<td>High (83%) Attitude is favorable</td>
<td></td>
</tr>
<tr>
<td>Pinar Erbay et al 43</td>
<td>Cross-sectional(C luster sampling)</td>
<td>244</td>
<td>rural women, Turkey</td>
<td>Moderate (56.1%) -</td>
<td></td>
</tr>
<tr>
<td>Jahan S et al 47</td>
<td>Cross-sectional</td>
<td>300</td>
<td>general women, Saudi Arabia</td>
<td>Not so good Positive attitude towards learning BSE 57%</td>
<td></td>
</tr>
<tr>
<td>Alam AA 48</td>
<td>Cross-sectional</td>
<td>864</td>
<td>general women, Riyadh, S. Arabia</td>
<td>Moderate - 41.2%</td>
<td></td>
</tr>
<tr>
<td>WA Milaat 51</td>
<td>Cross-sectional</td>
<td>6380</td>
<td>secondary school student, Jeddah, S. Arabia.</td>
<td>Very low -</td>
<td></td>
</tr>
<tr>
<td>Aderounnu AO and et al 53</td>
<td>Cross-sectional</td>
<td>832</td>
<td>general women, Nigeria</td>
<td>Very low Not very positive attitude towards mastectomy. 32.3% 47.2%</td>
<td></td>
</tr>
</tbody>
</table>
Foot note : For the convenience of easy reading, the knowledge and practice is graded into three category. <40% is poor 40-60% is moderate and >60 is high

7.3 Conclusion: From the above table one can say that overall knowledge is not so high except study in Singapore, South Bronox, and Philippine. The possible reason of high knowledge in these study may be due to the study population’s profession. All these studies were done on Nurses. The attitude and practice part is not promising either. Only the Singaporean and Nigerian nurses practiced BSE higher than the other studies.
8. Description of the planned study

8.1 Introduction

Early diagnosis is important for effective treatment and long term survival in breast cancer. Research suggests that women medical help seeking behavior depends on factors related to their knowledge, believes and breast cancer management.\textsuperscript{33} Preventive behavior is an essential element for reducing cancer mortality. Knowledge is a necessary predisposing factor for behavioral change\textsuperscript{54}. However, - in Bangladesh where literate rate is not that high, - poverty, culture and religion play and important role for health seeking behavior. Especially for women in rural areas one can easily assume that knowledge will be poor and practice and attitude will be even poorer. Therefore, to educate women about the warning sign symptoms and strive for improvement of health seeking behavior by making them aware is an important step to drag down high incidence and mortality rate from breast cancer. In this regard, different professions like medical professionals, media, academic teachers and leaders can play a vital role to educate people.

Medical students are not only future doctors but also represent the responsible and educated mass of the population. In Bangladesh, especially in rural areas people have an extra respect and believe over physician. Several studies also indicate that physicians are the best source of information.\textsuperscript{44, 55} Thus, it would be a good idea to explore their knowledge, attitude and practice regarding breast cancer as they will be front runners to educate and disseminate knowledge in their future professional life. Moreover, this study would be a baseline survey to develop future intervention program on breast cancer. Last but not least it may be helpful for health program planners to prioritize breast cancer in their priority health issues.
8.2. General Objective:

The overall objective with this planned study is to assess the knowledge, attitude and practice regarding breast cancer among the medical student of Dhaka city of Bangladesh.

8.2.1 Specific objectives:

1. To assess the knowledge regarding breast cancer risk factors, symptoms, methods of diagnosis and different screening programs.
2. To assess the awareness regarding breast cancer.
3. To compare the knowledge of breast cancer among male and female medical students.
4. To investigate the relation between socio-economic factors and breast cancer risk factors.
5. To find out the barriers to different screening methods.
6. To compare the level of knowledge between medical students at different educational grades.

8.3 Methodology:

8.3.1 Study design:

Type of study: The study design will be descriptive Cross Sectional Study.

Study period: The proposed study will be conducted from February, 2008- May, 2008.

Study population: 3rd year to 5th year (Clinical student) medical Student of different medical college of Bangladesh.

In Bangladesh, medical studies are divided into pre-clinical and clinical stage. Pre-clinical studies consist of 1st year and 2nd year and clinical studies comprises 3rd year to
5th year. In this study the clinical students are chosen because we assume that the overall knowledge regarding breast cancer is poorer among other than medical professionals and clinical students start getting practical knowledge in different diseases along with breast cancer. Another important reason choosing clinical students is the age factor. Most of the pre-clinical students are below 20 years and screening methods specially BSE is recommended after 20 years. Another advantage of including 3rd year to 5th year medical student is that we can assess the gradual expected increase of knowledge in different clinical year.

In this study both male and female medical student will be taken because we believe along with female population we need to make aware male partner or husband. Because they also need to change their attitude towards breast cancer affected wife. Male partner can be a facilitator for improvement of health seeking behavior and early diagnosis. Moreover, they can provide better support, morally and spiritually. These medical students are not only representative the health professionals but also the higher educated population in Bangladesh. The degree of knowledge within this high educated group indicates what level of knowledge that could be expected in the general lower educated group.

8.3.2 Study place:
There are 13 government medical colleges, 4 reputed private medical colleges and one medical university in Bangladesh. The government medical colleges are chronologically ordered according to some criteria. Among them one criterion is student merits during admission test. According to this three medical college will be chosen randomly, one each from high, middle and low rank and the proposed study will be conducted among these colleges. The medical college will be chosen in this fashion to represent the whole medical student of different parts of Bangladesh with different socio-economical status. (Later on in the follow-up study all the clinical medical student from 3rd year to 5th year will be included from the rest of the 13 government and 4 private medical colleges.)
8.3.3 Sample size:
As this is a base line survey the entire medical students from 3rd year to 5th year will be asked to participate. In each year there are approximately 100-120 students depending on different medical colleges. So, there will be total 900-960 medical student from 3rd year to 5th year in 3 selected medical colleges.

8.3.4 Research Instrument:
Data will be collected by a self administered questionnaire by considering all possible variables according to information, developed on the basis of relevant literature. The questionnaire will be pre-tested and evaluated thoroughly and necessary revision and adjustment will be done accordingly. Pilot study itself is a validity and reliability test for further studies but for the convenience, and smoothness of the data collection procedure the questionnaire will be pre tested in a group of medical students other than targeted medical colleges. The questionnaire will be distributed in a class and after informing about the aim and objectives of the study the students will be asked to participate and to give comments on the questionnaire.

The questionnaire will contain demographic characteristics and socio-cultural status of the respondents. In the knowledge part it will contain questions on incidence of breast cancer worldwide and in Bangladesh, specific symptoms, risk factors and methods of diagnosis. There will be also questions for only female participants regarding their attitude on breast cancer and practices on different screening programs. The maximum questions of the questionnaire are close ended and the possible answer is “yes” or “no”.

8.3.5 Data collection:
At first the aim of the study will be informed towards the targeted medical students, and then every students of the 3rd to 5th year medical student will be invited to participate and to complete the questionnaire. An informed consent will be taken to those who agree to participate in the planned study. Before distributing the questionnaire the respective departments will be informed and after consulting with departmental heads the questionnaire will be distributed in the lecture class. To avoid contamination and
dissemination of knowledge we will motivate the students not to discuss the questionnaire mutually rather answer individually.

8.3.6 Data analysis:
Obtained data will be checked for error and then data entry will be completed and finally data will be analyzed by using SPSS 11.0 software. Demographic characteristics will be simply present in frequency and chi-square test will be used to compare the qualitative variables and parametric test like t-test will be used for quantitative variables.

8.3.7 Ethical consideration:
The study protocol will be submitted to a relevant Research and Ethics Committee for ethical approval. It will be submitted to the Ministry of Health and Family Welfare (MOHF) and medical college authorities. Letter will be sent to respective medical college principals to inform them about the aim, design and importance of the study. Each Participant will be well informed about the aim and potential benefit of the study and their consent and confidentiality will be ensured.

8.3.8 Estimated Budget:
Budget plays a key role for conducting a good study. At this stage the conducted budget is estimated. To apply for funding it is vital to estimate budget before conducting the planned study. In the proposed study all the budget will be estimated according to local conditions. The different section of the budget is attached in appendix.

8.3.9 Limitation of the study:
The proposed study population is a specific group and profession of the country. They are the highly educated and not merely represent the general population of the country. In spite of that the planned study is designed specifically on medical student for a number of reasons. First, the aim was to assess the medical professionals’ knowledge and attitude and practice towards breast cancer, because general population is much dependent on the advice and motivation of the health professionals due to information asymmetry. Second, cancer specially breast cancer is a neglected public health problem due to high burden of
communicable diseases, but the situation of breast cancer is alarming. Major portions of
the health policy maker are health professionals, so if some how this group can be
motivated then this neglected public health problem can be addressed more effectively.
Last not least, by assessing the knowledge, attitude and practice of medical students we
can set a standard and can compare the knowledge and attitude in the general lower
educated group.


9. Discussion

Knowledge:
Different studies show diverse result ranging from poor to good knowledge about breast cancer. Among the Nigerian Nurses, knowledge about symptoms, methods of diagnosis and Self Breast Examination (BSE) was generally very good. Thirty-five percent Pakistani Nurses had good knowledge of breast cancer risk factors. Iranian nurses knowledge on risk factors of breast cancer was not satisfactory. Moreover, Fifty-eight percent of Singaporean nurses were above median knowledge score. Most of the Jordanian Nurses (88.3%) were able to correctly answer the awareness questions. Similar type of study has been conducted on different study population also like Teacher, Healthy women, General female population, Immigrant, different ethnic population, Secondary school student, and etc. Age, education level, household income, marital status, significantly increase the breast cancer risk knowledge level. Family history of breast cancer and previous history of breast problem also positively influence breast cancer knowledge level.

In the proposed study both male and female knowledge level will be assessed but the literature review shows that female are more knowledgeable than male regarding breast cancer and young women seems to be more knowledgeable about breast cancer sign symptoms and risk factors than the older women. The possible reason may be older women suffer more frequently different diseases at the same time so, it would be difficult for them to correlate with aetiology of the symptoms.

Physician or health professionals can play an important role in disseminating information and educating people regarding breast cancer risk factors, warning sign symptoms and screening methods. Studies show that people prefer to learn from physician rather than friends and relatives. It is also found that women who had received information from physicians including advanced practice nurses had greater knowledge of breast cancer and detection. The reason behind it may be, people comes in contact with health professionals for different diseases other than breast problem also.
Breast cancer risk perception is an important component of awareness of breast cancer risk.\textsuperscript{59} Younger women perceive greater risk than older women.\textsuperscript{40} But another study showed that older women perceived greater risk equally with younger women.\textsuperscript{58} Knowledge level, socio-economical status, and age also related with risk perception.\textsuperscript{59} Women with a family history or a previous breast problem overestimated their perceived risk level than women without these risk factors.

Knowledge is an important issue for early detection and improvement of health seeking behavior. The planned study will give an idea about the knowledge level of the higher educated strata of the Bangladesh. Not only that, this higher educated knowledge level will also give an overall impression about the knowledge level of the expected general lower educated group. Moreover, it will definitely put an impact to our policy makers to think twice regarding improvement of the situation from breast cancer mortality.

**Attitude:**
Believe and misconception vary with several factors, such as ethnicity, age, education and socio-economical status.\textsuperscript{33} Religion and culture are two important factors that also should count for different attitudes, but no study was found that can explain the variation of attitude for religious and cultural diversification. It has been documented that younger women show more positive attitude towards health education about breast cancer and early screening.\textsuperscript{51}

In Bangladesh still we have a lot of misconception and disbelief regarding cancer. Most of the people believe that cancer is non-treatable disease. There is not much they can do to prevent it and death. Most of them are afraid or scared of cancer. This misconceptions and disbelief led them not to go to see the doctors. That's why most of the patients present themselves in very advanced stages. The proposed study will help to create a health seeking friendly environment by encouraging our policy makers to ensure mass awareness programs for risk groups.
Practice:

Breast self examination is simple and cost-effective methods for early detection of breast cancer. But there is some controversy over the effectiveness of BSE. Kotka pilot project found that BSE has improved the early detection and reduced mortality. But St.Petersberg and Shanghai and Swedish study revealed no improvement in stage shifting or mortality reduction. However, it has a great role in awareness program and initial screening specially countries with limited resources. Higher education and Socio-economical status increase practice of BSE. Age is also an important predictor for BSE. Young women practice more BSE than older women.

Mammography is the most effective screening tools for early detection of Breast cancer. Poverty and literacy rate are the strong predictors of underutilization of mammography. Access to mammography screening is an important issue for successful breast cancer screening campaign. Study shows that older women are more compliance with American cancer Society recommendation. There are several barrier for non-utilization of breast cancer screening. Among them cost, lack of timing, embarrassment, unsure of benefit, no recommendation, language, and fear are mostly reported. There is no accurate data on the incidence of breast cancer in Bangladesh. Figures available suggest that about 200,000 people are treated for cancer every year and yearly death toll from cancer is nearly 150,000. There is no statistics how many of these death are belongs to breast cancer. But it would probably not too less, because we do not have either any sort of screening programme or good breast cancer health facilities. Even we do not have any cancer registry.

According to the global summit panel of early breast cancer detection, Breast cancer awareness through inspiring women for Breast Self Examination is a feasible choice for country with limited resources like Bangladesh. To fight against breast cancer we need a constructive integrated national policy. That will focus on mass awareness and improvement of women health seeking behavior. The proposed study will give an idea about the knowledge, attitude and practice regarding breast cancer in higher educated Bangladeshi population. It will also help to refocus our
future health professional and planners to think how they will deal this fast growing problem in coming days.
10 Time table:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Recruiting and training of supporting staffs</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>IV</td>
</tr>
<tr>
<td></td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>VI</td>
</tr>
<tr>
<td></td>
<td>VII</td>
</tr>
<tr>
<td></td>
<td>VIII</td>
</tr>
<tr>
<td></td>
<td>IX</td>
</tr>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>XI</td>
</tr>
<tr>
<td></td>
<td>XII</td>
</tr>
<tr>
<td></td>
<td>XIII</td>
</tr>
<tr>
<td></td>
<td>XIV</td>
</tr>
<tr>
<td></td>
<td>XV</td>
</tr>
<tr>
<td></td>
<td>XVI</td>
</tr>
<tr>
<td>Literature Review</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td>Pre-testing of questionnaire</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td>Data Collection</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td>Data entry and data Analysis</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td>Report writing</td>
<td>×</td>
</tr>
<tr>
<td></td>
<td>×</td>
</tr>
<tr>
<td>Submission of report</td>
<td>×</td>
</tr>
</tbody>
</table>
11. References


10. James V. Lacey Jr., Susan S. Devesa, and Louise A. Brinton: Environmental and Molecular Mutagenesis 2002; 39:82-88

11. http://www.breastcancersource.com/breastcancersourcehcp/10010_11092_0_0_0.aspx?mid=1


16. [http://www.cancerindex.org/clinks3m.htm](http://www.cancerindex.org/clinks3m.htm) accessed on 16.02.2007

17. [http://www.cancer.org/docroot/CRI/content/CRI_2_4_2X_What_are_the_risk_factors_for_breast_cancer_5.asp](http://www.cancer.org/docroot/CRI/content/CRI_2_4_2X_What_are_the_risk_factors_for_breast_cancer_5.asp) accessed on 25.02.2007


43. Dundar E.P. and et al.: The knowledge and attitudes of breast self examination and mammography in a group of women in a rural area in western Turkey. *BMC Cancer* 2006,6:43


53. Aderounmu AO and et al.: Knowledge, attitude and practices of the educated and non-educated women to cancer of the breast in semi-urban and rural areas of South East, Nigeria.


12. Appendix

12.1. Budget

<table>
<thead>
<tr>
<th>Detail of responsibilities</th>
<th>Unit price (USD)</th>
<th>Quantity (X Month)</th>
<th>Sum (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal investigator</td>
<td>750</td>
<td>04</td>
<td>3000</td>
</tr>
<tr>
<td>Data management assistant</td>
<td>250</td>
<td>04</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Total personnel:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer printer, calculator and other</td>
<td>1000</td>
<td></td>
<td>1000</td>
</tr>
<tr>
<td><strong>Communicational charges</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile phone bill</td>
<td>50</td>
<td>04</td>
<td>200</td>
</tr>
<tr>
<td>Fax, e-mail</td>
<td>10</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td><strong>Other charges</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting , workshop</td>
<td>100</td>
<td>04</td>
<td>400</td>
</tr>
<tr>
<td>Dinner</td>
<td>200</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Incidental expenditure</td>
<td>200</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td><strong>Total expenditure:</strong></td>
<td>..................</td>
<td></td>
<td>...........</td>
</tr>
<tr>
<td><strong>Total direct cost</strong></td>
<td></td>
<td></td>
<td>6040</td>
</tr>
</tbody>
</table>
12.2 Questionnaire

Title of the Study: **Knowledge, attitude and practices regarding breast cancer among medical students of Bangladesh.**

Breast Cancer is a Global public health problem. To ensure primary prevention and treatment population based screening program as well as breast awareness is necessary. To assess the knowledge and attitude regarding breast cancer some information is required from you. Your response will contribute a big effort to conduct this study. Your participation would be kept confidential.

<table>
<thead>
<tr>
<th></th>
<th>How old are you</th>
<th>1.) 20-25</th>
<th>2.) 26—30</th>
<th>3.) 30-35</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Country of Birth</td>
<td>1.Bangladesh</td>
<td></td>
<td>2. Other</td>
</tr>
</tbody>
</table>

6. Do you have any family history(1st degree relation*) of breast cancer 1.Yes 2. No
7. Do you have any breast problem 1.Yes 2. No
8. Do you know the incidence** of the breast cancer in Bangladesh 1.Yes 2. No

*(1st degree relation like mother,sister,etc.)
**Incidence means number of new cases in a defined population

9. Please identify the factors which you think is a potential risk factors for developing breast cancer.(More than one answer is desirable)

<table>
<thead>
<tr>
<th></th>
<th>Increasing age</th>
<th>1.Yes</th>
<th>2. No</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Positive family history</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>III</td>
<td>High fat diet</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>IV</td>
<td>Smoking</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>v</td>
<td>Race/ethnicity</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>vi</td>
<td>Working class women</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>vii</td>
<td>Alcohol consumption</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>viii</td>
<td>First child at late age</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>IX</td>
<td>Early onset of menarche</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>X</td>
<td>Late menopause</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>XI</td>
<td>Stress</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>xII</td>
<td>Larger breast</td>
<td>1.Yes</td>
<td>2. No</td>
</tr>
</tbody>
</table>
10. Please identify the sign and symptoms which you think related to Breast cancer

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lump in the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>II</td>
<td>Discharge from the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>III</td>
<td>Pain or soreness in the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>IV</td>
<td>Change in the size of the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>V</td>
<td>Discoloration /dimpling of the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>VI</td>
<td>Ulceration of the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>VII</td>
<td>Weight loss</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>VIII</td>
<td>Changes in the shape of the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>IX</td>
<td>Inversion/pulling in of nipple</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>X</td>
<td>Swelling or enlargement of the breast</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>XI</td>
<td>Lump under armpit</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>XII</td>
<td>Scaling/dry skin in nipple region</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
</tbody>
</table>

11. Please identify the methods of diagnosis of breast cancer

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pathological examination of breast tissue by using FNAC (Fine Needle Aspiration Cytology)</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>II</td>
<td>Self Breast Examination(SBE)</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>III</td>
<td>Clinical Breast Examination by doctor</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>IV</td>
<td>Mammography</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
<tr>
<td>V</td>
<td>Ultra sound</td>
<td>1. Yes</td>
<td>2. No</td>
</tr>
</tbody>
</table>

12. Do you know at what age self breast examination should be started | 1. Yes | 2. No |
13. Do you know how to perform Self Breast Examination (SBE) | 1. Yes | 2. No |

14. Do you know how often SBE should be done
   (Tick the answer you think right)
   - Daily
   - Weekly
   - Monthly
   - Unidentified
   - Don’t Know

15. Do you know how often CBE should be done, until a women should reach 40 years.(Tick the answer you think right)
   - Once in a year
   - Once in two year
   - Once in three years
   - Don’t know
16. Do you know recommended age for mammography examination to start?
   - At the age of 30 □
   - At 35 □
   - at 40 □
   - at 45 of age. □
   - Don’t know □

17. If you develop breast cancer what will be your attitude.

   Yes | No | Don’t know

   - You will be scared □ □ □
   - You will consult to a doctor. □ □ □
   - You will use traditional medicine □ □ □
   - You will go to prayer house □ □ □
   - You will agree to perform Mastectomy (If necessary) □ □ □

18. If you develop breast lump how fast you will go to see a doctor

   - Within one week □ □ □
   - Within 1 months □ □ □
   - Within 1-3 month □ □ □
   - Not bother at all □ □ □

19. Will you allow male doctor to examine your breast.  

20. Do you believe that breast cancer occur more commonly in old women.

   1. Yes □ 2. No □

21. Please give your perceived risk for developing breast cancer (Tick only one answer)

   - Not at risk □
   - Lower risk □
   - Medium risk □
   - Higher risk □
   - Don’t know □

22. Do you think you have any risk factors.(Please Tick only one answer)

   - None □
   - 1 risk factors □
   - 2 risk factors □
   - 3 risk factors □
   - >3 risk factors □

23. Do you think breast cancer is a curable disease  

24. Do you think Long time survival (more than five year) is rare (due to breast cancer)  

25. Do you practice BSE(Breast Self Examination)
(If no then go to question no.27)
26. If Yes, then how often you practice Breast self Examination.

- Once in a month
- Once in 3 month
- More than once in quarter of a year
- Not very often
- Never in a year

27. At what age you started practicing BSE(Breast Self Examination)
- <25 of age
- 25-30
- 30-35
- >35 of age

28. If you don’t practice SBE regularly then what are the reasons(Skip those who practice regularly, once in a month)one can answer more than one.

- I don’t have breast problem.
- I don’t think I should
- I don’t feel comfortable doing this
- I knot know how to do that
- Carelessness
- Too frequent to practice.
- I don’t think it is necessary.
- Unsure about its benefit

Or, specify other reason………………………………………………………………

29. Have you ever done your breast examination by any Doctor(Clinical Breast examination)

1. Yes □  2. No □

30. (If Yes) Frequency of examination

- Once
- 1-3 times
- 3-5 times
- >5 times

31. (If not,)Why do you reluctant to participate in CBE(Clinical Breast Examination)

- a. Concern about extra money
- b. Concern about extra time
- c. Fear of out come
- d. Too young to participate
- e. No sign symptom of breast cancer
- f. No one recommended
g. Unsure about the benefit. □

h. If other then specify.....................................................