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Tentative title

Factors associated with delayed breast cancer diagnosis and the impact of delays on the stage of cancer: A Bangladesh perspective

Mohammad Sorowar Hossian et al.

# Abstract

# Introduction

## Impact

Due to lack of existing cancer registries in Bangladesh, this study will provide a snapshot of the current state of breast cancer awareness among the women aged 21 and above. The study would lay the foundation for further research based on the outcome of this study. The results may be useful for creating early detection system for breast cancer in Bangladesh and perhaps to create national campaign for building awareness.

## Definitions

Patient delay: The time difference in months between a patient’s onset of symptoms and first care seeking at a healthcare facility (hospital, clinic, whatever is appropriate for Bangladesh)

A patient delay of <=3 months will be considered normal, i.e., not delayed. > 3 months will be considered delayed (consult with the docs about this cut off)

Provider delay: The time difference in months between the first clinic visit after symptom onset and diagnosis report confirming breast cancer

# Research Questions

1. Factors associated with breast cancer diagnosis delays
   1. Two types of delays: patient delays, and provider delays
   2. Sociodemographic, and clinical factors will be studied as potential risk factors for delay
2. Impact of patient delays on the stage of breast cancer.
3. Impact of diagnosis/provider delays on the stage of cancer
4. Or we can rewrite objectives 2 and 3 as the impact of **total delay** on the stage of cancer.
   1. Specifically, we hypothesize that longer delay would be associated with late- stage disease condition after adjusting for the sociodemographic and clinical factors

# Literature Review

Ahmad et al (2016) conducted a hypothetical study where the respondents were asked if they had discovered a painless lump in their breast, how likely there were to see a family physician. They studied the relationship between likelihood of visiting a FB with six predictors namely age, income, education, concerns about time-burden on family members, concerns about completing the household chores, and having a family physician for physical exam. Age and income were found to be statistically significant with odds of visiting a FB increases by 10% for each unit increase in age while the odds is 5 times if the income group changes to a higher level.

# Materials and Methods

## Setting

I need clear information on where the data will be collected from. This is important for me to determine the data collection strategy and the overall design of the study as well as sample size determination.

## About the Study

This is a multi-center retrospective cross-sectional study to be conducted in three to four primary care (or tertiary care?) hospitals in XX districts in Bangladesh.

Women age 21 and older who have been clinically diagnosed with breast cancer will be the target population. Patients will be recruited from these providers following an inclusion-exclusion criteria (need to decide the criteria).

Data will be collected through a structured questionnaire. A trained interviewer will conduct the interview and collect the data by filling the questionnaire or electronically as feasible.

## Data and Variables

Data will be collected using a structured questionnaire. Sociodemographic and clinical information will be collected.

A tentative list of variables is given below.

Sociodemographic variables

1. Patient’s Name
2. Current place of residence (city, zilla)
3. Education (highest level completed)
4. Husband’s education if appropriate
5. Age in years (whole year)
6. Home district (permanent residence)
7. Marital status (single/widowed/never married vs married)
8. Access to media (own TV, radio, read newspaper, own smartphone, car, refrigerator, computer)

Medical care seeking behavior

1. Usual place of seeking medical care
2. How often they visited these facilities
3. Difficulties or hardship they faced getting care
4. Time to travel to the nearest facility where they could be screened for breast cancer

Clinical measures

1. Heard of breast cancer
2. Checked own breast for lumps before developing current problem
3. Breast pain as initial symptom
4. What did they do after they suspected or observed potential symptom
5. Went for traditional treatment
6. What prompted them to go to a clinic for diagnosis (is it because the symptom is causing pain, or some other problems?)
7. Date and time first symptom detected
8. Number of times visited healthcare facilities
9. First diagnosed with breast cancer (date)
10. Transferred from facility type (health center, district hospital, private hospital)
11. Transferred to facility type
12. Breast cancer stage according to American Joint Committee on Cancer (AJCC) or other locally adapted methodology
13. Comorbidities (family history or cancer, family history of breast cancer, heart disease, blood pressure, hepatitis, diabetes)
14. Tumour size (large, medium, small?)
15. Symptom upon presentation (Symptom type is a significant predictor of presentation delay)
    1. Lump or mass
    2. Skin dimpling
    3. Pain or tenderness
    4. Change of breast size
    5. Nipple discharge
    6. Skin rash or ulceration
    7. Infection
    8. Other symptom

## Some notes on variables

*Education*

Studies have showed that lack of education is a strong predictor of delay in African countries. However, that may or may not be the case in Bangladesh. I suspect that the social norm (stigma?) or “shame” may plays a role in Bangladesh. So, ‘shame’ would act as a confounder because ‘shame’ is potentially associated with education and a possible predictor of the outcome (delayed diagnosis).

## Statistical Analysis

Univariate and multivariate analyses will be performed to measure association between sociodemographic and clinical measures on the delay of detection.

Since the cutoff (>6 months) is somewhat arbitrary or based on experience, sensitivity analysis will be performed with different cutoffs to study stability of the estimates.

Similar process will be carried out for finding association between clinical and sociodemographic factors on total delays.

The outcome variable will be either binary (<= 3 months, > 3 months) or multinomial (more than two categories). Will decide based on the number of sample data as well as the performance of the models.

Statistical significance will be assessed at p=0.05 level whereas all covariates that are deemed to be practically significant will be retained in the model even if they are not statistically significant. Practical significance of a covariate will be determined by the clinical practitioners as well as taking the social context into consideration.

# Results and Discussion

# Conclusion

# References

Ahmad, Farah, et al. "A study with Bangladeshi women: Seeking care for breast health." *Health Care for Women International* (2016): 1-10.