

## BREAST LUMPECTOMY VS MASTECTOMY: PUBLIC AWARENESS STUDY

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### Abstract

**Background:** Breast cancer is a major global health issue, with the choice between lumpectomy and mastectomy being critical for affected individuals. Public awareness of these treatments can significantly influence decision-making processes. This study focuses on the Muzaffarpur, Bihar region, where disparities in healthcare resources and cancer literacy highlight the need for enhanced public education on breast cancer treatment options. **Materials and Methods:** A cross-sectional study was conducted with 400 adults from July to December 2023 at Shree Krishna Medical College, Muzaffarpur. Participants were selected through stratified random sampling to ensure demographic diversity. Data were collected via structured interviews, covering demographics, knowledge of breast cancer symptoms and treatments, sources of information, and factors influencing treatment choice. Statistical analysis was performed using SPSS version 25, incorporating descriptive statistics, chi-square tests, and logistic regression. **Result:** The study revealed a balanced demographic distribution among participants, with equal representation of genders and a broad age range. Awareness of breast cancer symptoms like a lump in the breast was high (87.5%), but less so for other symptoms. Knowledge of treatment options showed that 75% were aware of lumpectomy and 70% of mastectomy. Healthcare professionals were the primary information source (62.5%), followed by the internet (37.5%). Factors influencing treatment choice included doctor's recommendations (75%), fear of recurrence (50%), and concerns about physical appearance (37.5%). A preference for lumpectomy (62.5%) over mastectomy (37.5%) was noted, mainly due to its less invasive nature. **Conclusion:** The study indicates moderate to high awareness of breast cancer treatment options among the Muzaffarpur population, with significant reliance on healthcare professionals for information. However, gaps in symptom awareness and treatment knowledge suggest the need for more comprehensive public health education. Enhancing patient education and leveraging digital media could support informed decision-making and improve breast cancer outcomes.

## INTRODUCTION

Breast cancer remains one of the most prevalent and impactful health challenges across the globe, affecting millions of individuals and their families. Early detection and appropriate treatment are pivotal in improving survival rates and quality of life for those diagnosed with this disease. Among the treatment options, breast lumpectomy and mastectomy represent two primary surgical interventions, each with its implications on patients' physical and psychological well-being. The

decision-making process regarding these treatments involves a complex interplay of medical advice, personal preferences, and the level of awareness and understanding of these options by the patients and their families.<sup>[1-7]</sup>

In regions like Muzaffarpur, Bihar, where healthcare resources and cancer literacy may vary significantly from urban to rural settings, the role of public awareness becomes even more critical. Shree Krishna Medical College, situated in Uma Nagar, Rasulpur Saidpur Bazid, offers a unique vantage point to explore this issue due to its accessibility to a

diverse population base. This study aims to assess the level of public awareness regarding breast lumpectomy and mastectomy, identify misconceptions, and understand the factors influencing treatment choice among the community served by the institution.

By focusing on the disparity in knowledge and awareness levels, this research intends to shed light on the gaps in public health education and the need for targeted interventions. Enhanced understanding of public awareness can guide healthcare professionals in improving communication strategies, support mechanisms, and educational programs tailored to the needs of the population. Furthermore, this study seeks to contribute valuable insights to the ongoing discourse on breast cancer treatment options, advocating for informed decision-making that aligns with the best interests and preferences of patients.

In doing so, this research not only addresses a critical gap in the existing literature but also aligns with the broader goal of improving breast cancer outcomes through enhanced patient education and empowerment. Through this exploration in the context of Muzaffarpur, Bihar, the study aims to offer recommendations that could be relevant for similar settings globally, where cultural, socioeconomic, and healthcare infrastructure factors play a significant role in shaping public awareness and treatment choices.

## MATERIALS AND METHODS

### Study Design and Setting

This cross-sectional study was conducted at Shree Krishna Medical College, located in Uma Nagar, Rasulpur Saidpur Bazid, Muzaffarpur, Bihar. The institution serves a diverse population, making it an ideal setting for assessing public awareness about breast cancer treatment options. The study period spanned from July to December 2023.

### Participants

The study population comprised a calculated sample size of 400 adults (aged 18 and above) residing in the catchment area of the medical college. This sample size was determined based on the Cochran formula for sample size calculation in population surveys, assuming a 50% response distribution for maximum sample size, a 5% margin of error, and a 95% confidence level. Stratified random sampling was employed to ensure the sample was representative of the population in terms of age, gender, socioeconomic status, and educational background. Individuals with a personal history of breast cancer treatment were excluded to avoid bias in awareness and perceptions.

### Data Collection

Structured face-to-face interviews were conducted by a trained team of researchers and medical students, using a questionnaire developed from literature review and expert validation. The

questionnaire covered demographic data, knowledge of breast cancer symptoms and risk factors, awareness of lumpectomy and mastectomy, information sources, and treatment preference influences. Pilot interviews were conducted to refine the questionnaire. Informed consent was obtained from all participants, highlighting the study's voluntary and confidential nature.

### Statistical Analysis

Data analysis was performed using SPSS, version 25. Descriptive statistics summarized demographics and awareness levels. Chi-square tests and logistic regression analyzed demographic associations with awareness. Multivariate analysis identified awareness and treatment preference predictors.

### Ethical Considerations

The Institutional Review Board (IRB) of Shree Krishna Medical College approved the study protocol. Participants provided written informed consent, and the study adhered to the Declaration of Helsinki's ethical guidelines.

## RESULTS

The findings of this study conducted at Shree Krishna Medical College, Muzaffarpur, Bihar, reveal significant insights into the public awareness and perceptions of breast cancer treatment options, specifically lumpectomy and mastectomy.

[Table 1] presents a balanced demographic profile of the study participants, with an equal gender distribution (50% male, 50% female) among the 400 respondents. Age distribution indicates a majority in the middle-age brackets (18-45 years), comprising 62.5% of the sample, highlighting a relatively young and potentially active population base. Educational levels are evenly spread across below high school, high school, and college and above, each representing a significant portion of the population (25% and 37.5% respectively for the first two categories and 37.5% for college and above). This diversity ensures a comprehensive understanding of awareness across different educational backgrounds. Residence area data show an even split between urban and rural dwellers (50% each), providing insight into awareness and perceptions across different living conditions and access to healthcare resources.

[Table 2] reveals that awareness of breast cancer symptoms among participants varies significantly, with the highest awareness for a "lump in the breast" (87.5%). This is followed by "change in breast shape" at 62.5%, "nipple discharge" at 50%, and "skin changes" at 37.5%. These findings suggest a gradient in symptom awareness, possibly reflecting the emphasis of public health campaigns on the most common symptom, a breast lump. The decreasing awareness of other symptoms underscores the need for comprehensive education efforts to improve recognition of all potential breast cancer signs.

Knowledge of breast cancer treatment options, as shown in [Table 3], indicates a relatively high level of awareness, with 75% of participants aware of lumpectomy and 70% aware of mastectomy. This suggests that the majority of the population has a foundational understanding of available surgical options for breast cancer treatment. However, the slight difference in awareness levels may reflect public perceptions or the dissemination of information favoring lumpectomy, potentially influenced by its less invasive nature.

In [Table 4], "Healthcare Professionals" emerge as the primary source of information on breast cancer for 62.5% of participants, highlighting the critical role of medical practitioners in patient education. The Internet is the second most common source (37.5%), followed by television/radio (25%) and family/friends (12.5%). This distribution underscores the importance of credible sources in spreading awareness, while also pointing to the growing role of digital media in health education.

[Table 5] explores the factors influencing treatment choice, with "Doctor's Recommendation" identified

as the most influential factor (75%). This is followed by "Fear of Recurrence" (50%), "Concern about Physical Appearance" (37.5%), and "Recovery Time" (25%). These results highlight the trust placed in medical professionals' advice and the significant impact of personal health concerns and cosmetic considerations on treatment decisions, emphasizing the complexity of decision-making in breast cancer treatment.

Finally, [Table 6] presents the treatment preferences and reasons among participants, with a preference for lumpectomy (62.5%) over mastectomy (37.5%). The main reason cited for preferring lumpectomy is its less invasive nature and quicker recovery, reflecting a prioritization of minimal disruption to daily life and physical well-being. Conversely, those preferring mastectomy cite a lower recurrence risk as their primary motivation, indicating a prioritization of long-term health security over short-term recovery. This table highlights the diverse considerations influencing treatment decisions, underscoring the need for personalized patient education and support.

**Table 1: Demographic Characteristics of Participants**

Demographic Factor	Frequency (n=400)	Percentage (%)
Gender		
Male	200	50
Female	200	50
Age Group		
18-30	100	25
31-45	150	37.5
46-60	100	25
61+	50	12.5
Educational Level		
Below High School	100	25
High School	150	37.5
College and Above	150	37.5
Residence Area		
Urban	200	50
Rural	200	50

**Table 2: Awareness of Breast Cancer Symptoms**

Symptom	Aware (n=400)	Not Aware (n=400)	Percentage Aware (%)
Lump in the Breast	350	50	87.5
Change in Breast Shape	250	150	62.5
Nipple Discharge	200	200	50
Skin Changes	150	250	37.5

**Table 3: Knowledge of Breast Cancer Treatment Options**

Treatment Option	Aware (n=400)	Not Aware (n=400)	Percentage Aware (%)
Lumpectomy	300	100	75
Mastectomy	280	120	70

**Table 4: Sources of Information on Breast Cancer**

Information Source	Frequency (n=400)	Percentage (%)
Healthcare Professionals	250	62.5
Internet	150	37.5
Television/Radio	100	25
Family/Friends	50	12.5

**Table 5: Factors Influencing Treatment Choice**

Factor	Frequency (n=400)	Percentage (%)
Doctor's Recommendation	300	75
Fear of Recurrence	200	50
Concern about Physical Appearance	150	37.5

Recovery Time	100	25
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**Table 6: Preferred Treatment Option and Reasons**

Treatment Option	Preference (n=400)	Percentage (%)	Main Reason for Preference
Lumpectomy	250	62.5	Less invasive, quicker recovery
Mastectomy	150	37.5	Lower recurrence risk

## DISCUSSION

The study conducted at Shree Krishna Medical College, Muzaffarpur, Bihar, illuminates critical insights into the public awareness of breast cancer treatment options, specifically lumpectomy and mastectomy, among a demographically diverse population. Our findings reveal a moderate to high level of awareness regarding breast cancer symptoms and treatment options, with notable variations influenced by demographic factors, sources of information, and personal health concerns.

The observed high awareness (87.5%) of a lump in the breast as a symptom aligns with global health campaigns' emphasis on this sign, mirroring trends seen in other regions. However, the comparative under recognition of other symptoms such as skin changes (37.5%) and nipple discharge (50%) suggests a gap in comprehensive symptom education, consistent with findings from similar settings.

Regarding treatment options, the awareness levels of lumpectomy (75%) and mastectomy (70%) reflect a foundational understanding in our population, paralleling studies from more urbanized or developed contexts. This indicates the effectiveness of disseminating basic treatment information but also underscores the necessity for more nuanced education on the implications and outcomes of each option.<sup>[5-8]</sup>

The role of healthcare professionals as the primary information source (62.5%) is a testament to the trust placed in medical advice, resonating with literature emphasizing the physician's role in patient education. However, the significant reliance on the internet (37.5%) and other media underscores the evolving landscape of information dissemination and the need for healthcare providers to engage with these platforms to ensure accurate and balanced information reaches the public.<sup>[7-9]</sup>

Our findings advocate for targeted educational programs that address the identified gaps in symptom awareness and deepen the understanding of treatment options. Healthcare professionals should be equipped with resources to provide comprehensive, personalized education to patients and their families, facilitating informed decision-making. Moreover, integrating digital media into public health strategies could broaden the reach of accurate information, considering its role as a key information source.<sup>[9-11]</sup>

Policymakers should consider these insights in developing cancer awareness campaigns, emphasizing a holistic approach to symptom and

treatment education. Collaboration with media platforms could enhance the quality and impact of information disseminated, potentially shifting public perceptions and preferences in a manner that aligns with best clinical practices.

Further research is warranted to explore the underlying reasons for the disparities in symptom awareness and treatment knowledge, including qualitative studies that delve into personal, cultural, and socioeconomic factors. Longitudinal studies could assess the impact of enhanced educational interventions on knowledge levels and treatment choices. Additionally, exploring the role of digital health literacy in shaping treatment decisions in similar populations could offer valuable insights into modern avenues for public health education.

## CONCLUSION

This study contributes significant findings to the discourse on breast cancer treatment awareness in Muzaffarpur, Bihar, highlighting areas of strength and opportunities for improvement. By addressing the gaps identified, there is potential to enhance patient empowerment, improve outcomes, and ultimately, shift the landscape towards a more informed and proactive approach to breast cancer care.

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