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Breast Cancer in South India: Clinical Patterns and Lifestyle Associations in the Tiruchirappalli district

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INTRODUCTION & AIM

- Breast cancer (BC) is the most commonly diagnosed malignancy among women worldwide and is an increasing public health concern in India.
- Genetic susceptibility plays an important role in BC development; however, regional epidemiological and hereditary patterns in South Indian populations remain inadequately studied.
- In southern Tamil Nadu, factors such as rural healthcare disparities, delayed diagnosis, and the prevalence of consanguineous marriages may influence breast cancer burden and familial risk.
- SRM Medical College Hospital and Research Centre (SRMMCHRC), Tiruchirappalli, has observed a progressive rise in breast cancer cases in recent years.
- Understanding demographic, geographic, and age-specific incidence patterns is essential for improving early detection and identifying region-specific risk factors.
- This study aimed to evaluate temporal trends, regional distribution, and age-related incidence patterns of breast cancer cases diagnosed at SRMMCHRC between 2021 and 2024.

METHOD

Retrospective hospital-based study
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Conducted at SRM Medical College Hospital & Research Centre (SRMMCHRC), Tiruchirappalli
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Study duration: 2021–2024
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Study population: Breast cancer patients diagnosed during the study period
(Sample size: 117 patients)
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Retrospective review of anonymized clinical records
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Variables collected:
- Age at diagnosis
- Demographic characteristics
- Presence of comorbidities
- Family history of cancer

RESULTS & DISCUSSION

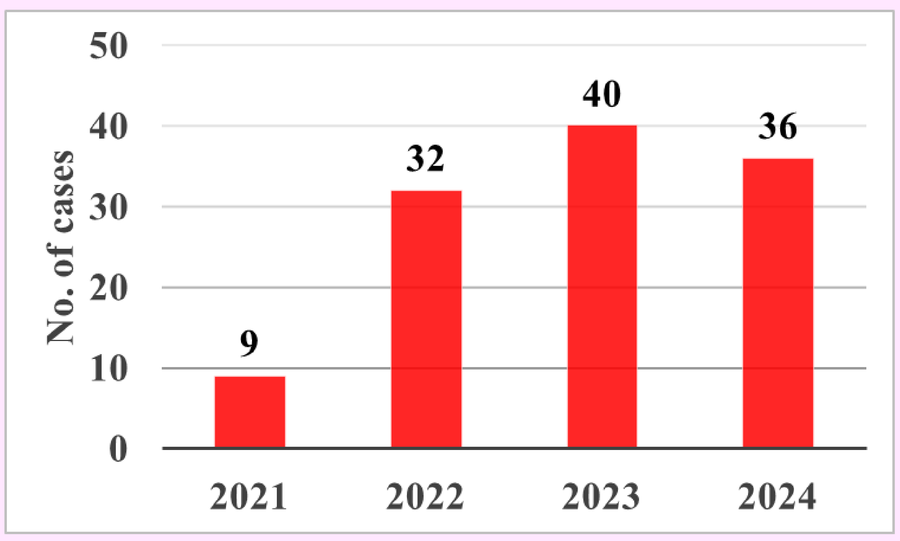

Figure 1. Temporal trend in breast cancer cases diagnosed between 2021 and 2024.
A progressive increase in breast cancer cases was observed from 2021 (n=9) to 2023 (n=40), with case numbers remaining high in 2024 (n=36). This trend indicates a rising burden of breast cancer in the region and warrants continued surveillance and strengthening of early detection strategies.

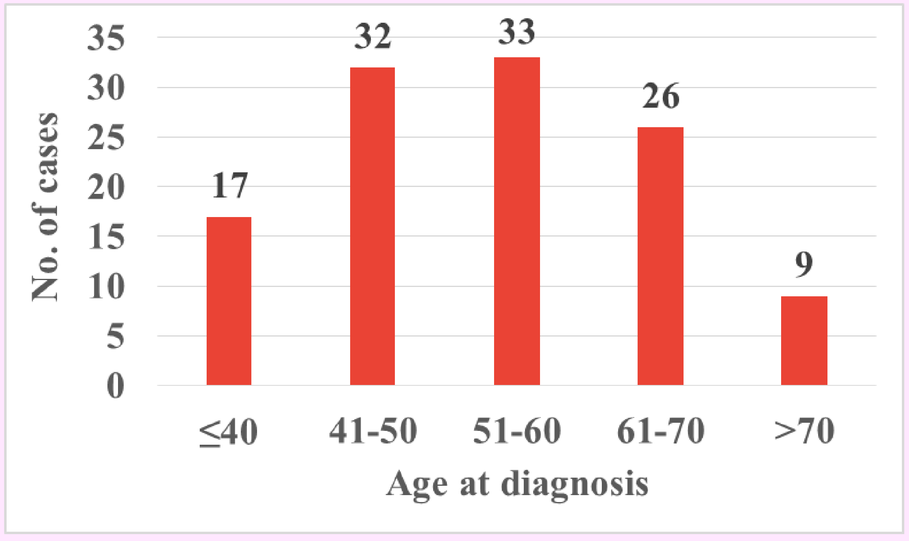

Figure 2. Distribution of breast cancer cases according to age at diagnosis.
Breast cancer incidence was highest among women aged 41–60 years, accounting for over half of all diagnosed cases, with a peak in the 51–60 years age group (n=33). This pattern suggests that middle-aged women constitute the most affected population within the study cohort.

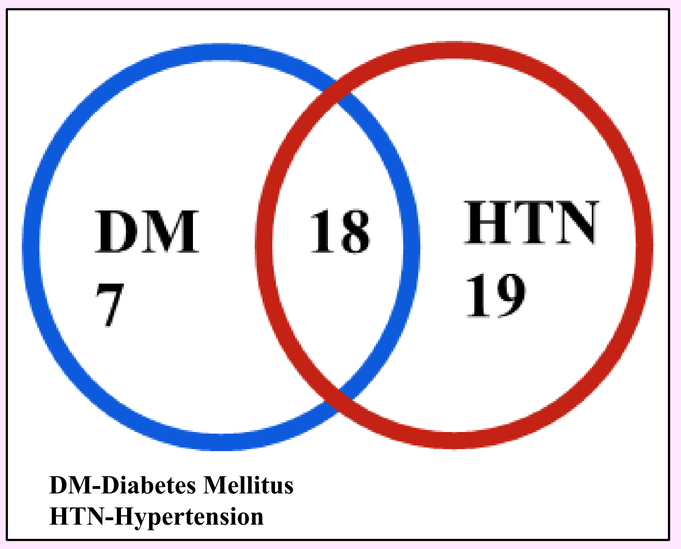

Figure 3. Distribution of breast cancer cases with diabetes mellitus and hypertension as comorbidities.
A substantial proportion of breast cancer patients had coexisting comorbidities, with hypertension being the most common condition either alone (n=19) or in combination with diabetes mellitus (n=18). Diabetes mellitus alone was less frequently observed (n=7), highlighting the predominance of hypertension-related comorbidity in this cohort.

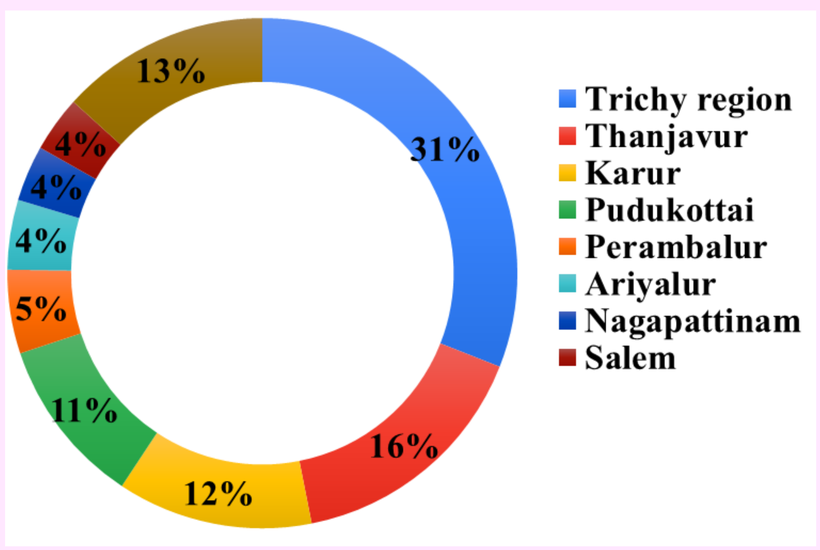

Figure 4. Regional distribution of breast cancer cases.
Breast cancer cases were derived from a broad geographic region, with the highest proportion originating from Trichy district (31%). Cases from neighboring districts collectively accounted for 69% of the study cohort, highlighting the hospital's extensive referral network and regional service coverage. The greater representation of Trichy district is likely influenced by the proximity of patients to the study center.

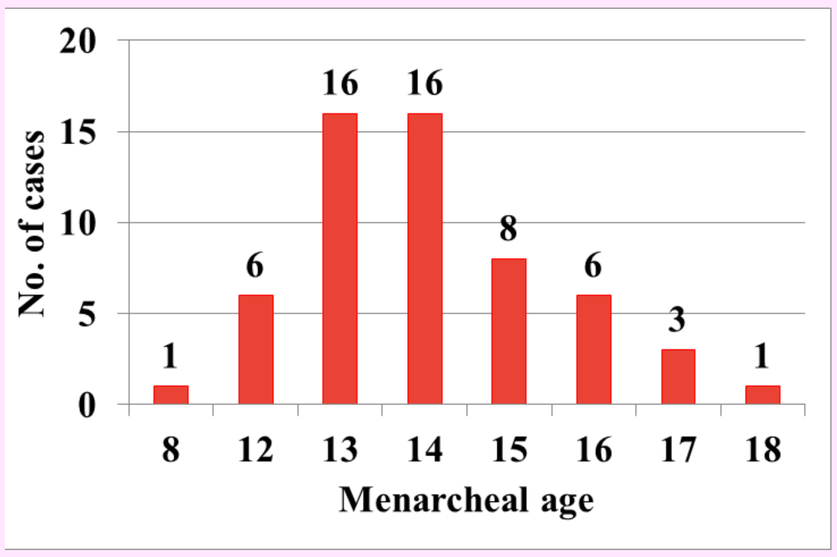

Figure 5. Age at menarche among breast cancer patients.
A unimodal distribution was observed, with the highest frequency of cases occurring among women with menarche at 13–14 years of age. The frequency of breast cancer cases declined progressively at both younger and older menarcheal ages, suggesting that the majority of patients in this cohort attained menarche during early adolescence.

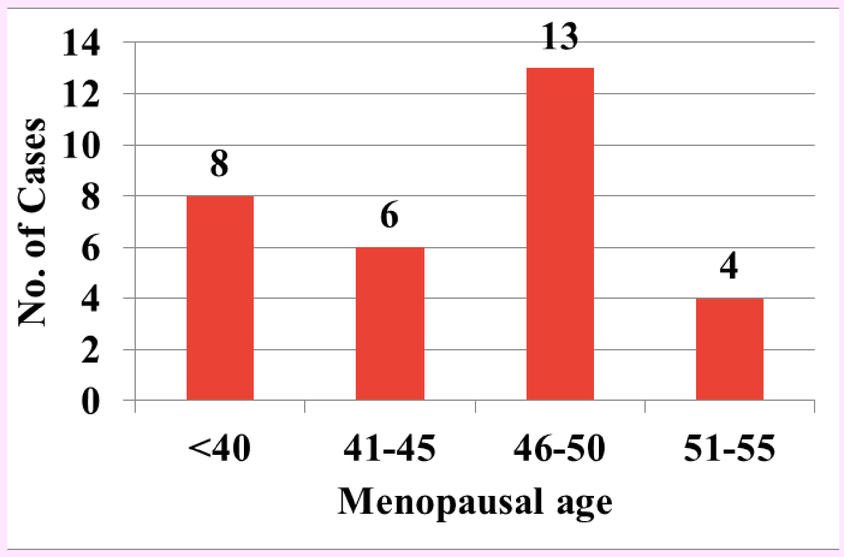

Figure 6. Distribution of breast cancer cases according to age at menopause
A unimodal distribution of breast cancer cases was observed across menopausal age groups, with the highest frequency occurring among women attaining menopause at 46–50 years of age. Case frequencies declined in both younger and older menopausal age categories..

CONCLUSION

Breast cancer cases presenting to SRMMCHRC demonstrated a progressive increase during the study period, with the disease predominantly affecting women aged 41–60 years. The highest case frequencies were observed among patients reporting menarche at 13–14 years and menopause at 46–50 years, while hypertension emerged as the most common associated comorbidity. The geographic distribution of cases, encompassing Trichy district and multiple neighboring districts, reflects the expanding regional referral network and service coverage of the institution. Continued data collection and larger population-based analyses are warranted to validate these trends and inform targeted screening and early detection strategies.

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