

## Delays in Presentation, Diagnosis, and Treatment in Sudanese Women with Breast Cancer: A Cross-Sectional Study

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**Abstract :** Background: The poor prognosis of breast cancer in Sudan could be due to delayed treatment and diagnosis at an advanced stage. Our study aimed to assess the extent of delays from onset of symptoms to treatment in Sudanese women with breast cancer, as well as identify factors contributing to these delays. Materials and Methods: We conducted a multi-center cross sectional study between March and April 2023. Data were collected from the medical records and interviews with women with breast cancer in the two main oncology centers in Sudan. Linear regression was used to identify the predictors of delayed presentation. Results: We interviewed 601 women with breast cancer. The majority of women (50.1%) were diagnosed at locally advanced or metastatic disease. The median interval from the onset of symptoms to receiving oncologic treatment was 221 days (IQR = 92, 496). The longest delay was the presentation delay 61 (31 244) days. The median duration for diagnosis delay and treatment delay was 21 (10.57) days and 27 (10.64) days, respectively. Predictors of early presentation included, being young ( $\beta = -5.3$ ; 95% CI = 0.06 to 10), married ( $\beta = -264$ ; 95% CI =  $-427$  to  $-101$ ), divorced ( $\beta = -306$ ; 95% CI =  $-549$  to  $-63$ ), or widowed ( $\beta = -320$ ; 95% CI =  $-543$  to  $-97$ ), urban residence ( $\beta = -107$ ; 95% CI =  $-213$  to  $-2.3$ ), and seeking traditional healer ( $\beta = -204$ ; 95% CI =  $-383$  to  $-26$ ). Conclusion: Most Sudanese women with breast cancer experience significant patient delays, often presenting at advanced stages. The delay on the patient's part plays a significant role in the overall delay experienced by Sudanese women with breast cancer. Factors like being single, older, and living in rural areas contribute to these delays. As such, it is vital to establish an early diagnosis strategy that emphasizes raising awareness of the initial signs and symptoms of breast cancer and enhancing access to healthcare services. Increasing breast cancer education, improving healthcare access and addressing sociodemographic barriers can potentially expedite diagnosis and improve outcomes.

**Keywords :** breast cancer, diagnosis and treatment intervals, early detection, predictors of delay, low and middle income countries

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