



Radiation Therapy Accessibility in South African Rural Areas: A Longitudinal Study of Cancer Patients

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Abstract

Radiation therapy is a critical component of cancer treatment in South Africa, but accessibility varies significantly across rural and urban areas. The study employed a mixed-methods approach, including surveys of healthcare facilities and interviews with oncologists. Data were analysed using descriptive statistics. In , only 35% of rural cancer patients had access to advanced radiation therapy compared to 80% in urban areas, indicating a significant disparity. Despite improvements in healthcare infrastructure over the study period, accessibility remained uneven with higher proportions in urban settings. Increased investment is needed to improve radiation therapy facilities and training for rural oncologists to enhance patient access. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Rural, Accessibility, Epidemiology, Longitudinal, Treatment, Health Disparities*

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