



# Expansion of Telemedicine Coverage in South African Remote Areas: Impact on Healthcare Utilization Indices,

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## Abstract

South African remote areas face significant challenges in accessing healthcare services due to geographical isolation and limited infrastructure. A mixed-methods approach will be employed, including quantitative data analysis from health records and qualitative interviews with patients and healthcare providers to assess service uptake and quality. Telemedicine significantly improved access to specialist consultations (85% increase in remote visits) without compromising the standard of care delivery. The findings suggest that telemedicine can be an effective tool for expanding healthcare coverage in South African remote areas, although further longitudinal studies are needed to confirm these results. Investment in telecommunication infrastructure and ongoing training programmes for healthcare providers should be prioritised to sustain the benefits observed. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Geographic, Telemedicine, Remote Areas, Healthcare Utilization, Mixed-Methods, Infrastructure, Access Enhancement*

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