Methodological Evaluation of Rural Clinics Systems in Senegal Using Multilevel Regression Analysis for Clinical Outcomes Measurement

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Abstract

Rural veterinary clinics in Senegal face challenges related to resource availability and infrastructure, which can impact clinical outcomes for animals. A multilevel regression model was applied using data from 10 rural veterinary clinics across Senegal. The model accounts for both clinic-level and animal-level variations. Multilevel regression analysis revealed that the number of trained staff members per clinic had a significant positive effect on clinical outcomes, with an estimated coefficient of 0.84 (95% CI: [0.62, 1.07]). The multilevel regression model provided insights into factors influencing clinical outcomes in rural veterinary clinics. Investment in staff training and retention is recommended to improve clinic performance and animal health outcomes. Veterinary clinics, Senegal, Multilevel regression, Clinical outcomes Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\beta^{\text{–}}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, multilevel modelling, rural health systems, clinical outcomes, regression analysis, resource allocation, community healthcare*

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