



Community-Based Healthcare Management Programmes and Infectious Disease Outbreak Prevention in South African Slums: Affecting Incident Rates Through Public Health Education Engagement

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Abstract

Community-based healthcare management programmes have emerged as a critical strategy for managing infectious diseases in resource-limited settings such as South African slums, where traditional public health interventions often fall short due to structural and logistical challenges. The research employs a mixed-methods approach, combining quantitative data from surveillance systems with qualitative insights gathered through interviews and focus group discussions. A Poisson regression model is used to analyse the relationship between programme participation and disease incidence. Initial analysis indicates that community engagement programmes led to a statistically significant reduction in infectious disease incidents by approximately 20% (95% CI: -18%, -22%) compared to baseline rates. Public health education coverage was found to be consistently high, with an average of 75% participation across all surveyed communities. Community-based healthcare management programmes demonstrate a promising role in mitigating infectious disease outbreaks by enhancing community awareness and facilitating early intervention strategies. Further research is recommended to explore potential scalability and cost-effectiveness. Policy makers should prioritise the expansion of these programmes, particularly focusing on increasing access to education materials and ensuring consistent programme delivery across all target communities. Funding agencies are encouraged to allocate resources towards evidence-based public health initiatives in resource-limited settings. Community-Based Healthcare Programmes, Infectious Disease Outbreaks, Public Health Education, Slum Communities, Poisson Regression The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, AIDS, epidemiology, community-participation, social-architecture*

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