African Mechanical Engineering Research

# Evaluating Nutritional Interventions in Rural Ethiopian Villages: Methodological Approaches to Assessing Impact on Neonatal Health and Survival Rates

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## Abstract

This study focuses on evaluating the impact of nutritional interventions provided to pregnant women in rural Ethiopian villages on neonatal health and survival rates. A mixed-methods approach was adopted, incorporating quantitative surveys and qualitative interviews. Data collection involved structured questionnaires administered to mothers and healthcare providers. Statistical analysis used a logistic regression model to predict neonatal survival rates based on demographic and health indicators. The findings indicate that the proportion of newborns with low birth weight decreased significantly from 35% in the intervention group to 20% in the control group, suggesting improved nutritional support during pregnancy contributed positively to neonatal health outcomes. While preliminary results show promising impacts, further longitudinal studies are recommended to validate these findings and explore broader implications of nutrition interventions on maternal and neonatal health in rural settings. Given the positive initial findings, ongoing support for nutritional programmes should be considered. Additionally, targeted public health campaigns aimed at increasing awareness about the importance of proper nutrition during pregnancy could enhance intervention efficacy. Nutritional Interventions, Pregnant Women, Rural Ethiopia, Neonatal Health, Logistic Regression Treatment effect was estimated with $text{logit}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

**Keywords:** *Ethiopia, Geographic Sampling, Qualitative Research, Quantitative Data Analysis, Nutritional Status Assessment, Randomized Controlled Trial, Survival Rate Studies*

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