Abstract of Master's Dissertation

No.1

Course	Health Innovation	Name	Gibson Omwansa Javes
Thesis Title	Investigating the Effectiveness of Rotavirus Vaccination in Stunting Prevention Among Children 6-23 Months: A Case-Control Study in Kwale County		

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Background:

Stunting is a chronic malnutrition defined by a deficit in height/length for age. Globally, the stunting problem has been declining except in Africa. It is controversial whether the rotavirus vaccine which is intended to prevent the main cause of malnutrition (diarrhoea) in children could help in reducing the prevalence of stunting in Kenya. The study will demystify this controversy and contribute knowledge toward improving child health in Kenya and similar settings.

Objectives:

General Objective:

- To assess the effectiveness of rotavirus vaccination on stunting prevention among children between 6-23 months and assess other risk factors for stunting.

Specific Objectives:

- To assess the rotavirus vaccination status in cases and control as a risk for stunting among children 6-23 months in Kwale county.
- To assess growth faltering in cases and controls among children 6-23 months in Kwale county.
- To investigate other risk factors for stunting among cases and controls 6-23 months in Kwale county.

Methods:

A case controls study in Kwale county randomized 574 children aged 6-23 months through a door-to-door survey. The outcome variable was stunting assessed on height for age.

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The primary exposure was rotavirus vaccination status in terms of timing and completeness. The secondary exposures were other risk factors for stunting based on previous literature. Unmatched analysis was performed using STATA for descriptive, bivariate, and multivariate levels. The hierarchical regression modelling was used to determine the block of variables that explained the stunting outcome.

Results:

Malnutrition cases were prevalent among study participants where stunting was the most common at 54% while wasting and underweight were 34% and 17% respectively. Around 33% of study participants were stunted, while 94% were fully vaccinated. Timely or delayed first dose vaccination did not have an impact on stunting. However, the delay of the second dose was a protective factor (COR= 0.8, 95% CI:0.59-1.20). Additionally, missing the second dose of rotavirus vaccination was associated with 30% increased odds of stunting although both the results were not significant (AOR=1.3, 95% CI:0.52-3.29).

Following the adjustment of results for age, location, water treatment, infections, undernutrition forms, birthweight, food quality, caregiver working status, and crowding, the vaccination status was ineffective in preventing stunting. However, a delayed reception of first and second doses to around 8-9 and 12-13 weeks respectively after birth were associated with relatively few diarrhoea days and better length for age. A delay is necessary to allow waning of maternal antibodies and the development of a child's immunity to promote optimal seroconversion following vaccination. However, these results might be by chance due to the smaller sample size in the delayed categories, thus bigger studies in future are recommended.

Conclusion:

Stunting prevalence had risen in Kwale county. However, changing the schedule for rotavirus reception could be a useful approach to preventing diarrhoea and so is the risk for stunting. However, it is prudent to consider the timing when a child in the setting contracts the first episode of rotavirus infections before changing the vaccination schedule. Nevertheless, it is important to consider a holistic approach to address the stunting problem.