

Using Multilevel Logistic Modeling to Analyse Risk Factors That Influence Stunting Among Under-Five Age of Rwandan Children

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Research article

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Abstract

Background: Childhood malnutrition is a global problem. In East Africa, 39% of all children were stunted in 2016. Rwanda reports the second highest rate at 38%. Globally, deaths from malnutrition stand for 45% of child deaths, creating an economic handicap for all countries. According to the World Health Organization's (WHO) goal to reduce malnutrition at 3.9% per year, all countries must define appropriate strategies. Although related researches have been

conducted in Rwanda, the issue of malnutrition prevails. This study, assesses stunting at multiple level of factors with the aim of revealing the system-wide impact of food security on malnutrition.

Methods: We used secondary data from the Rwanda demographic and Health Survey (RDHS) 2014-2015. Variables were classified into five categories, namely the community, environmental, socio-development, media, and proximate factors. To assess the risk factors for stunting, we applied a mixed effects logistic regression and we determined an association between different factors and stunting. Factors that have a p-values < 0.05 were retained as risk factors for stunting at each level.

Results: The prevalence of stunting was 37.7%, the average was relatively still high, compared to the global prevalence of 21.3% in 2019, the city of Kigali comprised the lowest prevalence (22.7%) while the highest prevalence was observed in the Western Province (44.6%). The place of residence and altitude were found to be statistically significant community and environmental factors. Wealth index and parental education were considered socio-demographic risk factor. All media factors were associated with stunting and in proximate factors, the Body Mass Index (BMI) of the mother, duration of breastfeeding, age and size of child at birth, sex, and birth order were statistically significant factors. In addition, the infection, diarrhea, and parasitic infection within the child were also

associated with stunting.

Conclusion: To ensure sustainable food security in households, this should go hand in hand with all strategies of eliminating all forms of malnutrition, since stunting seen in the most region where there is an issue of food insecurity. Educating children is key for reducing stunting since the education of parents is seen as a risk factor of stunting. Public institutions and industries should be integrated into all parties of the country for improving the standard life of people. Generally all concerned institutions accompanied with policies to eradicate malnutrition and industries to avail the additional nutrients should be enforced and integrated and spread all over the country to find out the cases and to find solutions.

Full Text

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Figures

Image not available with this version

Figure 1

The conceptual Framework adapted from UNICEF

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Figure 2

Community and environmental factors

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Figure 3

Media factors and Socio-demographic factors

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Figure 4

Proximate factors

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Figure 5

Proximate factors continuous