

# 博士論文（要約）

Analysis of the nutritional status of children under age 5 years:  
a case study of Namibia

（5歳未満児の栄養状態解析：ナミビア共和国における事例研究）

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## **Abstract**

### **Background**

Namibian children under age 5 have high undernutrition rates. High quality child anthropometry is essential for national estimates and prioritizing target regions and vulnerable groups. This study identified the prevalence and trends of child undernutrition in stunting, wasting, and underweight, and conducted a comparative analysis of three prevalence estimates methods of undernutrition (WHO flags, SMART flags, and PROBIT method) in Namibia from the 2016 national data.

### **Methods**

This study analyzed data from the Namibia DHS (1992-2013) and 2016 Namibia Household Income Expenditure Survey (NHIES) for undernutrition trends. The analysis used three methods (WHO flags, SMART flags, PROBIT method) to adjust the data quality for the estimates.

### **Results**

In 2016, Namibia had 30.3% stunted, 11.2% wasted, and 19.6% underweight children under age 5. The percentage of biologically implausible measurements was 9%, indicating NHIES collected poor quality of child anthropometry. After adjusting the data quality, Namibia's prevalence of stunting was 30.3%, 29.0%, and 20.9% for WHO flags, SMART flags, and PROBIT, respectively; and the national wasting prevalence was 11.2%, 8.7%, and 4.2%. The trends of the nutritional status from 1992 to 2013 showed improving trends until 2013 across all methods, but from 2013 to 2016, PROBIT showed smaller increases in stunting and wasting prevalence (2.5 and 0.6%) compared to WHO flags (6.6 and 5.0%) and SMART flags (7.8 and

2.4%). All methods identified different ethno-linguistic groups and regions as priority targeting for intervention.

## **Conclusion**

The NHIES found high child undernutrition remains an important public health issue in Namibia and the survey collected poor quality child anthropometry. All three analysis methods resulted in different undernutrition estimates for national prevalence, country progress, target regions, and vulnerable groups. Based on the situation, it is recommended to use different analysis methods for estimating child undernutrition when poor data quality is suspected.

**Key words:** Nutrition, children, data quality, Namibia, stunting, wasting