審査の結果の要旨

氏名　藤村　真耶

This study aimed to analyze the nutritional situation of children under age 5 years in Namibia. Part 1 identified the prevalence of child undernutrition in stunting, wasting, and underweight of the 2016 NHIES, and analyzed the national trends of undernutrition from 1992 to 2016 from the NDHS and 2016 NHIES. Part 2 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.

In Part 1, the 2016 NHIES data showed a national undernutrition proportion of 30.3% stunted children, 11.2% wasted children, and 19.6% underweight children under age 5. In addition, the country progress in child undernutrition from 1992 to 2016 across the different surveys was significant for stunting (p= 0.01) and wasting (p <0.01), but not underweight (p = 0.12). Finally, the 2016 NHIES found a high percentage (9%) of biologically implausible child measurements.

Part 2 showed that surveys with poor data quality of child anthropometry can lead to various interpretations of trends and targeting based on the analysis method. After comparing three methods of analysis to calculate the undernutrition prevalence, the estimates using the WHO flags consistently resulted in the largest prevalence, followed by estimates with the SMART flags, and the estimates using the PROBIT method. The differences in the estimates occur from the different criteria of biological implausibility of each method. Based on the method, extreme measurements from measurement errors are excluded from the analysis and it influences the prevalence of undernourished children. Thus, in addition to analyzing estimates with the WHO method, the data should be adjusted to exclude the biologically implausible measurements by using methods such as SMART and PROBIT.

The prevalence estimates derived from poor quality data should be adjusted with multiple analysis methods for stunted and wasted children in the Namibian context and similar low- and middle- income countries with poor data quality in child anthropometry. If the national survey has a percentage of the biologically implausible

measurements of over 1%, then undernutrition prevalence should be compared with other methods before planning public health policies and programs. After comparing the WHO flags, SMART flags, and PROBIT methods, different trends, prevalence, target areas and subgroups of the child population are identified as increased risk of undernutrition.

The public health importance of high quality anthropometric data was emphasized, and it can be applied to other low- and middle- income countries with similar data quality issues in child anthropometry. This study has contributed valuable new evidence on ways to analyze national surveys with poor child anthropometry data.

よって本論文は博士(保健学)の学位請求論文として合格と認められる。