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Factors associated with childhood overweight and obesity in Uganda: a national survey

Quraish Sserwanja[1*†], Linet M. Mutisya[2†], Emmanuel Olal[3], Milton W. Musaba[4] and David Mukunya[5,6]

Abstract

Background: Childhood obesity is an emerging public health problem globally. Although previously a problem of high-income countries, overweight and obesity is on the rise in low- and middle-income countries. This paper explores the factors associated with childhood obesity and overweight in Uganda using data from the Uganda Demographic and Health Survey (UDHS) of 2016.

Methods: We used Uganda Demographic and Health Survey (UDHS) 2016 data of 4338 children less than 5 years. Multistage stratified sampling was used to select study participants and data were collected using validated questionnaires. Overweight and obesity were combined as the primary outcome. Children whose BMI z score was over two were considered as overweight while those with a BMI z score greater than three were considered as obese. We used multivariable logistic regression to determine factors associated with obesity and overweight among children under 5 years of age in Uganda.

Results: The prevalence of overweight and obesity was 5.0% (217/4338) (95% CI: 4.3–5.6), with overweight at 3.9% (168/4338: 95% CI: 3.2–4.3) and obesity at 1.1% (49/4338: 95% CI: 0.8–1.5). Mother's nutritional status, sex of the child, and child's age were associated with childhood obesity and overweight. Boys were more likely to be overweight or obese (aOR = 1.81; 95% CI 1.24 to 2.64) compared to girls. Children who were younger (36 months and below) and those with mothers who were overweight or obese were more likely to have obesity or overweight compared to those aged 49–59 months and those with underweight mothers respectively. Children from the western region were more likely to be overweight or obese compared to those that were from the North.

Conclusion: The present study showed male sex, older age of the children, nutritional status of the mothers and region of residence were associated with obesity and overweight among children under 5 years of age.

Keywords: Prevalence, Obesity, Overweight, Children and Uganda

Background

Sub-Sahara Africa is facing an epidemiological transition towards non-communicable diseases (NCDs) such as cardiovascular illnesses and diabetes, with about one third of current disability-adjusted life years (DALYs) attributable to NCDs [1]. The key drivers of the transition are yet to be described, however some documented risk factors include rising socio-economic status, urbanization, physical inactivity, limited and poor dietary choices, cultural misconceptions, and childhood obesity [1–4].

Childhood obesity is an emerging public health burden. Globally over 38 million children under the age of 5 years are affected [5–7]. Children are classified as

* Correspondence: qura661@gmail.com; qsserwanja@sd.goal.ie
†Quraish Sserwanja and Linet M. Mutisya are co-first authors.
[1]Programs Department, GOAL, Arkaweet Block 65 House No, 227 Khartoum, Sudan
Full list of author information is available at the end of the article

development of overweight and obesity. The cross-sectional design is limited by lack of temporality hence causality inferences could not be made. BMI adjusted for-age for children under 2-years is a contested measure because in this age group, BMI is based on Length other than height. BMI for age (calculated with length) in infancy has un unanswered questions however recent studies have found a high level of agreement between BMI for age and length for age and found BMI for age to be more appropriate [38].

Conclusion

This study established maternal nutritional status (BMI), region of residence, sex and age a child as significant determinants of childhood overweight/ obesity. Failure to observe any significant differences between wealth quintiles implies that strategies to improve child nutrition should be applied across all socioeconomic groups. Preventive interventions will also need to consider regional differences in outcomes and context. Efforts should be made to promote healthy weight in mothers across the spectrum of motherhood (prenatal, antenatal, and postnatal), as a healthy mother will likely have a healthy child.

Further studies including nutritional characteristics are needed to understand the association with child age and sex and will help in refining preventive strategies against childhood overweight and obesity in Uganda.

Abbreviations

EA: Enumeration area; AOR: Adjusted Odds Ratio; CI: Confidence Interval; COR: Crude Odds Ratio; DHS: Demographic Health Survey; UDHS: Uganda Demographic Health Survey; OR: Odds Ratio; SD: Standard Deviation; WHO: World Health Organization; BMI: Body Mass Index; GDP: Gross Domestic Product; SPSS: Statistical Package for Social Science; USAID: United States Agency for International Development; Kg: Kilogram; Cm: Centimeter

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Authors' contributions

QS conceived the idea, drafted the manuscript, performed analysis and interpreted the results. LMM participated in drafting and reviewing the first version of the manuscript, interpretation of results and drafted the subsequent versions of the manuscript. DM and MWM participated in the design of the study and helped in results interpretation and writing. EO participated in drafting and reviewing the first version of the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

Access to the DHS data sets is openly available upon requests made to MEASURE DHS on their website (https://www.dhsprogram.com/data/available-datasets.cfm).

Declarations

Ethics approval and consent to participate

High international ethical standards are ensured for MEASURE DHS surveys as ethical approval from the country is obtained from a national ethical review board and local authorities before implementing the survey [39, 40] and well-informed verbal consent is sought from the respondents prior to data collection [40, 41]. This data set was obtained from the MEASURE DHS website (https://www.dhsprogram.com/data/available-datasets.cfm) after getting their permission and no formal ethical clearance was obtained since we conducted secondary analysis of publicly available data.

Consent for publication

Not applicable.

Competing interests

All authors declare that they have no competing interests.

Author details

[1]Programs Department, GOAL, Arkaweet Block 65 House No, 227 Khartoum, Sudan. [2]Maternal and Child Health Project, Swedish Organization for Global Health, Mayuge, Uganda. [3]Yotkom Medical Centre, Kitgum, Uganda. [4]Department of Obstetrics and Gynaecology, Busitema University, Mbale, Uganda. [5]Department of Community and Public Health, Busitema University, Mbale, Uganda. [6]Sanyu Africa Research Institute, Mbale, Uganda.

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