Abstract: The double burden of malnutrition in refuge settlements.

Objective: The main objective of this study is to explore the existence of a **double burden** of **malnutrition** in **Refugee settlements** in Uganda.

Background: A growing number of refugee camps in Uganda as a result of war in Southern Sudan are facing a double burden of malnutrition, that is, the persistence of under-nutrition, along with a rapid rise of over-nutrition and non-communicable diseases such as diabetes, hypertension and coronary heart disease. This double burden of malnutrition has resulted from various factors including: a marked transition in dietary patterns over recent years (e.g. shifts to energy dense diets high in saturated fat, sugar, and refined foods, and away from plant-based diets); inadequate access to healthy food choices; declining levels of physical activity; and inadequate access to health care services as a result of displacement and broader social determinants .In refuge settlements and host communities in Uganda, in addition to the high levels of under-nutrition, substantial levels of overweight/obesity have also been observed. At the national level, 35% of children of are stunted. The prevalence is even higher in host communities where 40% of children screened are stunted.

Many low- and refuge settlements and host communities are undergoing a nutrition transition associated with rapid social and economic transitions. We explore the coexistence of over and under- nutrition at the neighborhood and household level, in a refuge settlement setting in Uganda.

Methods

Data collection and review: Data was collected in 2016 on a cohort of children aged under five years born between 2010 and 2015. Anthropometric measurements of the children and their mothers were taken. Additionally, dietary intake, physical activity, and anthropometric measurements were collected from a stratified random sample of adults aged 18 years and older through a separate cross-sectional study conducted between 2012 and 2015 in the same setting. Proportions of stunting, underweight, wasting and overweight/obesity were determined in children, while proportions of underweight and overweight/obesity were determined in adults.

Results: Of the 2335 children included in the analyses with a total of 4750 visits, 46% (51% boys, 40% girls) were stunted, 11% (13% boys, 9% girls) were underweight, 2.5% (3% boys, 2% girls) were wasted, while 9% of boys and girls were overweight/obese respectively. Among their mothers, 7.5% were underweight while 32% were overweight/obese. A large proportion (43% and 37%%) of overweight and obese mothers respectively had stunted children. Among the 3190 adults included in the analyses, 9% (6% female, 11% male) were underweight, and 22% (35% female, 13% male) were overweight/obese.

Conclusion: The findings confirm an existing double burden of malnutrition in this setting, characterized by a high prevalence of under nutrition particularly stunting early in life, with high levels of overweight/obesity in adulthood, particularly among women. In the context of a rapid increase in refuge population, particularly in poor settings, this calls for urgent action. Multispectral action may work best given the complex nature of prevailing circumstances in refuge settings. Further research is needed to understand the pathways to this coexistence, and to test feasibility and effectiveness of context-specific interventions to curb associated health