

MICRONUTRIENT STUDIES DYNAMICS IN SUB-SAHARA AFRICA: RESEARCH GAPS, CHALLENGES AND IMPLICATIONS FOR POLICY AND PROGRAMS



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Key Note Abstract

Micronutrients play a critical role in the human body's physiological functioning and impact the health and development trajectories of populations worldwide. A concentrated effort has been made to research the status of micronutrients across the African continent over the last decade. Some African countries such as Burundi, Ethiopia, Nigeria and Madagascar report high prevalence of iron, vitamin A and iodine deficiencies. This paper was inspired by the deliberations in the Micronutrient Technical Working Groups on the Learning Network of Nutrition Surveillance (LeNNS) in East, Horn and Southern Africa. The overall goal was to identify gaps in micronutrient knowledge, policies and methodological challenges in biomarker analysis. This review also explored the implications of micronutrient deficiencies on public health and well-being. The study adopted a comprehensive review of literature from Randomized Controlled Trials (RCTs), national surveys, cross-sectional, case-control and cohort studies conducted between 2013 and 2023.

The identified database sources of literature were PubMed, Scopus, Web of Science and Medline. Key research gaps identified were limited studies linking micronutrient status with gut health, the effect of genetic variation on micronutrient status, long-term effects of micronutrient supplementation and fortification and interactions between micronutrients. There are challenges in micronutrient biomarker assessment and analysis of diseases and inflammations. Some biomarkers used for individual micronutrient assessment are not applicable at the population level. Lack of mandatory regulation and weak monitoring systems are key hindrances to large-scale food fortification. Some micronutrients

like zinc are understudied, and there is a lack of routine and universal coverage of Vitamin A supplementation in Africa. Addressing these challenges requires a holistic approach that includes developing evidence-based strategies for addressing micronutrient deficiencies in Africa and recommending customized policy and programmatic improvements. The review reports the bio-marker analytic problems and contextual factors influencing micronutrient status. Overall, the study contributes to continuing efforts to improve nutritional outcomes and the general health and well-being of the African population by revealing the gaps in current knowledge. More research in Africa is required to address the key gaps identified in this study.

Brief Bio of Prof. Konyole

Prof. Silvenus O. Konyole is a Food and Nutrition Scientist and an Associate Professor of Food Science and Nutrition at the School of Public Health, Biomedical Sciences and Technology, Masinde Muliro University of Science and Technology in Kenya. He holds a BSc in Food Science and Technology from the University of Nairobi, Kenya. An MSc in Food Technology and Nutrition from an inter-university program involving Katholieke Universiteit Leuven and Ghent University in Belgium and a PhD in Human Nutrition from The University of Nairobi and the University of Copenhagen in Denmark. He has over 23 years of cumulative experience in Food Science and Nutrition. He has had collaborative research with Universities in Kenya and abroad touching on maternal and child nutrition, body composition of complementary feeding children and those on treatment from severe acute malnutrition and moderate acute malnutrition, traditional foods, locally available foods for complementary feeding and Insects as food and feed, Food processing and preservation, body composition and gut health studies in humans, micronutrients, Breast milk production and intake and use of stable isotopes for nutrition and health research. He has also collaborated with the Danish Development Agency (DANIDA), the International Atomic Energy Agency (IAEA), the Flemish Inter-University Council (VLIR), Bioversity International and the Japan International Cooperation Agency (JICA) among others with over 50 academic publications.