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1. Influence of Perceived Body Image on Nutrient intake and Nutritional Health of female students of Moi University. Published in the [East African Journal of Public Health](#) (EAJPH); 8(2):123-31.
2. Prevalence and Predictors of Geophagy among Adolescent Girls in Likuyani District of Kakamega County. Accepted for publication in the Journal of Food and Nutritional Disorders Volume 3: issue 4.
3. Efficacy of Millet based Product in Management of Geophagy: A Randomized Control Trial. Accepted for publication in the Journal of Food and Nutritional Disorders Volume 3: issue 5.
4. Prevalence and Predictors of Anemia among Adolescent Girls in Western Kenya (under review by EAJPH).
5. Development, Sensory Evaluation and Nutritional qualities of a Millet based Food Replacer for Geophagy. (Under review by Journal of Food and Nutritional Disorders)

Thesis Title

DEVELOPMENT OF A FOOD PRODUCT AS REPLACER FOR GEOPHAGY IN ADOLESCENT GIRLS: A CASE OF TWO SCHOOLS IN KAKAMEGA COUNTY

Thesis Abstract

Geophagy is the regular and deliberate eating of soil by humans. It is common among pregnant women and children in sub-Saharan Africa. Geophagy is often regarded as a response to compulsive physiologic demand including demand for iron and zinc in the body. However, geophagy significantly increases the risk of helminthes infestation. This study was designed to develop a food based geophagy replacer and assess its effects on geophagic practices and anemia status of adolescent girls in Western Kenya.

The study was organized in three phases. The first phase consisted of a baseline survey with a sample of 302 randomly drawn from two high schools in Likuyani Sub-County of Kakamega County. The study cohorts consisted of 154 girls from Moi girls Nangili and 148 from St. Annes' Nzoia. The cohorts were proportionately drawn from forms one

to four. A structured questionnaire was used to collect socio-demographic characteristics including geophagy. Anthropometric measurements of weight, height and mid upper arm circumference were taken using standard procedures. Blood and stool samples were taken to determine the hemoglobin status and presence of helminthes respectively. A seven day food record was taken and mean nutrient intakes computed.

Phase two consisted of laboratory development of an acceptable and shelf stable food replacer to contain adequate iron from millet, amaranth grains and termites.

Phase three of the study consisted of an intervention. The intervention study was done at St Annes' Nzoia school after being randomly picked from the two schools that participated in the baseline survey. A sample of 58 cohorts was randomly drawn. The sample was split into two; the treatment group and the control group. Cohorts from both groups were given malaria prophylaxis and anti- helminthes treatment. The treatment group was further given the food replacer and requested to eat it as a drug and avoid sharing with friends. The cohorts were given 30g of the food product per day for eight weeks. At the end of the intervention the girls were evaluated for geophagy and hemoglobin status.

Data were analyzed using Statistical Package for Social Scientist (SPSS) version 17. Mean, frequencies, Chi-square, t -test and multivariate logistic regression were used to analyze data. A nutrient calculator was used to analyze dietary data.

Results showed that the prevalence of geophagy was 46%. Significant predictors of geophagy were; being a daughter of a geophagic mothers and family size. The prevalence of anemia was 38%. Anemia was not found to be a predictor of geophagy. The meals of the cohorts did not provide adequate iron to meet the recommended Daily Allowance. The most preferred food replacer developed had ratio of 70:20:10 of (millet: amaranth: termites) and iron content of 16.6mg/100g. The replacer provided 4.98mg of iron per day (33% of RDA). Consumption of the soil replacer significantly reduced the geophagy practice by 96% and improved the hemoglobin status of the cohorts by 0.061g/dL. The study showed that an acceptable food replacer was suitable for reduction of geophagy in adolescent girls when well formulated with regard to iron content and would also improve the hemoglobin status of the cohorts.