anemia, iron defficency anemia and amaranth trial in Ethiopia

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ABSTRACT

Summary

Introduction: Malnutrition is a public health problem in Ethiopia. Malnutrition can affect children's cognitive, behavioral, and motor development. Further, healthy development and educational achievement can be compromised due to micronutrient deficiencies including iron deficiency. Different studies show that amaranth grain has better levels of macro and micronutrients especially iron to address the widespread malnutrition problem than other frequently used crops. This useful plant is widely grown in the research area but is considered as a weed rather than a food crop by the community. Furthermore, adequate research has not been conducted in Ethiopia on amaranth's potential to contribute to reducing the malnutrition problem. This research is initiated to look at amaranth and its potential in reducing iron deficiency anemia among children. The research will inform the public at large, policymakers, and academicians as it deals with an underutilized nutritious crop that has the potential to contribute to reducing the malnutrition problem in the country.

Objective: To assess the iron deficiency status of children and to evaluate the effect of amaranth containing bread consumption on the anthropometry and iron deficiency status of children in the age of 24.0-59.9 months.

Methodology: A cross-sectional study and a randomized controlled trial will be done. For the survey, random sampling will be used to select 340 children. Hemoglobin, serum ferritin, C- reactive protein, and anthropometric measurements will be taken and used as the baseline data for the experimental study. In the randomized controlled trial, 100 children with a hemoglobin level of less than 11 mg /dl and above 7 mg/dl (mild and moderate anemia) will be recruited into the trial after informed consent. Severely ill individuals will be referred to as Hawassa Referal Hospital. Kebele-stratified simple random sampling will ensure 1:1 allocation to each group. Sequentially numbered, opaque, sealed envelopes will be used to assure concealment of allocation. The study subjects and parents (other caregivers in the absence of parents) will be kept uniformed about the trial allocation. Statistical analysis will be done using the latest SPSS version and ENA for SMART software. The survey will present descriptive statistics including frequencies, means, ranges and demographic characteristics of the population. The trial will be analyzed according to the intention-to-treat principles using logistic crude and site adjusted regression models with a mean difference in Hemoglobin as the primary outcome measure.

Conclusion: This research project has the potential to be hypothesis generating and will inform policy makers and scientists about amaranth's potential to combat malnutrition specifically iron deficiency in the area.

Keyword: Amaranth, iron deficiency anemia

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