

# Psychological Predictors of High-Iron Beans Consumption Behaviour in Tanzania: Applying Theory of Planned Behaviour (TPB) and Health Belief Model (HBM)

Eward Mushi<sup>1\*</sup>, Rubyogo, J.C.<sup>2</sup>, Lung'aho, M. Ochieng, J.<sup>3</sup>, Binagwa, P.<sup>3</sup>, Mdachi, M.<sup>4</sup>, Shida, N.<sup>4</sup>, Msaky, J.<sup>4</sup>, Kadege, E.<sup>4</sup>, Birachi, B.<sup>3</sup>, Mutua, M.<sup>3</sup>, Nyakundi, F.<sup>4</sup>, and Kalemera, S.<sup>5</sup>

<sup>1</sup>Department of Agricultural Economics and Business, University of Dar es Salaam, Tanzania

<sup>2</sup>Pan-Africa Bean Research Alliance (PABRA), Nairobi-Kenya

<sup>3</sup>Alliance of Biodiversity International and the International Center for Tropical Agriculture (CIAT), Nairobi-Kenya

<sup>4</sup>Tanzania Agricultural Research Institute (TARI), Selian Center, Arusha-Tanzania

<sup>5</sup>Alliance of Biodiversity International and the International Center for Tropical Agriculture (CIAT), Arusha-Tanzania

\*Corresponding Author: [emushi45@yahoo.com](mailto:emushi45@yahoo.com)

## Introduction

Prevalence of malnutrition is a global challenge as it causes morbidity and mortality especially to women of reproductive age, children under five years of age, and elders. Malnutrition encompasses undernutrition and overnutrition (Hendriks, 2015; URT, 2017).

In Tanzania, the prevalence of undernourishment is 25%; and underweight, wasting, stunting, overweight of children under the age of five years is respectively 12%, 3%, 30% and 4% (TDHS, 2022). About 28.5% of women of reproductive age are anemic; 31.7% are overweight (TNNS, 2018), and 8% of adults are diabetic and obese (FAO *et al.*, 2021; URT, 2016).

Various approaches exist to improve access to micronutrients; these include biofortification, diet diversification, micronutrient supplementation, and food fortification (de Valenca 2017; de Groote *et al.*, 2014; Makola *et al.*, 2003). Biofortification is preferred compared to the rest because it is cost-effective, easy to scale up, and is a sustainable means to address malnutrition among the rural poor in developing countries, who mostly do not have access to other micronutrient interventions such as industrial food fortification and supplementation (Rao, 2020; de Groote, 2014; Phillippo *et al.*, 2021).

In 2019, Tanzania released new improved high iron and zinc bean varieties namely Selian 14 and Selian 15. However, consumers' knowledge, perception, preferences and willingness to pay for higher zinc and iron beans have not yet been investigated.

It is imperative assessing consumer acceptance of biofortified beans because experience from biofortified maize and orange-fleshed sweet potato tells that adoption hesitation may occur among consumers because of among others; cultural and behavioural factors, and failure of farmers to differentiate the varieties.

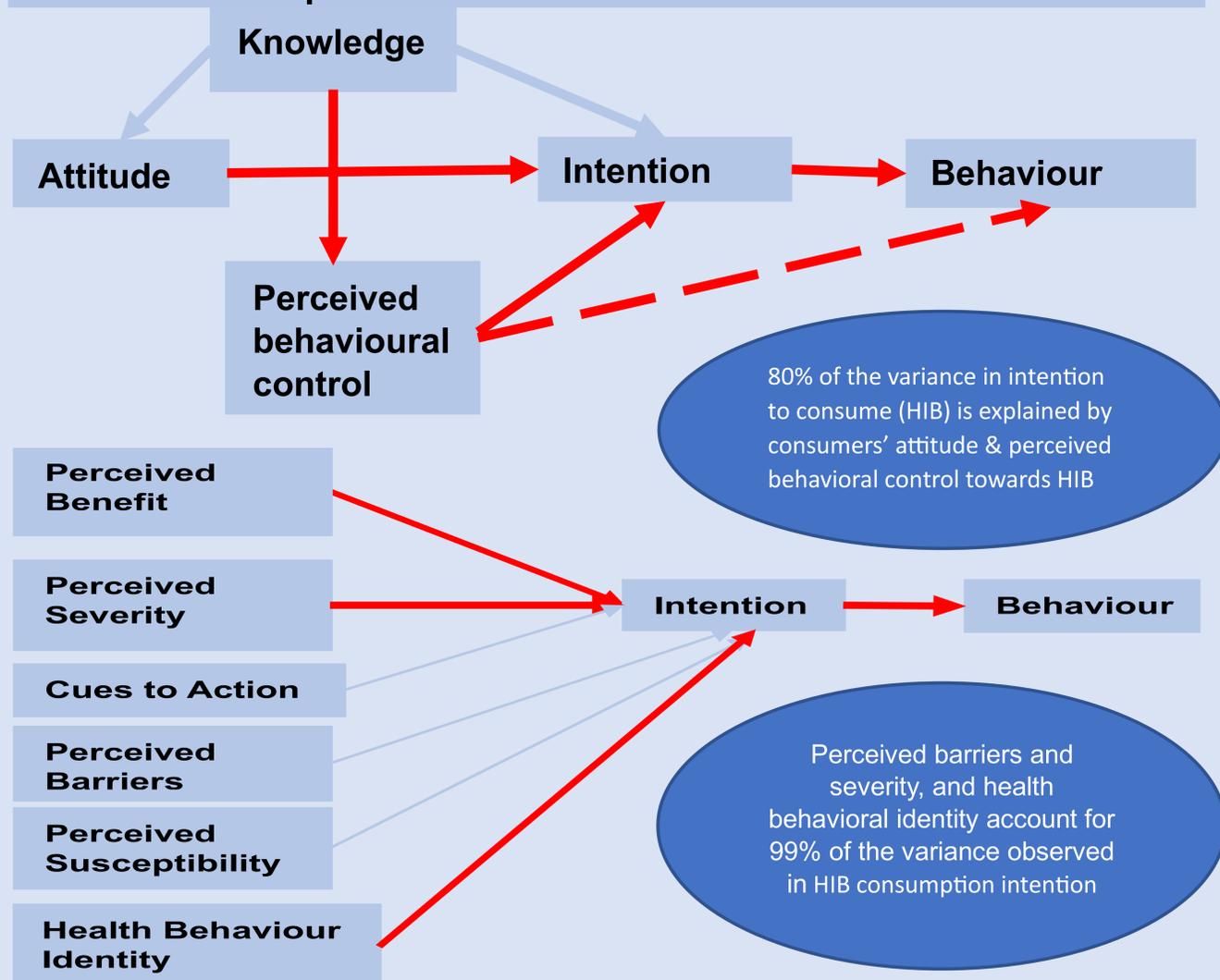
## Objective

The objective of the study was to determine the psychological predictors of intention to consume the newly high iron and zinc bean varieties in Tanzania.

## Methodology

- The cross-sectional survey was conducted in Northern highlands of Tanzania, within both consumption and production hubs.
- A structured questionnaire was administered to 408 consumers, randomly selected with stratification.
- The study was underpinned by the health belief model, and theory of planned behaviour.
- Data analysis made use of the Structural Equation Modeling (SEM) implemented in STATA 15.

## Results and Interpretation



## Conclusion

The findings offer vibrant consumers' psychological evidences essential for scaling up and out the consumption of biofortified beans. Consumers' psychology should be an integral part of food biofortification interventions.