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TITLE: Effectiveness of Front of Pack Labels in Influencing Consumer Food Choices and their intention to purchase Pre-Packaged Foods and non-alcoholic drinks in Tanzania

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ABBREVIATIONS

FOPL: Front-of-Pack Labelling

NCD: Non-Communicable Disease

FGDs: Focus Group Discussions

RCT: Randomized Controlled Trial

NPM: Nutrient Profiling Model

MUHAS: Muhimbili University of Health and Allied Sciences

SES: Socio-Economic Status

WL: Warning Label

KEY TERM DEFINITIONS

Front-of-Pack Labelling (FOPL): Nutritional labels placed on the front of packaged food to inform consumers about the healthiness of the product.

Nutrients of Concern: Nutrients whose excessive consumption is linked to adverse health outcomes, including total sugar, sodium, total fat, saturated fat and trans-fat acid.

Acceptability: The degree to which FoP warning Labels are considered suitable or satisfactory by the consumer population.

Food Labels: These are labels on pre-packaged foods and drinks that provide information about the nutritional content, ingredients, and health-related claims of the product. They are intended to help consumers make informed choices about the foods they purchase and consume. In the context of this survey, food labels include any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, painted, embossed or impressed on, or attached to or included in, belonging to, or accompanying any food.

Packaged food: refers to any food or a drink that has been processed, prepared, or preserved and then placed into a container, sachets or packaging for distribution, sale, and consumption. They often contain additives and preservatives and may contribute to overconsumption of unhealthy nutrients. This study will focus on the labelled packaged foods and beverages.

Non-Communicable Diseases (NCDs): These are medical conditions or diseases that are not caused by infectious agents and are typically chronic in nature. Examples include cardiovascular diseases, diabetes, cancer, and hypertension.

Nutrition Transition: Is the shift in dietary consumption and energy expenditure that is influenced with economic, demographic, and epidemiological changes within the population.

ABSTRACT

Introduction: The increasing prevalence of non-communicable diseases (NCDs) in Tanzania, particularly in urban centers, is closely linked to the rising consumption of pre-packaged and ultra-processed foods high in sugar, salt, and unhealthy fats. Traditional back-of-pack nutritional labels are often underutilized due to their complexity and the generally low nutrition literacy among Tanzanian consumers. Front-of-Pack (FoP) warning labels have been proposed as a simple, effective public health intervention to help consumers quickly identify and avoid unhealthy food products. However, there is limited local evidence on the feasibility, acceptability, and effectiveness of these labels within the Tanzanian context.

Objective: To assess the effectiveness of Front-of-Pack labels in influencing consumer understanding and purchase intentions of pre-packaged food products in Tanzania.

Methodology: A mixed-methods approach will be employed, combining qualitative and quantitative phases. The qualitative phase will involve a total of 12 (6 from each study site) focus group discussions (FGDs) with consumers from diverse socio-economic backgrounds in Dar es Salaam and Mjini Magharibi (Zanzibar). These discussions will explore consumer perceptions, understanding, and barriers to adopting FoP warning labels. The quantitative phase will involve a randomized controlled trial (RCT) with 1,200 (600 from each study site) participants, systematically recruited from households and retail outlets across the study regions. Participants will be randomly assigned to view one of three FoP warning label designs on mock food products. Outcomes such as label visibility, understanding of nutrient content, purchase intention, and modification in purchase quantity will be measured. The study will apply the Health Belief Model (HBM) as the guiding theoretical framework, focusing on how FoP warning labels serve as cues to action that can prompt healthier purchasing behaviors.

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CHAPTER ONE

1 INTRODUCTION

1.1 Background Information

Non-communicable diseases (NCDs) are now the leading cause of mortality globally, accounting for over 74% of all deaths worldwide, with 77% of these deaths occurring in Low and Middle-Income Countries (LMICs) with Tanzania not being an exception (1). A recent study by Pallangyo et al, (2024) the burden of NCDs in the country is rising rapidly, with poor dietary habits contributing to almost 70.2% of the incidences (2). More recent reports from the Tanzania Ministry of Health (MoH) highlight an increasing prevalence of overweight and obesity, especially in urban areas, driven by the growing consumption of processed and packaged foods high in sugar, salt, and unhealthy fats (3).

In response to this nutrition transition and increasing consumption of ultra-processed foods, global public health agencies have recommended Front-of-Pack Labelling (FOPL) as a cost-effective, scalable intervention to help consumers make healthier food choices (4,5). FOPL provides simplified nutrition information on food packaging, enabling quick interpretation of the healthfulness of a product, especially in settings where nutrition literacy may be low (6). Unlike traditional back-of-pack nutrition panels, which require interpretation of detailed numbers, FoPL aim to guide consumers toward healthier options.

Evidence from Latin America particularly Chile, Mexico, and Uruguay have shown that FoP Warning Labels (WLs) that highlight nutrients of concern using bold, simple icons (e.g., black octagons) are particularly effective at discouraging the purchase of unhealthy foods and beverages (7). For instance, Chile's black "high in" octagonal labels led to significant reductions in the purchase of sugary drinks and high-calorie snacks within one year of implementation (8). These results have catalyzed interest in adopting similar policies in Africa and the rest of the world.

However, the effectiveness of FOP warning Label systems is highly dependent on contextual factors, including consumer understanding, cultural relevance, literacy levels, market dynamics, and regulatory enforcement capacity. In East Africa, the food environment is undergoing rapid change, yet cost effective public health interventions have lagged behind including the use of FOPL as a tool in ensure consumer awareness on food products. As of 2024, Tanzania mandates only basic nutrient declarations on packaged food products, which

are often limited to back-of-pack panels, with FOPL not being acknowledged and thus unregulated by the regulatory bodies (9).

A randomized controlled trial done in Kenya across four major cities assessing the impact of three distinct FOPL formats: a Red and Green Octagon label (RG), a Red and Green Octagon with Icons (RGI), and a Black Octagon Warning Label (WL) showed that all FOPLs significantly improved correct identification of nutrients of concern and reduced intention to purchase unhealthy foods. Where, the Black Octagon Warning Label being the most effective format in both outcomes (10,11). This highlights a need to assess what FOPL scheme would be the most effective in identifying nutrient of concern (sugar, salt and fat) among the Tanzania population

1.2 Problem Statement

The growing burden of NCDs in Tanzania presents a critical public health challenge. Urbanization, economic growth, and globalization have altered dietary habits, leading to increased consumption of ultra-processed and packaged foods high in sugar, salt, and unhealthy fats (12). According to the Tanzania Demographic and Health Survey (TDHS, 2022), 36% of women (27.5 in rural and 50.4% in urban) and 17% (11.6% in rural and 26.4% in urban) of men of age 20 to 49 years are overweight or obese; conditions strongly associated with diet-related NCDs such as type 2 diabetes, hypertension, and cardiovascular disease (13).

Despite, efforts to promote nutrition education, a significant proportion of Tanzanian consumers remain unable to interpret nutrition information on food labels, especially those on the back of food packages. These panels often require a good level of nutrition literacy and are not user-friendly for the general public (14). As a result, consumers may unknowingly purchase and consume products high in nutrients of concern such as salt, added sugar and fats. FoPL has been proposed as a public health intervention to help address this challenge by providing simplified, visible indicators that enable quick decision-making (15). However, in Tanzania, the FoPL approach remains underdeveloped. While regional efforts (e.g., East African Community) have begun to explore FoPL standards, the country currently lacks nationally endorsed, evidence-based FoPL policies or symbols.

Furthermore, it is unclear whether a Swahili, graphical, plain, triangle octagonal shaped warning labels would be more effective given Tanzania's unique consumer demographics, food retail structures, and cultural context. Factors associated with this problem include low nutrition literacy, varying socio-economic status, inconsistent product labelling standards, and

limited regulatory enforcement. Without local evidence on what works, Tanzania risks adopting FOP warning system designs that may be ineffective or misunderstood, potentially undermining the intended public health benefits. This study addresses a critical knowledge and action gap by evaluating consumer perceptions and the effectiveness of various FOP warning Label designs in identifying unhealthy packaged foods in Tanzania.

1.3 Conceptual Framework

This study is guided by the Health Belief Model (HBM), which posits that an individual's health-related behaviors are influenced by their perceptions of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy (16). In this study, Front-of-Pack Warning Labels (FoPL) function as critical cues to action that can prompt consumers to reconsider their food choices by enhancing the visibility and understanding of nutritional risks. When consumers encounter FoP warning labels on food packages, the labels are expected to increase awareness (visibility) and improve nutritional understanding by highlighting the health risks associated with excessive consumption of products high in sugar, salt, and fat. These factors influence consumers' perceived susceptibility (personal risk of poor health outcomes) and perceived severity (seriousness of conditions like obesity and non-communicable diseases).

If consumers believe that reducing their intake of unhealthy foods will benefit their health (perceived benefits) and that the labeling makes it easier to make better choices (lower perceived barriers), they are more likely to develop a reduced purchase intention and modify their actual purchasing behavior (modified intent to purchase). Furthermore, participant demographics and covariates such as age, sex, education, socioeconomic status, employment status, and nutrition literacy may moderate these relationships by influencing how individuals interpret labels and perceive health risks.

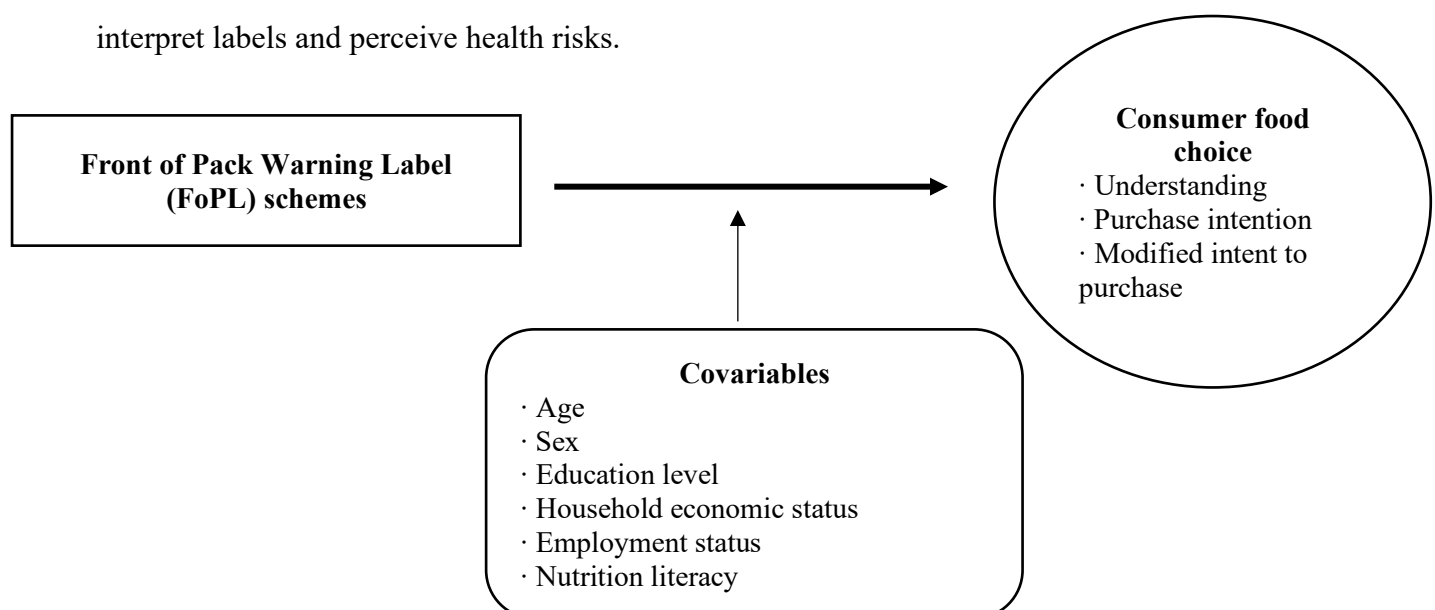


Figure 1: Conceptual framework illustrating how Front of Pack Label affect consumer food choices in terms of understanding nutrition information, purchase intention and modified intend to purchase

1.4 Rationale

This study will generate critical, context-specific evidence to support the development and implementation of an effective FoP warning Label policy in Tanzania. It directly addresses an urgent gap in the country's strategy to reduce nutrition-related non-communicable diseases (NCDs), which are rising rapidly due to poor dietary habits and the growing availability of ultra-processed foods. The expected findings from this study especially insights from focus group discussions and behavioral responses from the randomized controlled trial will provide policymakers with scientifically grounded evidence on which FOP warning labels designs are most likely to be understood, accepted, and acted upon by Tanzanian consumers. Despite, global recommendations and regional interest in simplified nutrition labelling, Tanzania has yet to adopt an evidence-based FOP system. Current back-of-pack nutrition panels are difficult for many consumers to interpret, especially those with low nutrition literacy. There is a clear need to identify which FoP label formats (e.g., warning labels, traffic lights, health stars) are most effective for Tanzanian consumers recognizing foods high in salt, sugar, and unhealthy fats.

The study's focus on consumer perceptions, comprehension, and behavioral responses to different label types will provide actionable insights for the Ministry of Health and allied organizations. In addition, it will uncover key implementation barriers, such as cultural interpretations, that must be addressed to ensure equitable policy rollout. Importantly, the findings will contribute to the goals outlined in Tanzania's National Multisectoral Nutrition Action Plan II (NMNAP II 2021/22–2025/26) and the National Strategic Plan for Prevention and Control of NCD (2021–2026), both of which emphasize creating healthier food environments. Beyond Tanzania, this work also supports regional harmonization efforts under the East African Community (EAC) by offering evidence that can inform cross-border labelling policies and promote regional consumer protection.

1.5 Research Questions

1.5.1 Broad Question

How feasible, acceptable, and effective are Front-of-Pack Labels (FoPL) in influencing consumer understanding and purchase intention in Tanzania?

1.5.2 Specific Questions

1. How do consumers perceive different Front-of-Pack Labels symbols in terms of visibility, memorability, and influence on purchasing decisions?
2. What are the key barriers and facilitators that influence consumer adoption and use of FoPL in Tanzania?
3. What is the extent of consumer understanding and correct interpretation of FoPL on pre-packaged foods?
4. How does exposure to FoPL influence consumers' intentions to pre-packaged food products?

1.6 Research Objectives

1.6.1 Broad Objective

To assess the feasibility, acceptability, and effectiveness of FoPL in improving consumer understanding and influencing purchase intentions for pre-packaged foods in Tanzania

1.6.2 Specific Objectives:

1. To explore consumer understanding and perceptions of different FoPL designs in terms of visibility, comprehension and memorability.
2. To identify the barriers and facilitators (e.g., nutrition literacy, cultural relevance etc.) that influence consumer engagement with FoPLs in Tanzania.
3. To determine extent to which FoPL enhance consumers' capability to identify foods high in sugar, salt, total fats, saturated fats, and trans fats.
4. To assess the effect of exposure to FoPL on consumers' purchase intentions for pre-packaged food products.

CHAPTER TWO

2 LITERATURE REVIEW

2.1 Consumers Perceptions of FOPL Schemes

Front-of-Pack Labelling (FoPL) has gained international attention as a tool to promote healthy eating behaviors by making nutritional information more accessible and actionable. Studies consistently show that consumer perceptions of FoPL are significantly influenced by design elements such as color, shape, simplicity, and cultural symbolism. Warning labels (WL), such as Chile's black octagon "High in" signs, are found to be the most visible and memorable formats, outperforming traffic light and health star ratings in terms of consumer recall and attention (7,17). The effectiveness of these labels lies in their intuitive design, which requires minimal nutrition knowledge (18).

FoPL also affects consumer purchasing habits. Studies in Australia, Canada, and Latin America find that consumers exposed to FoPL are more likely to choose products with fewer warning labels or healthier alternatives (19,20). This behavior is especially evident when the label design communicates a health risk clearly and is placed on the front of the package, where consumers tend to focus their attention. A study across 12 countries revealed a strong consumer preference for mandatory FoPLs, with interpretive labels aiding better understanding and decision-making (21)

In Africa, research on consumer perceptions of FoPL is emerging. A study conducted in South Africa found that while consumers show strong interest in simplified food labels, many are unfamiliar with the concept and rely more on visual cues than textual content. The visibility and salience of the label strongly influence whether it is noticed or ignored (22). Preferences lean toward warning symbols over health stars or numerical scores which are summative type of label making it hard to determine which nutrient of concern are excess. However, these findings are not yet generalizable across the region, given the diversity in literacy levels, food cultures, and exposure to packaged food marketing. Further, qualitative research done in Kenya indicated that consumers found the Black Octagon WL most visible and memorable, associating it with danger due to its color and clear messaging. However, color-coded labels like Red and Green Octagons (RG) and those with icons (RGI) caused confusion, especially regarding the meaning of colors (10).

In Tanzania, no published studies have specifically assessed how consumers perceive FoPL symbols in terms of visibility, memorability, or their potential to influence purchases.

Circumstantial evidence and reports from government and NGO stakeholders suggest low nutrition label comprehension among the general public. The limited exposure to existing global FoPL systems further constrains public awareness and familiarity. Additionally, many packaged foods sold in Tanzanian markets do not currently display any front-of-pack nutrition information, limiting natural exposure and consumer learning.

2.2 Barriers and Facilitators to Consumer Adoption of FoPL

Globally, barriers to the adoption and use of FoPL include low literacy, lack of nutrition education, distrust in regulatory institutions, and competing health claims (e.g., “organic,” “low-fat”) that confuse consumers (23). Facilitators include public education campaigns, consistent regulation, and the integration of FOPL into broader health promotion strategies. Government endorsement and civil society support are also found to increase trust and use of the labels (24). Studies also show that consumers are more likely to adopt FoPLs when they are linked to health consequences (e.g., risk of diabetes or obesity), and when the labels are intuitive and require minimal cognitive effort to interpret (25). Cultural beliefs and dietary norms may either support or hinder the adoption of FOPL, especially in societies with strong traditional food practices (26)

In most African countries, barriers to FoPL adoption include low levels of formal education, inconsistent packaging practices, and weak enforcement of labelling regulations. A systematic review study highlighted that consumer often feel disempowered to make healthy food choices due to unclear labelling and the overwhelming influence of advertising (27). Food industry resistance to labelling requirements is another structural barrier, given the economic implications for producers. In Kenya, consumers expressed that while WLs were understandable, there was a need for public education to enhance their effectiveness. Confusion arose with color-coded labels due to varying interpretations of colors (28).

In Tanzania, widespread nutrition illiteracy and low awareness of the health risks associated with processed foods serve as likely key barriers to FoPL adoption. Moreover, informal food retail channels dominate much of the market, with limited packaging and minimal labelling, reducing both exposure and demand for such systems. Regulatory infrastructure for nutrition labelling is underdeveloped, and there are no mandatory FoPL policies currently in place. On the other hand, increasing policy attention to NCDs and the government’s commitment to food fortification and labelling frameworks indicate potential institutional support for FoPL implementation.

2.3 Influence of FOPL on Purchase Intentions of Food Products

Evidence from Randomized Controlled Trials (RCTs) in Latin America, Australia, and Canada shows that FoPL can significantly alter purchase intentions by discouraging consumers from selecting products high in nutrients of concern (sugar, salt, total fat, trans fats, and saturated fats). In Chile, one year after implementation of warning labels, sales of sugar-sweetened beverages dropped by 23.7% (7). The label formats that directly warn consumers such as “High in Sugar” tend to have a stronger deterrent effect compared to those that merely summarize nutritional value. Further RCTs and international agencies policy briefs have demonstrated that interpretive FOPLs, especially WLs, effectively reduce the purchase intention of unhealthy foods by clearly indicating high levels of nutrients of concern (26,29). Studies also find that FoPLs are particularly effective among populations with low nutritional knowledge, suggesting their value in promoting equity in dietary decisions (30). Purchase intention is a key behavioral predictor of eventual consumption, and labelling systems that reduce the appeal of unhealthy foods can therefore lead to healthier population-level diets over time.

In South Africa, an RCT showed that WLs significantly improved the identification of unhealthy products and decreased the intention to purchase them compared to other labelling formats (31). A randomized control trial study done in Kenya, East Africa (11) examined FoPLs impact on purchase behavior tested on mock labels on food packages and found that warning labels significantly reduced the likelihood of selecting high-sugar and high-fat products. These findings suggest that, when well designed, FOPL can shift intentions even in lower-literacy contexts.

In Tanzania, the impact of labelling interventions FoPL has not been rigorously studied. Nutrition education campaigns tend to rely on mass media and posters, and no national trial has tested whether exposure to simplified nutrition labels actually changes purchasing choices in supermarkets or shops.

CHAPTER THREE

3 METHODOLOGIES

3.1 Study Design and Approach

This study will employ an exploratory explanatory mixed-methods design to assess the feasibility, acceptability, and effectiveness of front-of-pack (FoP) labels in influencing consumer understanding and purchase intentions in Tanzania (32).

The study will be conducted in two parallel phases.

Qualitative Phase (Objective 1 &2): Involve focus group discussions (FGDs) with consumers to explore consumer understanding, perceptions of FoP Labels, facilitators and barriers on adopting to FoPL.

Quantitative Phase (Objective 3 &4): It will employ a randomized, within- and between-subject, non-inferiority-controlled trial to evaluate the relative effectiveness of selected FoPL formats. Participants will be randomly assigned to view food packages displaying different FoP label designs including color-coded, black icon-based labels across a cross-factorial design. The within-subject element allows each participant to assess multiple product-label combinations, while the between-subject element enables comparisons across randomly assigned label groups.

3.2 Study Area

The study will be conducted in three geographically and socio-economically distinct regions of Tanzania Dar es Salaam, Mjini Magharibi (Zanzibar) and Mbeya jiji. Dar es Salaam, the country's largest and most populous city with over six million residents, serves as Tanzania's commercial and economic hub (33). It is characterized by rapid urbanization, a growing middle-class population, and widespread access to modern food retail outlets. The city reports some of the highest national rates of overweight (34.8%) and obesity (32.4%) making it a critical site for studying labeling interventions aimed at promoting healthier diets and reducing non-communicable disease (NCD) risks (34).

Mjini Magharibi offers a contrasting island context marked by accelerated urbanization and a long history of exposure to imported and pre-packaged foods due to its international port. Local dietary practices are shaped by strong cultural and religious traditions, which may influence the interpretation and acceptability of FoPL. The distinct sociocultural dynamics of Zanzibar make it an important setting for exploring how context-specific factors affect consumer

engagement with nutritional labeling as traditionally men are responsible for food market and shop shopping.

Mbeya, located in the southern highlands, is one of Tanzania's fastest-growing peri-urban regions. Known for its agricultural productivity and role in cross-border trade, Mbeya has seen increased availability of processed foods in recent years. According to a Tanzania survey of NCD methodology and study population paper (2025) and Tanzania Demographic and Health survey (2022) methodological (2018), Mbeya is among the regions with a rising burden of NCD risk factors, including unhealthy diets and overweight/obesity (35,36). Its expanding food retail landscape and diverse socioeconomic population make it a valuable comparative site for understanding the reach and impact of FoP warning Labels in rapidly changing food environments.

3.3 Study Population

The study will involve adult consumers aged 18 years and above who are either the primary purchasers of household food items or have a shared responsibility the purchasing of pre-packaged foods. These individuals are the most likely to interact with food labels and influence household dietary choices.

3.3.1 Inclusion Criteria

Participants will be eligible for inclusion if they meet the following criteria:

- i. Aged 18 years or older.
- ii. Resident of the study area for at least three months
- iii. Regularly purchase pre-packaged food products (at least twice per week).
- iv. Are the main decision makers or they have a shared responsibility for food purchases in the house

3.3.2 Exclusion Criteria

Participants will be excluded from the study if they:

- i. Work in the food and tobacco industry, marketing, advertising, or healthcare professions, due to potential knowledge or professional biases related to FoPL.
- ii. Have cognitive or visual impairments that may hinder their ability to understand or respond to FoPL.

3.4 Sample Size and Sampling

3.4.1. Sampling frame

The study will employ a multistage sampling approach to systematically select participants from three purposively chosen clusters: Dar es Salaam, Mjini Magharibi (Zanzibar), and Mbeya.

These regions were selected based on their varying levels of urbanization and cultural differences. Within each region, stratified sampling will be applied to capture socio-economic diversity by selecting high-income, middle-income, and low-income districts or neighborhoods. From each district, two wards will be randomly selected to allow for a comprehensive comparison of socio-economic differences within and across the regions. In Dar es Salaam, Kinondoni district will be selected to represent high-income areas (Masaki and Oyster-bay wards), Ubungu district for middle-income areas (Kimara and Kwembe wards), and Temeke district for low-income areas (Mbagala and Temeke wards). In Mjini Magharibi, Magharibi district represents high-income areas (Mwanakwerekwe and Magogoni wards), while Mjini district represents low- and middle-income areas (Chuini and Bububu wards). In Mbeya, the Mbeya Urban district was selected as the primary study area with diverse neighborhoods. Selected wards include Maendeleo and Forest wards for high-income areas, Iyela and Mwanjelwa wards for middle-income areas, and Isanga and Mabatini wards for low-income areas.

3.4.2 Qualitative Phase (Focus Group Discussions)

The qualitative phase will involve 9 Focus Group Discussions (FGDs) 3 from each region, consisting of 8 to 10 participants, for a total of approximately 72 to 90 participants. FGDs will ensure diverse representation by allowing recruitment of participant from various gender, age group and socio-economic status (SES) (37). Recruitment will continue until thematic saturation is achieved, whereby no new themes or insights emerge (38)

Sampling: Participants will be sampled using stratified purposive sampling from different socioeconomic neighborhoods with recruitment being done within household, outside of supermarket respectively of the neighborhood and socio networking where onsite eligibility will be assessed through inquiring their frequency of purchasing pre-packaged food to ensure diversity in literacy, income, and food purchasing behaviors.

3.4.3 Quantitative Phase (Randomized Controlled Trial (RCT))

The sample size is based on the McNemar test for paired binary outcomes. The required sample per arm before adjustment is given by the formula:

$$n_{\text{per label}} = \frac{(z_{1-\alpha'/2} + z_{1-\beta})^2 (p_{01} + p_{10})}{(p_{01} - p_{10})^2}$$

where p_{01} is the probability of a discordant response in which a participant is incorrect at baseline (no label) but correct with the FOPL label, and p_{10} is the probability of a discordant response in which a participant is correct at baseline but incorrect with the FOPL label. α' denotes the per-comparison Type I error rate after adjustment for multiple comparisons, β is the Type II error rate (1 - power), $z_{1-\alpha'/2}$ is the standard normal critical value corresponding

to the adjusted significance level, and $z_{1-\beta}$ is the standard normal critical value corresponding to the desired power. Next, we adjust sample size to account for (i) clustering (DE) and (ii) non-response (r), thus,

$$n_{\text{final per label}} = \frac{n_{\text{per label}} \times DE}{1 - r}$$

Parameter assumptions:

$p_0 = 0.35$, based on prior study in Kenya where baseline correct identification ranged between 23% and 47% (39). From prior South African FOPL study(40) $RR = 1.32$ thus $p_1 = RR \times p_0 = 1.32 \times 0.35 = 0.462$.

Since we do not have empirical estimates of within-participant correlation, we adopt a conservative planning assumption of independence between baseline and labelled responses, and define the discordant probabilities as

$$\begin{aligned} p_{01} &= (1 - p_0) \times p_1 = 0.65 \times 0.462 = 0.300 \\ p_{10} &= p_0 \times (1 - p_1) = 0.35 \times 0.538 = 0.188 \end{aligned}$$

overall Type I error rate $\alpha = 0.05$, Bonferroni-adjusted per-comparison error rate $\alpha' = 0.05/3 \approx 0.0167$. Power = 80%, $\beta = 0.20$, and the associated standard normal values $z_{1-\alpha'/2} \approx z_{0.99165} \approx 2.39$ and $z_{1-\beta} \approx z_{0.80} = 0.84$.

Using these values, the required unadjusted paired sample size is: $n_{\text{per label}} \approx 408$. After adjusting for clustering using a design effect of $DE = 1.1$: $n_{\text{per label, clustered}} \approx 449$. Adjusting for a non-response rate of $r = 0.10$: $n_{\text{final per label}} = 449/0.90 \approx 499$.

Therefore, the final sample size is 499 participants per arm, and the total country-level sample size is:

$$N_{\text{total per country}} = 3 \times 499 = \mathbf{1,497}.$$

Based on proportionate sample each region will contribute different to total sample size where Dar es salaam will have 899 participants, where for Mjini Magharabi 265 and Mbeya city will have 265 and 333 respectively

Sampling: Participants for the RCT will be recruited at household and the point of exit from retail stores using random sampling and screened for eligibility before enrollment. They will be randomly assigned to one of three arms using a computer-generated randomization list.

3.5 Data Collection Methods and Procedures

Data for this study will be collected using an exploratory sequential mixed-methods approach, beginning with qualitative exploration to understand consumer perceptions, label comprehension, and potential barriers to adopting Front-of-Package Labelling (FoPL), followed by a quantitative phase to measure the impact of selected FoP warning Labels on consumer behavior. The study will be implemented over a twelve-month period in Dar es

Salaam, Mjini Magharibi and Mbeya targeting households, supermarkets and food retail shops as primary sites for participant recruitment.

3.5.1 Focus Group Discussions (FGDs)

For Objective 1 and 2 FGDs will be used to collect in-depth data related to consumer perceptions and reactions to various FoP warning Labels formats. FGDs will take place in Dar es Salaam, Mbeya, and Mjini Magharibi (Zanzibar) in community centers and neutral venues accessible to participants. Sessions will be conducted between September and October, 2025, during the first half of the data collection period. Each FGD will last approximately 60–90 minutes. FGDs will be conducted in Kiswahili by trained moderators, supported by note-takers, and audio-recorded with participant consent. All audio recordings will be transcribed and translated into English for analysis. The quality and trustworthiness of the qualitative data will be ensured by applying Lincoln and Guba's criteria of credibility, transferability, dependability, and confirmability.

The FGDs will be guided by a semi-structured discussion guide developed using the Health Belief Model (HBM) and the COM-B (Capability, Opportunity, Motivation – Behavior) framework to explore several key areas (16,41). The discussions will assess participants' comprehension of label elements, including the clarity of symbols, color codes, wording, and size, as well as the overall understandability and memorability of the labels. Additional topics will include perceived healthiness of food products based on label information, the influence of FoP warning Labels on purchase intentions, and potential behavior change. The FGDs will also explore gender-specific experiences and influences on food purchasing decisions, ensuring that differences in how men, women, and adolescents perceive and interact with FoP warning Labels are fully captured. Furthermore, discussions will identify facilitators and barriers to adopting FoP warning Labels schemes, such as literacy levels, cultural perceptions, social influence, trust in government-endorsed labels, and shopping habits across different settings.

Visual aids displaying various FoP warning Labels designs on real packages of food products being tested will be used during the discussions to enhance participant familiarity and ensure consistency in how the labeling schemes are presented and interpreted. In recognition of participant time and contribution, participants will be compensated with a modest allowance covering transport, in line with local ethical guidelines and prior research practices.

3.5.2 Randomized Controlled Trial (RCT)

For Objectives 3 and 4, the study will implement a randomized, within- and between-subject, non-inferiority-controlled trial using a parallel design to evaluate the effectiveness of three

Front-of-Pack label (FOPL) formats on consumer understanding and purchase intentions. The trial will include three intervention arms (1) a black octagonal warning label, (2) a Monochromatic Guideline Daily Amount (GDA), (3) a color coded GDA and one control arm with no FoPL exposure, where participants assess plain packaging with standard back-of-pack information only.

Data will be collected on tablets installed with the Survey CTO software (11). Participants will be randomly assigned to one of the intervention groups through an automated coded random allocation program within the Survey CTO software to minimize selection bias. Blinding will be applied at the data analysis stage, where outcome assessors will be unaware of group assignment.

All participants will first complete a baseline assessment where they will evaluate a set of mock food products without labels to capture initial product health perception and purchase intention. For the intervention arms, participants will then be exposed to identical products now displaying their assigned FoP label format (digitally on tablets and physically on drawboards).

The time between baseline and post-exposure assessment will be approximately 2–5 minutes, conducted during a single session. As the primary goal is to assess immediate cognitive and behavioral responses to label exposure, the RCT will use a single follow-up point post-intervention. Key outcome measures include:

1. Correct identification of nutrients of concern (Sugar, Salt, and fat)
2. Changes in purchase intentions pre- and post-exposure.

3.6 Variables

3.6.1 Dependent Variables

- i. Visibility

This outcome will assess participants' spontaneous recall and recognition of the FoP warning Labels scheme applied to mock food packages. Participants will be asked open-ended questions such as "What did you notice on the front of the product?" and "Can you describe any symbols, colors, or messages that stood out to you?" Participants opinion on specific scheme will be recorded to evaluate the vary in opinion proportion for each scheme

- ii. Understanding

Understanding will be measured through participants' ability to correctly identify nutrient content specifically high levels of sugar, salt, or fat based on the label put on the products.

Firstly, participants will be asked to rank three products of varying nutritional quality, before and after label exposure. The change in ranking accuracy will be analyzed to determine label effectiveness in improving nutritional understanding. Also, they will be presented with mock products bearing different labels and asked, for each mock product: “Does this product contain high levels of sugar/salt/fat?” and “How healthy is this product?” Responses will be scored for correctness and incorrectness.

iii. Purchase Intention (Categorical Variable)

The variable will measure the expressed intention to purchase of a specific food products based on the presence or absence of FoP warning Labels scheme. The variable will have binary outcome (Intend to Purchase = 1; Do Not Intend = 0). Here the participant will be showed a mock product without label and asked how may unit of the product who he/she purchases and then presented with same product with a FoP warning Labels scheme based on their respective group and asked again.

iv. Modified Intent to Purchase

To assess the label’s influence on consumption quantity, participants will report the number of units of a particular product they would typically purchase per week, followed by the number of units they would purchase if the product displayed the assigned FoPL. For example: “How many units of product X do you usually buy per week?” followed by “If product X had this label, how many units would you buy per week?” The difference between these two responses will be used to create a continuous variable reflecting behavior modification. This approach allows quantifying the magnitude of reduction or increase in product selection attributable to the label.

3.6.2 Independent Variables

These variables are assumed to influence the dependent variables and are categorized according to participant demographics, exposure group, and label characteristics.

i. FoP Labels Format (Categorical Variable)

Type of front-of-pack label format presented to the participant. Categorical with three groups for example: Swahili warning label with high in text, Swahili warning label with plain nutrient and Swahili warning label with text and graphics

3.6.3 Covariables

Age will be measured in complete years as a continuous numeric variable. Sex will be recorded as a categorical variable based on participants’ self-identification, with options for male and

female. Education level will be assessed as an ordinal categorical variable, with participants indicating their highest level of formal education attained, categorized as no formal education, primary, secondary, college, or higher education. Socioeconomic status (SES) will be determined using a composite index based on household asset ownership, adapted from the Filmer and Pritchett (2001) asset-based wealth index method. This index will classify participants into tertiles representing low, middle, and high SES categories.

Employment status will be captured as a categorical variable with predefined categories including employed, unemployed, informal sector, student, and retired. Lastly, location will be recorded as a categorical variable, distinguishing participants from Zanzibar (Unguja) and peri-urban areas (Mbeya). Nutrition literacy will be measured using an adapted simple version of the Nutrition Literacy (NLit), a validated tool that assesses understanding of nutrition labels and basic numeracy related to food choices. This will allow us to quantify participants' baseline capacity to interpret nutrition information and explore how it may influence FoP warning Labels effectiveness. A composite score will be derived and categorized into low, moderate, and high literacy.

3.7 Pre-testing of Tools and Quality Assurance

To ensure accuracy and clarity, all data collection instruments will undergo a rigorous pre-testing process in Dar es Salaam. Approximately 20 participants will be included the pre-test quantitative tools, and 8 participants for the pilot FGD. Feedback will inform revisions to improve tool comprehension. For quantitative tools, internal consistency will be evaluated using Cronbach's alpha, and construct validity will be assessed using exploratory factor analysis. In the qualitative phase, credibility and trustworthiness will be enhanced by peer debriefing, double-coding, and a detailed audit trail. The codebook will be collaboratively developed to ensure inter-coder reliability.

All field staff will be trained on ethics, interviewing techniques, and protocol adherence. Supervisors will review data daily for completeness and accuracy. Spot checks and audits will be conducted, and digital data will be backed up to a secure server. Paper forms will be stored in locked cabinets accessible only to authorized personnel.

3.8 Data management

All data collected during the study will be handled with strict adherence to ethical and confidentiality standards. Quantitative data from the randomized controlled trial (RCT) will be captured using encrypted tablets programmed with Survey CTO software, a secure, web-based application designed for data collection in research studies. Each participant will be assigned a

unique identification number to anonymize their responses. Data will be uploaded to a secure, password-protected central server daily, and access will be restricted to authorized study personnel only.

Transcripts from FGDs will be de-identified and stored in encrypted folders on secure, principal investigator access-controlled computers. Hard-copy field notes will be scanned and securely archived before being destroyed. Audio recordings will be deleted once transcription or stored for 12 months before deletion of publication isn't completed and quality checks are completed.

3.9 Data Analysis Plan

Objective 1 and 2: Explore consumer perceptions, facilitators and barriers

For the qualitative component, analysis will be managed using NVivo software, which allows for systematic thematic analysis and ensures traceability of codes and themes. The audio recordings will first be transcribed verbatim and translated into English where necessary. Thematic analysis will follow Braun and Clarke's (2006) six-step framework: familiarization, coding, generating themes, reviewing themes, defining/naming themes, and writing up. An inductive approach will be used to allow themes to emerge naturally from participant responses. To ensure reliability and trustworthiness, coding will be performed independently by two data analysts, followed by consensus meetings. Themes will focus on the visibility, emotional resonance, memorability, comprehension, and potential behavioral influence of FoP warning Labels formats. Memo writing and reflexivity notes will also be used to minimize bias. Data saturation will be assessed, and constant comparison techniques will ensure robustness of insights.

Objective 3 and 4: Evaluate the consumers understanding and effect of FoP warning Label on purchase intentions

Quantitative data from the RCT will be analyzed using Stata version 15. Descriptive statistics such as frequencies, proportions, means, and standard deviations will be used to summarize participant characteristics. For the analysis of categorical outcomes such as purchase intention (yes/no) and correct understanding of nutrient content (correct/incorrect), we will use Chi-square tests to compare proportions between intervention arms and McNemar's test to assess within-subject changes before and after exposure to the FoP labels. Additionally, multivariable logistic regression will be used to estimate the association between label type and outcomes while adjusting for potential confounders such as age, education, and nutrition literacy.

Modified Poisson regression with robust standard errors will be applied when estimating adjusted relative risks for binary outcomes. For continuous outcomes such as change in units purchased (modified purchase intention), we will use paired t-tests or Wilcoxon signed-rank tests for within-subject comparisons and one-way ANOVA or Kruskal-Wallis tests for between-group analysis, depending on the distribution of the data. Data normality will be assessed using the Shapiro-Wilk test, and appropriate post-hoc tests (Tukey's or Dunn's) will be used where needed.

3.10 Ethical consideration

Prior to the commencement of the study, approval will be sought from the Research Ethics Committee at Muhimbili University of Health and Allied Sciences. This ensures that the study adheres to the highest ethical standards and safeguards the rights and well-being of participants. Authorization for data collection will be obtained from the regional, district administration offices and stores management before commence of field data collection. Written informed consent will be obtained from each study participant after a detailed explanation of the study's purpose, procedures, potential risks, and benefits. Participants will have the autonomy to decide whether to participate or decline, and their decision will not impact their access to delivery services. Confidentiality of participant information will be rigorously upheld throughout the duration of the study. Participants will be assured that their responses will be handled with the utmost confidentiality, ensuring anonymity and non-disclosure of personal information. Filled questionnaires will be securely stored and locked, with access restricted only to the principal investigator. This ensures the protection of participant data from unauthorized access or disclosure. The welfare of participants will be prioritized at all times, with measures in place to minimize any potential harm or discomfort. Participants will be encouraged to raise any concerns or questions they may have during the study. The study will be subject to continuous monitoring and oversight to ensure adherence to ethical principles and guidelines.

3.11 Data dissemination

The study results and recommendations will be shared with the Ministry of Health and responsible stakeholders. Further the results will be presented in various East Africa region forums and medias to encourage transparency and awareness to consumers. Additionally, final report will be submitting to the scientific journal for publications.

3.12 Study Limitations and Mitigations

3.12.1 Study Limitations

1. Difficulty scheduling interviews or FGDs – Coordinating times with participants for FGD may be tricky as people have different schedules and obligations

2. Limited understanding of FoP warning Labels concepts – Participants who are unfamiliar with food labeling systems may find it difficult to engage meaningfully with experimental tasks, which may limit data quality.

3.12.2 Study Mitigations

1. Flexible scheduling and follow-ups – Appointments will be made at times convenient for participants, including weekends, with follow-up reminders via phone where feasible.
2. Use of visual aids and guided interpretation – Where FoP warning Labels concepts are unfamiliar, researchers will use pictorial food label mockups and provide guided explanations before tasks to improve comprehension.

3.13 Budget and Its Justification

3.13.1 Budget

No		Units	LOE/Days	Annual Budget (USD)		
	Item Description			Unit Cost	Year 1	Total (USD)
1	Personnel					
	PI	12	35%	5,000	20,811	20,811
	Data analyst	4	30%	2,000	2,400	2,400
	Subtotal Personnel				23,211	23,211
2	Ethics review fees	1	1	1,000	1,000	1,000
	Subtotal ethics fees				1,000	1,000
3	Data Collection					
3(a)	Qualitative data collection					
	Training of FW venue costs (8 FW+5 facilitators)					-
	Participant reimbursements (12 FGDs @with a maximum of 10 participants)	12	1	20	240	240
	FGD Venue fees (4 venues for 2 days each @ 15 USD)	8	1	15	120	120
	8 FW Wages @ 15-18 per day for 2-3 days	24	1	18	432	432
	Audio recorders hire fee @ 1 USD per day	24	1	18	432	432
	Research assistants'transport allowance and airtime for 5 days @ 5 USD	10	1	5	50	50
	Audio transcription and translation (12FGDs) @20 for 12-14 days	14	1	20	280	280
	Coding of Transcripts, analysis and report writing @ 20 USD for 15 days	15	1	20	300	300
	Pilot activity Participant reimbursement (20 participants @ 5 USD)	20	1	5	100	100
	Field supplies (bags, umbrellas & boots) @ 15 for 8 Field Interviewers (FI)	8	1	15	120	120

	Field Supervisor wages @ 18-20 USD per day for 12-14 days.	14	1	14	196	196
3(b)	Quantitative data collection (RCT)					
	Training quantitative 12-14 FWs + 5 facilitators (Zanzibar and Mbeya) Venue costs	8	1	15	120	120
	Pilot activity Participant reimbursement (48 participants @ 3 USD)	48	1	5	240	240
	FWs wages for approximately 55 days for 12-14 FW	660	1	16	10,560	10,560
	Field supplies (bags, umbrellas & boots) if rainy season @ 15 for 12-14 Field Interviewers (FI)	14	1	10	140	140
	Transport/ communication allowance for participants for 55 days @ 5 USD	55	1	5	275	275
	Participant reimbursement (transport/time) @5 USD for ~2200 - 2500 participants	2,200	1	5	11,000	11,000
	Tablets (hire) ~1 USD a day for 55 days	55	1	1	55	55
	1 Field Supervisor wages for 55 days @ 15-16 USD a day	55	1	20	1,100	1,100
4	Validating the FoPL					
	Mobilization activities @ 100 USD	1	1	200	200	200
	Participant reimbursements (online survey ~500-600 registered nutritionists) @ 8 USD	600	1	8	4,800	4,800
5	Dissemination Workshop					
	Conference package for 30 pax for 1 day	30	1	45	1,350	1,350
	Reimbursements for 10 pax for 1 day-with Dar	10	1	20	200	200
	Reimbursements for 10 pax for 1 day-Outside Dar	10	1	35	350	350
6	5-Day Writing Workshop					
	5 day conference package for 10 pax	10	5	45	2,250	2,250
	Subtotal Data Collection				34,910	34,910
7	Manuscripts					
	Qualitative paper (1)	1	1	3,000	3,000	3,000
	RCT (1)	1	1	3,000	3,000	3,000
	Subtotal Dissemination				6,000	6,000
8	Other costs					
	Printing	100	1	2	200	200
	Miscellaneous etc.	10	1	10	100	100
	TOTAL Other costs				300	300
TOTAL DIRECT COST					65,421	65,421
INDIRECT COST				7%	4,579	4,579

GRAND TOTAL		70,000	70,000
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3.13.2 Budget Justification

The total estimated cost for this study is USD 70,000, which includes both direct and indirect expenses necessary for the successful implementation and completion of the research. Personnel costs amount to USD 23,211 and cover partial level-of-effort contributions from the Principal Investigator (PI), who will lead the study's design, coordination, and dissemination activities, and a data analyst responsible for data management and analysis. An ethics review fee of USD 1,000 has been budgeted to cover the required institutional review board approval.

A significant portion of the budget, USD 34,910, is allocated to data collection activities. These cover both the qualitative and quantitative components of the study. For the qualitative arm, funds will support training, participant reimbursements for focus group discussions (FGDs), venue fees, fieldworker wages, transcription and analysis, and necessary field supplies. For the quantitative component, the budget accounts for training of fieldworkers in two locations (Zanzibar and Mbeya), participant reimbursements for randomized controlled trial (RCT) activities involving over 2,000 individuals, daily field allowances, supervision, and the hire of tablets and other equipment.

An additional USD 5,000 is set aside to validate the front-of-pack labeling (FoPL) approach through a structured online survey involving approximately 600 registered nutrition professionals, which includes participant mobilization and incentives. For dissemination, USD 1,900 is budgeted to facilitate a one-day workshop involving 30 participants, including coverage for travel reimbursements, particularly for those outside of Dar es Salaam. A writing workshop is also planned, with USD 2,250 allocated to support a five-day retreat for manuscript drafting and research synthesis.

Manuscript development is budgeted at USD 6,000 to support the preparation and open-access publication of two key research papers—one based on qualitative findings and another based on the RCT. Finally, USD 300 is allocated for other essential costs such as printing and miscellaneous items. An indirect cost of USD 4,579, calculated at 7% of total direct costs, is included to cover institutional overheads and administrative support. All costs have been carefully estimated to ensure efficient and ethical execution of the study.

3.14 Time Schedule of Activities

Activity	2025	2026
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	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Ethical approval process													
Recruitment and training of fieldworkers													
Pilot testing (qualitative & quantitative tools)													
Qualitative data collection (FGDs)													
Transcription, coding & analysis (qualitative)													
Quantitative data collection (RCT)													
Data cleaning & analysis (quantitative)													
Front-of-Pack Label validation (online survey)													
Writing of manuscripts (qualitative & RCT)													
Dissemination workshop													
5-day writing workshop													
Final reporting & closeout													

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Appendix I (a): Informed Consent Form For Focus Group Discussion (English Version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)



SCHOOL OF BIOMEDICAL SCIENCE

Title: Effectiveness of Front-of-Pack Labels in Influencing Consumer Food Choice in Tanzania

Purpose of the Study:

We are conducting this study to assess the feasibility, acceptability, and effectiveness of Front-of-Pack Labels (FoPLs) in influencing consumer understanding and purchase decisions in Tanzania. The results will help guide policies and strategies for improving public health nutrition and consumer choices.

Study Procedures

If you agree to participate: You will take part in a group discussion (Focus Group Discussion – FGD) lasting about 45 minutes. The discussion will be about your views, perceptions, and experiences related to food labelling and how it affects your choices. The session will be audio-recorded for accuracy, but no names will be linked to your responses.

Confidentiality

All information you share will remain confidential and used for research purposes only. Your name will not appear anywhere in the study results. Instead, we will use codes or numbers. Since this is a group discussion, we ask all participants to respect each other's privacy and not share outside the group what was discussed.

Risks and Discomforts

This is a non-invasive study. No physical harm is expected. However, some participants may feel shy or uncomfortable sharing their opinions in a group setting. You may choose not to answer any question, and you are free to leave the discussion at any time without penalty.

Benefits

There may be no direct benefits to you personally. However:

1. Your views will contribute to important research that may help improve food labelling policies in Tanzania.
2. The findings may support healthier food choices and reduce the risk of diet-related diseases in communities.

Compensation

Participants will receive transport reimbursement as appreciation for their time and participation in the FGD.

Voluntary Participation and Right to Withdraw

Participation in this study is entirely voluntary. You are free to refuse participation or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled.

Whom to Contact

If you have any questions or need further information, please contact:

Co-Principal Investigator

Hassan Juma Rusobya

Department of Community Health, MUHAS

Phone: +255 766 772 368

Email: hassanrusobya@gmail.com

Director of Research, Publications, and Innovation

Dr. Nahya Salim

Muhimbili University of Health and Allied Sciences (MUHAS)

Phone: +255 22 215 2489

Email: drpi@muhas.ac.tz

Consent Statement

I, _____, have read (or have been read to me) the information in this form. I understand the purpose, procedures, risks, and benefits of participating in this group discussion. My questions have been answered satisfactorily. I voluntarily agree to participate in this study.

Signature/Thumbprint of Participant: _____

Date: _____

Signature of Researcher: _____

Date: _____

Appendix I (b): Informed Consent Form For Randomized Control Study (English Version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)



SCHOOL OF BIOMEDICAL SCIENCE

Title: Effectiveness of Front-of-Pack Labels in Influencing Consumer Food Choice in Tanzania

Principal Investigator:

Prof. Fredrick Mashili

Department of Physiology, MUHAS

Tel: +255 752 255 949

Co-Principal Investigator:

Hassan Juma Rusobya

Department of Community Health, MUHAS

Tel: +255 766 772 368 | Email: hassanrusobya@gmail.com

Sponsor and Affiliation:

This study is sponsored by the African Population and Health Research Center (APHRC).

Number of Participants:

Approximately 400 adult participants in Dar es Salaam, Zanzibar, and Mbeya.

Introduction

My name is _____, and I am part of the research team for this study. I am here to explain to you about this research, answer your questions, and ask for your permission to participate. Please feel free to ask me anything that is unclear.

Purpose of the Study

The purpose of this study is to assess the feasibility, acceptability, and effectiveness of Front-of-Pack Labels (FoPLs) in influencing consumer understanding and purchase decisions. The findings will help guide evidence-based policies and strategies to improve public health nutrition in Tanzania.

Study Procedures

If you agree to participate:

You will take part in a short session (about 30–45 minutes). You will be shown images of packaged foods with different types of nutrition labels (e.g., warning labels, daily guideline labels, or no label). You will be asked questions about your understanding, perceptions, and intended food choices. No blood tests, medical procedures, or physical examinations will be done.

Duration

Your participation will involve one visit only, lasting approximately 30–45 minutes.

Risks and Discomforts

This study is non-invasive and no physical harm is expected. Some participants may feel mild discomfort when answering questions about food and personal consumption. You are free to skip any question you do not wish to answer, and you may withdraw at any time without consequences.

Benefits

There may be no direct benefit to you. However:

1. You will contribute to important research that may help improve food labeling policies in Tanzania.
2. The findings may benefit communities by supporting healthier food choices and reducing risks of diet-related diseases.

Confidentiality

Your responses will be kept strictly confidential. No names will be recorded; instead, only study ID numbers will be used. Data will be stored securely and accessible only to authorized research staff. Study results will be reported in summary form only, without identifying individual participants.

Voluntary Participation and Right to Withdraw

Your participation is completely voluntary. You may refuse to participate or stop at any time. Withdrawing will not affect any services, benefits, or your relationship with MUHAS or APHRC.

Compensation

There is no direct monetary compensation. However, a small token (such as transport support or refreshment) may be provided as appreciation for your time.

Results Sharing

The results will be shared through reports, academic publications, MUHAS library repositories, and may also be communicated to policy makers. A community summary may be shared with participants and local stakeholders.

Whom to Contact

If you have any questions about the study or your rights as a participant, please contact:

Principal Investigator

Prof. Fredrick Mashili

Department of Physiology, MUHAS

Tel: +255 752 255 949

Co-Principal Investigator

Hassan Juma Rusobya

Department of Community Health, MUHAS

Tel: +255 766 772 368 | Email: hassanrusobya@gmail.com

Director of Research, Publications, and Innovation

Dr. Nahya Salim

Muhimbili University of Health and Allied Sciences (MUHAS)

Phone: +255 22 215 2489

Email: drpi@muhas.ac.tz

Consent Statement

I, _____, have read (or have been read to me) the information in this form. I understand the purpose, procedures, risks, and benefits of the study. My questions have been answered to my satisfaction. I voluntarily agree to participate in this study.

Signature/Thumbprint of Participant: _____

Date: _____

Signature of Researcher: _____

Date: _____

Appendix II (a): Fomu ya Ridhaa kwaajili ya Majadiliano ya Kundi (FGDs) (Kiswahili)

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI (MUHAS)



SCHOOL OF BIOMEDICAL SCIENCE

Kichwa cha Utafiti:

Ufanisi wa Lebo za Onyo Mbele ya Pakiti (Front-of-Pack Labels) katika Kuathiri Uchaguzi wa Vyakula Miongoni mwa Wateja Tanzania

Lengo la Utafiti

Tunafanya utafiti huu ili kutathmini uwezekano, uelewekaji na ufanisi wa lebo za onyo zinazowekwa mbele ya vifungashio vya chakula (FoPLs) katika kuathiri uelewa wa walaji na maamuzi yao ya ununuzi. Matokeo ya utafiti yatasaidia kuongoza sera na mikakati ya kuboresha lishe ya umma na maamuzi ya ununuzi wa chakula hapa Tanzania.

Utaratibu wa Utafiti

Kama utakubali kushiriki: Utashiriki katika **majadiliano ya kundi (FGD)** yatakayodumu takribani **dakika 45**. Majadiliano yatakuwa kuhusu maoni yako, mitazamo na uzoefu wako kuhusiana na lebo za vyakula na namna zinavyoathiri maamuzi yako ya ununuzi. Kikao kitarekodiwa kwa sauti ili kuhakikisha usahihi, lakini jina lako **halitatajwa** kwenye majibu.

Usiri

- Taarifa zote utakazotoa zitabaki **za siri** na zitatumika kwa madhumuni ya utafiti pekee.
- Jina lako halitatumika; badala yake namba au alama maalum zitatumika.
- Kwa kuwa hili ni **jadiliano la kundi**, tunaomba washiriki wote waheshimu **faragha ya kila mmoja** na kutojadili yaliyosemwa nje ya kikao.

Hatari na Usumbufu

Utafiti huu hauna madhara ya mwili. Hata hivyo, baadhi ya washiriki wanaweza kujisikia **aibu au wasiwasi** kushiriki mawazo yao mbele ya wengine. Unaweza kuchagua kutokujibu baadhi ya maswali, na una uhuru wa kuondoka wakati wowote bila adhabu yoyote.

Faida

Huenda usipate faida ya moja kwa moja. Hata hivyo:

1. Maoni yako yatatoa mchango mkubwa katika utafiti huu ambao unaweza kusaidia kuboresha sera za uwekaji lebo za vyakula Tanzania.
2. Matokeo yanaweza kusaidia jamii kufanya chaguo bora la vyakula na kupunguza magonjwa yanayohusiana na lishe.

Fidia

Washiriki wa FGD watapewa **posho ya nauli** kama shukrani kwa kushiriki majadiliano haya.

Ushiriki wa Hiari na Haki ya Kujiondoa

- Ushiriki wako katika utafiti huu ni **wa hiari kabisa**.

- Unaweza kukataa kushiriki au kusitisha ushiriki wako wakati wowote bila adhabu wala kupoteza haki zako za huduma au manufaa yoyote unayostahili.

Kwa Mawasiliano Zaidi

Kama una maswali yoyote kuhusu utafiti huu au haki zako kama mshiriki, tafadhali wasiliana na:

- **Mtafiti Mkuu**
Prof. Fredrick Mashili
Idara ya Fiziolojia, MUHAS
Simu: +255 752 255 949
- **Mtafiti Mwenza**
Hassan Juma Rusobya
Idara ya Afya ya Jamii, MUHAS
Simu: +255 766 772 368 | Barua pepe: hassanrusobya@gmail.com
- **Mkurugenzi wa Utafiti, Machapisho na Ubunifu**
Dkt. Nahya Salim
Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (MUHAS)
Simu: +255 22 215 2489
Barua pepe: drpi@muhas.ac.tz

Tamko la Ridhia

Mimi, _____, nimesoma (au nimesomewa) taarifa hii na nimeelewa madhumuni, utaratibu, hatari na faida za kushiriki katika utafiti huu. Maswali yangu yamejibiwa kwa kuridhisha. Kwa hiari yangu, nakubali kushiriki kwenye utafiti huu.

Sahihi/Alama ya Kidole ya Mshiriki: _____

Tarehe: _____

Sahihi ya Mtafiti: _____

Tarehe: _____

Appendix II (b): Randomized Control Trial Consent Form (Kiswahili)

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI (MUHAS)



SCHOOL OF BIOMEDICAL SCIENCE

Kichwa cha Utafiti: Ufanisi wa Alama za Onyo Zilizoko Mbele ya Vifungashio katika Kuelekeza Uchaguzi wa Wateja wa Vyakula Nchini Tanzania

Mtafiti Mkuu:

Prof. Fredrick Mashili
Idara ya Fisiolojia, MUHAS
Simu: +255 752 255 949

Mtafiti Mwenza:

Hassan Juma Rusobya
Idara ya Afya ya Jamii, MUHAS
Simu: +255 766 772 368 | Barua pepe: hassanrusobya@gmail.com

Mdhamini wa Utafiti:

Utafiti huu unadhaminiwa na **African Population and Health Research Center (APHRC)**.

Idadi ya Washiriki:

Takribani watu wazima 400 kutoka Dar es Salaam, Zanzibar na Mbeya.

Utambulisho

Jina langu ni _____, na mimi ni sehemu ya timu ya utafiti huu. Nipo hapa kukueleza kuhusu utafiti huu, kujibu maswali yako, na kuomba ridhaa yako kushiriki. Tafadhali jisikie huru kuuliza chochote kisichoeleweka.

Lengo la Utafiti

Lengo la utafiti huu ni kutathmini uwezekano, uelewekaji, na ufanisi wa **alama za mbele ya vifungashio (Front-of-Pack Labels)** katika kuelekeza uelewa na maamuzi ya ununuzi kwa wateja. Matokeo yatasaidia kuandaa sera na mikakati ya kisera inayotegemea ushahidi ili kuboresha lishe ya umma hapa Tanzania.

Taratibu za Utafiti

Kama utakubali kushiriki utashiriki kikao kifupi cha dakika **30–45**. Utaoneshwa picha za vyakula vilivyofungashwa zenye aina mbalimbali za alama za lishe (mfano: alama za onyo, alama za mwongozo wa kila siku, au bila alama). Utaulizwa maswali kuhusu uelewa wako, maoni yako, na uamuzi wa kununua vyakula hivyo. Hakutakuwa na vipimo vya damu, taratibu za kitabibu, wala uchunguzi wa mwili.

Muda

Ushiriki wako utahusisha **ziara moja pekee** yenye muda wa takribani **dakika 30–45**.

Hatari na Usumbufu

Utafiti huu **hauhusishi taratibu za kitabibu** na hakuna madhara ya kiafya yanayotarajiwa. Wengine wanaweza kuhisi usumbufu mdogo wakati wa kujibu maswali kuhusu chakula na matumizi binafsi. Una uhuru wa kuruka swali lolote au kujiondoa wakati wowote bila madhara yoyote.

Faida

Huenda usipate faida ya moja kwa moja, lakini:

1. Utachangia tafiti muhimu zinazoweza kusaidia kuboresha sera za uwekaji alama za vyakula nchini Tanzania.
2. Matokeo yanaweza kusaidia jamii kufanya maamuzi bora ya lishe na kupunguza hatari ya magonjwa yanayohusiana na lishe.

Usiri

Majibu yako yote yatabaki siri. Hakutatumika majina; badala yake namba za utambulisho pekee ndizo zitatumika. Taarifa zitahifadhiwa salama na kufikiwa tu na watafiti walioidhinishwa. Matokeo ya utafiti yatawasilishwa kwa muhtasari bila kumtambulisha mshiriki yeyote.

Kushiriki kwa Hiari na Haki ya Kujiondoa

Ushiriki wako ni **wa hiari kabisa**.

- Unaweza kukataa kushiriki au kusitisha ushiriki wakati wowote.
- Kujiondoa hakutaathiri huduma, manufaa, au uhusiano wowote na MUHAS au APHRC.

Fidia

Hakutakuwa na fidia ya moja kwa moja ya kifedha. Hata hivyo, unaweza kupatiwa msaada mdogo (kama vile nauli au kinywaji kidogo) kama ishara ya shukrani kwa muda wako.

Kushirikiana Matokeo

Matokeo yatashirikishwa kupitia ripoti, machapisho ya kitaaluma, hifadhidata ya maktaba ya MUHAS, na yanaweza pia kufikishwa kwa watunga sera. Muhtasari wa kijamii unaweza kushirikishwa na washiriki na wadau wa jamii.

Kwa Maswali Zaidi Wasiliana na:

- **Mtafiti Mkuu**
Prof. Fredrick Mashili
Idara ya Fisiolojia, MUHAS
Simu: +255 752 255 949
- **Mtafiti Mwenza**
Hassan Juma Rusobya
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- **Mkurugenzi wa Utafiti, Machapisho na Ubunifu**
Dkt. Nahya Salim
Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili (MUHAS)
Simu: +255 22 215 2489
Barua pepe: drpi@muhas.ac.tz
- **Kamati ya Taifa ya Maadili ya Utafiti wa Afya (NathREC)**
3 Barack Obama Drive, S.L.P. 9653
Dar es Salaam, Tanzania
Simu: +255 758 587 885
Barua pepe: ethics@nimr.or.tz

Kauli ya Ridhia

Mimi, _____, nimesoma (au nimesomewa) maelezo yaliyo kwenye fomu hii na nimeyafahamu. Maswali yangu yamejibiwa kwa kuridhisha. Nimeridhia kwa hiari kushiriki katika utafiti huu.

Saini/Aalama ya kidole gumba ya Mshiriki: _____
Tarehe: _____

Saini ya Mtafiti: _____
Tarehe: _____

Appendix III (a): Qualitative data tool (English Version)

SECTION A: Introduction

Introduce yourself and the assistant/note-taker.

Facilitator script: "Good morning/afternoon. My name is and I work with a research team at MUHAS. Thank you for taking the time to join us today. We are conducting a study to understand how people feel about the food labels found on the front of packaged foods like those warning about sugar, salt, or fat. We want to hear your thoughts and experiences. There are no right or wrong answers; we are simply interested in your honest opinions."

"Your responses will be kept confidential and only used for research purposes. This session will be recorded for accuracy, but you may ask us to pause the recording or skip any questions at any time. If you're ready, we'd like to begin."

SECTION B: Icebreaker and Visual Familiarization

Warm-up:

"Let's start by talking about your everyday experience buying food. How often do you buy packaged foods like snacks, juices, or breakfast cereals?"

Trial image:

Display a sample product image (unrelated to FoP) and ensure everyone can clearly see it.

Main activity:

Show participants three sets of food packages with different FoP warning labels (one at a time for 10 seconds).

SECTION C: Label Assessment Questions (Based on HBM & Study Objectives)

1. Visibility & Memorability

- Did you notice any labels on the front of the package?
- How visible or eye-catching was the label? (Probe: shape, color, position, font size)
- Was anything about the label memorable? (Probe: wording, graphics, symbols)

2. Comprehension & Perceived Message

- What do you think the label is trying to tell you?
- Is the message clear to you? (Probe: Which words or symbols helped or confused you?)

- Do you think this product is healthy or unhealthy based on the label?
- Who do you think this label is meant to help—young people, parents, everyone?
- Is the label believable or trustworthy?
- Is there anything in the label that might be hard to understand in your community?
- Is there anything you think is culturally inappropriate about the label?

3. Behavioral Influence & Purchase Intent

After seeing this label, would you still buy the product? Why or why not?

Would this label stop or reduce how much of this product you buy?

Would you choose a similar product without a label instead?

Would it change how often you buy it for your children?

Do you think these kinds of labels could help reduce diseases like diabetes or high blood pressure?

4. Cues to Action (HBM Construct)

- If you saw this label on food at the shop, would it make you think twice before buying?
- Have you ever changed your mind about a food product because of a label?
- What would encourage you to use labels more often when shopping?

5. Preferred Features & Feedback

- Which label design do you like the most? Why?
- Which one is hardest to understand? Why?
- What about these labels would you change to make them easier for people to understand or more helpful?
- Are there better ways to warn people about unhealthy foods than these labels?

SECTION D: Facilitators and Barriers to Adoption of FoP Labels

6. What would make it easier for you or your community to notice and use warning labels when shopping?

(Probe: Simplicity of design, language, size, education, awareness campaigns, product availability)

7. What challenges or obstacles might prevent you from using these labels to make food choices?

(Probe: Low literacy, time pressure while shopping, lack of trust, affordability, cultural beliefs, misleading marketing)

8. Are there times or places where you find it hard to use or notice food labels? Why?

(Probe: Markets vs. supermarkets, lighting, packaging clutter, small fonts, unclear print)

9. Do you think your income or education affects how you interpret or use food labels?

(Explore how socioeconomic status may influence usage and trust in labels)

10. In what situations would you choose to ignore a warning label and still buy the product?

(Probe: Taste preference, habit, price, influence from children, convenience)

11. What kind of support or changes would encourage you to use these labels more consistently?

(Probe: Government education campaigns, labeling laws, TV/radio messages, in-store prompts)

12. Do you believe your family or friends would follow or ignore these labels? Why?

(Explore social norms and peer influence on label use)

SECTION E: Wrap-Up (5 minutes)

Facilitator Closing Questions:

- Based on everything we've discussed; do you believe these labels would work in your community?
- What advice would you give to someone designing labels for food packages in Tanzania?
- Any final thoughts or suggestions?

Closing Statement:

"Thank you so much for your valuable time and thoughts today. Your input will help us design better warning labels that can support healthier food choices in our communities. If you have any further thoughts later, feel free to contact us using the details provided."

Appendix III (b): Qualitative data tool (Kiswahili Version)

SEHEMU A: Utangulizi

Utambulisho wa muwezesaji:

"Habari za mda huu. Kwa majina naitwa na nafanya kazi na timu ya utafiti kutoka MUHAS. Asanteni kwa muda wenu wa kushiriki nasi leo. Tunafanya utafiti ili kuelewa hisia na mitazamo ya watu kuhusu lebo zinazowekwa mbele ya vifungashio vya vyakula, hasa zile za onyo kuhusu sukari nyingi, chumvi, au mafuta. Tunahitaji maoni yenu ya kweli na uzoefu wenu."

"Majibu yenu yatatunzwa kwa usiri na yatumika kwa malengo ya utafiti pekee. Kikao hiki kitarekodiwa kwa lengo la kumbukumbu, lakini mnaweza kuomba tusitishie kurekodi au kutokujibu swali lolote. Kama mpo tayari, twendelee."

SEHEMU B: Utangulizi na Uzoefu wa Ununuaji wa bidha zenye vifungasho (Icebreaker)

Maswali ya awali:

"Tuanze kwa kuzungumza kuhusu uzoefu wenu wa kila siku mnunuapo chakula. Mara ngapi hununua vyakula vilivyopakwa kama vitafunwa, juisi au nafaka za kifungua kinywa?"

Picha ya majaribio:

Onyesha picha ya bidhaa moja ya mfano (ambayo haina FoP) kuhakikisha kila mshiriki anaweza kuiona vizuri.

Shughuli Kuu:

Onyesha picha tatu za vifungashio vyenye lebo tofauti za onyo za mbele (FoP). Kila picha ionyeshwe kwa sekunde 10.

SEHEMU C: Maswali ya Tathmini ya Lebo (Kulingana na Health Belief Model na Malengo ya Utafiti)

1. Muonekano na Kumbukumbu

- Je, uligundua lebo yoyote mbele ya kifungashio?
- Ilikuwa rahisi kuiona au kuvutia macho? (Hoja: umbo, rangi, nafasi, ukubwa wa maandishi)
- Ni kipengele gani cha lebo hiyo ulikikumbukwa zaidi? (Hoja: maandishi, picha, alama)

2. Uelewa wa Ujumbe Unaotolewa

- Unadhani lebo hiyo inataka kukuambia nini?

- Je, ujumbe wa lebo unaeleweka? (Hoja: maneno au picha zilizosaidia au kuchanganya)
- Kwa maoni yako, bidhaa hiyo ni ya afya au siyo?
- Unadhani lebo hii inalenga kusaidia nani – vijana, wazazi, au kila mtu?
- Je, lebo hii inaweza aminika au ni ya kuaminika?
- Kuna kitu chochote kilicho kwenye lebo ambacho kinaweza kuwa kigumu kueleweka katika jamii yako?
- Je, kuna jambo lolote kuhusu lebo hii ambalo si la kiutamaduni au linaweza kukera?

3. Uwezo kubadili Tabia na Nia ya Ununuzi

- Baada ya kuona lebo hii, bado ungeweza kununua bidhaa hiyo?, Kwa nini?
- Je, lebo hii ingekufanya usinunue au kupunguza ununuzi wake?
- Ungechagua bidhaa nyingine isiyo na lebo badala ya hiyo?
- Je, ungepunguza ununuzi wa bidhaa hiyo kwa ajili ya watoto wako?
- Unadhani aina hii ya lebo inaweza kusaidia kupunguza magonjwa kama kisukari au shinikizo la damu?

4. Kichocheo vya Kuchukua hatua (Cues to Action)

- Ukiona lebo kama hii dukani, je, itakufanya kufikiria mara mbili kabla ya kununua?
- Umewahi kubadili maamuzi yako kuhusu bidhaa ya chakula kwa sababu ya lebo?
- Ni nini kingekuhamasisha kutumia lebo mara nyingi unaponunua vyakula?

13. Upendeleo wa Ubunifu na Maoni

- Ni muundo upi wa lebo ulioupanda zaidi? Kwa nini?
- Ni ipi kati ya lebo hizo ilikuwa ngumu kueleweka? Kwa nini?
- Ungependa kubadilisha nini kuhusu lebo hizi ili ziwe rahisi kueleweka au kusaidia zaidi?
- Je, kuna njia bora zaidi ya kuwaonya watu kuhusu vyakula visivyo na afya kuliko lebo hizi?

SEHEMU D: Vichocheo na Vizuizi vya Matumizi ya Lebo za Onyo (FoP Labels)

14. Ni nini kingefanya iwe rahisi kwako au kwa jamii yako kugundua na kutumia lebo za onyo wakati wa ununuzi wa chakula?

(Chochea: Unyenyekevu wa muundo, lugha rahisi, ukubwa wa maandishi, kiwango cha elimu, kampeni za uhamasishaji, upatikanaji wa bidhaa)

15. Ni changamoto au vikwazo gani vinaweza kukuzuia kutumia lebo hizi katika kufanya maamuzi ya ununuzi wa chakula?

(Chochea: Uelewa mdogo wa kusoma, presha ya muda wakati wa manunuzi, ukosefu wa imani, bei, imani za kitamaduni, matangazo yenye upotoshaji)

16. Je, kuna nyakati au maeneo ambapo unapata ugumu wa kutumia au kuona lebo za chakula? Kwa nini?

(Chochea: Masoko ya wazi dhidi ya supermarket, mwanga hafifu, wingi wa maandishi kwenye vifungashio, maandishi madogo sana, maandishi yasiyoeleweka)

17. Je, unadhani kipato chako au kiwango cha elimu kinaathiri jinsi unavyotafsiri au kutumia lebo za chakula?

(Chunguza jinsi hali ya kijamii na kiuchumi inavyoathiri matumizi na uaminifu wa lebo)

18. Katika hali gani unaweza kupuuza lebo ya onyo na bado ukachagua kununua bidhaa hiyo?

(Chochea: Ladha unayoipenda, mazoea, bei nafuu, ushawishi kutoka kwa watoto, urahisi wa kupatikana)

19. Ni aina gani ya msaada au mabadiliko ambayo yangekutia moyo kutumia lebo hizi mara kwa mara?

(Chochea: Kampeni za elimu kutoka serikali, sheria za kuweka lebo, ujumbe kupitia radio/TV, ishara madukani)

20. Je, unaamini kuwa familia yako au marafiki zako wangezingatia au kupuuza lebo hizi? Kwa nini?

SEHEMU E: Hitimisho (Dakika 5)

Maswali ya kufunga mjadala:

- Kwa kuzingatia yote tuliyojadili, unadhani lebo hizi zitaweza kufanya kazi katika jamii yako?
- Ni ushauri gani ungempa mtu anayebuni lebo za vyakula kwa ajili ya Watanzania?
- Kuna jambo lingine la mwisho ungependa kusema?

Kauli ya Kufunga:

"Tunawashukuru sana kwa muda na mawazo yenu muhimu leo. Maoni yenu yatatusaidia kubuni lebo bora zaidi za onyo ambazo zitasaidia jamii kufanya uchaguzi bora wa vyakula. Iwapo mtakuwa na jambo lingine la kuongezea baada ya kikao, mnaweza kuwasiliana nasi kwa kutumia maelezo ya mawasiliano tuliyowapa."

Appendix IV (a): Quantitative Questionnaire (English Version)

SECTION A: RESPONDENT PROFILE

Date of Interview (DD/MM/YYYY): _____

Interviewer Initial: _____

Participant ID: _____

1. Sex:

1 = Male

2 = Female

2. Age (in years): _____

3. Do you work in any of these sectors?

1 = Health Promotion

2 = Market Research

3 = Advertising

4 = Tobacco Industry

5 = Food & Beverage Industry

6 = None of the above

If 1–5 is selected → Terminate participation

4. How often do you purchase branded packaged foods/drinks?

1 = Never (*Terminate*)

2 = Rarely

3 = A few times a week

4 = Multiple times a day

5. Marital Status:

1 = Married 2 = Living Together 3 = Separated

4 = Divorced 5 = Widowed 6 = Never Married

6. Have you ever been to school?

0 = No

1 = Yes

7. Highest Education Level Completed:

1 = Less than Primary

2 = Primary

3 = Secondary/High School

4 = College/University

5 = Postgraduate Degree

8. Main Occupation:

1 = Public Servant 2 = Private Sector

3 = Self-employed 4 = Homemaker

5 = Casual Laborer 6 = Retired 7 = Unemployed 8 = Other: _____

9. Monthly Household Income Category:

1 = <50,000 TZS 2 = 50,000–150,000

3 = 150,001–300,000 4 = >300,000

5. Prefer not to say

10. Are you a parent or caregiver of children under 18?

0 = No

1 = Yes

11. Are you the main decision-maker for food purchases at home?

0 = No

1 = Yes

12. Are you the main food/grocery buyer at home?

1 = Yes

2 = Share responsibility

3 = No

13. Do you buy food for your own consumption?

0 = No

1 = Yes

14. Where do you usually buy packaged foods? (Select one)

1 = Supermarket 2 = Mini supermarket

3 = Grocery shop 4 = Mobile vendor

15. How often do you consume packaged branded foods per week (e.g., crisps, biscuits, juices, cereals)?

1 = Once 2 = Twice 3 = Three 4 = Four 5 = Five 6 = Six 7 = Everyday

SECTION B: Consumption Patterns

In a typical week, how often do you consume the following?

Food Item	Never (1)	Monthly (2)	Weekly (3)	Daily (4)
Soda (regular/diet)				
Fruit juice, drink or powdered mix (packaged/mix)				
Any type of flavored yoghurt				
Potato chips				
Cookies/biscuits				
Sweet breakfast cereals				

SECTION D: Exposure to Front-of-Pack Label (FoPL)

Each respondent will be randomized into one of four groups of Control (No Label), Black Triangle Warning Label, Red Triangle with Icon and Guideline Daily Amounts (GDA)

For each mock product shown, answer:

1. Purchase Intention

16. How likely are you to buy this product for yourself or your family?

1 = I would definitely not buy it

2 = I am unlikely to buy it

3 = I might consider buying it

4 = I will definitely will buy it

2. Perceived Nutrient Content

17. In your opinion, does this product contain the following in excess of healthy diet limits?

Nutrient	Yes (1)	No (2)	Don't Know (3)
Sugar			
Salt			
Saturated Fat			
Trans Fat			

3. Perceived Healthiness

18. In your opinion, which do you think this product is...

1 = Unhealthy

2 = Healthy

19. If Unhealthy, how unhealthy do you think product is?

1= A little unhealth

2= Somewhat unhealth

3 = Very unhealth

20. If Healthy, how healthy do you think product is?

1 = A little health

2 = Somewhat health

3 = Very health

SECTION C: Comparative Product Choice Tasks

Respondents will be shown two similar mock products (A & B) with different FoPL schemes

21. How likely are you to buy these products for yourself or your family?

1= I would definitely not buy it

2= I am unlikely to buy it

3= I will consider buying it

4= I will definitely buy it

22. In your opinion, which product has more sugar?

1 = A 2 = B

3 = Same 0 = Can't tell

23. In your opinion, which product has more salt?

1 = A 2 = B

3 = Same 0 = Can't tell

24. In your opinion, which product has more saturated fat?

1 = A 2 = B

3 = Same 0 = Can't tell

25. In your opinion, which product is the most unhealthy?

1 = A 2 = B

3 = Same 0 = Can't tell

SECTION D: SYMBOL COMPARISON TASKS (Only in Label Groups)

Show participants the three FoPL types and ask:

26. Which label symbol catches your attention the most?

1 = Black triangle warning

2 = Red triangle with icon

3 = GDA

27. Which label do you trust most to guide healthy choices?

28. Which label is easiest to understand?

29. Which label would most influence your purchase decisions?

Appendix IV (b): Quantitative Questionnaire (Swahili Version)

SEHEMU A: MAELEZO KUHUSU MSHIRIKI

Tarehe ya Mahojiano (DD/MM/YYYY): _____

Herufi za Mwanzo za Mhojaji: _____

Nambari ya Utambulisho wa Mshiriki: _____

1. Jinsia:

1. Mwanaume

2. Mwanamke

2. Umri (kwa miaka kamili): _____

3. Je, unafanya kazi katika mojawapo ya sekta hizi?

1. Uhamasishaji wa Afya

2. Utafiti wa Masoko

3. Matangazo

4. Sekta ya Tumbaku

5. Sekta ya Chakula & Vinywaji

6. Hakuna kati ya hizi

Ikiwa 1–5 zimetajwa → Sitisha ushiriki

4. Kwa mara ngapi hununua vyakula au vinywaji vilivyofungashwa?

1. Sinunui kabisa (*Sitisha*)

2. Mara chache

3. Mara kadhaa kwa wiki

4. Mara nyingi kwa siku

5. Je, unafanya kazi katika mojawapo ya sekta hizi?

1. Uhamasishaji wa Afya

2. Utafiti wa Masoko

3. Matangazo
4. Sekta ya Tumbaku
5. Sekta ya Chakula & Vinywaji
6. Hakuna kati ya hizi

Ikiwa 1–5 zimetajwa → Sitisha ushiriki

6. Kwa mara ngapi hununua vyakula au vinywaji vilivyofungashwa?

1. Sinunui kabisa (*Sitisha*)
2. Mara chache
3. Mara kadhaa kwa wiki
4. Mara nyingi kwa siku

7. Hali ya ndoa:

1. Ameoa/Ameolewa
2. Anaishi na mwenza
3. Wametengana
4. Wameachana
5. Mjane/Mjane
6. Hajawahi kuoa/kuolewa

8. Je, umewahi kwenda shule?

0. Hapana
1. Ndiyo

9. Kiwango cha juu cha elimu ulichokamilisha:

1. Chini ya shule ya msingi
2. Shule ya msingi
3. Shule ya sekondari
4. Chuo/Vyuo Vikuu

5. Shahada ya Uzamili au zaidi

10. Kazi kuu unayofanya:

- | | |
|---------------------|-----------------------------|
| 1. Mtumishi wa Umma | 2. Sekta Binafsi |
| 3. Mjasiriamali | 4. Mama wa Nyumbani |
| 5. Kibarua | 6. Mstaafu |
| 7. Hana kazi | 8. Nyingineyo (Taja): _____ |

11. Kipato cha kaya kwa mwezi:

- | | |
|--------------------|--------------------|
| 1= <50,000 TZS | 2 = 50,000–150,000 |
| 3= 150,001–300,000 | 4= >300,000 |

5. Nisingependa Kusema

12. Je, wewe ni mzazi au mlezi wa mtoto aliye chini ya miaka 18?

- 0. Hapana
- 1. Ndiyo

13. Je, wewe ndiye mtoa uamuzi mkuu wa manunuzi ya chakula nyumbani?

- 0. Hapana
- 1. Ndiyo

14. Je, wewe ndiye mnunuzi mkuu wa chakula/groseri nyumbani?

- 1. Ndiyo
- 2. Tunashirikiana
- 3. Hapana

15. Je, hununua chakula kwa ajili ya matumizi yako binafsi?

- 0. Hapana
- 1. Ndiyo

16. Kwa kawaida, hununua vyakula vilivyofungashwa wapi? (Chagua moja tu)

- 1. Supermarket

2. Duka/Kioski
3. Bucha
4. Jumla
5. Bakery
6. Nyingineyo (Taja): _____

17. Kwa kawaida, hutumia mara ngapi vyakula vilivyofungashwa (mf. juisi, biskuti, nafaka za asubuhi)?

1. Kamwe
2. Mara chache
3. Mara kadhaa kwa wiki
4. Kila siku
5. Mara nyingi kwa siku

SEHEMU B: MIFUMO YA ULAJI

Katika wiki ya kawaida, hutumia mara ngapi bidhaa zifuatazo?

Bidhaa ya Chakula	Kamwe (1)	Kila mwezi (2)	Kila wiki (3)	Kila siku (4)
Soda				
Juisi ya matunda/poda				
Mtindi wa ladha tofauti				
Chipsi (crisps)				
Biskuti/Cookies				
Nafaka tamu za asubuhi				

SEHEMU C: UONYESHAJI WA LEBELE (FoPL)

Washiriki watawekwa nasibu kwenye makundi manne: bila lebo, lebo ya pembetatu nyeusi, lebo nyekundu na picha, au GDA.

1. Nia ya Kununua Bidhaa

18. Uwezekano wa kununua bidhaa hii kwa ajili yako au familia yako:

1. Sitanunua kabisa
2. Sitaipa kipaumbele
3. Naweza kuzingatia kuinunua

4. Nitanunua bila shaka

2. Mtazamo wa Virutubishi

19. Je, bidhaa hii ina virutubishi vifuatavyo kwa kiwango kikubwa kupita kiasi?

Kirutubishi	Ndiyo (1)	Hapana (2)	Sijui (3)
Sukari			
Chumvi			
Mafuta yaliyojaa			
Mafuta Trans			

3. Mtazamo wa Afya ya Bidhaa

20. Kwa mtazamo wako unaona bidhaa hii ni...

1. Si salama kiafya
2. Salama kiafya

21. Ikiwa “Si salama”, unadhan ni kwa kiwango gani si salama?

1. Kidogo
2. Kiasi
3. Sana

22. Ikiwa “Salama” unadhan ni kwa kiwango gani ni salama?

1. Kidogo
2. Kiasi
3. Sana

SEHEMU D: CHAGUO LA BIDHAA KATI YA MBILI

Washiriki wataonyeshwa bidhaa mbili zenye lebo tofauti (A na B)

23. Kwa mtazamo wako, ni bidhaa ipi ina sukari zaidi?

1. A
2. B
3. Zinafanana
0. Siwezi kusema

24. Kwa mtazamo wako, ni bidhaa ipi ina chumvi zaidi?

- 1. A
- 2. B
- 3. Zinafanana
- 0. Siwezi kusema

25. Kwa mtazamo wako, ni bidhaa ipi ina mafuta yaliyojaa zaidi?

- 1. A
- 2. B
- 3. Zinafanana
- 0. Siwezi kusema

26. Kwa mtazamo wako, ni bidhaa ipi si salama zaidi kiafya?

- 1. A
- 2. B
- 3. Zinafanana
- 0. Siwezi kusema

SEHEMU E: TATHMINI YA ALAMA ZA LEBELE

Onyesha lebo zote tatu (Triangle Nyeusi, Nyekundu na GDA)

27. Ni ipi imevutia macho yako zaidi?

- 1. Pembetatu nyeusi yenye onyo
- 2. Pembetatu nyekundu yenye picha
- 3. GDA

28. Ni ipi unaamini zaidi kama mwongozo wa afya?

29. Ni ipi ni rahisi kuelewa?

30. Ni ipi inaweza kukuathiri zaidi kufanya uamuzi wa ununuzi?

