

Development of a methods repository for food choice behaviors and drivers at the household and individual levels

Research Note 1, Work Package 4

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BACKGROUND

Undernutrition in South Asia has improved, but a complex set of intersecting social, environmental, climate, and health challenges make continued progress difficult. Moreover, rates of obesity and noncommunicable diseases are rising rapidly as food environments change. Solutions to poor diets are needed across the production–consumption continuum.

Understanding causal linkages along this continuum requires a clear and comprehensive understanding of what drives food choice. Recent methodological advancements to assess the food environments in low- and middle-income countries (LMICs) (Downs et al. 2020; Karanja et al. 2022; Sparling et al. 2021; Turner et al. 2019) emphasize the external food environment (availability, prices, vendors and product properties, marketing, and regulation) and more recently, the personal food environment (accessibility, affordability, convenience, and desirability). Assessment of individual and household food choice behaviors and their drivers (such as values, habits, and priorities), however, has received less attention (Blake et al. 2021).

Knowing what to assess and how will be critical for guiding efforts to improve diets. Currently, there is no standardized method for assessing individual and household food choice behaviors or drivers of food choice. Providing clarity on which constructs to measure and existing instruments and measures can help to advance food choice research by reducing the need for time-consuming recreation of data collection protocols.

This brief identifies important constructs for assessing drivers of food choice behaviors and describes progress on the development of a repository of instruments and measures for assessing these constructs.

OBJECTIVES

1. List constructs that can be assessed to understand drivers of household and individual food choice behaviors.
2. Identify instruments and measures to assess each food choice construct and organize these into a searchable repository.
3. Illustrate the use of the Food Choice Repository.

METHODS

We reviewed and synthesized models of food choice in order to identify and define constructs for drivers of food choice and food choice behavior at the household and individual levels. To provide an organizational framework, we used thematic coding to define, group, and connect food choice constructs. We then compiled research instruments and measures for each construct into a Food Choice Repository. This repository excludes instruments and measures that only measure the external food environment, dietary intake, or infant and young child feeding.

DRIVERS OF FOOD CHOICE BEHAVIORS

The food choice constructs are organized into six categories (**Figure 1**): **Food choice behaviors** are the outcomes of conscious and unconscious processes of food choice decision-making. **Intrapersonal drivers** are individuals' knowledge, cognition, thinking, skills, and feelings,

all shaped by experience, that influence food choice behavior. **Sociocultural drivers** arise from social and cultural environments. **Personal food environments** are individuals' perceptions of food relative to a household or individual. **Material assets and resources** hold a tangible value. **Person-state drivers** are individuals' biological, physiological, and psychological characteristics that are not easily changed. The constructs that make up these categories are defined in **Appendix A**.

FOOD CHOICE REPOSITORY

We identified instruments and measures that can be used to assess each construct. Throughout the identification process, we solicited expert feedback on what to include in the repository. The **Food Choice Repository** (Dropbox folder) provides a central location to access instruments and measures for assessing drivers of food choice and food choice behaviors.



A daily fruits and vegetables wholesale/retail market in Nalanda district, Bihar, India.
Photo credit: Shawn Sebastian, 2023.



This repository is organized in three levels. First, it is organized by the categories described above, which include conceptually related constructs.

Second, each category may include multiple sub-constructs. Third, each construct folder includes sub-folders holding specific instruments or measures. These folders include copies of each instrument or measure and guidance documents (such as peer-reviewed publications, administration guides, and web links) that describe the methodology used in the development or testing of the instrument or measure.

The Food Choice Repository is a useful resource to simplify food choice research, but more work is needed to make the repository widely accessible. In addition, further investment is needed to transform it into a searchable digital repository that can be filtered by keywords, instrument or measure type, study population, and other dimensions of interest.

Several methodological advances are urgently needed. First, there is a need for instruments and measures that comprehensively and simultaneously assess multiple food choice behaviors. Second is methodological development in the assessment of drivers of food choice, including but not limited to values, habits and routines, value prioritization, food-related life-course experiences, time use, and food preferences. And third, valid, reliable, and context-appropriate instruments and measures for use in LMICs must be developed. Recent research on drivers of food choice behavior in LMICs (DFC, n.d.) can inform these urgently needed advances.

ILLUSTRATION OF REPOSITORY USE

The following fictional example illustrates how to apply knowledge of the drivers of food choice behavior to utilize the Food Choice Repository of instruments and measures to assess drivers of food choice in a South Asia context.

Identification of Food Choice Constructs

Nadia, a 19-year-old lactating mother of two, lives in a village in Habiganj District, Bangladesh, with her husband's family. During pregnancy, Nadia and her husband received nutrition counseling services. Nadia has the nutritional **knowledge** that milk, meat, fish, and vegetables are important during pregnancy and lactation. Nadia's father-in-law acquires most household food from the local market. Nadia often desires more fruits and vegetables, but due to their unaffordability and **gender roles**, she cannot ask for them. Occasionally her husband purchases these foods for her; however, she feels obligated to share them among family members.

These foods are **allocated** first to Nadia's father-in-law, followed by her husband and daughter, and then Nadia and her mother-in-law receive whatever is left over. The child and the male members consume more meat or fish during mealtimes, whereas Nadia consumes more rice at the end of the meal. When her husband and father-in-law are not looking, Nadia sneaks extra foods, like shrimp, milk, and eggs, to her children as her **goal** is to have her daughter grow tall and healthy.

Using the Repository to Assess the Identified Constructs

This example shows how drivers of food choice behavior interact to influence diet quality. Researchers can use the Food Choice Repository to assess drivers of food choice related to their research questions.

Figure 1: Drivers of food choice and food choice behaviors constructs

FOOD CHOICE BEHAVIORS

- Acquisition
 - Preparation
 - Allocation
 - Consumption behaviors
 - Food safety and storage
 - Waste and disposal
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INTRAPERSONAL DRIVERS OF BEHAVIORS

- Time use
 - Roles
 - Identity
 - Knowledge, attitudes, and beliefs
 - Self-efficacy
 - Motivation and expectancies
 - Preferences
 - Habits and routines
 - Goals and prioritization
-

SOCIOCULTURAL DRIVERS OF FOOD CHOICE

- Gender and women's empowerment
 - Life-course perspective
 - Values
 - Social relationships
-

PERSONAL FOOD ENVIRONMENTS

- Affordability
 - Convenience
 - Accessibility
 - Desirability
-

MATERIAL ASSETS AND RESOURCES

- Facilities
 - Food, water, and housing security
 - Wealth
 - Transportation
-

PERSON-STATE DRIVERS

- Biological features
 - Physiological need and conditioning
 - Psychological components
-



A farmer and his wife in Bangladesh. Photo credit: Abdul Momin, 2023.

Possible research questions for this illustrative example are listed in **Table 2**. Construct definitions provided in

Appendix A can help with identification of constructs to answer the research questions.

Table 2: Using the Food Choice Repository to assess the constructs identified in the illustration

RESEARCH QUESTION	CONSTRUCT	INSTRUMENT
1. Who decides how much (quantity) food is allocated to each household member?	Food choice behavior: <i>Allocation</i>	Allocat_projfoodhbt_FGD Allocat_foodsys_FGD
2. How are intrahousehold food allocation decisions made?	Sociocultural driver: <i>Gender and women empowerment</i>	Gender_empowrdhsafrica_QST Gender_familygender_QST
3. What kinds of foods are prioritized for which family members?	Intrapersonal driver: <i>Goals and prioritization</i>	Goal_childfeed_QST Goal_fcq_QST
4. What nutrition knowledge do the family members have specific to the requirements of pregnancy, lactating, infant and young child-specific nutrition requirements?	Intrapersonal drivers: <i>knowledge, attitude, belief</i>	KNOSKIL_KnwAtdBIf_nutri knowattdprac

CONCLUSION AND RECOMMENDATION

Drivers of food choice behavior at the household and individual levels can be assessed using instruments and measures accessible in the Food Choice Repository. Expansion of this Food Choice Repository to align with complementary efforts to assess the external food environment could be an important step to advance actions that improve diets in low- and middle-income countries.

FOOD CHOICE REPOSITORY

To access the food choice repository:

https://www.dropbox.com/sh/av8rt87vetg76u0/AACFB-a18SnyUI5HmFOp_vdVa?dl=0

Repository feedback and submission of instruments and measures:

<https://forms.gle/w67ePiDtMcarp7Lx7>

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APPENDIX A. Construct Definitions

FOOD CHOICE BEHAVIORS

The outcomes of conscious and unconscious processes of food choice decision-making. Food choice behaviors are classified as those related to food acquisition, preparation, allocation, consumption, safety practices, and storage. Assessment and measurement of food choice behaviors of individuals and households often focus on the primary food provider, whose behavior impacts all household members. Measuring individual or household food choice behaviors provides insight into behaviors but not the drivers of those behaviors.

ACQUISITION: What, how, and where food is made available by individuals or household members.

PREPARATION: Actions performed to transform food from raw or partially or fully processed ingredients into a consumable form in the household.

ALLOCATION: What food, and how, is distributed to or shared among members within a household. Allocation is specific to the type of food, quantity, and quality each household member receives relative to other household members and the food order.

CONSUMPTION BEHAVIORS: Conditions and processes involved at the time food is taken into the body through the mouth (quantity and quality of foods consumed).

Feeding Practices: The behaviors or actions (intentional or unintentional) performed by other household members to feed those who cannot feed themselves (young children, individuals with disabilities, and elders).

Household Eating Patterns: Household eating is described according to its patterning (such as regularity, skipping, timing), format (sequence of consumption of food groups), and context (such as family meals, engagement in co-occurring behaviors such as watching television) (Leech et al. 2015).

FOOD SAFETY AND STORAGE: Behaviors that affect foodborne illness. These include buying, preparing, and storing food using safe food-handling practices, such as personal hygiene, prevention of cross-contamination, and adequate temperature control, that prevent the spread of harmful bacteria that cause foodborne illnesses; and choosing foods believed to contain less harmful ingredients (that is, avoiding pesticides, agrochemicals, and adulterated foods).

Food Safety Practices: Conditions and practices that preserve food quality to prevent contamination and foodborne illnesses.

WASH Practices: Water, sanitation, and hygiene practices related to the accessibility of safe drinking water/water security, toilets/latrines, environmental hygiene, and handwashing to prevent infectious diseases.

Food Storage: Conditions and practices wherein uneaten/leftover food or raw ingredients are kept for future use, protected from entry and propagation of microbes.

WASTE AND DISPOSAL: Methods by which food already prepared or raw ingredients are discarded due to the determination that they are no longer wanted or consumable.

INTRAPERSONAL DRIVERS OF BEHAVIORS

Individual knowledge, cognition, thinking, skills, and feelings held by a person that influence food choice behavior. These are proximal drivers of food choice and are shaped by experience and modifiable through new active experiences, passive exposures, education, and interventions. The focus of measurement is on the individual, but measurements may be collected for multiple household members or a household food provider to gain insight into intrapersonal drivers of food choice at the household level.

TIME USE: The activities an individual carries out during a day and the amount of time spent on different activities (such as food preparation, shopping, eating, and childcare).

ROLES: The responsibilities and positions individuals' hold within their household and community. Individuals' intrahousehold social position reflects their power and impact on others within the household. Roles within the community reflect their power and impact on access to material and social resources and support.

IDENTITY: Individuals' self-schemas and self-identities drive how and what they eat. Examples include cultural identity (such as ethnic, religious, and regional), health identity (for example diabetic), ethical identity (for example, vegetarian), and eating identity (such as picky eater, meat eater, emotional eater, or healthy eater).

KNOWLEDGE, ATTITUDES, AND BELIEFS: What individuals and households know, understand, and believe informs their food choices.

Knowledge and Skills: What individuals know (for example, about vitamins, minerals, or other nutrition needs) and can do concerning food (such as food preparation and cooking skills; and classification of foods).

Attitudes: Manner, disposition, feeling, and position concerning food. Examples include prestige and satiety associated with food.

Beliefs: Something that is accepted, is considered true, or is held as an opinion. Examples include definitions of "healthy," the importance of sustainable eating, and taboos.

SELF-EFFICACY: Beliefs about one's ability to perform a specific behavior (that is, perceived skills and perceived control over handling of food (Young 2017)) even when confronted with barriers (Freivogel and Visschers 2020).

MOTIVATION AND EXPECTANCIES: The driving force behind human actions. Motivation and expectancies are closely related drivers of food choice behavior.

Motivation: The process that initiates, guides, and maintains goal-oriented behaviors.

Expectancies or Anticipated Consequences: Expectations are personal beliefs about occurrences that may take place in the future.

PREFERENCES: Preferred foods are set or held above other foods or beverages in estimation; liked better; or chosen over other foods. Preferences differ from measurements of desirability in that preference involves comparing foods or beverages. Examples include conditioned preferences, ranked choices, and a listing of favorites.

HABITS AND ROUTINES: Habits are recurrent, often unconscious behavior patterns acquired through frequent repetition. A routine is a series of things usually done at a particular time or in a fixed order. Examples of ways to measure habits and routines include assessing eating scripts, daily eating schedules, behavioral strategies for habitual eating, and behavior plans.

GOALS AND PRIORITIZATION: Goals that drive food choice behavior are intentions or the object toward which an endeavor is directed; an end (for example, intentions for future eating behavior, child feeding goals, and dietary change goals). Prioritizations are negotiations and/or trade-offs that inform the ranking of food considerations (such as cost, taste, convenience, health, body image, moral/ethical, and managing relationships).

SOCIOCULTURAL DRIVERS OF FOOD CHOICE

Individual or household characteristics contingent on the social and cultural environments in which they previously or currently live. These characteristics tend to be shared by members of households and communities. The focus of measurement is on the individual, household, or community level to gain insight into sociocultural drivers of food choices at the individual or household level.

GENDER AND WOMEN'S EMPOWERMENT: A process whereby the lives of women and girls are transformed from a situation where they have limited power to a situation where their power is enhanced. This framework recognizes three levels of change: personal, relational, and environmental (VeneKlasen and Miller, 2002).

LIFE-COURSE PERSPECTIVE: Life-course experiences of the individual, household, or community drive food choice behavior (for example, associative conditioning, social conditioning, prior food experiences, and diet history).

VALUES: “Trans-situational goals, varying in importance, that serve as guiding principles in the life of a person or group” (Schwartz et al. 2012), such as openness to change, stimulation, self-direction, hedonism and/or indulgence, conservation-tradition, conformity, security, self-enhancement-power, face, achievement, self-transcendence-benevolence, and universalism.

SOCIAL RELATIONSHIPS: Association with people or groups (such as networks, relationships, status, and caste) that provides the individual or the household informational, instrumental, or emotional support in ways that impact food choice behaviors. The focus of measurement is on the social structure of the community and the social assets of the individual and household.

Social Capital: Tangible and nontangible resources an individual or group has access to through their networks and connections.

PERSONAL FOOD ENVIRONMENTS

Personal perceptions of the extent to which food available in the external food environment is desirable, convenient, affordable, or accessible relative to personal and household circumstances and characteristics. The focus of measurement is on the perception of the food itself.

AFFORDABILITY: Food affordability is determined by the relationship between the cost of food and individual and/or household purchasing power, or perception of the extent to which foods are affordable.

CONVENIENCE: Convenience of food (that is, the relative time and effort needed to acquire, prepare, allocate, and/or consume food) or perception of food as more or less convenient given personal and household constraints.

ACCESSIBILITY: Food accessibility reflects the perception of the physical distance, time, space, and place relative to individual activity spaces and daily mobility of food sources.

DESIRABILITY: Food desirability is the degree to which food is preferred, acceptable, and meets taste preferences or is positively perceived.

MATERIAL ASSETS AND RESOURCES

Tangible material assets and resources either available or perceived to be available to an individual or household. These assets and resources tend to be shared by members of households. The focus of measurement is on the individual or household to gain insight into material assets and resources that drive food choices at the individual or household level.

FACILITIES: Physical spaces and equipment available for food preparation, storage, allocation, consumption, or disposal (cooking facilities, dining spaces, refrigeration, storage space, and so on).

FOOD, WATER, AND HOUSING SECURITY: The degree to which individuals and households have access, at all times, to sufficient food, water, or housing for an active, healthy life.

Food Security: The state of having reliable access to sufficient, safe, affordable, and nutritious food.

Housing Security: The state of having secure, affordable, safe, acceptable, and decent housing.

Water Security: The state of having access to adequate (that is, appropriate quantities of water for all household uses), reliable, and safe water for well-being and health. Measurements consider the multiple components of water security at the level at which it is experienced (by individuals and households).

Fuel Security: The state of having access to consistent, reliable, clean, and preferred cooking fuels.

WEALTH: Assets and financial resources available to individuals and households that drive food choice behaviors (such as income, land for growing food, material goods for barter or sale, and other assets).

TRANSPORTATION: Availability of transportation options to access food sources (such as bike, motorbike, car, or public transport).

PERSON-STATE DRIVERS OF FOOD CHOICES

Individuals' biological, physiological, and psychological characteristics that influence food choice behavior. These characteristics tend to be stable (for example, genetics); or occur in consistent patterns (such as hunger) at the individual level that are not easily changeable, and not generally shared among household members. The focus of measurement is on the individual.

BIOLOGICAL FEATURES: Biological characteristics of individuals that drive food choice behavior (such as genetic influences on disease risk or body composition, taste receptors, hunger/satiety mechanisms, and/or nutrient requirements).

PHYSIOLOGICAL NEEDS AND CONDITIONING: The physiological state of individuals that drives food choice behaviors (such as hunger, learned satiety, growth, weight status, physical fitness, and/or health status).

PSYCHOLOGICAL COMPONENTS: The psychological state of individuals that drives food choice behavior (such as neophobia, eating disorders, emotional regulation, mental state, and/or innate personality).

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ABOUT TAFSSA

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