

## Determinants of Food Choice such as the Role of Food Labeling, Cost, Socio-economic Status, and Gender in Food Selection

Purva Magarkar Bele

(Dietician-cum-feeding demonstrator, CHC Hospital Kolar, NHM Bhopal, Madhya Pradesh, India)  
Corresponding Author: Purva Magarkar Bele

**Abstract:** Factors like food labelling, socio-economic status, cost, gender, and others have been known to determine the food choice for food selection of an individual. Consumption of food is mostly determined only by hunger, but choosing what to eat cannot be solely determined by physiological and nutritional needs. Determinants of food choices can be classified as biological, economical, physical, social, and psychological. There are other determinants like knowledge about food, common-belief, and behavioral traits like attitude etc. All these determinants play a significant role in selecting food, and this article investigates the understanding of these determinants and their factors by reviewing related articles. The results evaluated depicts the extent to which these determinants influence an individual's food selection.

**Keywords:** Determinants of food choice, Eating habits, Food selection, Role of food determinants.

Date of Submission: 26-12-2018

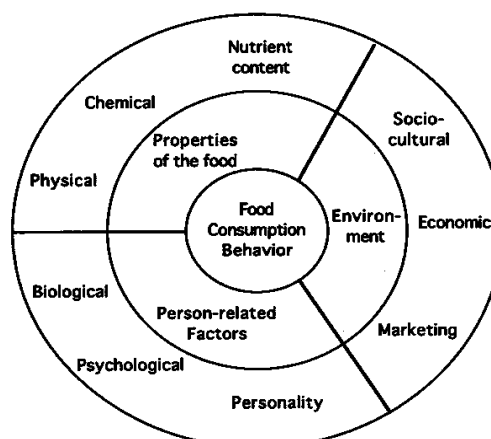
Date of acceptance: 10-01-2019

### I. Introduction

Food is the main source of energy for living beings. Through ages of experiments and research, we have gained knowledge about food. This knowledge helps us to determine and differentiate food based on their nutrition, taste, palatability, etc. The origin of food selection dates back to thousands of years ago when early humans decided what to eat and what not to eat. Many years later, selection of food emphasized on important aspects like determining whether the food is poisonous or not and its availability, and further led to cultivation of crops and plants which bore eatable fruits, grains, and vegetables. This same approach was taken for meat as a food.

Nowadays, a lot is known about food and a lot is yet to be known. Apart from few fundamental biological determinants of food choice like appetite and hunger, food choice determinants are ever-changing. Findings about these determinants are very crucial and play an important role in knowing how they affect our choice in food selection [3]. This article presents a collective review of research in this area of interest, and shows that how the principal component analysis and multiple regression analysis can be used to calculate the extent to which determinants of food choice influence food selection. From the results, it can be concluded that there are many influences on food choice which can be studied and used to recommend dietary changes to improve food choices of people. A taxonomy of determinants of food consumption is depicted in Figure 1. [2]

**FIGURE 1**  
A Taxonomy of the Determinants of Food Consumption Behavior



**Figure1.** Taxonomy of determinants of food consumption behavior.

## **II. Literature Review**

### **2.1 Measuring Nutritional Intake**

Several nutritional intake measuring methodologies can be used to determine nutritional intake; like, food records, food frequency questionnaires (FFQs), 24-hour dietary recalls, anthropometric measures, etc. Each has its own weaknesses and strengths related to their ease of administration, intended use, and validity.

Food records are obtained for 4-7 days. For validating other methods, seven-day records were used as a gold-standard. With the rise of biomarkers, use of food records declined because of its limitations. Biomarkers are variables measured in body fluids or tissue that independently reflect intake of a food component.

A food frequency questionnaire (FFQ) has a finite list of foods and beverages along with their respective response categories which indicate frequency of consumption over the queried period of time, typically a month or year. It contains about 80-120 food items. It can also ask for usual portion size separately for each item, and can be combined with frequency by translating usual consumption to a specific unit (e.g., 3 cups of rice in a week). FFQs are commonly used as the main dietary assessment instrument in large prospective studies.

24-hour dietary recall is comparatively brief method to measure nutritional intake than FFQs and food records. It was designed to assess current nutritional intake quantitatively, and has a limitation that it doesn't necessarily reflect usual diet as it takes single day's intake into account.

Anthropometric measure relates physical characteristics of a body with current nutritional status. Measures like body weight, height, body circumferences, Body Mass Index, Waist to hip ratio, are measured to collect nutritional intake information about an individual as it reflects present nutritional state.

### **2.2 Determinants of Nutritional Intake**

Determinants of nutritional intake is one of the most studied areas in the subject field of nutrition. There are mainly six determinants which contribute to food selection. These determinants are briefly discussed later in this paper. The role of these determinants in selecting food varies from an individual to a group, from teenagers to old people, and from communities to cultures. So, relying solely on one of these determinants to modify food choice behavior will not suit all population groups. That is why food choice questionnaires (FCQs) include elements which are primarily focused on a target, and include motives like health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concern.

#### **2.2.1 Nutritional Knowledge**

Nutritional knowledge is the ability to identify and learn about healthy food from different sources or what is the definition of a healthy diet, including knowledge of source of nutrients, and benefits of eating and drawback of not eating that particular food. Cooking skills and preparation methods are also indicators of nutritional knowledge. Attitudes and beliefs play an important role in food choice, and outcomes of the progressive research in this field has changed the attitudes and popular beliefs which dominated the food choice decades ago. For example, people now don't consume excess amounts of salt and sugar because they know about the implications their body may face if subjected to overconsumption.

#### **2.2.2 Economic Determinants**

The primary determinant of food choice is undoubtedly, cost. Whether cost is prohibitive depends fundamentally on a person's income and socio-economic status. People having high-income tend to eat healthy food; whereas, people who have low-income have a tendency towards unbalanced diets, and their intake of fruits and vegetables is low. However, access to more money doesn't equate to healthy diet but the variety of food one can choose from increases. Accessibility to shops is another important physical factor influencing food choice, which is dependent on resources such as transport and geographical location. Healthy food is expensive in cities than the supermarkets situated on the outskirts.

#### **2.2.3 Environmental Determinants**

Environmental determinants of food choice and intake include physical elements of the environment around an individual. This includes food availability, accessibility, and quality. Food availability is the array of food options that are present in the food system which are both acceptable and affordable for an individual. Accessibility is the immediate availability in most cases, referring to the convenience and readiness of a food—whether it requires cooking or not, or could be eaten anywhere, or could be stored without spoilage. Quality of food has several meanings, but for this determinant, it means whether the food is produced in environmentally sustainable manner and are wholesome. Such foods availability influences the quality and healthfulness of the diet

#### **2.2.4 Social Determinants**

Social determinants include community, friends, family, customs, and traditions. What we consume is developed and limited by circumstances that are essentially cultural and social. Population studies depict that there are significant differences between social classes with regard to nutrient and food intakes. A society where hunting is the most common profession has different main source of food than a society where farming is a dominating profession. This determinant also depends on our social status and special gatherings.

#### **2.2.5 Psychological Determinants**

Psychological stress is a common trait of modern life and can modify behaviors that affect health, such as physical activity, smoking or food choice. Hippocrates was the first to suggest the healing power of food; however, it was not until the middle ages that food was considered a tool to modify temperament and mood. Today it is recognized that food influences our mood and that mood has a strong influence over our choice of food.

#### **2.2.6 Physiological Determinants**

Physiological determinants include biological and sensory mechanisms and needs of the body. Hunger, taste, appetite, and satiety (level of satisfaction) are essential prerequisites for choosing to consume particular foods. Hunger may be defined as that feeling of emptiness, weakness or pain caused by a lack of food. It becomes more intense as time passes, until we are able to think of little else but food. For those suffering extreme hunger, relieving the body of this pain is the focus of life. It controls the release of growth and sex hormones from various glands throughout the body. Appetite is the desire for food even when the body is not hungry. Appetite can be triggered by the sight of appetizing food, the aroma of food in preparation, and even the mention of food in conversation.

The sex of an individual also determines their nutrient requirements. Biological activities such as menstruation and childbirth mean that women need to have a higher dietary intake of iron and calcium. Men have a higher proportion of muscle tissue on their bodies, so they require a higher intake of protein than women. Gender will also affect the parts of the body where adipose tissue is stored. Women are most likely to find extra adipose tissue on their upper arms, bust, waist, hips and thighs.

### **III. Method**

To get an understanding about the actual extent to which these determinants play their role in food selection, a study can be conducted. This study requires food choices questionnaires to be filled by the tested population. Data from the questionnaires is very scattered, so to get a less scattered and a generalized set of data for the tested population, principle component analysis and multiple regression analysis can be performed.

#### **Principal Component Analysis**

Principal Component Analysis (PCA) is a dimension-reduction tool that can be used to reduce a large set of variables to a small set that still contains most of the information in the large set. Principal component analysis (PCA) is a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principal components. These principle components based on FFQs or other nutritional intake procedure can show how the determinants of food choice are spread over a population.

#### **Multiple Regression Analysis**

A statistical tool that allows you to examine how multiple independent variables are related to a dependent variable. Once you have identified how these multiple variables relate to your dependent variable, you can take information about all of the independent variables and use it to make much more powerful and accurate predictions about why things are the way they are. This latter process is called "Multiple Regression".

### **IV. Conclusion**

All the above food choice determinants play a vital role in food selection. Their participation level varies, and it is important to consider which determinants have a significant role in food selection, whether for an individual or for a large number of people. A detailed study about the extent to which these determinants influence food choice is required for any recommendation of dietary change. In India, where social and economic determinants are the most dominating of all, nutritional knowledge and psychological determinants have started to begin their influence in food selection.

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Purva Magarkar Bele. "Determinants of Food Choice such as the Role of Food Labeling, Cost, Socio-economic Status, and Gender in Food Selection." IOSR Journal of Nursing and Health Science (IOSR-JNHS), vol. 8, no.01, 2019, pp. 09-12.