



The Interplay Of Food On Socio- Physiology

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Abstract: Food is one of the basic human needs. The nutrients of the food that people eat and their habits determine their body and mental health. In India, one of the regional medicine viz. Tamil medicine, food is considered as panacea for all ailments. Food acts as a medicine to help, treat and recover from illness. Today, nutrition research addresses not only the prevention of nutritional-deficiency diseases but also the role of nutrients in reducing the long-term risk for diseases such as heart disease and cancer. The interrelationship among nutritional and psychological factors will tell us why we eat and what we eat, thus influencing the socio - cultural behaviour in human. The stress that could develop among various age groups also depend on the above factors. We discuss these factors to bring out the effect of healthy food for an effective socio-physiological behaviour.

Key words: Food, Nutrition, Medical, Human, Socio-Cultural.

I. Introduction:

It is well known that the healthy nutrition and physical activity are the key lifestyle factors that influence our health. The health benefits of nutrition among age groups can be effective only if it is interconnected to the physical activities. The “Integrated Role of Nutrition and Physical Activity for Life Long Health” brings various outcomes related to socio - cultural behaviour [1]. The article by Gustafson et al has reported that the food choices are altered in the context of the need of the exercise. [1]. For example, in India, the gym goers were asked to choose between a healthy snack to be consumed after completion of their exercise. With not knowing the consequence prior to exercise, individuals after completing exercise were less likely to choose a healthy snack and instead chose the unhealthy option, like spicy snacks, oiled food and likewise [1]. Same is true for School going children, college students and working personals. The food choices among age groups was discussed well by Koenigstorfer [2]. In a study carried out by Wirnitzer et al. [3], on the effects of dietary choices on health in the context of the need for long life span, report that vegetarian and vegan persons exhibit lower body weights and a lower prevalence of allergies and hence lead a healthy life. These findings suggest that adherence to a vegetarian or vegan diet is very good to the health of the human for a long life which in turn leads to a better socio-physiological behaviour [3]. Meng et al. have reported the beneficial effects of an education-based obesity prevention program on dietary intake in adolescents [4].

The importance of an active and healthy lifestyle is also shown by Van Elten et al. who examined the sustainability of a diet and physical activity in the case of women [5]. In order to achieve sustainable life style right food control cycle has to be adopted. A review by Balan et al. emphasizes the importance of physical activities and diet to control age-related diseases by taking beneficial effects of fibrous food [6]. Given the importance of healthy lifestyle choices, a key question remains on how to adopt a healthy dietary choices and the physical activities among a broad age population. Considering all together reported, the discussion presented in this paper emphasis the role of the diet on general health and the associated Socio-

Physiology. A key issue for analysis, therefore, will be the implementation of intervention strategies that promote an active and healthy lifestyle. This can lead to understanding the specific mechanisms which can explain the individual and combined contribution of physical activities, nutrition to various health outcomes, including cardiovascular and metabolic diseases as well as orthopaedic problems and depression. Our objectives in this work are to take into account the factors that could influence the food in our body and the associated changes in our health that could determine the Socio-behavioural nature of the human. We will be discussing in this paper, the following: (i) to identify the constraints of food habits among people, (ii) to classify the identified constraints of food habits among them, (iii) to compare the food habits basis on genders and (iv) to create awareness of the importance of food in our immune system. Based on the above inputs, we will propose the possible food chart for various age groups.

II. Discussion and Analysis

A well written quote by Virginia Woolf is, “One cannot think well, love well, sleep well if one has not dined well” [7]. Food is one of the basic human needs and the food that people eat and their habits determine their body and mental health. In India, food is considered as panacea for all ailments. We know the word FOOD is before MONEY. Food gives not only strength to the body but also flourishes our mind. The taste of food is playing a vital role in everybody’s life. As we know that the world is made of five elements (air, water, land, sky and fire) and likewise food taste is also divided into five categories such as sweet, bitter, sour, spicy, and salty. Eating certain flavors can enhance the functions of the five organs of our body which will result in balanced body and mind health [8]. It is thus known well that food acts as a medicine to help, treat and recover from illness. The role of the different tastes of food in our body organs is given in Table 1.

Table 1: Relationship between the five flavours and the five organs and five tastes and its role in our body is as follows:

Serial Number	Taste of food	Our body organs	Role of food in our body
1	sweet	Spleen	can notify the body
2	Bitter	Heart	can regulate our body heat.
3	Sour	Liver	can calm the body
4	Spicy	Lung	can expel wind and cold from the body
5	Salty	Kidney	can help the body to dissolve stagnation

The Table 1 indicates that when we eat foods, certain flavours act on one organ more than on others. Research states that after eating, sour-flavoured foods go to the liver first, the bitter flavour goes to the heart first, the sweet flavour goes to the spleen first, the spicy flavour goes to the lung first, and the salty flavour goes to the kidney first. The organs try to balance themselves through your diet. When an organ is sick, the body can tell you what organ may be impaired through cravings for a particular taste [8]. Food (other than shelter, and clothes) is the third most important thing for living beings and is defined as anything solid or liquid that when swallowed, digested, and assimilated, nourishes the body which in turn provides energy to maintain life with a good immune system.

A food chart is a pragmatic guide and personal reference tool for nutrition, and health. Nutrition is important to all of us and good food and good nutrition should be synonymous. The food that we eat has a profound effect on our health and our enjoyment of life. Our sociological study brings out not only the benefits of our food intake but also the food we choose to eat—or not to eat which will have a direct impact on enhancing our life span or the quality of our lives. We emphasize more preciously that the dietary and the lifestyle are the key factors to ensure a long and a healthy life.

We are surrounded by a vast line-up of foods to eat and activities to pursue. Every day we make choices among those foods and activities based on our cultural, and customs background. Choice of our food may have an impact on our overall health and fit of life. Our ancestors’ food choices were limited by what they could gather, catch, cultivate, and harvest. Physical pursuits were determined by the work that needed to be done. Today, advances in agriculture, transportation, food preservation, and storage bring nearly every

type of food from every country of the world to our local supermarkets throughout the year. With such a limitless line-up of foods, choosing the ones that promote health is easier than ever, but making these choices requires knowledge and motivation to lead a sizeable socio - cultural – physiological activities [9]. We will discuss in subsequent sections in detail the role of food.

2.1 Role of Food

Food is any substance consumed to provide nutritional support for an organism. Food is usually made out of plants, and animals, that contain essential nutrients, such as carbohydrates, fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells to provide energy, maintain life, or stimulate growth. Under the current definition, implemented in 1994, foods labeled as “healthy” must contain certain amounts of individual nutrients with not exceeding the limits on total fat, saturated fat, cholesterol and sodium [9]. Today, nutrition research addresses not only the prevention of nutritional-deficiency diseases but also the role of nutrients in reducing the long-term risk for diseases such as heart disease and cancer. Taking into consideration the resulting expansion of scientific knowledge about the roles of nutrients in health the new Dietary Reference Intakes (DRIs) has recommended the dietary allowance, the estimated average requirement, the adequate intake, and the upper limit [10]. In order to achieve these healthy goals, specific nutrition targets are required. These include (i) increasing the proportion of the intake with respect to the person’s weight optimizing food and nutrient consumption, emphasizing fruits, vegetables, and whole grains, (ii) improving nutrition and nutrition education at schools and colleges and at work sites (iii) nutrition counselling as a regular part of health care and (iv) increasing the access to a healthful and safe food supply from government health agencies.

We need protein such as pulses, milk, eggs, vitamin-rich vegetables, and meat to establish a strong body. We go to the gym and do strenuous exercise for body building and the gym instructors give us the advice to take those nutrients to consume a high diet containing foods. When we feel sick we take food and medicine to be cured and if we eat sufficient healthy food, our immunity system boosts up and we feel relieved from illness. Based on the information discussed on “Unavae Marunthu” (Food is the Medicine) in one of the regional languages (Tamil) in India, during a wound, bone fracture, or inflammation, consuming a sufficient diet helps to overcome the pain and inconvenience during the healing process [11]. It indicates that food is also used as medicine drugs, to overcome some diseases like tuberculosis, sunstroke, gastric ulcers, skin diseases, muscle pains, and so on. Present days, many people are not able to withstand the stress and depression which is due to improper adoption of food causing such a sociological impact. Hence the importance of food is apparent, and specially the sociological study on “ Food habits among the Undergraduate students” draws significant attention.

2.2 History and Functions of Healthy Food

Food history is a broad concept and various scholars have tried to define it. According to Ellen Messer et al. ‘simply a narrative account of what was eaten by a particular people at a particular time or entertaining stories about food or telling anecdotes of people cooking and eating is not food history [12]. Food history is an informed analysis of how food expresses the character of a time, place, society, and culture. Food history studies the origin and development of the foodstuffs, equipment, and techniques of cookery, the presentation and eating of meals, and the meaning of these activities to the societies to bring out the functions of a healthy food [5]. The World Health Organisation (WHO) states that "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is that mental health is more than just the absence of mental disorders or disabilities. Many foods have important benefits for building cells and body tissues by containing necessary nutrients. A human body needs foods to do many functions in the body, including bodybuilding, and growth, and development, as well as to resist the germs and various diseases that may be infected. The importance of food and its effects on our body and mind are very interesting topics and will be always trending subjects for students, teachers, and researchers. In English, we say that “Eat for living and not living for Eat”. However, food is an indispensable necessity in everybody’s life. This happens to the person one who takes proper diet and does the physical exercises.

2.3 Staple Food And Intake Of Water

With each meal, you should include a staple food and the main meal that will give you energy and protein for the day. Staple foods items include starchy foods such as wheat, rice, yams, potatoes, or plantains. The staple foods will give you energy and keep you powerful but they will not provide all types of vitamins that your body needs for proper working. Legumes or fruits are the sources of vitamins, minerals, and fibres; they will also provide us with proteins and other healthy materials. They include peas, beans, lentils, peanuts or groundnuts, and soybeans, and the most important thing is that they are cheaper than animal meats. Drinking more water may seem like an easy task, but we should drink eight cups of fluid every day. If we are active in the sun and any hotter places or we are sick then we should drink more water. Indian Council of Medical Research (ICMR) has guided us a healthy food pyramid [13]. The need to understand the relation of human to food, determines the existence of his/her behaviour in society. The food pyramid is the scheme we refer to most in order to know the proportions of foods recommended for consumption [14]. It is a pyramid divided into "layers", each corresponding to a category of foods and the respective quantity. There is also a typical Indian diet chart highlighting that how much nutrients we should consume everyday so that one can keep himself / herself healthy. The diet chart varies according to age groups and their occupations [14]. Indians always follow the slogans "Unity in diversity" and follow it in our lives to maintain sovereignty, liberty and fraternity. One of the unity in diversities is "Indian culture" that relates to our Indian diet.

2.4 Indian Diet Culture

Over the years, the influence of Mughal, Turks, Mauryans, Guptas, Portuguese and British exists in the Indian diet owing to the versatility and continuous evolution of their derivatives in India [15]. Indian diet is one of the healthiest diet, rich in taste, texture, and most of all satisfying, if prepared with minimal oil and healthy cooking methods. The basic north Indian diet consists of Lentils (contains vitamin A, B, C, E, are rich in calcium, iron, potassium, dietary fibers, help in controlling blood sugar, blood cholesterol and increases digestion), Grains (contains wheat, jowar, bajra, barley, these are rich in fibers, carbohydrate), fresh Vegetables, and Fruits. Indian cooking uses spices like Turmeric which reduces cholesterol, blood pressure and prevents blood clotting, Curry Leaves washes out toxins from body, cuts down fat, prevents greying of hair. On the other hand, Chilly burns fat and improves metabolism. Garlic is proven to be antibacterial and reduces cholesterol, fat. Curd, an essential part of south Indian diet, keeps the digestive tract healthy. Calcium prevents the development of Insulin resistance. Whether it is South Indian or North Indian diet, the ingredients that are used preparing food is bestowed. Choosing proper food, and having it at proper time is the most important for us and if we do not adopt the above, it leads to obesity that causes lots of body and mental illness.

Hence, it is important to choose the food which is comfortable for us and specially focus on traditional foods. Our eating habits should be developed in such a way to keep our body fit. In present scenario, people have to go for their professional growth and to accommodate the environment where they live. Everybody should have a healthy eating plate and stay fit for a healthy life.

III. Conclusion

Keeping in view of the points discussed in this paper we should remember always the following:

- How much food do we eat?
- How is the food eaten?
- What time we should have food?
- Are we taking healthy diet ?
- Understanding how food changes our health and what helps us stay healthy long

These are the essential questions we have to ask ourselves and have proper healthy diet in proper time to bring out an effective interplay between socio-physiological behaviour.

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REFERENCES:

1. Gustafson, C.R, Rakhmatullaeva, N, Beckford, Ammachathram, S.E. Cristobal, A. and Koehler, K. 2018 .Exercise and the Timing of Snack Choice: Healthy Snack Choice is Reduced in the Post-Exercise State. *Nutrients*, doi: 10.3390/nu10121941, 10:1941
2. Koenigstorfer, J. . 2018. Childhood Experiences and Sporting Event Visitors' Preference for Unhealthy versus Healthy Foods: Priming the Route to Obesity?, *Nutrients*, doi: 10.3390/nu10111670;10:1670
3. Wirnitzer, K. Boldt, P. Lechleitner, V. Wirnitzer, G. Leitzmann, C. Rosemann, T.B. and Knechtle B. 2019. Health Status of Female and Male Vegetarian and Vegan Endurance Runners Compared to Omnivores—Results from the NURMI Study (Step 2), *Nutrients*, doi: 10.3390/nu11010029, 11:29.
4. Meng, Y. Manore, M.M. Schuna, J.M.J. Patton-Lopez, M.M. Branscum A and Wong S.S. 2018. Promoting Healthy Diet, Physical Activity, and Life-Skills in High School Athletes: Results from the WAVE Ripples for Change Childhood Obesity Prevention Two-Year Intervention. *Nutrients*, doi: 10.3390/nu10070947, 947.
5. Van Elten, T.M. Van Poppel, M.N.M. Gemke, R.J.B.J. Groen, H. Hoek, A. Mol, B.W and Roseboom, T.J. 2018. Cardio Metabolic Health in Relation to Lifestyle and Body Weight Changes 3–8 Years Earlier. *Nutrients*, .doi: 10.3390/nu10121953, 1953.
6. Balan, E. Decottignies A and Deldicque , L. 2018. Physical Activity and Nutrition: Two Promising Strategies for Telomere Maintenance?. *Nutrients*. doi: 10.3390/nu10121942, 2018, 1942
7. Lowe, A. 2011. A Certain Hold on Haddock and Sausage”: Dining Well in Virginia Woolf’s Life and Work , doi.org/10.5949/liverpool/9780983533900.003.0019, 157-162.
8. Stephen Gravina, A. Gregory Yep L. and Khan, M. 2013. Human Biology of Taste, *ASM Annals of Saudi Medicine*, doi: 10.5144/0256-4947.3(3),217-222.
9. Zwierezyk, U. Sowda C.and Duplaga, M. 2022. Eating Choices- The Role of Motivation and Health literacy: A Cross Sectional Study. *Nutrients*, 14(19): doi:10.3390/nu14194026, 4026-4029, .
10. Kretser, A.J. 2006.The New Directory Reference Intakes in Food Labelling: The Food Industry’s Perspective’, *The American J. of Clinical Nutrition*, 83(5), 12315-12319.
11. Rajaraman, S. 2019. "Review of 'Naturalist's 'Food-Medicine' for Your Wellness' by Yogeewaran.G. *Journal of Ayurveda and Integrative Medicine*, 1(4), 301- 320
12. Karkhanis, S. 2021. Unconventional Food Historiography. *J. Scientific Research of Banaras Hindu University*, 65(8), 92-94.
13. Dietary guidelines for Indians, published by Indian Council of Medical Research (ICMR)- National Institute of Nutrition, Revised edition 2024.
14. Sarac L. and Butnariu, 2020. M. Food Pyramid -The Principles of a Balanced Diet. *International J. of Nutrition*, 5(2), 24.

15. Lal C. and Saha, M. 2024. History of Food in Mughal Empire. International Journal of Creative Research Thought, 12(5), 2320-2324

