



Food Environment and Unhealthy Eating Habits among Adolescents in Tertiary Institutions

Adedeji O. A and John U. I

Department of Home Economics Education,
Adeyemi College of Education, Ondo, NIGERIA.

Abstract: *Our food choices are shaped by the complex world in which we live. The physical and social surroundings that influence what we eat make it far too hard to choose healthy foods. Some even call this food environment “toxic” because of the way it corrodes healthy lifestyles and promote obesity. This paper examined the concept of food environment and the different environmental influences on food choice. It further discussed the role of the environment in healthy eating and suggested strategies to enhance healthy eating habits among adolescents in tertiary institutions.*

Keywords: *Food environment, unhealthy eating, habits, adolescents, convenience, fast food, food choice*

I. Introduction

Poor eating habit is a major public health concern among young adults who experience transition into university/college life during which they are exposed to stress and lack of inadequate time for food preparation. Rapid changes in physical growth and psychosocial development have placed these young adults a nutritionally vulnerable group with poor eating habits that fail to meet dietary requirements. Some common unhealthy eating patterns among young adults include meal skipping, eating away from home, snacking and fast food consumption.

Environmental factors contribute greatly to the adoption of unhealthy eating habits among tertiary institution students. The mushrooming of shopping malls, convenience stores, vending machines and fast food outlets has created an alarming situation for young adults to practice unhealthy eating habits. University/college students tend to make their own food choices based on cost of food and availability of fast foods. Studies have shown that university/college students fail to meet recommended intake of fruits and vegetables due to frequent snacking habits and higher frequency of fast food consumption [1].

When people are asked why they eat what they eat, the most common response is “I eat what tastes good to me”. One's sensory responses to the taste, smell, sight and texture of food are major influences on food preference and food choice. So the question is, what are we born with and what is learned? What and how people eat defines to a large extent their health. Obesity and other diet-related chronic diseases are recognized as major public health issues associated with risk for several of the leading causes of death and disability. There is strong interest in the determinant of food selection and the most effective ways to providing food guidance for individuals and population to improve their health and wellbeing.

II. The Concept of Food Environment

Food environment is a collection of physical, biological and social factors that affect an individual or group of individuals' eating habit and patterns [2]. Food environment is termed “toxic” to describe unparalleled exposure to high-calorie, high-fat, heavily marketed, inexpensive and readily accessible foods. “Toxic,” is a word often used to describe food environment in the United States and, increasingly, in many parts of the world. Even though food itself is usually safe to consume, the world in which most consumers live make choosing healthy food very hard and choosing unhealthy food very easy. It is truly a toxic environment that eats away at healthy lifestyles and promotes obesity.

What makes up the food environment is vast and varied, ranging from social factors, physical factors and biological factors. The food environment often lurks silently in the background, going largely unnoticed, but it plays a major role in the food choices people make, even for the most independent-minded consumer.

Food environment can be interpreted in many different ways. It is broadly defined to include home, community, and media/information environments [3]. Reference [4] also identified food environment to include food stores, restaurants, schools, and worksites. These four environments differ qualitatively from each other. Food stores and restaurants are often places to which one travels to purchase food and there may or may not be a great deal of choice regarding one's options. Worksites and schools, on the other hand, are places where individuals spend

time for other purposes, and that usually also happen to provide food (e.g. vending machines, cafeteria). Employees and students may or may not be able to travel off-site for food or beverages. Food environment can also be categorized as the food store environment (e.g. grocery stores, supermarkets, specialty food stores, farmers' markets, and food pantries), restaurant food environment (e.g. fast food and full-service restaurants), school food environment (e.g. cafeterias, vending machines, and snack shops in daycare settings, schools, and/or colleges), and/or worksite food environment (e.g. cafeterias, vending, snack shops) [5]. These categories are not mutually exclusive, as some articles included multiple environments.

III. Types of Environmental Influences on Food Choice

Different types of environmental influence operate across multiple domains, but are categorized as four types.

- A. Individual-level factor
- B. Social environment
- C. Physical environment
- D. Macro-environment

(A) Individual-Level Factor

Individual sensory responses to taste, smell, sight and texture of food are major influences on food choice. Individual-level factors related to food choices and eating behaviours include attitudes, preferences and biological factor.

(1) **Attitude:** In evaluating food acceptance, one must consider the individual attitudes and behaviours towards their preference [6]. Our food choices may be determined by the personal meaning we give to certain foods or practices, such as peppery soups when we are ill or chocolate and ice-cream when we feel self-indulgent. We may also be motivated by how the food will contribute to how we look such as whether it will be fattening or in contrast, good for our complexion. Our food and nutrition-related behaviour are also determined by our attitudes toward them, for example our attitudes toward breastfeeding or certain food safety practices.

(2) **Preference:** Food preferences begin early in life and then change as we interact with parents, friends and peers. Further experiences with different people, places and situations often (but not always) cause us to expand or change our preferences. However, food preferences of individuals have to do with the sensory properties of foods. It can also be subject to variety of factors outside the physiological response, including culture, expectations and previous experience. Research suggests that people's food preferences and food acceptance patterns are largely learned. Learning in this case means physiological learning or a conditioning that comes from the repeated positive or negative consequences that people experience with food and eating, leading them to liking a food.

(3) **Biological factor:** Human beings appear to be born with unlearned predisposition towards liking things that taste sweet and rejecting things that taste sour or bitter. The liking for salt seems to develop several months after birth. This biological factor contributes to some degree to preference and food intake, particularly in children towards adolescence [7]

(B) Social Environment

The interaction of social environment with families, parents, friends, peers and others in the community influence food choices through mechanisms such as role modeling, social support and pressure. Social environment and cultural context are no less important than the physical environment. Social influences and cultural practices all influence food choice and dietary behaviours[8].

(1) **Home:** Family members in the home and the home food environment are important influences on dietary intake, especially for children and adolescents. Several studies have found family resemblance intake of energy foods and key nutrients. Survey and time use diaries show that the amount people spend on food-related activities in the home depends largely on many factors including whether both parents are employed outside the home and the number of children in the home makes it far hard to plan and make choices to healthier diet [9]. Many parents in some homes today claim to be too busy to prepare healthful foods or to cook at all. This is particularly true of low-income families who often work long hours in order to make money or earn a living. For some homes, time constraints may limit personal investment in healthier behaviours, which in-turn may affect the food choices of children in later life. It has also been found that men and women who are married with children have a higher quality diet than single parent homes, probably because they are better able to attend to their own health [10].

(2) **Parents:** Parents and homemakers play central roles in shaping the dietary habits of household members. Parents additionally serve as role models for eating behaviours, adopt feeding practices that will develop their children's ability to self-regulate healthful food and transmit nutritious attitude. Parents and caregivers who offer healthy foods in appropriate portion sizes and enjoy the foods themselves are likely to facilitate healthy eating in their children towards adolescence [11].

(3) Friends and Peers: The food choice of peers and friends can largely influence the choices made by a teenager or an adolescent who live in a social and cultural context and experience social norms and expectations. We feel compelled to subscribe to these norms and expectations from friends and peers [12] For example, people may feel pressured to eat less-nutritious fast food items in a choice situation with peers in the quest to meet up with social norms and expectations. The food choice and eating patterns of celebrities create social expectations for us all. What others in our community think are appropriate foods to eat in our choice of food may be

(C) Physical Environment

Physical/built environment include all aspects of the environment that are modified by human-activities such as fast food outlets, convenience stores, schools, workplaces, parks, industrial areas and highways. These built-environments are powerful influences on food choices and dietary behaviours through the availability (array of food options) and accessibility (readiness and convenience) of food. What is available in the community influences what is purchased and eaten [13]. Thus, the availability and accessibility of fruits and vegetables at home and school enable their consumption by students/individuals.

(1) Fast food outlets: This built environment plays a significant role in shaping the food choice of individuals especially the young adults/youths. To make matters worse, the ubiquity of fast food and junk food both high in calories, sugar, salt and fats. Therefore, eating much fast food has shown to increase caloric intake and the risk of becoming obese. Young people enjoy fast food eating centres because they usually provide a place for socialization. The concept of fast food eating has expanded into food sales in schools. For many students, the day is not complete without observing the “daily ritual” of visiting a fast food joint and most of the fast food restaurants in the cities have begun to open centres within and very close to schools, especially university campuses and colleges. Some meals available for refreshment during celebrations, meetings and conferences are also now being prepared by fast food chains. This has increased the number of times people feed on these foods. Reference [14] reported a survey of 100 undergraduate students where fast food purchases in the UK were mostly impulsive (57%) and a small subset of people routinely eating fast food (20%) . In the US, some researchers have asserted that fast food intake occurs frequently in adolescent age groups stating that up to 75% of adolescents eat fast food at least once a week [15] . Others have reported that adolescents eat food on average between two and three times a week.

(2) Convenience store: This also plays a significant role in shaping the food choices of individuals as convenience stores contribute greatly to the “Availability” described as the array of food options, which are present in the food system that are acceptable and affordable. Likewise, “Accessibility” referring to the readiness and convenience of a food, whether the food requires little or no cooking, is packaged in a convenient way so that it can be eaten anywhere or whether it can be stored for some time without spoilage [13] . A number of studies have examined the relationship between food access, dietary intake, and obesity. Although results are not universal, most found that better access to supermarkets is associated with healthier diets and reduced risk of obesity, while greater access to convenience stores is associated with increased risk of obesity [1]. Many studies investigating the reasons why people make their food choice have pointed to convenience. People generally eat or choose what they do because of convenient locations and time constraints [16].

(3) Schools and Workplaces: Food available at or near workplaces also tends to be those that are convenient, low in cost and that sells well. In most schools, food is available and accessible. The majority of competitive foods, junks food or fast food has been found to be high-fat and high-sugar items including snack-chips, pasties and soft drinks. It has been shown that what is available in the school environment affects the food choice and dietary behaviour of students [17]. The limited accessibility of healthful, convenience foods in many settings may narrow good choice and make it difficult to eat healthfully.

(D) Macro-Environment

Macro-environmental factors such as mass media, marketing and advertising, cultural norms and religious belief play more distal and indirect role but at the same time have a substantial and powerful influence on what people eat.

(1) Marketing and Advertising: The current media saturated environment has undergone revolutionary changes in the past two decades, resulting in the availability to individuals and households numerous television channels, radio stations, websites and other emerging communication routes. As a result of this, eating habits have changed drastically and rapidly over the years. Today, the number of overweight or obese children and adults in the population has increased while the number of lifestyle-related deaths have also increased. Consumers today value convenience so highly that they are willing to spend over half of their food budget on meals that require little or no preparation. They regularly eat out, bring home ready-to-eat meals, or have food delivered.

This trend is mainly influenced by the media which promotes such behaviours through commercials and popular programs and movies. The media is a major source of information and misinformation on nutritional sources. The media through advertisement promote unhealthy foods rich in sugars, fat and salt as the ideal food choices.

Marketing and advertising through the media have demonstrated powerful capacity to persuade and lure people to making food choices. The food industry spends billions per year on marketing and advertising their products with much of these aimed at children and youths [18]. Children and youth receive more information about food, nutrition and health from the media than any other source. However, there is evidence that these marketing activities influence food choices of this present generation [19],[20],[21].

(2) Cultural Norms: Culture has been described as the knowledge, traditions, beliefs, values and behavioural patterns that are developed, learned, shared and transmitted by members of a group. Therefore, cultural practices and family of origin have an important impact on food choices and eating practices even in the modern, multiethnic societies like Nigeria, where many different types of cuisine are available [22]. Those from different regions of the country have different practices. For example, for those from southeast of Nigeria, Igbos home style meal can be stock-fish, Ogbono soup with Apku or Gari, while in the southwest, Yorubas place high premium in their delicacy of meat-melon soup with pounded yam or amala.

The cultural practices of different ethnic groups, especially at special celebrations and holidays provide occasion to eat culturally or ethnically determined foods and reinforce the importance of those foods. All these considerations influence individuals' willingness and ability to make changes in their choice of diet. Cultural related health beliefs also influence what we choose to eat. For example, although the concepts of balance and moderation are common among many cultures, individuals may come from cultures in which foods are believed to have hot and cold qualities and must be eaten in such a way as to balance cold and hot body conditions. This cultural belief can have a major influence on food choice.

(3) Religious Belief: This factor also plays a powerful role in shaping and influencing the food choice of different religious groups as food is an important part of religious rites, symbols and customs. Ten percent of some religious rules apply to everyday eating, whereas others are concerned with special celebrations [23]. Christianity, Islam, Judaism, Hinduism and Buddhism all have distinct dietary laws, but within each religion, different interpretations of these laws give variations in dietary practices.

For example, Jewish dietary laws specify the foods that are "fit and proper" or kosher to eat. To be kosher, meat must come from clean animals that chew their cud and have cloven hooves. Fish must have fins and scales. Pork, crustaceans and shell fish and birds of prey are not acceptable.

The orthodox law of Judaism prohibits eating meat and milk at the same meal or even preparing or serving them with the same dishes and utensils. Islamic faith prohibits the consumption of pork, flesh of clawed animals, alcohol and other intoxicating drinks. Intoxicating beverages are also prohibited in Buddhism. All these are religious beliefs which have positively and negatively influenced the food choice of individuals.

IV. Role of the Environment in Healthy Eating

There is growing interest in the role of the environment in promoting or hindering healthy eating. It has been suggested that individual change is more likely to be facilitated and sustained if the environment within which choices are made support healthy food options. Reference [1] emphasized that as with other major public health issues such as smoking reduction, injury prevention and infectious diseases prevention, success at the population level for reducing obesity and diet-related chronic diseases are not likely to be achieved until environmental influences are identified and modified.

Diet-related environment and policy interventions are also being advocated at a population level because individual behavioural change strategies are expensive and cannot reach large numbers of people on a cost effective basis. Environmental changes may also have more lasting effect on behavioural change maybe because they are incorporated into structures, systems, policies and sociocultural norms.

The overall goal of public health is to give people the best chance to enjoy many years of healthy and active-life. Public health encompasses a population focused and organized effort to help individuals, groups and communities reduce health risks and maintain or improve healthy living as regards to food choices. Improving dietary and lifestyle patterns and reducing obesity will require addressing not only individual behaviour but the environmental context as well as conditions in which people live and make access to healthy foods in low income and disadvantaged communities.

Many factors contribute to an individual's body weight and overall dietary health. These include individual factors, such as demographic characteristics, socioeconomic status, education, and preferences for food and so on. Environmental factors also influence body weight and dietary health. Such factors can include access to stores and restaurants, parks and recreation facilities, sidewalks, and the availability of public transportation, and social environmental factors like crime, neighborhood cohesion, and the social and cultural norms around food. Individual factors can explain some differences in who becomes obese or who acquires diabetes, but alone, they cannot account for all the differences in rates of these diseases. The food environment and food store access may help explain differences in diet and health outcomes [24].

Measurement of food environment and its effect on dietary behaviour is a relatively new field of inquiry, and pioneering researchers have been innovative in their development and use of tools to assess these environmental effects. A working group of researchers' expert in measuring food environment was formed by the National

Cancer Institute in 2006. This group, consisting of internal National Cancer Institute (NCI) and extramural scientists, identified the need to create a consolidated list of the measures of the food environment. The working group noted that no systematic compilation of measures of the food environment has been completed and that such a compilation would benefit researchers and community groups interested in reviewing or using existing measures. This paper is an initial attempt to identify measures of the food environment used in research and serves as the basis of the discussion of food environmental measures [4].

V. Strategies to Enhance Healthy Eating Habits Among Adolescents in Tertiary Institutions

Social affective context is the positive or negative experiences encountered socially while eating a particular food. This can lead to the like or dislike of such food but adolescents should be encouraged to avoid developing food preference as a result of negative previous experience with a particular food, because such food might be beneficial to health.

Biologically, human beings appear to be born with unlearned predisposition towards liking things that taste sweet and rejecting things that taste sour or bitter but a study by (4 , reported that high sugary food intake could make students forgetful. Therefore, adolescents should be advised to reduce their sugary food intake which is more beneficial to the brain activities.

Parents and caregivers as a matter of fact play central roles in shaping the dietary habit of household members. Adolescents should emulate healthful food choice offered to them at home and make the same food choice whenever they are away from home. As a result of ubiquity of fast food and junk food outlets, adolescents are advised to lower the intake of fast food and junk food as both are high in calories, sugar, salt and fat and embrace the consumption of balanced and varied diet as well as fruits and vegetables in quest of food choice to be mentally sound.

In addition, adolescents should avoid subscribing to friends and peer pressure as a result of social norms and expectations. For example, some students feel pressured to eat less-nutritious fast food rather than making a wise food choice [14].

Above all, the healthy food choice equation for adolescents should be:

Food choice + Moderation + Nutrition = Health.

VI. Conclusion

Environment plays a significant role in shaping the food choice of adolescents. Diet and nutrition along with lifestyle changes are recognized as the principal environmental components affecting a wide range of diseases of public health importance in the developing countries. While many adolescents have been obsessed about weight and body shape, not so many have taken time to watch their dietary patterns. This is in view of the fact that more and more adolescents are getting addicted to the fast food syndrome, coupled with the avalanche of fast food restaurants that are springing up in the cities. Very few have paid attention to the health implications of these food outlets. However, making the right choice of food will reduce the risk of obesity and other related chronic diseases and as well help to remain healthy with active brain while on campus.

VII. Recommendations

- There is need for enlightenment on health consequences of unhealthy eating habits and poor choice of food by adolescents as a result of mushrooms of shopping malls, convenient stores and fast food outlets.
- The environment within which food choices are made should be tailored towards the support of healthy food options.
- The media should be mandated to promote healthy food choice and information as it is a major source of information and misinformation on nutritional issues as well as other issues of life.
- Valid and reliable measures of food environment are required in order to assess any effect of food environment on individual dietary behaviour. These measures may form the foundation of research that may inform obesity-related policy.

VIII. References

- [1] N.I Larson, M.T. Story and M.C. J (2009). A review of environmental influences on food choices. *Annals of Behavioural Medicine*. (38): United States. Jones and Bartlett Publisher Ltd. pp 56–73.
- [2] Brownell, K.D. & Frieden, T.R. (2009). Ounces of prevention: the public policy case for taxes on sugared beverages. *Nutrition Medicine*. United State: Waveland Press. pp 360-805.
- [3] Sallies, J.F & Glanz, K. (2009). Physical activity and food environment: solutions to the obesity epidemic. *Milbank Quarterly* 87(1): Jones and Bartlett Publishers; U.S. pp 123-154.
- [4] Lytle, L.A. (2009). Measuring the food environment: state of the science. *American Journal of Preventive Medicine*. 36(4): Sudbury, United State. Jones Publishers pp 134-144.
- [5] Harrison, M.S; Coyne, T & Lee, A.J. (2007). The increasing cost of the basic foods required to promote health in Queensland. *Medicine Journal*. (186):U.S. Waveland Press. pp 9-14
- [6] Rolls, B. (2000). Sensory specific satiety and variety in the meal: The science, culture, business and art of eating. London. Davison Publishers. pp 10-16.

- [7] Pepino, M.Y & Mennella, J.A. (2005). Factors contributing to individual differences in sucrose preference. Chemical senses. Sudbury, United State. Jones Publishers. pp 319-320.
- [8] Rozin, P. (1996). Sociocultural influences on human food selection. Why we eat what we eat: The psychology of eating, edited by Washington D.C, American Psychological Association Publishers. Sudbury. pp 405-409.
- [9] Cutler, D.M, & Glaeser, E.L. (2003). Why have Americans become more obese? Harvard Institute of Economic Research, Harvard University Press.
- [10] Macino, L; Lin, B.H & Ballenger, N. (2004). The role of economics in eating choices and weight outcomes. Agricultural information bulletin No 791. Washington, D.C: U.S Department of Agriculture Economic Research Service. Waveland Press, U.S.
- [11] Ventura, N & Birch, L. (2008). Does parenting affect children's eating and weight status? *International Journal of Behaviour, Nutrition and Physical Activities* (5): Napoli, Italy. Craig publishing company. pp15.
- [12] Devine, C.M; Connors, M.M; Sobal, J. & Bisogin, C.A. (2003). Sandwiching it in: spillover of work onto food choices and family roles in low and moderate income urban households. *Journal of Social science medicine*. 56(3).Dublin: Francis Publisher. pp 617-630.
- [13] Gallo, E.A. (1998). The food marketing system in 1996. In Agricultural Bulletin No A1B743, Washington, DC: U.S. Department of Agriculture, Economic Research Service. Jones and Bartlett Publishers; Massachusetts, United State.
- [14] Schroder, A & Mc Eachern, F (2005). Fast food consumption among adolescents. United Kingdom: Carrick Publishing Ltd. Pp 265-270.
- [15] French, S. Harnack, L. Toomey, T. & Hannan P. (2007). Association between body weight, physical activity and food choices among metropolitan transit workers. *International Journal of Behavioural Nutrition*. (4) Dublin: Francis Publisher. pp 52-53.
- [16] Food Week, (2008). Report of a survey conducted by Independent Grocers of Australia (IGA) <http://www.foodweek2008/independentgroccerofaustralia.net>
- [17] Briefel, S. & Gleason, P.M. (2009). School food environments and practices affect dietary behaviour of U.S public school children. *Journal of the American Dietetic Association* 109(2).Massachusetts, United State: Jones and Bartlett Publishers. pp 91-107
- [18] Elitzak, H. (2001). Food marketing costs at a glance. *Journal of Food Review* 24(3).University Park: Pennsylvania state University press. pp 47-48.
- [19] Taras, H.M; Zive P.R; Nader, C.C; Berrym, T & Boyd, C. (2000). Television advertising and classes of food products consumed in pediatric population. *Journal of Advertising* (19). Kessington: Gatewood Press Inc. pp 487-494.
- [20] Robinson, T.N. (2001). Dietary patterns and media influence. New York : Mc Graw-Hill Books Press. Pp 143-147.
- [21] Institute of medicine (2006). <http://www.instituteofmedicine2006/foodadvertisement/coc>
- [22] Gillman, M.W; Rifas-Shiman, S.L & Frazier, A.L. (2000). Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine* 9(3). Munich: publishing company. pp 235-240.
- [23] Friedman, C.A. (2008). Religion consideration on dietary pattern: food and religion. New York, Kessington Gatewood Press Inc. pp 35-41.
- [24] Diez-Roux, A. (2009). The local food environment and health: Presented at the workshop on the Public Health Effects of Food Deserts, Washington, D.C. Jones and Bartlett Publishers; United State.