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Paper No. : 09 Physiology and Sports Anthropology

Module : 18 Obesity and Ethnicity

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Description of Module	
Subject Name	Anthropology
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Contents

Learning Objectives:

- To understand the concept of race/ethnicity
- To understand the relation between obesity and ethnicity
- To know about the prevalence of obesity among adults using different parameters
- To know about the prevalence of obesity among children using different parameters

1. ETHNICITY/RACE

Ethnicity is the term used to categorize populations on the basis of cultural characteristics such shared language ancestry, religious traditions, dietary practices, and history. Although ethnic groups can share a range of phenotypic characteristics due to their shared ancestry, the term is typically used to highlight cultural and social characteristics instead of biological ones. The term race has traditionally been used to categorize populations on the basis of biological characteristics which they share among them such as genes skin color and other physical features.

Both race and ethnicity are in fact social constructs. The idea that race reflects only biological distinction is not true. Only 3.7%of total human genetic diversity may be based on race but are not always biologically meaningful. (3,4). Both the concepts i.e. race and ethnicity are continuously evolving ones. This makes comparing groups or following the same groups over time, a challenging task. Admixture, as well as changes in self identification across several generations makes it difficult to categorize individuals according to race or ethnicity. Therefore defining ethnicity, the concept of ethnicity or ethnic group is multidimensional changes with time and is difficult to define. When a person identifies with a particular ethnic group, it may imply shared origins, social background, culture or traditions which are distinctive and maintained between generations. (1). Furthermore, in a world of migration and mixing, these cultures and societies are highly dynamic (2). It is virtually difficult to create single, mutually exclusive categories of ethnicity which invite identification from respondents and are conceptually coherent (3).

Whenever, data is collected and analyzed on a large scale, ethnicity is often treated as a fixed characteristic. The term minority ethnic groups are used in UK, which is based on U.K. Census, which asks people to indicate the ethnic group they belong to (5). Country of birth is sometimes used as a proxy for ethnicity.

2. OBESITY AND ETHNICITY

Obesity prevalence varies substantially between ethnic groups both among adults as well as children.

Estimates of adult obesity prevalence by ethnic group seem to differ according to the measurement used. Measurements are e.g. BMI, waist to hip ratio and waist circumference.

The definition of obesity is a topic of debate among adults and children belonging to different age groups.

Different ethnic groups have different physiological responses to fat storage. BMI-cut off values for obesity has been revised for South Asian populations who are at risk of chronic diseases and mortality at lower BMI levels than the European population.

"Obesity is a chronic condition characterized by excess of body fat."

The Royal College of physicians of London, in its report on clinical management of overweight and obese patients (1988) has taken body mass index (BMI) as a measure of body fat. BMI is, weight in kilograms divided by height in meter square (kg/m^2) as originally described by quetelet in 1869.

2.1. OBESITY AMONG ADULTS

The WHO clarification to define degrees of overweight has been accepted internationally and also by national Institute of Health (NIH), 1998 (Revised in 2000).

Table 1: WHO Classification of overweight and obesity

BMI categories	BMI (kg/m^2)	Risk of co-morbidities
Underweight	< 18.5	Low (but risk of other clinical problem increased
Normal range	18.5 to 24.9	Average
Overweight	25-29.9	Mildly increase
Obese	30 or above	
Class I	30 – 34.9	Moderate
Class II	30-39.9	Severe
Class III	40 or above	Very severe

Conventional adult BMI clarification relating to excess weight are BMI = 25.9 - 29.9 kg/m^2as overweight whereas BMI = 30.0 kg/m^2 and above as obese. These cut off are primarily applicable to European populations to correspond to risk thresholds for a wide range of chronic diseases and mortality. It is now generally accepted that South Asian populations are at greater risk of ill health at lower BMI levels than European populations have shown that a high proportions of abdominal fat (central obesity) is a major risk for coronary heart disease, type 2 diabetes mellitus and related mortality. Worldwide, disease profiles are transforming at a rapid face. Among several diseases, obesity has become a colossal epidemic causing serious public health concern and contributes to 2.6 million deaths worldwide every year (WHO, 2005). Obesity is an independent risk factor for CVD. Obesity is associated with an increased risk of morbidity and mortality as well as reduced life expectancy.

2.1.1. BMI CUT-OFF POINTS FOR DIFFERENT ETHNIC GROUPS

In recent years, there has been a growing debate on whether there is a possible need for developing different BMI cut-off points for different ethnic groups, in particular for Asian populations. This is due to the increasing evidence that the associations between BMI, percentage of body fat, and body fat distribution differ across populations and therefore, the health risks increase below the cut-off point of 25 kg/m2 that defines overweight in the current WHO classification. There have been two previous attempts to interpret the BMI cut-off points in Asian and Pacific populations (3,4) both of which contributed to the growing debate. To investigate these questions further, WHO held the Expert Consultation on BMI in Asian populations (Singapore, 8-11 July 2002) (5). The Consultation concluded that the proportion of Asian people with a high risk of type 2 diabetes and cardiovascular disease is substantial at BMI's lower than the existing WHO cut-off point for overweight (≥ 25 kg/ m2). However, the cut-off point for observed risk varies from 22 kg/m2 to 25 kg/m2 in different Asian populations and for high risk; it varies from 26 kg/m2 to 31 kg/m2. The Consultation, therefore, recommended that the current WHO BMI cut-off points should be retained as the international classification, however, the cut-off points of 23, 27.5, 32.5 and 37.5 kg/m2 are to be added for public health action points. This recommendation stated that countries should use all BMI categories (ie, 18.5, 23, 25, 27.5, 30, 32.5 kg/m2, and in many populations, 35, 37.5, and 40 kg/m2) for reporting purposes, with a view to facilitating international comparisons. In addition, an expert working group was formed by the WHO Expert Consultation, and is currently undertaking a further review and assessment of available data on the relationship between waist circumference and morbidity and the interaction between BMI, waist circumference, and health risk. It is anticipated that this analysis will be completed by October 2005.

It is now well established that adult Asian subjects have higher levels of body fat than European subjects with comparable BMI values which has led to a revision of WHO recommendations for appropriate BMI cut-off levels in Asian populations (WHO lancet 2004).

Obesity is a type of malnutrition, which is highly prevalent, readily visible and symbolized by prolonged energy with resultant excess accumulation of fat and formation of superfluous adipose tissue (Okake 1983)

The world health organization adopted the weight classification developed by the national institute of health (NIH) through an expert panel convened in 1995 that reviewed data from approximately 394 studies to clinically assess the association between weight levels and disease risk. These classifications were published in the clinical guidelines on the identification, evaluation and treatment of overweight and obesity in adults in 1998.the panel recommended the use of BMI, now most widely used, as a measure of weight in relation to height.

It is important to remember that although BMI correlates with the amount of body fat, it does not directly measure body fat. Other methods of estimating body fat and body fat distribution include measurements of skinfold thickness and waist-hip circumference, calculation of waist to hip circumference ratios, and techniques such as ultrasound, computed topography, and magnetic resonance imaging (MRI) are emerging along with bioelectric impedance etc. Recent studies have shown that waist circumference is the best simple anthropometric index of abdominal visceral adipose tissue.

2.1.2. WAIST HIP RATIO has been used to differentiate the distribution of body fat, for lower body fat predominance the ratio.

Epidemiological studies have mainly used ratio of waist to hip circumference (Waist-hip ratio) to estimate the proportion of abdominal adipose tissue. Males with waist: hip ratio>1.0 and females with waist: hip ratio: 0.85 are considered obese.

Although measures of central adiposity are closely correlated with BMI, they have been shown to predict future ill health independently of BMI. Current **WC THRESHOLDS** for increased risk of obesity related health problems among white populations are 94 cm or more in men and 80 cm or more in women. The equivalent thresholds for greatly increased risk are 102 cm for men and 88 cm for women.

The international Diabetes Federation and South Asian Health Foundation are in agreement that the cut off for WC from the South Asian and Chinese ethnic groups should be reduced from 94 cm to 90 cm, to represent the increased risk. However, no change from 80 cm has been recommended for women. It has been shown by current literature review (21), that there is no universal optimal value that can be applied worldwide, country or region specific threshold values are usually considered.

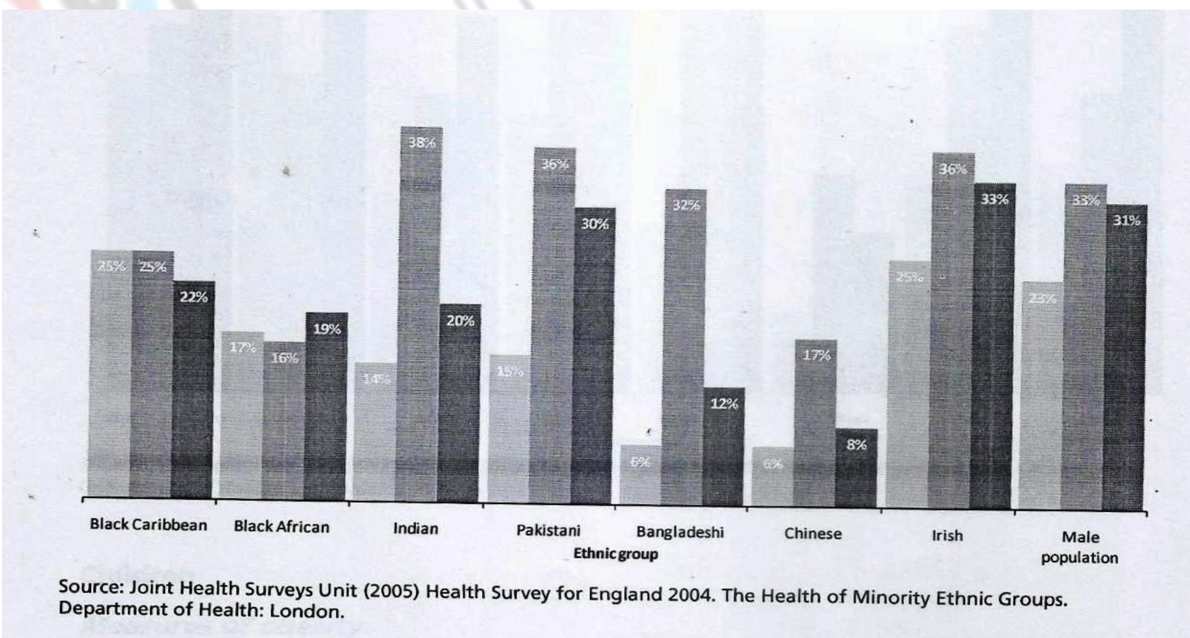
In UK (14) however, NICE does not recommend separate WC thresholds for different ethnic groups. The Health Survey for England (HSE) 2004, had a large sample of individuals from minority ethnic groups and gives a large data on adult obesity prevalence by ethnic group.

It was reported that men from Irish, Pakistani, Indian and Bangladeshi groups have similar prevalence of raised waist to hip ratio, as compared men general population. Men from Black African, Black Caribbean and Chinese communities were not having higher waist to hip ratio.

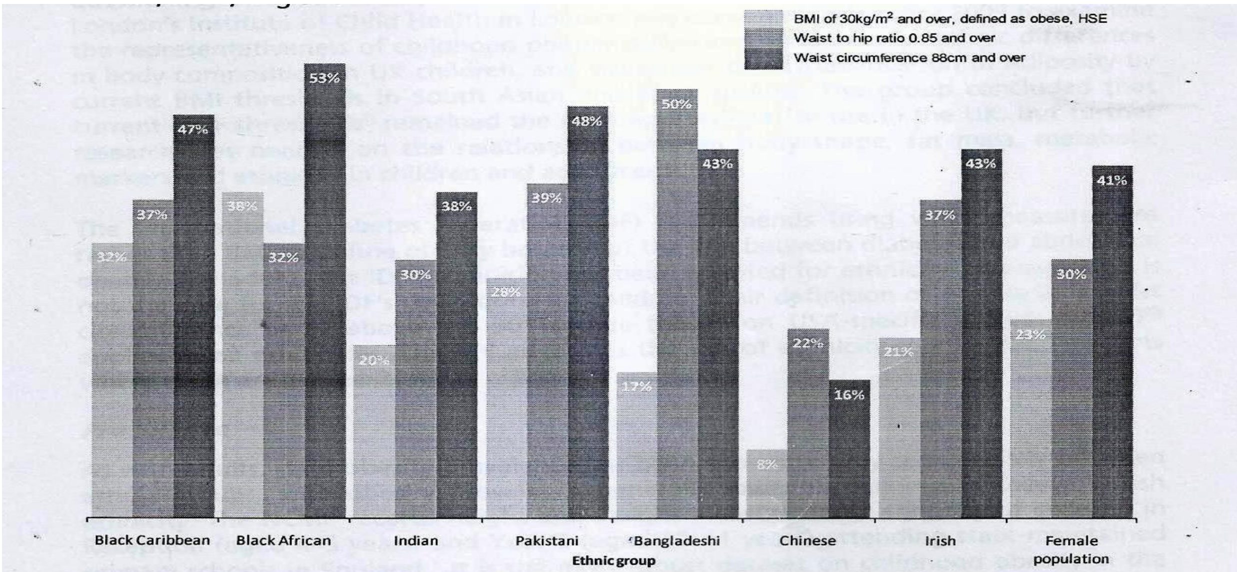
Women belonging to Bangladeshi, Black Caribbean, Pakistani and Irish groups had raised waist hip ratio compared to women of general population. Bangladeshi women showed values which are twice high.

2.1.3. WAIST HEIGHT RATIO (WHTR)

Waist height ratio (WHTR) has been proposed as a good measurement which can be used across all ethnic groups. In populations of Japan and China where low rates of obesity and moderate BMI are prevalent, WHTR could be used as an indicator of life style related disorders.



Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.



Source: Joint Health Surveys Unit (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. Department of Health: London.

2.1.4. CONSENSUS STATEMENT

Normal □□□: 18.0-22.9 kg/m2, overweight: 23.0-24.9 kg/m2, obesity: >25 kg/m2 WC and WHR cut-offs for Asian Indians abdominal obesity is increasingly being recognized as an important cardiovascular risk factor. In some studies, association of abdominal obesity with various metabolic risk factors appears to be stronger than generalized adiposity. The cardiovascular risk associated with abdominal obesity can be attributed to excess abdominal adipose tissue, both intra-abdominal adipose tissue (IAT) and subcutaneous adipose tissue (scat). Common surrogate measures of abdominal obesity are WC and WHR. Waist circumference is a simple, easily obtainable anthropometric parameter, which can be assessed in the outpatient setting. Measurement of WHR is more difficult as accurate measurement of hip circumference may not always be possible since it requires disrobing, difficult task especially in women in India. Further, changes in WHR may not accurately reflect the extent of obesity or changes in weight. A recent meta-regression analysis of prospective studies of WC and WHR as predictors of cardiovascular events has shown that both the measures are associated with the risk of incident CVD. Recently, some evidence exists that WHR shows a graded and a significant association, stronger than that of BMI, with risk of myocardial infarction, 33 also shown for Asian Indians.

The currently recommended cut-offs of WC (>102 cm in men and >88 cm in women) are not be applicable to all the populations due to heterogeneity in the average levels of measurements and different relationship with cardiovascular risk.35,36 Asian Indians appear to have higher morbidity at lower cut-off for WC than do white Caucasians. In a study by Misraet al.25 WC cut-offs, 72 cm in women

2.2. OBESITY AMONG CHILDREN

The prevalence of obesity has tripled since 1980 among children 6–11 years of age and adolescents 12–17 years of age, according to the National Health and Nutrition Examination Survey (NHANES) (5). The overall prevalence of obesity in children in the U.S. was 17% in 2004 (6). A subsequent analysis (7) suggested that the prevalence may have reached a plateau, although further tracking of data will be needed to confirm or refute this.

For children and adolescents, overweight and obesity are defined using age and sex specific monograms for BMI (Body mass index) children with BMI equal to or exceeding the age-gender specific 95th percentile are defined obese. Those with BMI equal to or exceeding the 85th but are below 95th percentiles are defined overweight and are at risk for obesity related co-morbidities. Childhood obesity affects both developed and developing countries of all socio-economic groups, irrespective of age, sex or ethnicity.

Worldwide, over 22 million children under the age of 5 are obese, and one in 10 children are overweight. a wide range of prevalence levels exist, with the prevalence of overweight in Africa and Asia averaging well below 10 percent and in the Americas and Europe above 20 percent. Obesity has become a serious public Health concern affecting a significant portion of population in countries like US. Overall, among adults aged at least 20 years in 1999-2002, 65.1 percent were overweight and 16.0 percent were obese.

Asian countries are not immune to this phenomenon. In China, the prevalence of overweight and obesity among children aged 7-9 yrs increased 1-2 percent in 1985 to 17 percent among girls and 25 percent among boys in 2000. Some of the commonly word growth reference charts in UK are the British 1990 Growth Reference (UK 90) and the international obesity task force (10TF) growth reference. Though, the 10TF thresholds are appropriately used nowadays but further research is needed on relationship between body shape, at man, metabolic markers and ethnicity in children and adolescents. The international Diabetes Federation (IDF) recommends the use of waist circumference rather than BMI to define obesity because of the link between diabetes and abdominal obesity. For adults, IDF's definition has been adapted for ethnicity. For children their definition of obesity as a waist circumference at or above the 90^{th} centile based on USA specific growth curves applies to all ethnicities. The IDF, advocates the use of ethnicity specific centile charts, where these are available.

The prevalence of childhood obesity among African Americans, Mexican Americans, and Native Americans is higher as compared to other ethnic groups. The Centers for Disease Control reported,the prevalence of obesity to be 19% of non-Hispanic black children and 20% of Mexican American children, compared with 11% of non-Hispanic white children in the year 2000.

The overall prevalence of childhood obesity continued to increase during the first half of this decade (17% in 2004 vs. 14% in 2000), however, the differences by race/ethnicity appear to be diminishing, in part due to rapid increases in obesity in white children. Disparities were found in children of other race/ethnicities. In adolescents, the prevalence of severe obesity (BMI ≥30 mg/kg [2]) was 39% in Native American boys compared with 14% in both non-Hispanic white boys and black boys; it was 14% in Native American girls compared with 10% in non-Hispanic white girls and 18% in black girls. The prevalence of obesity in Asian American boys and girls was 10 and 4%, respectively (8).

Pubertal maturation is known to have impact on obesity development. Girls who mature early have higher BMI and sum of skinfolds during their teenage years than girls who mature later (9), and this interaction is strongest in black girls (10). Because black girls undergo pubertal maturation earlier on average than white girls, differences in pubertal maturation stage can account for some racial differences in adolescent obesity.

Many researchers have placed the origin of the childhood obesity epidemic at the beginning of the 1980s. There have been dramatic changes in the nutrition and physical activity habits of U.S. children, along with changes in demographics and societal norms, concurrent with the increase in childhood obesity prevalence.

Obesity in childhood is a significant predictor of obesity in adulthood. The Bogalusa Heart Study tracked 2,400 5- to 14-year-old children for a mean of 17 years and found that obese black children were even more likely to remain obese as adults (83%) than obese white children (68%) (11).

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Childhood experiences of SES can be defined by race/ethnicity, household economic resources, or some combination of both. Measures of accumulated wealth and access to different resources and services are usually not included in studies of childhood obesity. Causal relations between SES factors and obesity rates cannot be arrived at, from cross-sectional studies. Controlling for SES variables, however, is very difficult because many, if not most, of these variables are unobserved. Thus, some researchers have cautioned against resorting to default explanations based on race/ethnicity or culture (18).

2.2.1. ACCSESS TO ENERGY RICH FOODS

One hypothesis linking SES variables and childhood obesity is the low cost of widely available energy-dense but nutrient-poor foods. Fast foods, snacks, and soft drinks have all been linked to rising obesity prevalence among children and youth (20). Fast food consumption, in particular, has been associated with energy-dense diets and to higher energy intake overall. Calorie for calorie, refined grains, added sugars, and fats provide inexpensive dietary energy, while more nutrient-dense foods cost more (21)..Whereas fats and sweets cost only 30% more than 20 years ago, the cost of fresh produce has increased more than 100%. More recent studies in Seattle supermarkets showed that foods with the lowest energy density (mostly fresh vegetables and fruit) increased in price by almost 20% over 2 years, whereas the price of energy-dense foods high in sugar and fat remained constant (22).

Lower-cost foods make up a greater proportion of the diet of lower-income individuals (23). In U.S. Department of Agriculture (USDA) studies, female recipients of food assistance had more energy-dense diets, consumed fewer vegetables and fruit, and were more likely to be obese. Healthy Eating Index scores are inversely associated with body weight and positively associated with education and income (24).

2.2.2. AREA OF RESIDENCE

Area-based SES measures, including poverty levels, property taxes, and house values, provide a more objective way to assess the wealth or the relative deprivation of a neighborhood (25). All these factors affect access to healthy foods and opportunities for physical activity.

Living in high-poverty areas has been associated with higher prevalence of obesity and diabetes in adults, even after controlling for individual education, occupation, and income. In the Harvard Geocoding Study, census tract poverty was a more powerful predictor of health outcomes than race/ethnicity (25). Childhood obesity prevalence also varies by geographic location. The California Fitness gram data showed that higher prevalence of childhood obesity was observed in lower-income legislative districts. In Los Angeles, obesity in youth was associated with economic hardship level and park area per capita. Thus, the built environment and disadvantaged areas may contribute in significant ways to childhood obesity.

The loss of manufacturing jobs, the growth of a service economy, and the increasing number of women in the labor force have been associated with a dramatic shift in family eating habits, from the decline of the family dinner to the emerging importance of snacks and fast foods (26). The allocation of time resources by individuals and households depends on SES.

2.2.3. BIOLOGICAL FACTORS

Biological factors may, be responsible for racial/ethnic and SES differences in childhood obesity. Low socioeconomic status or discrimination by race or ethnicity may cause stress. Stress has a direct effect on the hypothalamic-pituitary-adrenal axis, resulting in elevation of plasma cortisol, which has been implicated in the development of obesity (27). The relationships between stress and illness differ markedly by race/ethnicity, in part due to differences in exposure to social and environmental stressors; the degree to which the environment, SES, and discrimination are appraised as stressful; culturally appropriate strategies for coping with stress; biological vulnerability to stress; and the expression of stress as illness (28). These relationships are however not fully understood.

Race/ethnicity may have underlying genetic components; however, self-identified race/ethnicity is complicated by genetic admixture (29). Whether genetic differences across populations are associated with obesity development also remains unclear. The metabolic co-morbidities of obesity may be related to different patterns of fat distribution. African American adults and children have less visceral and hepatic fat than white and Hispanic individuals (30). Another possibility is that there are fundamental metabolic differences by race or ethnicity. Racial and ethnic differences in resting metabolic rate have been found (31) but may partly be due to differences in fat-free mass or organ mass and have not been shown to account for weight gain over time within populations. Some differences in insulin secretion and (32) response among racial/ethnic groups have been found. African American and Hispanic children have lower insulin sensitivity than white children. African Americans have higher circulating insulin levels than whites, due to not only a more robust β-cell response to glucose but also decreased clearance of insulin in the liver. Hispanics also have lower insulin sensitivity than whites, after controlling for BMI and body composition, and have higher insulin levels in compensation for their relative insulin resistance (33).

There are differences in lipids and lipoproteins related to race/ethnicity (34). African Americans have lower rates of basal lipolysis than whites (35). This could be a metabolic risk factor for both the development of obesity and the risk of obesity-related co-morbidities. African Americans also have lower levels of adiponectin than white subjects during childhood and adolescence, which may help explain their increased risk of diabetes and cardiovascular disease despite having less visceral adiposity (36). There is circumstantial evidence for biological differences in obesity development and the occurrence of co-morbidities by race/ethnicity; causal relationships cannot be drawn.

2.2.4. CULURAL FACTORS

Culture is a system of shared understandings that shapes and, in turn, is shaped by experience. Culture, unlike instinct, is learned; is distributed within a group in that not everyone possesses the same knowledge, attitudes, or practices. Among the shared understandings embodied by a culture are those pertaining to obesity, including understanding of its cause, course, and cure, and the extent to which a society or ethnic group views obesity as an illness. Illness is shaped by cultural factors governing perception, labeling, explanation, and valuation of the discomforting experiences (37). Perception of disease is an intimate part of social systems and it is strongly influenced by culture.

As with race and ethnicity, culture is a dynamic construct in that shared understandings change over time as they depend on the experience of individual members of a group or the entire group. For example, healthy behaviors such as physical activity, proper food choices or sedentary activities like, watching television or playing video games etc. will change as individual members of an ethnic group experience and come to value innovative practices, while losing interest in and thereby changing traditional practices.

Cultural variation in the population may be due to migration, residential segregation of groups defined by their culture and ethnicity, the maintenance of language of origin by the first and, to a lesser degree, the second generation of immigrants, and the existence of formal social organizations, such as religious institutions etc. Globalization and acculturation also promote cultural change. Globalization can affect obesity through migration of populations from low-income to high-income countries, use of high-fat, energy-dense food, promotional food marketing. Acculturation (changes of original cultural patterns of one or more groups when they come into continuous contact with one another) can affect obesity. These changes may differ by ethnic groups. For instance, first-generation Asian and Latino adolescents have been found to have higher fruit and vegetable consumption and lower soda consumption than whites. With succeeding generations, the intake of these items by Asians remains stable. In contrast, fruit and vegetable consumption by Latinos decreases while their soda consumption increases, so that by the third generation their nutrition is poorer than that of whites (38). Acculturation to the U.S. is also significantly associated with lower frequency of physical activity participation in 7th-grade Latino and Asian American adolescents (39)

Traditional diets high in complex carbohydrates and fiber have been replaced with high-fat, energy-dense diets. Rural migrants abandon traditional diets rich in vegetables and cereal in favor of processed foods and animal products. Similarly, there have been changes in patterns of physical activity linked to risk of obesity in both adults and children worldwide, including increased use of motorized transport, fewer opportunities for recreational physical activity, and increased sedentary recreation (40).

Culture is believed to contribute to disparities in childhood obesity in numerous ways. First, body image development occurs in a cultural context, and ethnic/cultural groups differ in their shared understandings as to valued and disvalued body image. For instance, perceived ideal body size for African American women is significantly larger than it is for white women, and African American men are more likely than non-Hispanic white men to express a preference for larger body size in women (41). The mean BMI at which white women typically express body dissatisfaction is significantly lower than that for African American women (42).

Given that women typically assume primary responsibility for the care, feeding, and education of children, including the transmission of shared cultural understandings, the beliefs that women possess with respect to their own body image have implications for their perception of and response to the body image of their children. This pattern may vary by ethnicity. For instance, non-Hispanic white mothers’ dietary restraint or their perceptions of their daughters’ risk of overweight can influence their young daughters’ weight and dieting behaviors (43). In contrast, Latinas tend to prefer a thin figure for themselves but a plumper figure for their children (44). Even within the Latino population in the U.S., however, there are important cultural variations, with Latinas from the Caribbean preferring a thinner body size than Latinas from Mexico and Central America (45).

Culture influences child-feeding practices in terms of beliefs, values, and behaviors related to different foods (46). Affordability, availability of foods and ingredients, palatability, familiarity, and perceived healthfulness prompt immigrant families to retain or discard certain traditional foods and to adopt novel foods associated with the mainstream culture. Bilingual school-age children from immigrant Mexican households serve as agents of dietary acculturation by rejecting the lower-calorie traditional foods prepared at home and favoring the higher-calorie foods, beverages, and snacks they consume at school or see advertised on television (47) and may resist efforts by their parents to restrict the availability of foods from the mainstream culture.

Cultural patterns of shared understandings influence food consumption in several ways. These shared understandings define which types of food are healthy and which are unhealthy. For instance, Hmong immigrants in California believe that only fresh food is healthy, that anything frozen or canned is not, that school meals are unhealthy for children, and that fruits and vegetables are totally different domains (48). Food is both an expression of cultural identity and a means of preserving family and community unity. While consumption of traditional food with family may lower the risk of obesity in some children (e.g., Asians) (49), it may increase the risk of obesity in other children (e.g., African Americans) (50).

Differences in levels and types of exposure to nutritional marketing may also account for cultural differences in patterns of nutrition. For instance, exposure to food-related television advertising was found to be 60% greater among African American children, with fast food as the most frequent category (51). Marketing strategies for food often target specific ethnic groups. This marketing, in turn, may produce alterations in belief systems as to the desirability of foods high in calories and low in nutrient density.

Culture influences preferences for and opportunities to engage in physical activity. As with nutrition, children model the types of physical activity undertaken by their parents; thus, a parent in a culture that views rest after a long workday as more healthy than exercise is less likely to have children who understand the importance of physical activity for health and well-being. Compared with their white (52) counterparts, African American adolescents have greater declines in levels of physical activity with increasing age and are less likely to participate in organized sports. A study by the Kaiser Family (53) Foundation found longer periods of television viewing among African American (54) children than among non-Hispanic white children, with Hispanic children in between. The relationship between television watching and obesity may vary by race. Henderson (55) found that white girls who watched more television at baseline showed a steeper increase in BMI over early adolescence than girls who watched less, while television viewing was not associated with adolescent BMI change in black girls.

Culture can influence the perception of risk associated with obesity. Studies of Latinos have found that many mothers of obese children believe their child to be healthy and are unconcerned about their child's weight, although these same parents are likely to believe that obese children in general should be taken to a nutritionist or physician for help with weight reduction. Among African American parents, there is (47) greater awareness of acute health conditions than of obesity. A study by Katz et al. found that both (56) obese African American girls and their female caregivers were unaware of the potential health consequences associated with their current body size.

Culture can influence the utilization of health services, affecting the likelihood that childhood obesity can be prevented or effectively treated in specific ethnic groups. While ethnic differences in access to services can be attributed to differences in SES (e.g., higher proportions of Latinos lack health insurance or transportation to health care providers), several studies have pointed to differences in use of services even when access is available. Among Latino families, differences in patterns of service use have been found to be related to different beliefs about the cause, course, and cure of an illness, the stigma attached to particular illnesses, and interactions between patients and providers (57).

Finally, culture may influence the manner in which the risk for obesity varies by social status. For instance, cultures vary with respect to which body type is associated with wealth and health, with low-income societies generally believing that a larger body size and high-income societies generally believing that a thinner body is an indicator of wealth and health. Individuals with low SES in low-income countries are at risk of undernutrition. This risk creates a cultural value favoring larger body shapes, a value that may accompany immigrant groups upon their arrival to the U.S. With globalization, however, this cultural value may be diminishing, as low-income countries become increasingly exposed to media images linking wealth with thinness.

SUMMARY

There is no straightforward relationship between obesity and ethnicity. Many more studies are needed to understand ethnic and gender differences in obesity prevalence.

Continuous debate about applicability of obesity across ethnic groups for adults and children goes on. For a given BMI, the proportion of body fat differs between different ethnic groups and rate of maturation during adolescence in groups among children. The difference in prevalence of obesity-related conditions such as cardiovascular disease and type – 2 diabetes, across different ethnic groups can only be explained by a complex and as yet unresolved interplay of genetic susceptibility and environmental factors. Data are scarce for several ethnic groups. A number of studies have highlighted a relationship between ethnicity and obesity. Some of these studies are local studies while others are national studies. Age variation among these studies and consideration of overweight only or overweight and obesity together differ, so comparisons cannot be made.