



Concept Analysis-Childhood Obesity

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Theoretical Phase

My concept for this analysis is childhood obesity since it has been identified as a global public health issue. Childhood obesity has become an epidemic disease that can lead to adult obesity and many serious health issues such as cardiovascular disease, diabetes, and asthma. Research has indicated that this concept may vary according to culture. For the purpose of this paper, the focus will be on childhood obesity across cultures in the U.S.A. As one example of cultural differences, for children between 2 and 19 years old, Hispanics have a 25.8% higher obesity prevalence than non-Hispanic whites who have a prevalence of 14.1% [1-4]. In the Latino population, many consider childhood obesity is not a concern based on their cultural norms. It is quite acceptable for children to be chubby; in fact, for many it is considered desirable. In the Latino population, often greater weight is considered healthy [5].

2. Definition

The standard dictionary defines obesity as a condition characterized by the excessive accumulation and storage of fat on the body [6]. Childhood is defined as the period of being a child, and child is defined as a person between infancy and puberty [6]. Childhood obesity is therefore an excessive accumulation and storage of fat on the body of a person between infancy and puberty.

Medically, childhood obesity is usually defined as a Body Mass Index (BMI) at or above the 95th percentile for children and teens of the same age and sex [1-4]. While this is the standard measurement

in most research literature, the terms "obesity" and "overweight" can have different definitions. Sahoo et al. [7] defined "overweight" as at or above the 95th percentile of BMI for based on age and "at risk for overweight" as between the 85th to 95th percentile of BMI for age. Flegal and Ogden [8] found that for BMI among children, overweight is defined as BMI above the 90th percentile.

The medical definitions of obesity can be very confusing. According to Sjostrom [8], obesity is an increase in the amount of body fat or adipose tissue, while overweight is an increase in body weight related to height. Another approach defines overweight as simply a milder degree of adiposity or excess weight [8]. Additionally, overweight and obesity can be considered as overlapping terms; for instance, BMI greater than or equal to 25 is indicated as overweight and BMI greater than or equal to 30 is indicated as obese. Clarifying this definition, BMI greater than or equal to 30 is overweight and obese and BMI between 25 to 30 are overweight but not obese [8].

The World Health Organization [8] released a new set of growth charts which is based on different principles than the aforementioned national growth charts. It is a highly selective sample of children from 6 sites worldwide; these children were healthy, had mothers who did not smoke before, during and after the pregnancy, and were not subject to socioeconomic constraints. Additionally, these children were fed according to Multicenter Growth Reference Study feeding recommendations for breast and complementary feeding [8]. This set of statistics indicates that a guide can be used to measure those children whose weight may be above or below an optimal range.

While this new set of standards is based on comprehensive averages, it does not take into consideration different body types. The human body can have different body shapes depending on bone structure, eating, and exercising habits, and genetics. The American psychologist W. H. Sheldon described three types of body structure; endomorphs who are round and soft, mesomorphs who are square and muscular, and ectomorphs who are thin and fine-boned [9]. This growth set does not address that concept, but it is still the standard used in this paper. Also, this set of criteria might fail to distinguish between fat, muscle, and bone. Some of these children with large muscles may be misdiagnosed as overweight and some of these children may be from ethnicities which are genetically smaller, but these may balance out in the averaging process. However, most parents may be unaware of these growth charts as a guide in regard to their own children.

Childhood obesity must be identified first for it to be perceived. While the definition of childhood is clear to parents, the definition of obesity remains vague. Although most people look in the mirror every morning for washing and preparing themselves for the day, not everyone tracks their own body weight and not everyone sees themselves objectively. Men and women who are in weight dependent occupations, like fashion models and sports stars, television announcers and sumo wrestlers, are probably more weight conscious because of their jobs and must track their weight on a regular basis to maintain it. Parents who raise their children and see them every day may not be tracking their weight, and these children may become obese without their parents' awareness. Perception of a child's obesity may sometimes come from an outsider, like a relative or a doctor or a school nurse or through an advertising or media campaign. Even then, parents may not recognize there is a problem with their child's weight. Or the child might recognize that his or her weight is a problem when looking in a mirror, stepping on a scale and reading the weight, or doing a self-comparison with other children.

There are other methods used to define childhood obesity. Waist circumference is used to indicate the distribution of excess body fat. Based on a US population, neck circumference has been used to identify children with high adiposity; obesity is suggested as 29cm in prepubertal boys, 28cm in a prepubertal girls, 32.5cm in pubertal boys and 31cm in pubertal girls [10]. Rohrer's Ponderal index is similar to BMI, but it divides weight in kilograms by height in meters cubed rather than height in meters squared; this has been used to predict percentage of body fat in children and adolescents, and its long-term associations with adult obesity [10]. These many methods to measure children obesity show a genuine need to implement one standard to avoid confusion.

Literature

According to the literature, childhood obesity can have many antecedents such as: genetics, behavior (overeating, excess sugar), activity level, environmental factors, social-cultural factors, and psychological factors (depression, eating disorders) [7,11]. Other factors for some cultures may include specific challenges for immigrants such as poverty, family influences,

changes in environment (for immigrants), stress, eating habits, food accessibility and cultural background. Some studies suggest that sedentary activity is involved in family time and that physical activity (sports) is considered to be male oriented, putting females at risk for childhood obesity [5]. Gender, age group, and ethnicity must all be considered when estimating the risk of childhood obesity. Additional factors are geographic locations and food accessibility and dietary culture, there is no single cause to explain widespread childhood obesity.

For the purposes of this concept analysis, preliminary antecedents will be identified as: confusion over the definition of childhood obesity, inability to recognize a child's obesity, changes in traditional food availability, gradual preference to readily available fast food, financial constraints, and a lack of exercise.

The attributes of childhood obesity have been alluded to large waist circumference, shortness of breath doing simple activities, thick neck size, chubby round cheeks, the need to wear extra-large size clothing, and excess fatigue. For the purposes of this concept analysis, the following attributes will be used: Body Mass Index (BMI) at or above the 95th percentile for children and teens of the same age and sex [1-4]. BMI greater than or equal to 25 is indicated as overweight and BMI greater than or equal to 30 is indicated as obese.

The consequences of childhood obesity can lead to many complications, for instance lower self-esteem due to negative body image, humiliation about their weight from other children, high blood pressure, cardiovascular disease and an increase in cholesterol level. Obesity can also increase the risk of asthma, sleep apnea, and musculoskeletal system problems due to increases in weight [11]. Ignoring obesity among these children can be grave. They are at risk for fatty liver disease, type 2 diabetes, cholelithiasis, glucose intolerance, insulin resistance, skin condition, menstrual abnormalities, impaired balance, and orthopedic problems. Additionally, obese children may be subject to anxiety, depression, and bullying [1-4]. For this concept analysis, the consequence are cardiovascular diseases, diabetes, and mental health.

Fieldwork Phase

For this concept analysis, the interviewees were recruited from the Bronx, New York. Since one of my interests is the role of culture and childhood obesity, I selected three Hispanic parents. The first participant (Carla) is a single mother, first generation immigrant who has a high school diploma and who works as a receptionist in a nursing home. She came from the Dominican Republic at the age of 36, and has three sons aged 16, 14, and 12. She rarely takes her children to the doctor unless it is absolutely necessary. Her income level is 35K per year. Two of her boys are obese: one son is 5 feet 7 inches tall, weighs 193 pounds and has a BMI of 30.2 and one son is 5 feet 2 inches tall, weighs 164 pounds and has a BMI of 30.0.

The second participant (Stacy G.) has lived in NYC since the age of 4. She and her husband are second generation parents from Central America (Guatemala). They live in a 4-bedroom town house with her parents who receive social security and who receive some

income from a rental property in Guatemala. Stacy's husband works as a construction worker and Stacy works as a CNA. They have a combined income between 36k to 42K. Stacy has two children, a son aged 10 of normal weight and a daughter aged 14 who is obese. The daughter is 5 feet tall, weighs 152 pounds and has a BMI of 29.7.

The third participant (Wattely O.), who is 32 years old, moved here from Puerto Rico when she was 17 years old. She works as a personal care assistant and her live-in boyfriend works as a school bus driver. They have three children, a son who is 10 and two daughters who are 6 and 4 years of age. Her youngest daughter is obese with a BMI 23Kg/m² at 95 percentiles.

The average age for these three participants is 37.6. All have children under the age of 16, and all live and work in the Bronx. Two participants are first generation immigrants, and one is a second-generation immigrant. Their average income level is between 32k to 36K. All speak Spanish and English at work or at home and attend church services on the weekend. They were selected for the interview because they each have at least one child who is considered obese.

The interviews were conducted through telephone calls due to the distancing and quarantining requirements in place during the coronavirus outbreak. I questioned them about childhood obesity, their definition of it, and the causes and the consequences of it. I asked about their food and family lifestyle, their cultural history, and the changes in their lives since moving to this country. Additionally, I asked about what the term obesity meant to them, their concerns about their children's weight and health, their parenting style regarding exercise and eating, as well as their ability to prepare food in this country. I wrote notes from the phone conversations, and I received follow-up text messages after the initial calls.

The participants all expressed confusion about the different definitions of obesity. When asked about these standards, one of the participants replied, "I just use my observation skills. I see how they walk, their movements and the size of their stomach, arms, and legs. I don't have the tools to measure BMI." Another participant said, "I used to see how tall they are at first and then look at their body figure as a whole. Some of my kids are more muscular than the others. So, I will say that he or she looks round to me especially on his or her lower part of body. This is how I determine if this child is obese or not. I don't really worry about what the weight scale says." Another participant answered, "In general, I will look at children as a whole first. If I see a child who is round or takes up two or three seats on the subway, I will say that he or she is obese, but otherwise I don't really think about it." These participants have different standards in measuring children with obesity, similar to the medical diagnosis regarding BMI and the use of technology.

Different themes emerged as the conversations moved past family history and into discussions about children and obesity. One theme was that these participants have different perceptions of childhood obesity. One did not know the definition of childhood obesity. She said, "I just don't understand the measurement standard of childhood obesity. When I was in my country, no one told me

that my sons are obese. But now I keep hearing 'childhood obesity', with different measurements which gives me a headache." Another participant thought the definition of childhood obesity should be changed. She said, "My son has always been chubby and healthy. Most members of my family are big and none of them are sick. I don't think chubby is unhealthy or obese. I think it depends on bone density, muscle, and fat content, and I don't think there is a single standard to fit everyone. But even my doctor told me that my child is obese." Another participant said, "I know obesity is measured mostly on BMI, but I also hear that percentiles, anthropometric measurement, computed tomography, and magnetic resonance imaging (MRI) are used as the gold standard for assessing central fat disturbances. All these terms leave me very confused." Finally, one of the participants said, "Obesity is when the BMI is above the 95th percentile for children and above 30 for adults." Not all of the participants think that their child or children are obese, even if they have an idea of what childhood obesity is.

Another theme was the difficulty of dealing with obesity and trying to eliminate the possible causes. One of them said, "My child does not like to do exercise. He hates sweating, but he loves to eat. When he is stressed out, he eats more, but he doesn't think he is fat. He will tell me, 'I am not fat. There are so many fat people who are bigger than me.' Where we live in this city, it is hard to make changes." Another participant said, "Childhood obesity is caused by multiple factors including sedentary lifestyle, stress, medication, unhealthy eating, and soda. Apparently, there is no single cause, and some people can have more than one cause." Another participant said, "I think there are more causes than we know because when I came to America, I did not know how to cook and I just ate whatever we could get, mostly fried foods. I think that is the main reason we got fat. None of us maintained the regular lifestyle we had when we were in my original country. I think it's the environment and the food here that caused our weight gain."

The participants were then asked the follow-up question about the opposite of childhood obesity, that is, a child who is underweight, a theme that associates underweight as being unhealthy. One participant replied, "I think of underweight children if they are skinny or boney." Another said, "When the child looks like they will be blown away by a strong wind, I think of that as underweight." Another one answered, "When I look at the kid as a whole, if the child's clothes are loose, not fitting right, I consider that underweight. If I speak to the mother, I recognize that the child is shorter or thinner than a child in the same age range. But they don't look healthy to me. Especially in their faces."

Another theme focused on their doctor's opinion of their child's weight. When I questioned the participants about this, I received different answers. One participant said, "The doctor told me that my child is too fat. He told me that since my child is above the 95th percentile compared to other children; he needs to lose weight. However, I still don't understand how he measured it." The next participant answered, "My doctor was telling me, my child is obese because the chart indicates he is above the 95th percentile, however, I am not sure where this standard is coming from, and he did not explain it to me. But I thought my child is not obese

because he is very muscular and strong from his football exercise.” Another participant said, “My doctor explained to me that BMI and percentiles are used to diagnose childhood obesity, computed tomography is used to diagnose fat distribution, but none of them are 100% accurate. This is why it is so confusing and not all of the measurements are done correctly.” These statements indicate that clarification and consistency on the diagnosis of childhood obesity is needed for these families.

Undiagnosed childhood obesity can lead to adult obesity and its many health complications. These participants are aware of this consequence. Although they want to help their children to lose weight, they are not confident they understand the causes or the solutions. A participant said, “I try to cook daily with healthy foods like fresh vegetables, however my sons like to eat take out. I am the first generation here so there are many vegetables and fruits I don’t really know how to cook, as I have never seen them before. In my country, my mother taught me how to cook, but here I am on my own. I have read different articles on dieting and meal plans, but I don’t know if it’s too many carbohydrates or too much fat that is causing our problems. I want my son to run in the park and exercise, but he always has so many excuses. I know childhood obesity can continue through adulthood and lead to diabetes and cardiovascular diseases, but I can’t force him to exercise.” Another participant said, “There are many processed foods here with chemicals I don’t feel safe to eat, so I try to cook at least once a day. However, I have trouble to find the right ingredients I like, so making my family’s recipes is difficult. I try to find some alternate food choices, but I don’t know where to start without a proper guide. We try to eat salad at least once a day, however this is not always the case because our schedules are very busy. Also, I try to do portion control, however I am not sure I do it correctly, even with instructions from cookbooks. For example, the same amount of potato, when you fry them, the calorie is high compared to steaming, so I am not sure the portion control method is accurate in this case. Calorie counting and the food labeling is so confusing sometimes I don’t even know what I am reading. Should I be limiting fats or carbohydrates? I am not sure. The food pyramid is hard to use, you don’t know how much you should eat in total. So, I really have no idea if I am using it correctly. I am aware of heart disease, diabetes, asthma, joint diseases, fatty liver disease, sleep apnea, type 2 diabetes, asthma, cholelithiasis, glucose intolerance, because I have a family history of diabetes and fatty liver as well as hypertension.”

These participants were aware of the complications of childhood obesity, and they admit that they need assistance to help their children lose weight. Confusion over portion control, food labeling, unfamiliar with food choices, family choices for fast food, and the stress of time limits and children’s behavior have made it difficult. Based on the interviews, the participants exhibited confusion over the definition of childhood obesity. However, the participants mentioned that there did not seem to be a single or sole cause for childhood obesity, and they observed other children who are bigger than their own children. Undiagnosed childhood obesity remains a problem.

In the final analysis, the childhood obesity standard should be a Body Mass Index (BMI) at or above 95 percentiles for children and

teens for the same age and sex [1-4]. Based upon my review of the participants’ responses, I feel I reached saturation.

Final Analytic Phase

After the three interviews, the antecedents have changed. They now include both the parents’ confusion about the standardized measurement of childhood obesity and the conflicting medical advice they received regarding childhood obesity. One antecedent remains the same, socio-cultural perspective. The participants did not recognize that their children may be obese due to their cultural perspectives. In the Dominican Republic, the obesity rate is 23% [12]. In Puerto Rico, the childhood obesity rate is between 28% to 30%, which is higher than the U.S. average 18% and higher than any other State [13]. Studies showed that, 5% to 6.5%, 13% and 7.1% of children under age 5 years old are overweight or obese in El Salvador, Guatemala, and Honduras, respectively [1-4]. Recent studies reveal that 67% of Guatemalans over 15 years old are overweight, of which 29% of those are obese [1-4]. These statistics reveal that childhood obesity is not new in these countries and this population may be thought of as a natural element of the cultural heritage. In this case, obesity may not even be considered a problem, which would make educating this population as to the dangers of childhood obesity even more of a challenge.

The attributes of childhood obesity are based on participants’ observation skills and not standardized measurements. All of the participants mentioned how they perceived obese children visually based on their knowledge and personal experiences and not on any medical standard. They also admitted that their children disliked exercise and preferred eating take out. Large waist circumference, eating large portions of food, and a preferred sedentary lifestyle were not mentioned by the participants. But all three participants did express awareness of the consequences of childhood obesity.

Participants were unsure of whether or not their children were obese, because their doctors gave them different opinions. These inconsistent explanations show that not all the pediatricians diagnose obese children in the same way, if at all. Thomas & Urrego [14] showed that:

Of the 175, 066 pediatric visits at the Ochsner Health Center for Children in the previous 4 years, only 1.82% were classified as obese or overweight. These statistics do not paint an accurate picture of our pediatric population. 59.07% of pediatric patients who visited Ochsner Health Clinic were either obese or overweight.

To summarize, childhood obesity needs to be properly defined using one standardized measurement but adjusted according to gender, body type, bone density and ethnicity. For future research, a study should be initialized to determine pediatricians’ perceptions of their most accurate methods for determining childhood obesity [15-17].

Acknowledgment

None.

Conflict of Interest

No conflict of interest.

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