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CAREGIVERS' PERCEPTION OF OBESITY AMONG MINORITY CHILDREN:

A SYSTEMATIC REVIEW

By

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Degree to be awarded: Master of Public Health

Executive Master of Public Health

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CAREGIVERS' PERCEPTION OF OBESITY AMONG MINORITY CHILDREN: A SYSTEMATIC REVIEW

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An abstract of a thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Executive Master of Public Health 2023

Abstract

Caregivers' Perception of Obesity Among Minority Children: A Systematic Review

By: Marsha Harris-Sterling

Background*:* Childhood obesity is a significant public health issue that disproportionately affects minority children in the United States. There are several factors that contribute to childhood obesity, including genetics, environment, as well as behavior. However, children's weight status may be impacted by caregivers' eating and exercise habits depending on how they perceive childhood obesity.

Objective*:* The objective of this systematic review is to analyze the caregivers' perspectives regarding the physical appearance of minority children and to determine the barriers that prevent caregivers from initiating obesity-preventative measures.

Methods*:* A systematic review was conducted to identify and assess the caregivers' perception of childhood obesity among minority children. The review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines, which resulted in 10 articles being abstracted and exported to an Excel spreadsheet and reviewed for relevancy based on the inclusion and exclusion criteria. Articles concerning, caregiver perceptions, maternal perceptions, the effects on childhood obesity, overweight child, body mass index (BMI), ethnicity, gender, and perception of weight, within the minority community, were considered.

Results*:* Ten studies assessed the caregivers' perceptions of obesity which were evenly distributed between rural and city locations. Seven of the ten studies highlighted a significant lack of knowledge pertaining to accurately classifying the child's weight status. Two studies highlighted the challenge that minority caregivers encounter in providing a healthy lifestyle, given their socio-economic status. While one other study highlighted the cultural principles leading to caregivers misjudging their child's weight by correlating thick silhouettes with prosperity and wealth.

Conclusion: Caregivers' beliefs about children's physical appearance and what constitutes a healthy silhouette are often based on personal experiences and are deeply rooted in cultural beliefs rather than scientific evidence. This can lead to behaviors that promote obesity and make it difficult for children to eat healthy foods. Reducing childhood obesity in minority communities requires targeted approaches to enhance caregivers' knowledge base about healthier eating and reduce barriers to accessing healthy foods.

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Chapter 1

Introduction and Rationale

Childhood obesity is a significant public health issue in the United States, affecting one in five children and adolescents. Several groups of children, including minority children, experience varying degrees of impact; yet every child faces the potential danger of exceeding the recommended healthy weight range.[1] In recent years, childhood obesity rates in the United States have continuously increased. As a result, each child is at risk for a myriad of obesity-related health conditions including, type 2 diabetes, asthma, heart disease, hypertension, stroke, hyperlipidemia, anxiety, and depression. Evidence suggests that intensive behavioral programs that use more than one strategy are an effective way to reduce childhood obesity.[2]

According to Hackie and Bowles, because of excessive childhood weight gain, many children today are at risk of a shorter lifespan compared to their parents.[3] This trend in childhood obesity has continued to increase from year to year and it is uncertain as to whether the health effects later in life will be more severe than anticipated.

There is no doubt that childhood obesity is a public health epidemic, however, we can take consolation in the fact that obesity and other weight-related conditions are for the most part preventable. Although environmental and genetic factors may contribute to increasing incidence rates of obesity, the Centers for Disease Control and Prevention alleges behavioral factors, such as dietary patterns and physical activity, have the largest effect on children.[4] As stated by Hackie and Bowles, mothers were likely to consider being teased about weight or developing limitations in physical activity to be more important indicators of their child being overweight than standard growth charts utilized by healthcare professionals.[3]

The current obesity rates of children point to an emerging health crisis for children and their families. This is an attempt to understand the large increase in weight problems in children and

caregivers' perception of cultural self-identification with food choices. This body of research will investigate whether caregivers have difficulties understanding weight problems, such as obesity.

A caregiver's perceptions of obesity may vary within ethnic groups depending on many factors i.e., cultural beliefs, socioeconomic status, as well as their level of education. In some cultures, caregivers may view being overweight as a sign of prosperity and good health. Conversely, other caregivers may view being overweight in a negative light where the result has the potential to create chronic health problems. Prior studies have illustrated that children from ethnic backgrounds are more likely to be overweight than their non-minority peers, and although caregivers may be cognizant, there are many factors that play a role in proliferating this problem. When considering the social and economic conditions into which individuals are born, minority families are faced with challenges to create a healthy lifestyle- inclusive of clean eating and physical activity for their children. For instance, caregivers may reside in neighborhoods that are considered food deserts, where healthy foods, including fresh foods and vegetables, are scarce. They may also live in areas where their safety is compromised and not suitable for exercising and other outdoor activities. These are just a few of the issues that minority groups must contend with, and it is important for healthcare providers and public health officials to understand that caregiver perceptions of obesity in minority children must be fully understood in order to develop culturally competent interventions that will adequately address these challenges.

Statement of the Problem

The problem addressed in this research study is the widespread prevalence of childhood obesity and its correlation with the caregivers' perspectives. As the prevalence of childhood obesity increases, so does the incidence of comorbidities and poor health outcomes in children. Early identification of children who are obese or at risk of being overweight has the potential to improve health outcomes, and a caregiver's behavior and eating habits might be an important factor in a child developing an affinity for certain cultural foods.

Purpose Statement

The purpose of this systematic review is to evaluate the caregivers' perceptions of obesity among minority children within the United States.

The aim of this research is:

(a) To analyze the caregivers' perspectives regarding the physical appearance of minority children.

(b) To determine the barriers that prevent caregivers from initiating obesity-preventative measures.

Significance of the Study

According to Kaufman et al., mothers' identities are deeply tied to providing for their families and play a pivotal role in children's eating habits. They also stated that children cultivate eating habits early in life, and those practices can have long-term health implications.[5]

Families often use the concept of food sharing that represents their sociocultural roots; however, there is a downside because it may negatively affect children's eating habits that lead to overeating and overconsumption of food. Kaufman et al., further state that parents and grandparents describe clinically overweight and obese children, particularly toddlers, as aesthetically pleasing.[5] Mothers tend to believe that a child's extra weight is also deeply connected to a mother's beliefs in safety. Furthermore, several mothers also believe that heavier children are less fragile than thinner children. In fact, Patrick et al., also maintain that children's food-related knowledge, preferences, and consumption are related to parents' preferences, beliefs, and attitudes toward food.[6]

Children learn how to eat through their own experiences and also by watching their parents. The correlation between a caregiver's food choice and children's eating habits shows similar patterns of food acceptance and preference. Patrick et al. also mentioned that data from the Bogalusa Heart Study have shown that African American children and adolescents had a higher total energy intake and greater consumption of cholesterols, fats, and carbohydrates, compared to Euro-Americans.[6] Asian American

children have significantly lower consumption of dairy product intake compared to Hispanic children who have lower consumption of fruit and vegetables.

Hypothesis

A caregiver's awareness of their child's weight has a direct impact on the child's actual weight status.

Definition of Terms

This section serves as an essential component by providing a thorough explanation of key terminologies utilized throughout the review.

Body Mass Index (BMI): a measure of body fat that is the ratio of the weight of the body in kilograms to the square of its height in meters.[7] It is calculated by dividing weight in kilograms by height in meters squared.

***Culture*:** the customary beliefs, social forms, and material traits of a racial, religious, or social group.[8]

***Eating Habits*:** conscious, collective, and repetitive behaviors, which lead people to select, consume, and use certain foods or diets, in response to social and cultural influences.[9]

Ethnicity: (1) ethnic quality or affiliation (2) a particular ethnic affiliation or group .[10]

Identities: the distinguishing character or personality of an individual.[11]

Obesity: a condition characterized by the excessive accumulation and storage of fat in the body.[12]

Overweight: exceeding expected, normal, or proper weight.[13]

Perception: the ability to understand or notice something easily.[14]

Prevalence: a measure of the total number of people in a specific group who have (or had) a certain disease, condition, or risk factor (such as smoking or obesity) at a specific point in time or during a given period of time.[15]

***Weight**:* a measurement that indicates how heavy a person or thing is.[16]

Chapter 2: Literature Review

Introduction

Obesity is a health problem that affects many children and adolescents across the United States. The nation has experienced a steady increase in obesity rates which continues to be a cause for concern. In fact, the Centers for Disease Control and Prevention reports that between 2017-2020, the prevalence of obesity was 19.7% and affected about 14.7 million children and adolescents. Obesity prevalence was 12.7% among 2- to 5-year-olds, 20.7% among 6- to 11-year-olds, and 22.2% among 12- to 19-year-olds.[17] Additionally, some populations are more likely to have children who are obese. Children of Hispanic descent were the most likely to be obese (26.2%), followed by non-Hispanic African American children (24.8%), White children (16.6%), and Asian children (9.0%).[17]

This review will present several articles highlighting both qualitative and mixed-methods research studies. This approach will provide a comprehensive understanding of the correlation between caregiver perceptions and a child's weight status.

Risk Factors

There are many factors that may contribute to the prevalence of childhood obesity. It is important to consider the role of caregivers and their perceptions, the built environment, dietary habits, as well as physical activity levels. Minority children are disproportionately affected when considering the socioeconomic factors that affect caregivers. These conditions may lead to difficulties in accessing wholesome foods and opportunities for exercise. Many of these risk factors contribute to obesity being more common in some cultures than others. Conversely, it is the caregiver's responsibility to make appropriate food choices in the interest of their child. Here lies the conundrum, since in certain cultures being overweight is seen as a symbol of success and prosperity. According to Bayles, a full figure or heavier physique is culturally valued as a sign of good health-has been attributed to African Americans, Navajos, the Chinese, and the Hmong.[18]

Another risk factor to consider is the child's genetic profile. As a result of their genes, there is a possibility that certain children are more likely to be overweight in comparison to children from other ethnic groups. Littleton et al., state that obesity is a common phenotype that results from complex interactions between environmental factors and genetics. Together these factors contribute to an imbalance in equilibrium between energy uptake and utilization, leading to an excess in adipose tissue.[19] The authors also stated that there is some correlation between genetic variants, a child's eating habits, and satiety which contribute to obesity. The most prevalent type-polygenic obesity refers to instances where obesity is brought on by the interaction of susceptibility variants in several genes.

Summary of Current Problem and Study Relevance

There are many issues that may exacerbate the childhood obesity epidemic. Therefore, it is essential that public health officials share the responsibility to reduce the impact and negative consequences on minority children within the United States. If ignored, its prevalence will result in increased risks of chronic diseases, mental and behavioral concerns for the child as well as an economic burden for the caregiver.

Chapter 3: Methodology

Introduction

The primary purpose of the methodology section is to outline the approach employed to identify, select, and evaluate the relevant studies. There are several factors that may contribute to the manifestation of obesity in minority children including, cultural dietary habits, a lack of adequate physical activity, genetics, as well as built environments. This systematic review seeks to determine whether there is a direct correlation between a caregiver's perception of their child's weight and the impact on the child's actual weight status.

Literature Search

The literature review process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines. The methodology involved in conducting the literature search included utilizing the following electronic databases: PubMed, Google Scholar, and the Wiley Online Library. The following search string was employed: **((caregiver*[TI] OR parent*[TI]) AND (perception*[TI] OR perceive*[TI]) AND (obesity [TI] OR weight [TI] OR BMI[TI] OR "body mass index"[TI])).**

Articles concerning, *caregiver perceptions, maternal perceptions, the effects on childhood obesity, overweight child, early childhood obesity, BMI, ethnicity, gender, and perception of weight,* within the minority community were considered. The preliminary studies were screened utilizing the inclusion/ exclusion criteria, resulting in ten studies eligible for review.

Inclusion Criteria:

The articles included according to the inclusion criteria discussed:

(i) Childhood obesity in the minority demographic.

(ii) Caregivers' perception of childhood obesity.

(iii) Health risks associated with childhood obesity.

(iv) Caregiver behaviors as it relates to childhood obesity.

(v) Minority children between the ages of 2-19.

Exclusion Criteria:

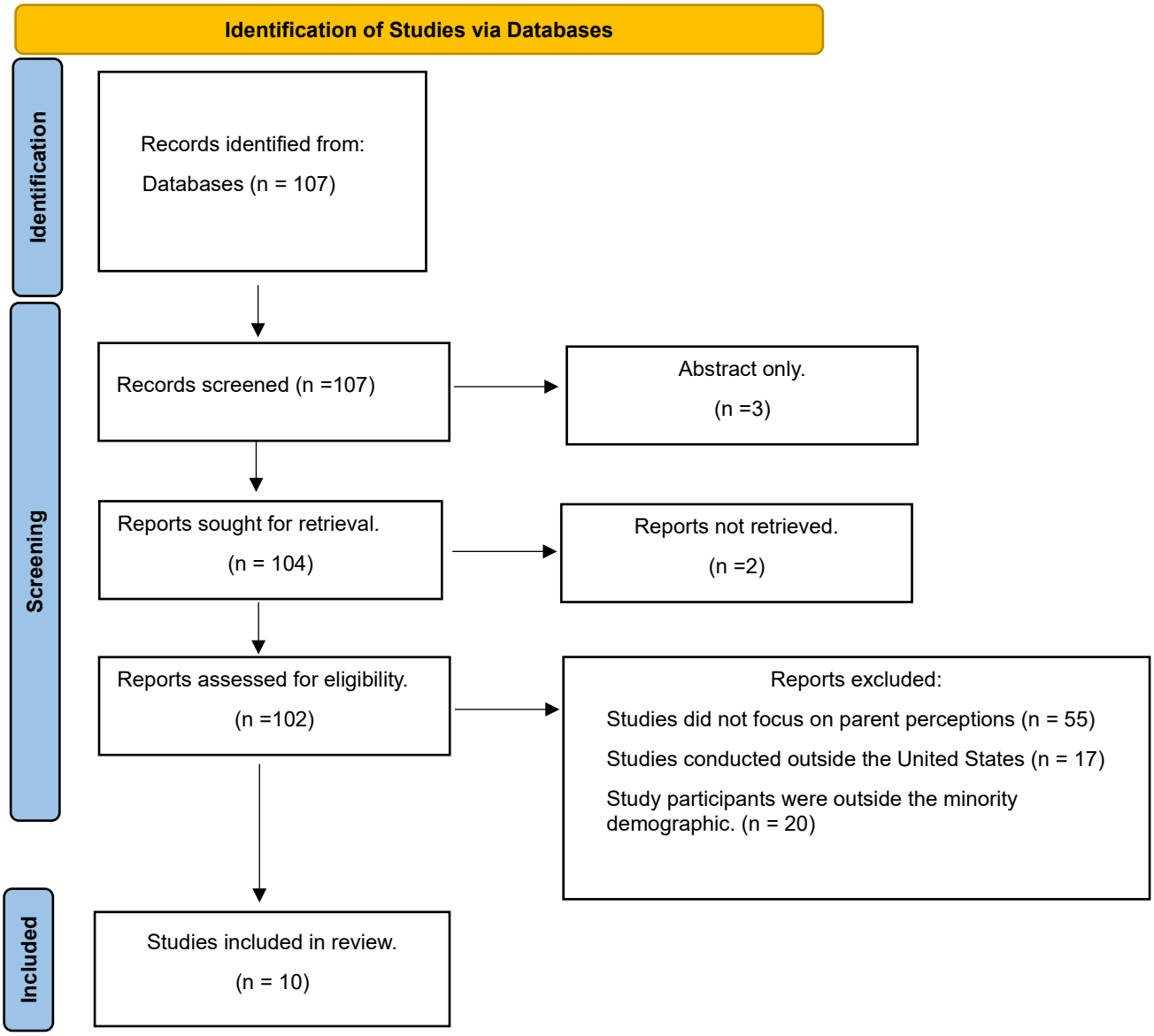
The studies that were disregarded according to the exclusion criteria were:

(i) Articles published in languages other than English.

(ii) Articles whose target audience was outside of the minority population.

(iii) Articles published for studies conducted outside of the United States of America.

Figure1: Process of Identifying Studies



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al.. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71 For more information, visit: http://www.prisma-statement.org/

Data Extraction and Quality Assurance

The quality of the studies was determined by reviewing the titles and abstracts, the data collection method, i.e., mixed-methods approach, or a qualitative survey, the study design, as well as ensuring that the variables to be analyzed were present. Full texts of the studies that met the inclusion criteria were later obtained after the screening process was completed. All the articles were then exported to an Excel spreadsheet (Table 1) and reviewed for relevancy based on the inclusion/exclusion criteria. Please refer to (Appendix A) for a comprehensive table illustrating the summary of findings.

Table 1: Data Extraction Process- Excel Database

Author(s)	Year of Publication	Location	Title of the Article	Source Database	Variable(s)	Child's Ethnicity	Caregiver's Ethnicity	Meet Criteria Yes/No
Alexander et al	2014	United States	Childhood obesity perceptions among African American caregivers in a rural Georgia community: a mixed methods approach	PubMed	Ethnicity	African American	African American	Y
Rawlins et al	2012	United Kingdom	Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study	Wiley Online Library	Culture	African American	African American	N

Analysis Plan

Studies where the caregivers were interviewed to capture their perceptions of childhood obesity; were primarily selected. For each article described, the variables investigated included perception of weight, ethnicity, body mass index (BMI), the age of the child, gender, socioeconomic status, appearance, caregiver type, and educational level.

Chapter 4: Results

Introduction

This section seeks to evaluate the caregiver's perception of obesity among minority children within the United States. Synthesizing and analyzing the data gleaned from the articles presented will offer some insight into the impact of a caregiver's knowledge and behavioral patterns on their child's weight status. The following sections will provide an overview of the key findings and an in-depth analysis of the review process. One hundred and seven articles published between 2003 and 2022 were screened for eligibility; however, only ten articles met the eligibility criteria and were included in the review process.

Descriptive Findings from the Systematic Review

In a study exploring the perceptions of 135 African American female caregivers in rural Georgia, investigators used a mixed methods approach combined with qualitative interviews and quantitative surveys. Their intent was to gain an understanding of the factors that determine the perceptions of childhood obesity within this community. The research illustrated that caregivers were reluctant to categorize their child as being overweight, regardless of what the statistics presented. The authors proposed that caregivers who adhere to this notion may be influenced by cultural norms surrounding body size, as well as a lack of knowledge related to the health risks associated with obesity. According to the article, caregivers may have a different perception of what constitutes a healthy body weight for children. In addition, it highlighted ways in which disparities in the built environment, and limited access to healthy food options create barriers for the children within this demographic to maintain a healthy lifestyle weight. Eighty-two percent of survey respondents agreed parks and recreational facilities play a role in preventing childhood obesity.[20]

In a Georgia study examining maternal caregivers' views on childhood obesity risks and complications, the investigators used a cross-sectional study design utilizing a mixed methods approach that combined qualitative surveys and interviews of 129 African Americans mothers aged between 22 and

65 with a child between the ages of three and ten years old. The study was conducted in a rural community, where authors Alexander et al. assessed how the caregivers' perceptions affect their support for prevention initiatives among African Americans. The researchers deduced that a caregiver would initiate preventative measures when it is perceived that the child's stage of obesity is severe and at risk for developing a negative health outcome.[21] A similar sentiment in this article is that maternal caregivers lack an understanding of childhood obesity risk factors and complications, which could have a profound impact on their support for prevention measures. Cultural beliefs were also identified as factors that may contribute to determining caregivers' perception of childhood obesity.

In another study, the authors Young-Hyman and colleagues investigated how African American caregivers perceive the health risks related to childhood obesity. The project comprised 111 African American families. This study was noticeably different from the previous studies mentioned because, in this instance, extended family members were participants as well. The primary caregivers included mothers (62%), fathers (5%), mothers and fathers (12%), grandmothers (14%), and others (7%).[22] What is important to note is that caregivers seem to downplay the risks associated with obesity and obesity-related co-morbidities. The percentage of caregivers who thought there was an association between the child's weight and the rise of a potential health-related condition was interestingly low. According to the authors, despite the fact that a substantial number of children were obese (57%) and super-obese (12%), only 44% of the caregivers perceived the child's weight to be a potential health problem.[22.]

Miller et al. (2016) explored how demographic factors influence caregiver perceptions of childhood weight and investigated the connection between these perceptions and variables such as socioeconomic status, race, ethnicity, age, and gender. The authors surveyed 453 caregivers recruited from pediatric clinics in Florida. The survey assessed caregiver perceptions of their child's weight, concerns about childhood obesity, and their own weight and health behaviors. The authors found that African American and Hispanic caregivers were more likely to perceive their child as having a healthy weight compared to White caregivers. Additionally, caregivers with higher education and income levels

were more likely to perceive their child as overweight and express concerns about childhood obesity. While African American caregivers tend to view heavier girls as healthier, this association only holds for African American caregivers with lower income or higher BMI.[23]

According to another article examining the perceptions of African American caregivers' assessment of body mass index (BMI), the researchers assessed caregivers' perceived level of their child's obesity status and concordance between caregiver's reported height and weight of their children compared to the objective measure of their child's height and weight. One hundred and nineteen caregivers completed a paper-based survey about their child's weight status including body silhouettes and self-reported (BMI) status of children aged between 2-10 years old. The authors focused on this community, as African Americans living in rural areas have higher rates of obesity and related health disparities compared to the general population. As stated by the article, the first step in preventing obesity is helping caregivers recognize their child's weight status and achieve a willingness to make behavior changes.[24] Height and weight were measured in 71 of 119 children assessed in the study. The researchers asked the caregivers to estimate their child's BMI, then compared these estimates to the actual BMI calculated by measuring the child's height and weight. The researchers discovered that although the caregivers visually perceived their children to be underweight based on the silhouette chart, they had severely misjudged their children's actual (BMI).

In a study of, 714 mother-adolescent pairs, investigators examined the concerns that mothers have for healthy eating habits among their adolescent children. Approximately 48% of the mothers were white, 22% African American, 14% Asian, 9% Latino, 6% Native American, and 1% other/mixed.[25] Maternal concern for healthful eating was positively associated with the mothers' fruit and vegetable intake, breakfast and lunch consumption, and servings of fruits and vegetables consumed in the home. Maternal concern for healthy eating was not associated with adolescent eating behavior. Approximately 33% of adolescents consumed three or more servings of fruit daily and only 19% reported eating three or more servings of vegetables per day. Roughly one-fourth of mothers reported that salty snacks were always

available in the home, and 43% reported that soft drinks were always available in their home. Fifty-four percent reported purchasing family meals from fast-food restaurants 1 or 2 times a week.[25] Hence, why the food environment at home is critical.

Another study focused on low-income Hispanic caregivers and investigated factors associated with the accurate maternal perception of their preschool child's weight status. The study was conducted among 1,702 Women, Infants, and Children (WIC) participants in California. The authors identified several predictors of accurate maternal perception, including maternal education, a child's weight status, and maternal concern about their child's weight. The results found that most mothers of overweight and obese children in this study misclassified their children based on their weight status, with almost all mothers of overweight children (93.6%) classifying them as about the right weight.[26] The findings highlight the need for interventions to improve maternal perception of their child's weight, which could lead to better management of childhood obesity.

Gaining insight into the cultural aspect of childhood obesity is paramount, an area of concern that researchers investigated in a study regarding the sociocultural roots of childhood obesity. The study involved interviewing 60 Bushwick, Brooklyn residents from 12 families of Hispanic descent -12 mothers, 3 fathers/boyfriends, 3 grandmothers, 1 great-grandmother, 2 grandfathers, 3 extended kin, 5 friends, and 31 children.[5] The approach to interviewing members of the nuclear and extended families allowed researchers to explore the food practices of low-income Hispanic families. The patterns reveal unstable purchase and eating habits that have potentially negative effects on children, including at various times eating less, overeating, and having excessive (often unhealthy) expectations around food.[27] A caregiver’s choice of food is influenced by their availability of resources. Therefore, fluctuations in resources especially financial, have the potential to lead to food insecurities.

An earlier study conducted by Maynard et al. offered a glance into maternal perceptions of the weight status of children. The sample included 5500 children ages 2-11 years old and their mothers who participated in the Third National Health and Nutrition Examination Survey. Nearly one-third of mothers

misclassified their overweight child as *about the right weight*.[28] The study went on to illustrate that mothers of daughters were more likely to misclassify their child's weight status than mothers who had sons.

Bleich and colleagues conducted a study to determine the challenges caregivers encounter in ensuring that their children achieve and maintain a healthy weight. This 2017 study featured data from a United States telephone poll that interviewed 957 parents of which 70% were White, 13% were African American, and 17% were of Hispanic descent. The study revealed that parents experienced challenges with sustaining a healthy diet and exercise environment for their children. Parents of nearly half of the children (45%) said it was difficult to encourage them to eat in order to maintain or reach a healthy weight. Parents of 44% of children declared that there is a lot of advertising for unhealthy foods and 32% identified unhealthy school lunches or vending as challenges to helping their child eat to maintain or achieve a healthy weight. African American or Hispanic parents were more likely than White parents to report that there was unhealthy food available very close to their child's school – (White: 17%, African American: 41%, and Hispanic: 38%). Children of African American (17%) or Hispanic (39%) parents were more likely than children of White (27%) parents to have parents report that healthy school food was expensive.

The study also illustrated the differences in the children's snacking behaviors by the parent's race and ethnicity. Eighty-three percent of parents of children reported that their child consumed a food item or a drink between the after-school period and time for bed, and 63% of those children consumed an unhealthy snack. The report continued to show that 74% of the parents of children who identified as African Americans were reported as having consumed an unhealthy snack which included food and beverage, followed by 64% of Hispanic parents. When asked about the reasoning behind the children's food choices, 78% of African American and 69% of Hispanic parents identified the taste of the food. 13% of Hispanic parents said they were too tired to ensure their children made healthier food choices in comparison to 6% of African American parents. Lack of time was also identified as another reason by

39% of African American parents and 48% of Hispanic parents. In terms of the cost of the food, 20% of Hispanic respondents thought that healthy food was too expensive, while 4% of African American respondents thought the same.

The study also explored the challenges parents face in ensuring that their child exercises in a way that helps them achieve and maintain a healthy weight. Overall, more than one-third of parents (35%) reported that it was very or somewhat difficult to make sure their child exercises in a way that helped them maintain or achieve a healthy weight. A significant challenge for ensuring child physical activity was the lack of sufficient safe places to exercise, reported by 42% of African American parents and 28% of Hispanic parents but only 16% of their White counterparts. Forty-six percent of African American parents cited a lack of good sidewalks, while 12% of Hispanic parents shared similar sentiments. Lack of stores that sold exercise equipment within walking distance of their home was also mentioned, by 40% of Hispanic parents and 28% of African American parents. A significant burden also identified was the cost of either a gym membership or the cost of purchasing exercise equipment. This posed the most challenge for Hispanic parents (37%), compared to 24% for African American parents, and 30% for White parents. Overall, many parents struggle to help their children maintain a healthy weight through diet and physical activity; however, it is essential for researchers to recognize and address these discrepancies between parent perceptions and their children's true eating behavior in order to help facilitate important behavior change among children.[29]

Chapter 5: Discussion

Summary of Study

This systematic review intends to critically evaluate the available literature on the caregiver's perception of obesity among minority children. The purpose of this chapter is to (1) examine the methodology used in conducting this research, (2) justify the sample selection process, and (3) highlight the limitations observed.

Discussion of Key Results

The ten articles reviewed described the various perspective of minority caregivers as it relates to childhood obesity. Alexander et al. (2014) study examined the perception of caregivers in rural Georgia communities and found that caregivers were reluctant to classify their child as being overweight, regardless of what the statistics presented. This may be a result of cultural norms pertaining to the child's body size, as well as a lack of knowledge related to the health risks associated with obesity. Although there may be some level of awareness of health risks surrounding obesity, caregivers within this population affirmed that due to their low socio-economic status, it was difficult to sustain a healthy lifestyle. As a result, they are left with the hard decision to substitute cost for convenience.

Alexander et al. (2017) went a step further to investigate African American caregivers' understanding of risk factors for obesity among children and observed that there are significant misperceptions of the role that children's body mass index (BMI) plays in health conditions.

Young-Hyman and colleagues' (2012) article showed that African American caregivers, including members of the nuclear and extended families, had limited knowledge and understanding of the risk factors and complications of childhood obesity. This in turn ultimately will create a barrier to any obesity prevention initiative that may arise.

Miller et al. (2016) study illustrated that there are a number of factors that influence caregiver perceptions of childhood weight, including the level of education, race, ethnicity, socioeconomic status, and age. Minority respondents often perceived their children as having a healthier weight in comparison to their White counterparts. In cases where individuals are unaware of the imminent health risks, they could be exhibiting optimistic bias and projecting that unto their children. A misconception where individuals possess a mistaken belief that one's chances of experiencing a negative event are lower (or a positive event higher) than that of one's peers.[30] Hence why it is also important to consider the behavioral and emotional aspects behind caregiver perceptions.

Alexander et al. (2018) article investigated African American caregivers' understanding of body mass index (BMI). The study revealed that caregivers visually misrepresented their child's weight and BMI. These results once again confirmed the lack of knowledge pertaining to a child's BMI status. This is why it is essential for public health professionals and clinicians to educate caregivers on the meaning of BMI scores and the interpretation of the BMI chart. BMI for children and teenagers of the same age and sex that fall between the 85th and 95th percentile is considered overweight, while the BMI for children and teenagers of the same age and sex that falls in the 95th percentile or higher is considered obese. (See Appendix B & C) The National Institute of Health provides a BMI calculator[31] to assist individuals in determining their ideal weight status. The calculator classifies weight status using the following categories: Underweight = <18.5, Normal weight = 18.5–24.9, Overweight = 25–29.9, and Obesity = BMI of 30 or greater.[31] (See Appendix D)

Boutelle et al. (2007) study highlights the notion that maternal concern for healthful eating is not enough to ensure that adolescents will eat healthily. Other factors, such as peer pressure, stress eating, and the availability of unhealthy foods, may also play a role. Study findings suggest that mothers can influence their children's eating habits by modeling healthy eating behaviors and providing a healthy food environment at home. Public health officials should take note of the fact that households, where the caregivers' presence may not be as consistent (e.g., a single parent having to work extended hours or

instances of food insecurity) may trigger adolescents' unhealthy eating behaviors leading to incidences of obesity. According to the CNN article on the growing rates of food insecurity among American teens, someone who experiences food insecurity may pick something that's more filling rather than considering the nutritional properties.[32]

Chaparro et al. (2011) study examined Hispanic mothers' thoughts about their children's weight. Nearly all mothers of overweight children (93.6%) classified them as being about the right weight, which shows that most mothers of overweight and obese children misclassified their children based on their body weight status. This misclassification is a barrier to preventing childhood obesity because it may prevent mothers from taking action to help their children lose weight because they consider their children's weight to be normal.

A study conducted by Maynard et al. (2003) echoed similar sentiments as Chaparro et al. study. Although the demographic included Hispanic, African American, and White mothers, these caregivers reported their children's weight as being lower than the measured weight. It is interesting to note that mothers of daughters were more likely than mothers of sons to misjudge their child's weight. This speaks to the principles of influences on caregivers where in some cultures, mothers correlate their daughters' thick silhouette with prosperity and wealth.

Kaufman et al. (2007) conducted a study in Bushwick, Brooklyn, which gave a contrasting view from the studies conducted in rural settings. The researchers interviewed caregivers from both nuclear and extended families as well as family friends. The study's findings revealed that low-income Hispanic families often experience food insecurities because of the limited availability of nutritious foods. As a result, this creates unstable eating habits, which may lead to undereating or overeating of unhealthy food products. Considering the cultural customs of the Hispanic population, food tends to bring families together. Caregivers are under the impression that purchasing less expensive high-caloric food due to their socio-economic status, will pacify their children's hunger and assist with satiety. For low-income single-parent households, healthy alternatives may be desirable but less affordable, and here lies the

struggle for many low-income caregivers. The idea is that culturally it is important to feed their children well, but overindulging in unhealthy foods can contribute to childhood obesity.

Bleich et al. (2019) study delved into the challenges that caregivers face in ensuring that their children adhere to a healthy diet and maintain proper eating habits. This study explained the notion that caregivers found it difficult to limit their children's exposure to unhealthy foods, encourage them to eat healthily, and ensure that they engage in adequate physical activity. Some caregivers thought that advertising unhealthy foods and access to unhealthy school lunches were responsible for the children not maintaining a healthy weight. Conversely, if caregivers were to find alternative means to provide healthy meals, emphasis was placed on the fact that healthy foods are expensive, and they lack the time to prepare healthy meal options for their children.

The breadth of this research uncovered numerous themes and provided tremendous insight into caregivers' perspectives regarding childhood obesity.

Caregivers should take responsibility for childhood obesity. However challenging, caregivers should take an introspective look at themselves and their behaviors and how that adversely affects their children's weight status. Exploring the socioecological model, to assess the caregiver's behavioral tendencies, the individual is the first stage in the theory when focusing on the importance of healthy behaviors through behavioral capability and self-efficacy. The truth of the matter is weight status in minority households in some cultures has varying connotations and the adverse effects of obesity can be such an afterthought, that elicits a learned behavior among children. The emphasis, or lack thereof, placed on obesity at an early age may determine how caregivers monitor their child's eating habits and take care of their health. Once importance is established within the family structure, chances are, the process of healthy eating will become a ritual and not a chore.

Considering the struggles minority caregivers experience in their daily lives, their eating habits are based on convenience. It is already challenging for caregivers whose socioeconomic status is significantly

less than their white counterparts, charging them to accomplish a lot with the little they have. This results in caregivers purchasing unhealthy foods deemed affordable, and tasty in order to overcompensate for their limited resources.

Admittedly, caregivers should not bear sole responsibility in a society where the unhealthiest food choices are the most advertised and widely available. The food, beverage, and restaurant industry spend billions of dollars on advertising their products each year. More than 80% of this advertising promotes fast food, sugary drinks, candy, and unhealthy snacks, dwarfing the entire $1 billion budget for all chronic disease prevention and health promotion at the U.S. Centers for Disease Control and Prevention.[33] As the researchers at the University of Connecticut have concluded, this exposure is a result of marketing efforts that target the African American and Hispanic communities.

Limitations

This research has a few limitations. There are a limited number of source articles geared toward minority caregivers in the United States. One-third of the articles reviewed were studies conducted by one researcher; this topic would benefit from the expertise of multi-disciplinary researchers who are interested in this subject matter. Also, all the articles were published between the years 2003 and 2019; no recent data post-2019 were identified which may be attributed to the impact of the COVID-19 pandemic.

Recommendations

Clinicians and public health officials alike should consider enhancing their understanding of the influence of caregivers on a child's weight and the dynamics involved. This may lead to developing targeted interventions, and strategies that support the child's well-being to promote healthy weight management. There is an opportunity for researchers to conduct more studies geared toward this demographic and create future studies that focus on the systematic barriers that caregivers face to maintaining a healthy diet for minority children. Identifying these challenges could lend support to low-income families and create prevention initiatives within their communities.

Initiatives should be tailored toward implementing health education programs for caregivers as well as children. The existing body of knowledge could encourage policymakers to implement home economics and nutrition classes in the K-12 curriculum. This could be effective for children by addressing the knowledge gap and teaching them about the importance of eating healthy. A consequence of that could prompt interpersonal behaviors to develop between children and caregivers. The process of cultivating good behavior stems from observation and the ability to implement the learned behavior through social support and assistance from social networks. Therefore, if a child is aware of these healthy habits, they would likely be more inclined to select better snack choices and ultimately encourage caregivers to adopt a lifestyle change.

Conclusion

Caregivers' beliefs about children's physical appearance and what constitutes a healthy silhouette are often based on personal experiences and are deeply rooted in cultural beliefs rather than scientific evidence. This can lead to behaviors that promote obesity and make it difficult for children to eat healthy foods. Reducing childhood obesity in minority communities requires targeted approaches to enhance caregivers' knowledge base about healthier eating and reduce barriers to accessing healthy foods.

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Appendix A

Table 1: Data Extraction Process- Excel Database

Author(s)	Year of Publication	Location	Title of the Article	Source Database	Variable(s)	Caregiver's Race/Ethnicity	Meet Criteria Yes/No
Alexander et al.	2014	Rural Georgia, United States	Childhood obesity perceptions among African American caregivers in a rural Georgia community: a mixed methods approach	PubMed	Ethnicity, Education Level, Employment Status, Income	African American	Y
Alexander et al.	2017	Rural Georgia, United States	Do Maternal Caregiver Perceptions of Childhood Obesity Risk Factors and Obesity Complications Predict Support for Prevention Initiatives Among African Americans?	PubMed	Caregiver's Age, Gender, Educational Level, Employment Status, Total # of Children, Income	African American	Y
Young-Hyman et al.	2012	Multiple Rural Sites, United States	Care Giver Perception of Children's Obesity-Related Health Risk: A Study of African American Families	PubMed	Age, Ethnicity, Gender, BMI, Caregiver Type: (Mother, Grandparent, Father), Body Size, Appearance, Family Health History, Perception of Weight	African American	Y
Miller et al.	2016	Orlando, FL United States	Caregiver Perceptions of Childhood Weight: Demographic	PubMed	Parent BMI, Child BMI, Healthy Weight, Ethnicity,	Hispanic, African American, White, Other	Y

			Moderators and Correlates		Gender, Income, Perception of Weight		
Alexander et al.	2018	Rural Georgia, United States	Assessing Child Body Mass Index Perceptions Among African American Caregivers in a Rural Community	PubMed	Ethnicity, BMI Perception, Age Caregiver, Age Child, Gender, Educational Level, One-Caregiver Households, Income	African American	Y
Boutelle et al.	2007	Minneapolis, MN United States	Associations between Maternal Concern for Healthful Eating and Maternal Eating Behaviors, Home Food Availability, and Adolescent Eating Behaviors	PubMed	Age, Gender, Grade Level, Race/Ethnicity, Marital Status, Educational Status, Family Income, And Work Status	White, African American, Asian, Latino, Native American, Mixed/Other	Y
Author(s)	**Year of Publication**	**Location**	**Title of the Article**	**Source Database**	**Variable(s)**	**Caregiver's Race/Ethnicity**	**Meet Criteria Yes/No**
Chaparro et al.	2011	United States	Predictors of accurate maternal perception of their preschool child's weight status among Hispanic WIC participants	PubMed	Child's Actual Weight Status, Mothers' Response to The Question "Do You Consider Your Child to Be Overweight, Underweight or About Right Weight For (His) (Her) Height, Child's Gender,	Hispanic, White, African American, Asian, other/Multiracial	Y

					Child's Birth Weight, Age, Maternal BMI, Maternal Education, Maternal Acculturation Level, Maternal Language Preference.		
Kaufman et al.	2007	Bushwick, Brooklyn United States	Understanding the sociocultural roots of childhood obesity: food practices among Latino families of Bushwick, Brooklyn	PubMed	Food Practices, Poverty	Hispanic	Y
Maynard et al.	2003	50 States, United States	Maternal perceptions of weight status of children	PubMed	Weight Status, Maternal Perceptions, Child's Age, BMI,	Hispanic, African American, White, Other	Y
Bleich et al.	2019	Boston, MA United States	Parents' Perceptions of the Challenges to Helping Their Children Maintain or Achieve a Healthy Weight	PubMed	Rece/Ethnicity, Gender, Child's gender, parent perception, Age, Education, Income	White, African American, Hispanic	Y
Etelson et al.	2003	United States	Childhood obesity: do parents recognize this health risk?	PubMed	Body Weight, Caregivers, Weight Per-Ception, Health-Risk	White, Asian, African American, Hispanic, Unknown	N
Manios et al.	2010	Greece	Determinants of childhood obesity and association with maternal perceptions of their children's weight status: the "GENESIS" study	PubMed	Gender	Non-Hispanic White	N

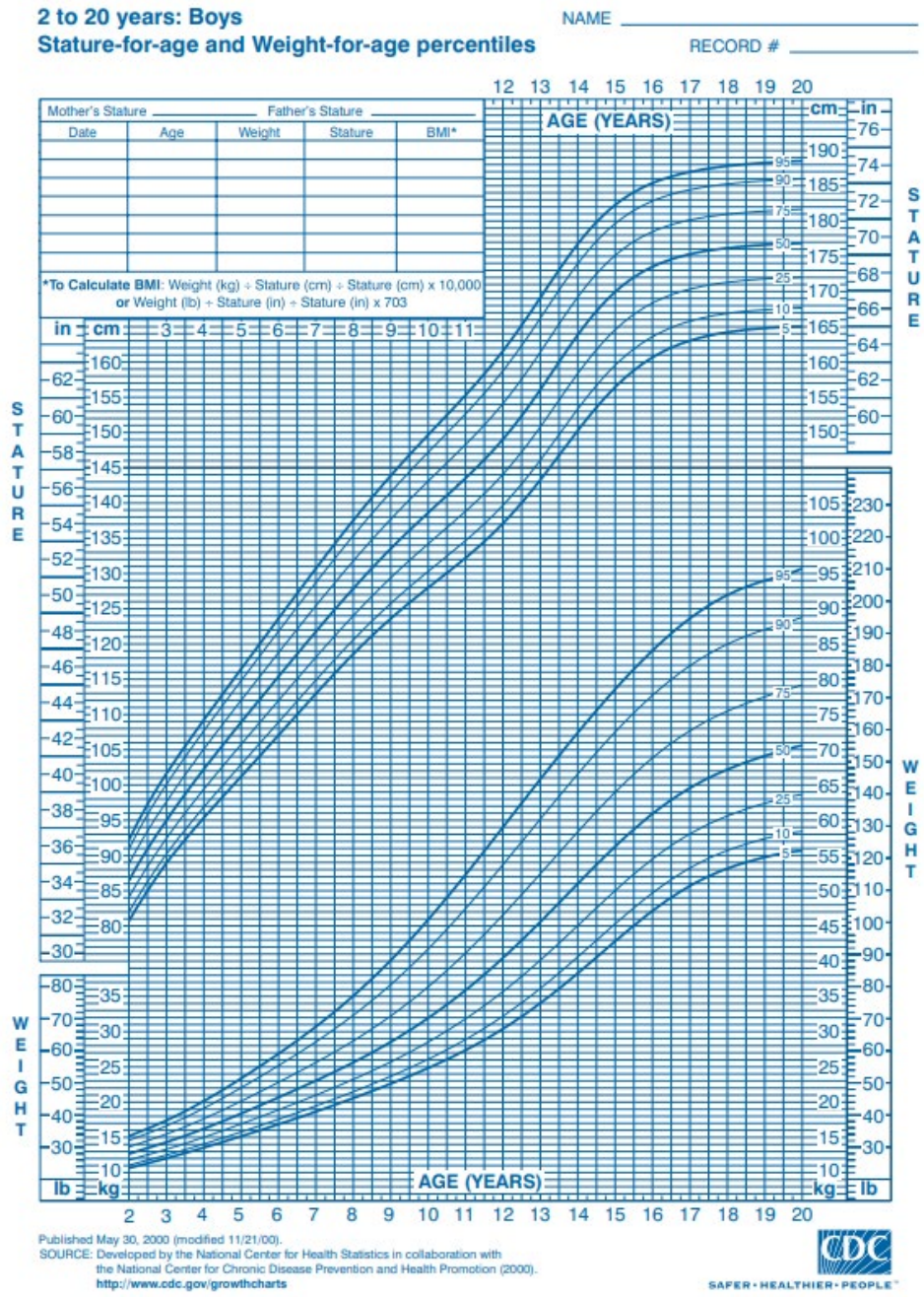
Author(s)	Year of Publication	Location	Title of the Article	Source Database	Variable(s)	Caregiver's Race/Ethnicity	Meet Criteria Yes/No
Rawlins et al.	2012	United Kingdom	Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study	Wiley Online Library	Culture	African American	N
Zahra Rahmaty	2021	United States	Individual, Caregiver, and Family Characteristics Associated with Obesity in Preschool-Age Children	Google Scholar	Socio-economic Factors	N/A	N
Morgan et al.	2017	United States	Involvement of Fathers in Pediatric Obesity Treatment and Prevention Trials: A Systematic Review	PubMed	N/A	N/A	N
Yvette Sealy	2010	United States	Parents' Food Choices: Obesity Among Minority Parents and Children	Google Scholar	Age	N/A	N
Tang et al.	2018	China	Dietary Behaviors and Caregiver Perceptions of Overweight and Obesity among Chinese Preschool Children	PubMed	Ethnicity, Gender, Income, Caregiver type: (Mother, Grandparent, Father), Educational Level	Asian	N
Warschburger et al.	2012	Germany	Childhood overweight and obesity: maternal perceptions of the time for	PubMed	N/A	N/A	N

			engaging in child weight management"				
Sanchez-Flack et al.	2021	United States	Black American and Latinx Parent/Caregiver Participation in Digital Health Obesity Interventions for Children: A Systematic Review	PubMed	Ethnicity	N/A	N
Shafina et al.	2020	Malaysia	Parental perception of children's weight status and sociodemographic factors associated with childhood obesity	PubMed	N/A	N/A	N
Author(s)	**Year of Publication**	**Location**	**Title of the Article**	**Source Database**	**Variable(s)**	**Caregiver's Race/Ethnicity**	**Meet Criteria Yes/No**
Inclan-Lopez	2021	Spain	Parental Perception of Weight and Feeding Practices in School Children: A Cross-Sectional Study	PubMed	N/A	N/A	N
Garcia-Blanco	2022	Spain	Parental perception of child's weight, their attitudes towards child's dietary habits and the risk of obesity	PubMed	N/A	N/A	N
Zuarub et al.	2022	United Arab Emirates	Barriers and Facilitators of Weight Management among School Children with Obesity: A Qualitative Investigation	PubMed	N/A	N/A	N

			of Parents' Perceptions				
Robinson et al.	2017	Australia	Parents' Perceptions of Their Children as Overweight and Children's Weight Concerns and Weight Gain	PubMed	N/A	N/A	N
Merema	2016	Australia	Parents' perception of their child's weight status and intention to intervene: a Western Australian cross-sectional population survey, 2009-12	PubMed	N/A	N/A	N
Rudolph et al.	2010	Germany	Perception of Body Weight Status: A Case Control Study of Obese and Lean Children and Adolescents and Their Parents	PubMed	N/A	N/A	N
Muhammad et al.	2008	Malaysia	Parental perception of their children's weight status, and its association with their nutrition and obesity knowledge	PubMed	N/A	N/A	N
Al-Mohaimeed	2016	Saudi Arabia	Parents' perception of children's obesity, in Al-Qassim, Saudi Arabia	PubMed	N/A	N/A	N

Appendix B: Growth Chart for Boys Stature-for-Age and Weight-for-Age

Children 2 to 20 years (5th-95th percentile)

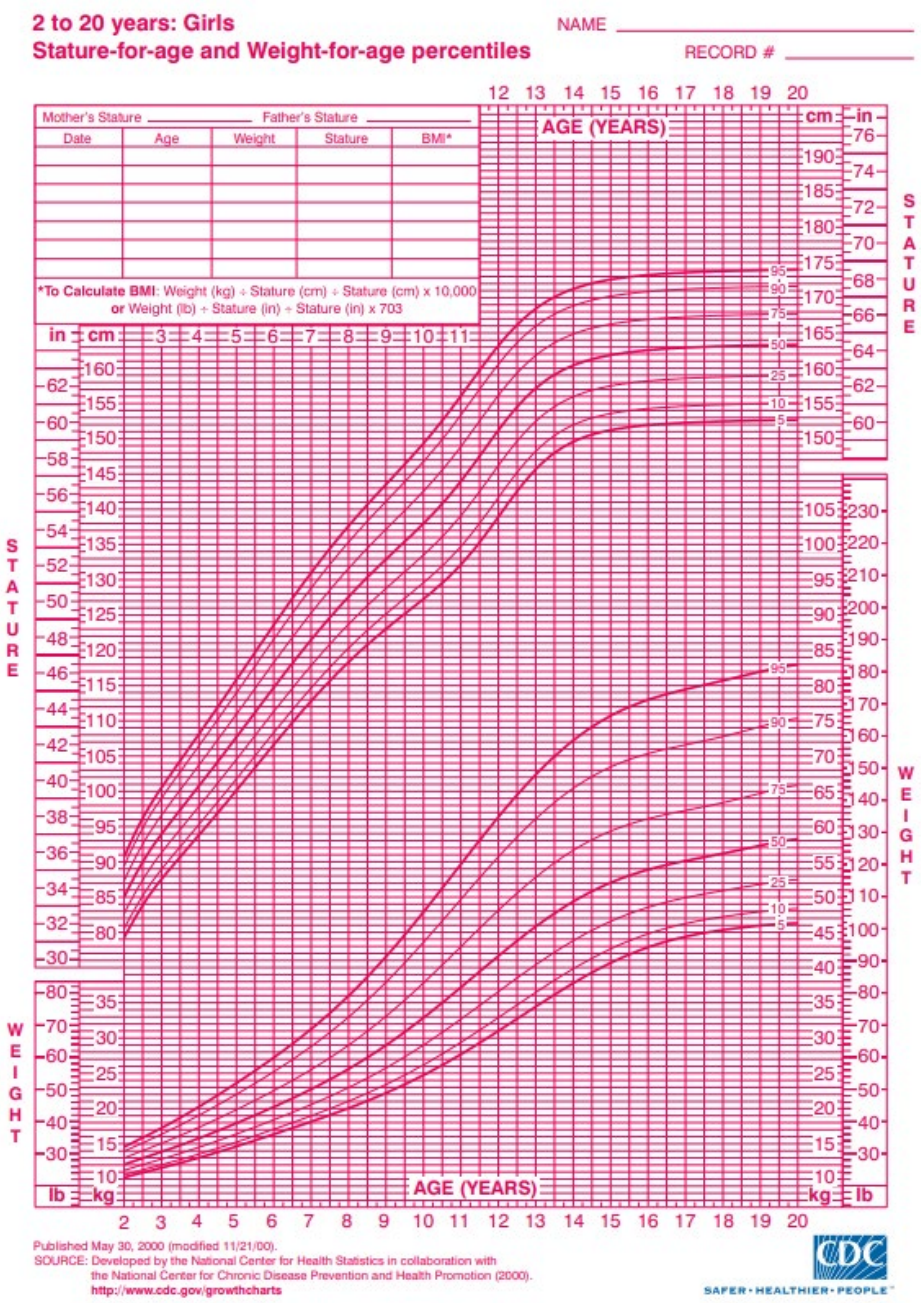


Note. Boys Stature-for-age and Weight-for-age *Growth Charts - Clinical Growth Charts*. (n.d.-a).

https://www.cdc.gov/growthcharts/clinical_charts.htm

Appendix C: Growth Chart for Girls Stature-for-Age and Weight-for-Age

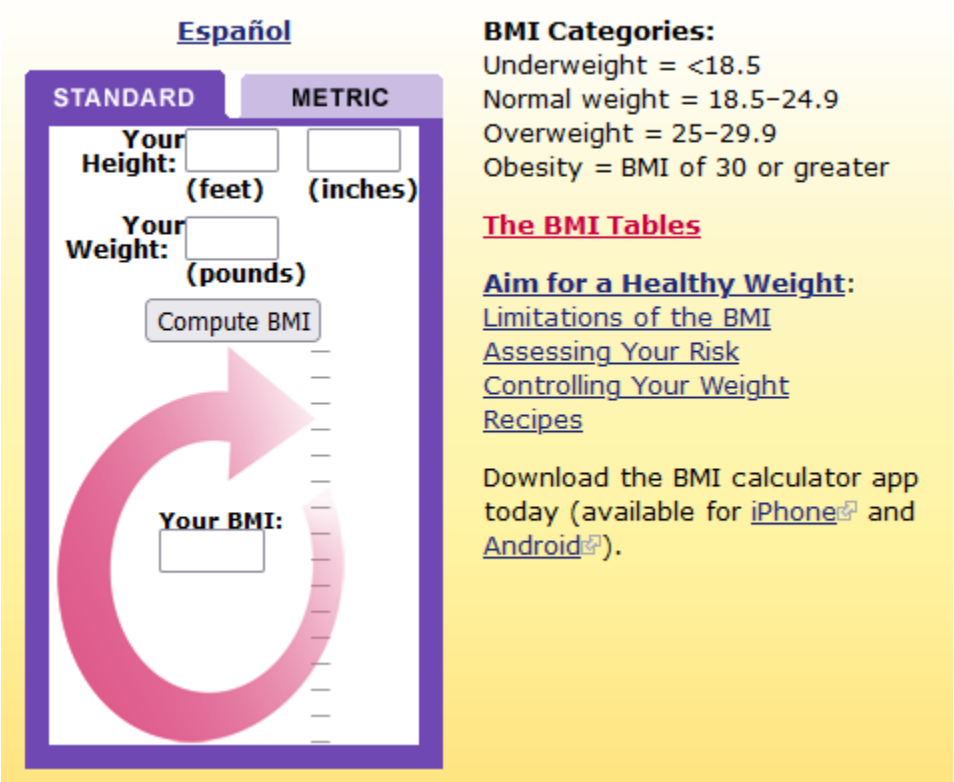
Children 2 to 20 years (5th-95th percentile)



Note. Girls Stature-for-age and Weight-for-age*Growth Charts - Clinical Growth Charts*. (n.d.-a).

https://www.cdc.gov/growthcharts/clinical_charts.htm

Appendix D: Standard Body Mass Index Calculator



Note. *Calculate Your BMI - Standard BMI Calculator*. (n.d.).

https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm