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**How Community-Based Nutrition Education Impacts Health Disparities Among  
Black American Adolescents: A Scoping Review**

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Elizabethtown College

Honors in the Discipline

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## **How Community-based Nutrition Education Impacts Health Disparities Among Black American Adolescents: A Scoping Review**

### **Abstract**

*Purpose:* There has been increasing concern about the level of health and food literacy among Black adolescents. Food literacy and nutrition interventions have been studied in an effort to improve health outcomes among this population. This study aimed to explore which interventions found success in increasing fruit and vegetable (FV) intake which included culturally relevant education material. *Method:* Five databases were searched using terms related to racial ethnicity, diet and age. Thirteen articles met inclusion criteria of including majority minority participants and the majority citing community based interventions focusing on dietary change including FV intake. *Results:* This scoping review revealed three studies with statistically significant differences in FV consumption, none of which involved primarily adolescent participants. One study was culturally sensitive with three others involving input from community members, organizations or services in the intervention implementation. *Conclusions:* The culturally sensitive intervention showed promising results, as did interventions utilizing community input. Future interventions should include culturally relevant programs which collaborate with the local community for implementation. Community-based nutrition education interventions for Black American adolescents are scarce. The majority of programs are designed for adults or children, with few geared towards adolescents. Although the majority of education interventions are community based, few involve culturally relevant information designed for specific communities. More research is needed to understand how culturally relevant and/or community informed interventions can benefit adolescent Black Americans.

*Keywords:* Black American, adolescent, health literacy, food literacy, fruit and vegetable consumption, culturally relevant.

### **Introduction**

Although the United States (US) has substantially increased medical technology and health care advancements, a continuing, and in some cases, growing disparity concerning health literacy and health outcomes exists compared to peer countries (Palloni & Yonker, 2015). Health literacy is defined as one's cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health (Park et al., 2017). Food literacy, a form of health literacy, is the ability to select, prepare, consume, and manage healthy food choices (Ronto et al., 2016). A person's level of health literacy influences their ability to access healthcare resources and health-related decisions. Poor health literacy and food literacy can lead to health disparities. Health disparities arise when individuals lack the knowledge and experience to make critical health decisions, which can ultimately impact their health, well-being, and quality of life. These health disparities can be attributed to social, economic, educational or geographical reasons (Braveman, 2020).

The American government spends millions of dollars every year investigating the underlying causes and trying to alleviate these health disparities (Amuta-Jimenez et al., 2020). The term food literacy refers to an individual's nutrition knowledge and food skills which influence food choices, impacting overall health and well being (Cullen et al., 2015). Though interventions to improve health and food literacy exist, few demonstrate carry over of learned principles which lead to improved dietary intake (Doustmohammadian et al., 2020). Interventions which do show increased healthy food consumption include education about food knowledge in conjunction with either food skills or enhancement of the school cafeteria

environment. It is important to understand the current research about the connection between food literacy and health outcomes for at-risk groups like Black Americans. It is equally important to understand the research about interventions that improve health food consumption.

A preliminary search for existing scoping and systematic reviews on this topic has been conducted. It appears that there is a limited number of scoping or systemic reviews on this topic (Brooks & Begley, 2013, Doustmohammadian et al., 2020, Omenka et al., 2020 ). One literature review focused on school-based food literacy programs among only elementary school age children (Doustmohammadian et al., 2020), one focused on cooking programs only in Australia (Brooks & Begley, 2013), and one focused on understanding the healthcare needs of African American immigrants, but did not address specific interventions (Omenka et al., 2020). Based on these observations, there is still a need for scoping reviews that explore food literacy intervention programs that can help improve the diets of Black adolescents.

The occupational therapy (OT) profession is concerned with promoting health and well-being through the use of meaningful activities in daily life. Occupational therapy practitioners recognize the importance of occupational justice, the right of every individual to have equal opportunities to participate in meaningful and purposeful activities regardless of age, ability, gender, social class, or other differences (American Occupational Therapy Association [AOTA], 2020). Occupational injustices can occur as a result of decreased health literacy, including decreased food literacy. Literature suggests that Black Americans experience occupational injustices as the result of poor food literacy, leading to poorer health outcomes compared to other racial groups in America (Manganello & Sojka, 2016). The purpose of this scoping review is to survey the existing literature on health disparities related to food literacy

among Black adolescents and identify interventions that successfully influence nutritious food consumption among Black adolescents.

### **Health Literacy**

During the 1960s, US citizens fared among the healthiest in the world, with low mortality rates, high life expectancy, and low rates of chronic health conditions compared to other wealthy nations (Palloni & Yonker, 2015). According to Palloni and Yonker, by the late 1970s and early 1980s these rates started to change, with mortality rates and chronic health conditions increasing and life expectancy rates decreasing. These changes are in contrast to the progress the US has made concerning medical advancements and technologies. What is most startling about this contrast are the disparities within the US among different demographics of people. Higher rates of preventable conditions cause health disparities, often arising in congruence to gaps in education and wealth, which ultimately impact their overall health (Palloni & Yonker). A health disparity is defined as “the difference in the incidence, prevalence, morbidity, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups” (Occupational Therapy Practice Framework: Domain and Process (4th Edition), 2020, p. 679). In wealthy countries, people with a lower socioeconomic status (SES) experience worse health outcomes compared to those with a higher SES (Pallini & Yonker, 2015). This is no different in the US. Race also plays a factor in health outcomes, as Palloni and Yonker found that, regardless of socioeconomic status, Black Americans fare worse than other ethnic groups. Education has the greatest influence on health outcomes. The more formal education an individual has obtained, the less likely they will experience adverse health outcomes (Palloni & Yonker, 2015).

Low education levels, specifically low health literacy, affect an array of occupations, or meaningful everyday activities that bring purpose to life. For individuals who have inadequate reading and mathematical skills, their means for understanding health recommendations, making educated choices about food consumption, and interpreting food labels significantly decreases (Persoskie et al., 2017). Decreased health literacy plays a large role in the increase of health disparities across the US, impacting a number of health outcomes, including increased risk for obesity, poor medication adherence, sexually transmitted diseases, aggressive behavior, and lack of participation in health-promoting behaviors (Park et al., 2017). Understanding, accessing, and using health information correlates with an individual's engagement in healthcare services, managing disease or illness, and maintaining healthy living styles (Park et al., 2017).

Health disparities as defined by Kinsella and Durocher (2016) are avoidable, unnecessary, unjust and unfair differences in health between groups of people. These health disparities continue to exist among racial and economic minorities, even growing in some cases (Kinsella & Durocher, 2016). Health disparity origins are complex, especially when considering language barriers, socioeconomic status, and availability of healthcare, and they appear to affect those with low education levels more than any other group (Kinsella & Durocher, 2016).

Despite efforts made by the federal government to increase health literacy through different initiatives, 88% of US adults have inadequate health literacy levels (Park et al., 2017). Decreased health literacy is a major concern because of the adverse effects it has on overall health and well being (Park et al., 2017). Adolescence is a time of transition where bodies change, social interactions change, and habits change, making it a formative year for developing health habits that will carry over into adulthood (Kalkan). In particular, their eating habits change as they become more independent with choosing what, when, and how to eat.

### ***Black Americans and Health Literacy***

Food consumption is influenced by cultural values, identity and SES (Ochieng, 2020) which is not the same for every person with darker skin tones. The Black culture is extremely diverse, with different cultural norms and ethnic backgrounds from many nations around the world. They embrace different social, behavioral and environmental norms based on their country of origin which influence their health. Specifically, Black Americans face different health outcomes and challenges compared to African immigrants who recently moved to the US (Amuta-Jimenez et al., 2020).

African immigrants typically have different social norms, food habits, and health outcomes compared to their Black American peers. When considering the health disparities between Black Americans and other racial groups, African immigrants do not share the same disparities as Black Americans (Amuta-Jimenez et al., 2020). Black Americans tend to eat healthier diets consuming higher rates of saturated fats, sugar, empty calories and fast food. African immigrants appear well informed of healthy diet advantages (Ochieng, 2020) who tend to consume low fat, vitamin rich diets consisting of mainly fruits, vegetables, beans and cornmeal. African immigrants also live an average of 7.4 years longer than their Black American counterparts (Amuta-Jimenez et al., 2020). For the purposes of this paper, when Black Americans are referenced, this does not include African immigrants.

### ***Black Adolescents***

The US, which continues to advance in terms of medical technology and healthcare, a growing disparity concerning health literacy and health outcomes, specifically among Black Americans, exists (Scott & Havercamp, 2014). Adolescents living in racially diverse, low SES, urban communities often experience decreased access to healthy food (D'Adamo et al., 2016). As



a result of these disparities, Black adolescents are at higher risks for food-related, preventable, chronic health conditions (Manganello & Sojka, 2016). As these adolescents mature to adulthood, they become more independent in their food choices. Poor food choices are the result of poor health literacy, which affects Black adolescents more than other ethnic/racial groups (Manganello & Sojka, 2016).

Black adolescents frequently engage with health information across a plethora of platforms, whether through media, family and friends or health care providers (Manganello & Sojka, 2016). Reading levels influence health literacy. Individuals with low health literacy, have more difficulty obtaining, understanding and applying health information compared to those with high health literacy. Black adolescents are disproportionately more at risk for low health literacy (Manganello & Sojka, 2016), which may account for the widening health disparities between Black and White Americans in recent years (Amuta-Jimenez et al., 2020). According to Corder et al. (2011), Black Americans are at an increased risk for developing obesity, diabetes, high blood pressure, heart disease and stroke, and have lower life expectancy at birth compared to White Americans. Poor diet quality disproportionately affects Black Americans living in urban, low income communities (Anderson Steeves et al., 2016) and Black Americans show greater acceptance of higher weight and less pressure for thinness (Ashcraft, 2012). As a result of decreased health literacy, including decreased food literacy, Black adolescents may experience occupational injustice as it relates to the occupation of eating, meal preparation and health management and maintenance, and as a result experience overall decreased well being and health outcomes (Manganello & Sojka).

### **Food Literacy**

There is a decrease in food literacy among American youth transitioning to adulthood. Food literacy includes the knowledge and skills needed to select, prepare, manage, and plan food intake in the context of specific societal norms, cultural values, and household habits (Cullen et al., 2015; Slater et al., 2018). Poor food literacy food related health conditions including obesity, the fifth leading cause of death worldwide (Vaitkeviciute et al., 2014). Food literacy is greatly impacted by a number of factors including exposure, social interactions, culture, and education, all of which impact one's ability to make informed choices concerning gathering, preparation and consumption of food (Ronto et al., 2017). Food choices, therefore, have drastic implications for an individual's future health concerning the aforementioned diet related health conditions.

A study by Slater et al. (2018) was conducted to determine what food literacy skills youth need to successfully navigate complex food environments and acquire healthy relationships with food to reduce risks of food induced disease. The outcomes served to incorporate the food literacy competencies into food literacy frameworks in order to develop needed food education programs, resources and trainings (Slater et al.). The study found a total of 59 food literacy competencies which were further categorized into 16 categories within three domains. The three domains include “1) Functional competencies: confidence and empowerment with food, 2) Relational competencies: joy and meaning through food, 3) Systems competencies: equity and sustainability for food systems within the framework” (Slater et al., p. 551, 2017). Ultimately, it was determined that the combination of food knowledge, skills, and attitudes influence food literacy competencies, and this helps youth navigate complex food scapes in order to make informed food choices (Slater et al, 2018.).

Similarly, Ronto et al. (2016) explored which food literacy skills were perceived as most important to adolescents, in regards to their dietary behaviors. Aspects of food knowledge, food

skills, and capacity were presented to a group of adolescents, who then rated which were most important to them. Food knowledge included nutrition information, dietary guidelines, food safety, and environmental sustainability. Food skills included preparing food, using equipment, planning/budgeting, and gathering food. Capacity included positive attitudes, confidence, and sustainability with preparing and consuming healthy food (Ronto et al., 2016).

Ronto et al. (2016) found that having a positive attitude towards eating healthy was rated as an important competency among the participants, a functional competency also identified by Slater et al. (2018). Participants reported that negative attitudes could lead to unhealthy eating behaviors. Confidence was also deemed important, revealing that participants wanted to increase confidence with preparing basic meals. Animal welfare and food sustainability was explored by Ronto et al., revealing that adolescent males consider this as an important aspect of food literacy more than adolescent females, a systems competency also identified by Slater et al.

These studies explore competencies required to effectively navigate foodscapes, including knowledge, attitudes, and skills which extend beyond basic knowledge about food and knowing how to cook (Ronto et al., 2016). These changes include questioning one's food consumption in regard to how food consumption impacts their personal health and the health of those in their communities (Slater et al., 2018).

### ***Exposure to healthy food***

Nutritious food intake during adolescence is critical for growth, maintenance of physical health, and development of healthy weight (Brooks & Begley, 2013). As of 2009, the US has seen a steady decline in consumption of healthy foods, with 60% of food consumption coming from ultra processed foods for those ages 12-19 (Slater et al., 2018). While adolescents have adopted habits of eating large amounts of fast food and sugary drinks (Ronto et al., 2016) they

consume an average of  $\frac{1}{2}$  cup of fruit and vegetables compared to the recommended  $1\frac{1}{2}$  to 2 cups of fruit and 2 to 3 cups of vegetables (Wickham & Carbone, 2018). Similarly, the nation has seen spikes in obesity among the same age group, rising to 21% the same year (Slater et al., 2018). Decreased health literacy leads to the consumption of unhealthy, processed foods, which impacts adolescents' risk of food related health conditions including obesity and other chronic diseases (Slater et al, 2018.).

An increase in the number of working mothers has led to a decrease in the amount of children eating meals at home (Slater et al., 2018). This shift has changed the way adolescents eat. Instead of participating in the preparation of and eating of home cooked meals, adolescents consume calorie-dense foods made outside the home (Slater et al., 2018). Poor food literacy may contribute to deficient food habits and an increase in food related diseases such as obesity and diabetes (Slater et al., 2018). Manganello and Sojka (2016) discovered in their research study that participants found school to be a resource for health information, one that was preferred over using family and friends as a resource, especially among those with low health literacy. The promotion of school based education programs could have a positive impact on adolescents wanting to try new foods (Brooks and Begley, 2013). With youth being introduced to healthy food less often within their homes, school and community resources could contribute to the promotion of adolescent health literacy (Slater et al., 2018).

### ***Culture and Social Influence in Adolescence***

Social interactions with family members, friends, and peers influence an individual's food choices. Social influences include learning from modeled behavior, following social norms established in a particular group, pressure to engage or not engage in behavior due to the presence of certain individuals, and attempting to control others opinions by modeling certain

behavior (Anderson-Steeves et al., 2016). Cultural differences can shape one's perceptions of healthy eating habits. This can affect groups of peers who often share eating habits which may explain the prevalence of obesity within social groups; a person with a close friend who is obese is more likely to become obese themselves (Anderson-Steeves et al., 2016). Peers influence adolescent food choices (Brooks & Begley, 2013). How adolescents learn what, where, and how to eat is critical because adolescence is a particularly formative time for establishing food habits that will be carried throughout adulthood. As youth enter adolescence, they are more likely to start making independent food choices (Kalkan, 2019). It is critical to understand how these social interactions impact food intake.

Adolescent self-perception plays a large role in decision making processes, which impact quality of life. Adolescents with negative self-perceptions are more likely to have impaired social relationships, participate in risky behaviors, and have inaccurate perceptions of their body weight (Ashcraft, 2012). Positive perceptions for Black adolescents largely come from the social acceptance from their peers. In recent years, there has been a significant rise of obesity among Black adolescents, rising from 10.7% to 19.8% in the last decade compared to White adolescents who saw a rise in obesity from 11.6% to 16.7%. Ashcraft found that among Black adolescents, there is less pressure for thinness and higher rates of social acceptance of peers with higher weight. In fact, “larger body size is often embraced” and seen as signs of “social prominence, success, and good health” (Ashcraft, 2012, p. 29). Their peers often play a positive role in promoting physical activity, but a negative role in promoting unhealthy food consumption. For many, sharing food like candy, cookies, and soft drinks is part of their culture (Anderson-Steeves et al., 2016). Although parents make efforts to incorporate healthy foods at home, these efforts are often tainted by a lack of overall education concerning healthy food choices. Parents' food

decisions were impacted by food cost and understanding of the healthfulness of many food items (Anderson-Steeves et al., 2016).

Ashcraft (2012) sought to better understand Black adolescent self-perceptions, and what living with obesity meant to each individual through a study that asked a series of questions. The study found the majority of participants presented a limited understanding of their obesity. Participant comments included comments like being overweight “doesn’t really mean nothing to me”, even though they knew it was dangerous. Later in the interviews, however, even after participants provided answers indicating that being overweight did not matter to them, they made comments like, “I’m fat?”, “I forget about it when I’m with my friends... but then someone says something about it... and it hits me and then I feel bad” (Ashcraft, 2012, p.32). Although participant responses seemed to change throughout the interview, most seemed unconcerned with how their peers viewed them. They expressed that they believed their peers viewed them no differently than other friends, and thought they were “cool.” Some participants did seem to understand that their obesity could cause “real bad stuff like diabetes and heart problems” and “breathing problems.” One participant even commented “young people, they die too so I gotta do something to help myself” (Ashcraft, 2012, p. 32).

Individual adolescent self-perceptions continue to evolve as they mature, changing in response to social comparison and self reflection. Self-perception influences one’s ability to incorporate healthy behaviors (Stockton et al., 2009). As a result, Stockton et al. argue that self-perception plays a larger role in impacting one’s body mass index (BMI) than do diet and physical activity. Ashcraft (2012) noted how critical health literacy is for all people, despite race, age, socioeconomic status, or nationality, in order to make good choices about their health. Black adolescents, who demonstrate limited knowledge of their obesity, are at risk for poor health

outcomes due to the lack of resources, education, and overall understanding of their health condition (Ashcraft, 2012).

### ***Education***

Exposure, social interactions, and culture all influence food literacy, however, education is perhaps the most telling predictor of an individual's food literacy. When considering other factors such as race, socioeconomic status and culture, those who have the lowest education levels have the highest rates of mortality and health complications (Palloni & Yonker, 2015). Education plays a critical role in enhancing an individual's math and reading skills, which affects health and food literacy (Peroskie et al., 2017).

Practical skills learned through education influence one's ability to accurately interpret food information (Peroskie et al., 2017) and may ultimately impact the diet they chose (Ronto et al., 2016). While promoting knowledge about healthy food choices is a good step towards promoting adolescent food literacy, adolescents can benefit from applying basic reading and math skills to interpret food information and plan budgets for the purchase of healthy food (Persoskie et al., 2017). Hands on education regarding cooking and food preparation skills can also promote food literacy (Ronto et al.2016).

In an effort to understand the importance of education in relation to health literacy, Peroskie et al. (2017) conducted a survey to understand how well participants were able to interpret Nutrition Facts Panel (NFP) labels on an ice cream container. Participants were required to use simple calculations and critical thinking skills to answer a series of questions. After interpreting the data and accounting for socioeconomic status, race, and age, education level had the largest influence on an individual's ability to correctly answer the questions. Participants in Peroskie et al.'s study with the lowest education level, those who did not graduate high school,

received the lowest score. More than a third (35.4%) of those without high school diplomas were unable to answer any of the questions correctly, with the average being able to answer only 1.37 correctly. Answering questions correctly nearly doubled for those with high school diplomas, and continued to rise for those with some college or four year degrees (Peroskie et al., 2017). Similarly, Cordern et al. (2017) found high school graduation as the leading indicator of health status and health behaviors among adults. Education, therefore, is critically important in ensuring individuals can interpret food labels and make informed health choices; a lack of education puts individuals at an increased risk for poor food literacy (Peroskie et al., 2017) which is associated with lower health, poor diet, and heavier weight status (Ronto, 2016).

Adolescents perceive nutrition knowledge as the most important factor in determining their dietary habits (Ronto et al., 2016). This knowledge, however, was not necessarily carried over into their dietary decisions. Although adolescents perceived nutrition knowledge as highly important to adopting healthier diets, food skills may be more important in applying knowledge into actual diet change (Ronto et al., 2016). Food skills include cooking and preparing food, planning and managing a food budget, identifying and critically analyzing food information, and gathering food from different sources. Adolescents ranked food skills as less important than food knowledge. However, adolescents identified that food skills influenced their ability to cook healthy food at home and avoid getting take out food, helped with their ability to purchase healthy food at grocery stores, and promoted important food skills they will need when they will live independently (Ronto et al, 2016).

### ***Barriers to Healthy Food***

Perceived expense of healthy food is a barrier in attempting to change one's diet. Healthy food is thought to be expensive, and therefore many individuals from low socioeconomic status



consider healthy food to only be for the rich (Yuen-man Siu et al., 2017). Having the food skills to plan and incorporate an appropriate budget can increase the likelihood of purchasing healthy food, according to a study by Ronto et al. (2017). Participants in the study also expressed decreased confidence in food preparation. Confidence in cooking is linked to improvements in food preparations and the purchasing of fresh foods. Although they showed interest in wanting to gain experience with cooking, participants expressed decreased opportunities to do so. Many were not involved with meal preparation and cooking within their home environments and many did not receive food skills education at school (Ronto et al.). Poor food literacy increases the likelihood that individuals will experience health outcomes related to poor nutrition, including being overweight, obesity, and diabetes (Ronto et al., 2017). Increasing food knowledge education is important but shows little promise of promoting dietary changes. Incorporating food knowledge with food skills education could better influence dietary behaviors and consequently improve long-term health outcomes (Ronto et al., 2017).

Park et al. (2017) conducted a three part study in an effort to understand the association between health literacy and health behaviors among urban high school students. This study found that out of the 250 ninth grade adolescents living in urban areas, 44% were reading two grades below their expected reading levels and 77% showed inadequate or marginal health literacy levels. Although participants in this study by Park et al. indicated great interest in learning about health, many adolescents lacked the skills needed to comprehend health information, which is provided at an 8th grade reading level. This discrepancy between interest in and understanding of health information poses several risks for adolescents' ability "to communicate their concerns with health providers, understand and follow providers' instructions, and benefit from health services" (Park et al., 2017, p.890). While they have the curiosity for wanting to learn about

health, participants lacked the basic reading skills needed to learn and understand health information. This is of great concern when considering how to best educate adolescents on health literacy and healthy eating habits (Park et al., 2017).

It is important to be aware of an adolescent's reading level, as that will influence understanding of health information. Naigaga et al. (2018) considered how adolescents gather health information in order to investigate how adolescents perceive their proficiency with understanding health information. Health choices made in adolescence affect one's health in adulthood. Results from this study show that while adolescents' have increased their access to health information, this access can often become confusing and create 'information overload' due to the vast amount of information available (Naigaga et al., 2018, p.2). Although available information can be viewed as a positive factor, adolescents can experience 'filter failure,' or have difficulty refining this information to find relevant information, which may prevent adolescents from properly navigating the information in order to make educated choices (Naigaga et al., 2018, p.2). Adolescents have increased access to health information, but do not necessarily have the means to filter and understand all the information they have access to (Naigaga et al., 2018).

In order to evaluate health information to find trustworthy sources, adolescents need education to be focused on media and scientific literacy. Media literacy includes learning how to access reliable information while scientific literacy includes learning how to access trustworthy, scientifically proven information (Naigaga et al., 2018). These skills require training in the ability to take information in, understand the information, and interpret the information in order to make educated decisions (Naigaga et al., 2018). If adolescents lack basic reading and math skills, they will lack the ability to self educate when trying to interpret health information on their own.

## **Occupational Therapy**

Occupational therapy (OT) is a profession which seeks to help all individuals engage in meaningful occupations to the best of their ability with the most independence possible. The Occupational Therapy Practice Framework (OTPF), defines OT as the “Therapeutic use of everyday life occupations with persons, groups, or populations (i.e., clients) for the purpose of enhancing or enabling participation” (AOTA, 2020, p. 80).

The OT profession seeks to empower individuals to overcome barriers through adaptation, strength building, skills acquisition, and identification of facilitators. Barriers may include physical, environmental, and personal obstacles that affect a person’s ability to successfully participate in occupations. OT practitioners hope to restore independence, confidence, and safety in order to help individuals fully engage in meaningful daily activities, Instrumental activities of daily living (IADLs), "Activities that support daily life within the home and community and that often require more complex interactions than those used in ADLs" (AOTA, 2020, p. 78) include meal preparation, shopping, health management, and nutrition management.. Occupational therapists regard all individuals as occupational beings who deserve the right to engage in meaningful occupations, including those affected by negative health outcomes and poor food literacy (Benjamin-Thomas & Rudman, 2010).

## **Occupational Justice**

Occupational justice highlights rights related to individual’s daily occupations including meaningful occupations which maintain or enhance overall well being and health (Benjamin-Thomas & Rudman, 2018). All individuals are occupational beings, participation in meaningful occupations is a right of all individuals. Occupational justice is defined as “A justice that recognizes occupational rights to inclusive participation in everyday occupations for all

persons in society, regardless of age, ability, gender, social class, or other differences” (Nilsson & Townsend, 2010, p. 58). "Occupational justice includes access to and participation in the full range of meaningful and enriching occupations afforded to others, including opportunities for social inclusion and the resources to participate in occupations to satisfy personal, health, and societal needs (AOTA, 2020, p. 79).

In recent years, there has been an increase in the awareness of occupational injustice (Benjamin-Thomas & Rudman, 2018). Occupational injustice occurs when people are unable to successfully participate in occupations which provide meaning, purpose, value and well being in their lives for various reasons. An example of occupational injustice might be the inability of an individual to seek out healthcare services as the result of poor health literacy (Braveman, 2020). The Occupational Justice Framework works to enable change, to develop a world in which “individuals flourish by doing what they decide is most meaningful and useful to themselves and to their families, communities and nations” (Stadnyk, Townsend & Wilcock, 2010, p. 310). Therefore, occupational justice seeks to improve access and opportunities for all individuals to engage in meaningful, fundamental occupations including meal preparation, shopping, health management, and nutrition management..

### **Interventions to Promote Food literacy**

In response to the occupational injustices seen within the Black community, concerning health and food literacy, many interventions have been studied in an effort to find solutions for this population, though few have been successful (Brooks & Begley, 2013). Interventions that combine learning food skills, cafeteria environmental changes, and food knowledge are the most successful, though few of these exist (Brooks & Begley). Engaging adolescents in meal preparation and healthy food choices may increase the motivation needed to make significant

dietary changes that incorporate healthier foods including fresh fruits and vegetables, whole grains, proteins, and water (Wickham & Carbone, 2018). Incorporating behavioral food economics while simultaneously incorporating nutrition education has proved to be an effective strategy for increasing healthy food consumption in a school environment. Behavioral food economics refers to creating environments where healthier food is more available, creative names are incorporated, fun facts about healthy foods are posted and special healthy foods are offered (Song et al., 2015).

Teaching adolescents about healthy food is a good step towards improving health literacy, but D'Adamo et al.(2016) suggest it lacks the carry over necessary for promoting healthy eating. Even if adolescents know about healthy food, stigmas and stereotypes of food tasting bland, dry, and tasteless prevent adolescents from incorporating healthy food into their diet on their own (Yuen-man Siu et al., 2017). D'Adamo et al. conducted a study to determine if the incorporation of spices into adolescents' diets might improve their consumption of healthy food. *Spice MyPlate* is a nutritional educational intervention which emphasizes the use of 12 easy-to-access, affordable spices and herbs used in various healthy recipes in order to make healthy foods taste better. During a one hour health class, over the course of six weeks, 110 primarily Black students in grades 9 and 12 participated in a nutritional education program which focused on using spices and herbs in their daily diets. These students were compared to a control group at a neighboring high school with similar backgrounds. The students were taught how to choose healthier food options while sticking to a budget, in addition to participating in two hours of cooking sessions that taught kitchen safety, cooking methods, and how to prepare healthy meals (D'Adamo et al., 2016).

The study by D'Adamo et al. (2016) found there was no significant difference between the diets of the students in the control group and that of the *Spice MyPlate* group when it came to fruit, vegetable, and dairy intake. There were, however, significant changes concerning whole grain and protein intake, with the *Spice MyPlate* group consuming larger quantities of foods in these groups. D'Adamo et al. also found attitudes toward healthy eating improved with the *Spice MyPlate* group. At the end of the intervention, the *Spice MyPlate* group expressed they were more likely to consume fresh fruits and vegetables, and eat lean meat and protein at the outcome evaluation compared to what they reported at the baseline evaluation (D'Adamo et al, 2016).

Similarly, Song et al. (2015) conducted a study to determine whether changing the school cafeteria environment, in addition to extensive nutrition education programs, improved the intake of fruits and vegetables (FV) in elementary school children over the course of one school year. This study combined behavioral economics and nutrition education. At the beginning of the study, 665 students from 34 schools were divided into three groups: The comprehensive group received the *Refresh* program consisting of behavioral economics based cafeteria changes in addition to classroom nutrition education; the cafeteria group only received the behavioral economics based cafeteria changes; the control group received neither. At least 50% of all participating students received free or reduced priced meals. All schools were similar in ethnic and racial demographics (Song et al., 2015)

The *ReFresh* program implemented comprehensive cafeteria environmental changes. Healthy food was placed at the beginning of the food line, signs and displays highlighted healthy food, attractive containers packaged healthy food, a variety of colors, shapes and textures of healthy food was offered, and food was renamed in creative and fun ways (e.g., calling broccoli “mini trees”) (Song et al., 2015). Nutrition education included an eight unit design which

corresponded to the academic school year agenda. It included basic nutrition information, critical thinking skills to answer questions like how bodies benefit from eating fruits and vegetables, as well as fun, hands-on activities such as tasting multiple types of apples and voting on which is best (Song et al., 2015). Each student in the study received a baseline, self-administered test to determine food preferences and food consumption. The same test was given at the end of the program to determine changes. It was determined significant improvements in a number of areas for the comprehensive group, including eating FV at lunch the previous day and during the previous week, preparing FV at home, and positive perception of peers who regularly eat FV. Based on the findings of this study, the combination of classroom nutrition education and cafeteria behavioral economics may improve FV consumption in children (Song et al., 2015).

### **Purpose and Research Questions**

The purpose of this research is to learn more about and understand what factors influence food literacy disparities among Black adolescents. The research questions include:

1. What are the complexities in health disparities and food literacy among Black American adolescents and what are we missing in understanding this complexity?
2. What education and environmental modifications might impact nutritious food consumption among Black adolescents?

### **Methods**

This scoping review followed the protocol developed by Arksey and O'Malley (2005). A scoping review is used when there is a limited amount of research available on a topic and the researcher wishes to identify both conceptual and empirical literature on a topic to determine gaps in the research.

### **Search Strategy**

Studies published between January 1998 and February 2021 were included in this review. The following electronic databases were searched: PubMed, Academic Search Ultimate, CINAHL Complete, Health Source Consumer Edition, Medline Complete. The original search was completed January 28, 2021. Search terms included: “adolescents,” “teenagers,” “young adults,” “teen,” “youth,” “student,” “adolescence,” “African American,” “Black American,” “American,” “Black,” “United States,” “intervention,” “education,” “community,” “culture,” “school;” “fruit and vegetable consumption” or “fruit and vegetable intake,” “fruits and vegetables,” “diet,” “healthy eating,” “interventions,” “strategies,” “best practices,” “treatment,” “therapy,” “program,” “management.”

### **Study Selection**

Inclusion criteria for selected articles included literature that discussed health disparities and food literacy among Black American adolescents, and literature that discussed education and environmental modifications which might impact nutritious food consumption among Black adolescents. All articles included in this study were written in the English language and included only studies that were conducted in the US or Canada. Exclusion criteria included articles that were conducted outside of the US and Canada. Interventions delivered through hospitals, long term care facilities, and clinical settings were excluded from this study. Data extraction for included studies included: year of publication, study design, research location, race of participants, and community based programs. The reference lists of included articles were hand searched to seek out additional literature on this topic. An Elizabethtown College librarian was consulted and helped conduct a search for relevant literature. Search terms were narrowed down once the researcher gained a better understanding of the existing literature. This collaborative



search strategy identified additional titles and abstracts which were further reviewed. All selected articles were read in their entirety to determine if they fit into the scope of this review.

### **Data Analysis**

Once the articles were selected, the following data were recorded in tables. Demographic information, including the article citation, the total number, age, race and gender of participants was grouped in a table. The study information, including the article citation, the study design, intervention strategy and location and overall outcome were grouped in a separate table. Once the data was collected, the reported outcomes were grouped into three overarching themes: school interventions, spiritually based interventions and other community based interventions.

### **Results**

A search of the literature yielded 115 articles. These 115 articles were screened and assessed for eligibility, leading to 37 relevant articles. A total of 13 eligible articles were selected for inclusion in this scoping review. Several community-based interventions that sought to bring change in individual eating habits, including FV consumption or attitudes towards FVs, were described in the literature. These interventions include: school/after school programs, churches, community programs (including community gardens), health education related to FV consumption, and focus groups based on kitchen garden programs. The community-based interventions included a variety of locations including: homes, schools, religious institutions, community gardens, and local corner stores.

Table 1

#### *School-based Interventions: Demographics*

Citation	# of participants	Age (years)	Race	Gender
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Evans et al., 2016	1369 students, 1206 parents	students age 7-11	18% Black, 53% Hispanic	88% female
Jarpe-Ratner et al., 2016	271 students	grades 3-8; 89% elementary school	32% Black American, 44% Hispanic	65% female
Knapp et al., 2019	27 students, 17 parents, 17 teachers	students, 10-14; parents, 25-50; teachers 23-39	100% students were Black, 67% of parents and 23.5% of teachers were Black	45% of children and 100% of parents and 82% of teachers were female
Rosemond et al., 2015	224 students	ages 9-12	97% Black	61% female

Table 2

*School-based Intervention Study Information*

Citations	Study Design	Intervention Strategy	Location of Intervention	Outcome
Evans et al., 2016	Factorial group randomized controlled trial where 28 schools were randomly assigned one of four treatment groups	Ongoing five year study using Coordinated Approach to Child Health (CATCH) intervention design. Assessed the impact of gardening, nutrition and physical activity interventions	28 schools across Texas; 8 in north central Texas, 8 on the southern coast, 8 in east central Texas and 4 in central Texas.	No statistical difference between control group and intervention groups in relation to vegetable consumption or physical activity
Jarpe-Ratner et al., 2016	Quasi-experimental evaluated by pre and post survey of participants	Community-based, experimental cooking and nutrition education on consumption of fruits and	17 elementary schools and 1 middle school in Chicago	Significant increases in nutrition knowledge and vegetable consumption among participants

		vegetables		
Knapp et al., 2019	Qualitative study design collecting data through focus group discussions	10 semi structured, 45 minute focus groups conducted at the middle schools with students, teachers and parents.	4 middle schools in New Orleans offering school based kitchen garden programs through a ESYNOLA program	Focus group revealed participants were more willing to try new fruits and vegetables post intervention implementation
Rosemond et al., 2015	pre and post-intervention surveys using independent t tests and mixed-model Poisson regressions	Junior Doctors of Health (JDOH) intervention to address obesity-related behaviors through education, skill building and mentoring	5 elementary schools in South Carolina	no statistically significant differences in FV consumption between pre and post test surveys

Table 3

*Spirituality-based Interventions: Demographics*

Citation	# of participants	Age (years)	Race	Gender
Bauer et al., 2019	352	18-80	100% Black	68% female
McClelland et al., 1998	3737	18+	98% Black	70% female
Resnicow et al., 2005	1056	18-86	100% Black	>74% female

Table 4

*Spiritually-based Intervention Study Information*

Citation	Study Design	Intervention strategy	Intervention Location	Outcome
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Bauer et al., 2019	clustered, randomized faith-based pilot study	Faith-based intervention using Theory of Planned Behavior (TPB)	Churches in Kansas City, Missouri	No significant differences in FV consumption among participants
McClelland et al., 1998	Black Churches United for Better Health Project, a 5 A Day for Better Health	Multi-level intervention design to increase FV intake by one half serving per day compared to a control group	50 Black churches in 10 rural counties in North Carolina	Women consumed significantly more FV compared to men; the mean consumption was 3.7+-2.4, depending on demographics
Resnicow et al., 2005	16 churches were divided into 3 groups and randomly assigned one of three intervention conditions; Mixed model	Group 1: standard nutrition and PA intervention materials Group 2: culturally targeted self-help nutrition and PA intervention materials Group 3: same intervention as group 2 plus 4 MI counseling calls	16 Black churches in Atlanta, GA. The interventions were distributed and then completed individually within participants homes over the course of a year.	Clear statistically significant difference in FV consumption for intervention groups, measured using three self report instruments

Table 5

*Other Community-based Interventions: Demographics*

Citation	# of participants	Age (years)	Race	Gender
Barnidge et al., 2015	397	18+	100% Black	62.7% female

Cullen et al., 2017	126	8-12	100% Black	55% of children and 98% of parents were female
Downes et al., 2019	47	43-78	66% Black	74% female
Halbert et al., 2017	530	18-75	100% Black	57% female
Trude et al., 2018	509	9-15	97% Black	55% female
Wickham et al., 2017	4	13-16	50% Black	25% female

Table 6

*Other Community-based Interventions Study Information*

Citation	Study Design	Intervention Strategy	Intervention Location	Outcome
Barnidge et al., 2015	quasi experimental study	Use of community gardens to implement MOTMGC intervention	Pemiscot and Dunklin county in rural Missouri	intervention group participants were 3 times more likely to eat 5+ FV servings compared to the control group
Cullen et al., 2017	two group randomized clinical trial	Web-based intervention promoting healthy home food environments	Texas-- where?	availability of FV increased significantly according to parent-reported surveys but no significant improvements in child-reported FV consumption
Halbert et al.,	Comparative	Disease specific	Philadelphia, PA	No statistically

2017	effectiveness education trial	education on CVD and motivational interviewing	metropolitan area	significant changes in FV consumption
Trude et al., 2018	group-randomized control trial	increased access to low-sugar food and beverages at wholesalers and small food stores and implemented youth-led education at recreation centers using <i>B'more Healthy Communities for Kids</i> (BHCK) intervention method	30 low-income areas in Baltimore	No statistically significant difference in FV intake
Downes et al., 2019	quasi experimental design	Full Plate Diet nutrition education	Southwest FL local churches or senior living center	No statistically significant changes, but did show positive FV intake post intervention
Wickham et al., 2017	Community-based participatory research approach using qualitative data	Technology driven food literacy program with in-person skill building sessions	Springfield, MA; recruitment occurred at the Greater Springfield YMCA	No statistically significant difference in FV consumption, though attitudes towards FV increased slightly

### School Based Interventions

Four studies identified school-based interventions (see Tables 1 and 2), which included quasi-experimental, factorial group randomized control trials, and qualitative study designs.

Outcomes varied, although common themes included increased positive attitudes and/or perceptions of FV consumption. The quasi experimental community-based cooking and nutrition education interventions, conducted by Jarpe-Ratner et al., (2017) yielded the most significant changes in regards to nutrition knowledge and vegetable consumption.

Knapp et al. (2019) and Jarpe-Ratner et al. (2016) involved adolescents older than age 12, though only Knapp et al. (2019) had a majority of students older than 10 years of age. None of the programs included students older than 14 years. Knapp et al. (2019) had a majority of male students while the other three had at least 61% female students. Half had a majority of Hispanic American students while the other half had a majority of Black American students. These studies took place in Illinois, Texas, Louisiana, and South Carolina.

### **Spiritually-Based Interventions**

Three studies identified spiritually-based interventions and involved research designs with Biblical themes and recruitment from churches (see Tables 3 and 4). None of the studies involved participants younger than 18 years but they all involved at least 98% Black American, and at least 68% female participants. All interventions took place at Black Churches. Study locations included Atlanta, Georgia, Kansas City, Missouri and five rural counties in North Carolina. Resnicow et al. (2005) found statistically significant differences in FV consumption among participants while the other two studies found no statistically significant changes in FV consumption.

### **Other community based interventions**

Six studies identified other community based interventions which included web-based or technology driven interventions, community garden interventions, motivational interviewing and diagnostic specific education, or other interventions based on specific theoretical bases,

including *Full Plate Diet*, *B'more Healthy Communities for Kids*, and *Men on the Move Growing Communities*. Cullen et al. (2017) and Trude et al. (2018) included youth age 8 or 9 to age 12 or 15 with one study, Wickham et al. (2017), involving adolescents age 13-16. All other studies included participants 18+, with no studies including adolescents age 17. All studies included at least 50% Black American participants, with four included 97-100% Black Americans. Wickham et al. (2017) included majority male participants, with 25% female while all others included at least 55% female participants and three included more than 63% female participants. Locations varied from rural to urban settings in various cities/states including Baltimore, Texas, Philly metropolitan area, Pemiscot county, Southwest Florida and Springfield Massachusetts. Five out of the six studies did not yield statistically significant differences in FV consumption, although Cullen et al. (2017) did reveal qualitative parent-reported data about significant increase in FV availability in their homes.

After further analysis of the research, it is evident that Black adolescents, who are more likely to experience poor health literacy and poor food literacy, benefit from health promotion interventions that focus on eating healthy foods. These interventions could be school-based, spiritually-based, or community-based. In order to understand these difference interventions, the researcher will discuss interpretations of the research findings in order to answer the research question.

## **Discussion**

Scoping reviews examine the range of research activity on a specific topic. The findings from this scoping review are consistent with the existing literature about food literacy and nutrition among Black American adolescents. There was a noted gap in the literature that addresses healthy food habits and health promotion interventions for black adolescents. There



was very little literature that specifically addressed interventions which promoted healthy food choices that were geared toward Black adolescents. An identified gap included a lack of literature that focused on culturally relevant interventions. In this scoping review, thirteen articles associated with the promotion of FV consumption among Black Americans were identified. These articles were categorized based on intervention design, age of participants, and outcomes of the intervention.

The first research question concerns the complexities in health disparities and food literacy among Black American adolescents and asks what are we missing in understanding this complexity? Research indicates that complexities, such as cultural needs, individual intentions, education levels, SES, and affordability and availability of healthy food, all influence health disparities and food literacy among Black Americans. Interventions which address specific cultural issues by tailoring education materials to meet identifiable population needs could help address cultural aspects which influence health disparities (Evans et al., 2016). This could include cultural recipes (Resnicow et al., 2005), language barriers (Evans et al., 2016), and reading levels (Halbert et al., 2017). Individuals with limited education may likely experience health literacy challenges in relation to reading and understanding food labels and keeping track of and planning healthy meals (Halbert et al., 2017). This finding is consistent with previous research that health and food literacy is influenced by education levels (Pallini & Yonker, 2015). Limited knowledge of preparing and cooking food may contribute to the complexities of food literacy and health disparities. Lack of cooking skills was identified as a barrier to healthy food consumption among Black American adolescents (Knapp et al., 2019).

Further complexities include cost, food quality, and availability of healthy foods (Trude et al., 2018). Individuals who cannot afford and do not have exposure to quality healthy foods

may be less likely to consume nutritious diets. Other complexities may include self-efficacy and intentions in relation to consuming health foods. Children who demonstrated strong self-efficacy showed positive behavior changes in regard to health choices (Rosemond et al., 2015). Intentions to change health behaviors may influence behavior change individuals make (Bauer et al., 2019).

Numerous complexities exist which influence food literacy and health disparities among Black American adolescents. These complexities, including cultural conditions, intentions, education, SES, and affordability and availability of healthy food are important to consider when designing interventions. These complexities can both positively and negatively influence food literacy and health disparities. When these complexities are addressed in interventions, there may be a greater likelihood of positive outcomes in relation to increasing food literacy and decreasing health disparities among Black American adolescents.

The second research question is about how education and environmental modifications might impact nutritious food consumption among Black American adolescents. Research shows that nutritious education, healthy food access, increasing availability of FV in home, and community environments may positively influence nutritious food consumption.

Community gardens may be an effective environmental strategy to help influence access to FV that, when paired with nutrition education, has been shown to increase FV consumption (Barnidge et al., 2015). Students participating in growing and cooking of healthy food increased their overall understanding of food sources and health benefits. This process also helped influence their willingness to try and appreciation of healthy foods (Knapp et al., 2019). Adding hands-on activities can help develop food-related skills, influencing nutritious food consumption (Wickham & Carbone, 2017). When students receive nutritious education at school, they may become “agents of change with the ability to affect the home environment and shape the family’s

social norms related to shopping, cooking, gardening and food consumption, potentially increasing access to and availability of FV in the home,” through sharing their knowledge and skills with family members (Knapp et al., 2019, p. 672). Access to FV within the home environment has also shown to influence dietary behaviors (Cullen et al., 2017).

Increasing healthy food availability in local corner stores and wholesale grocers has shown to influence healthy food purchasing among community members (Trude et al., 2018). Behavior change can also be influenced through individuals setting goals and identifying personal barriers, including access to FV and attitudes about eating healthy foods (Barnidge et al., 2015). Repeated exposure to health education is shown to have a greater influence on health behavior change compared to a single exposure (Rosemond et al., 2015).

Educational and environmental modifications are important to consider when conducting interventions focused on increasing nutritious food consumption. Repeating important health information may increase the retention of the information, influencing individuals healthful food consumption. Expanding nutritious food education beyond just factual knowledge can positively influence nutritious food consumption. Incorporating hands-on activities, discussion and demonstrations can help build procedural knowledge and influence carry-over of food-related skills to real-life situations (Wickham & Carbone, 2017). Helping to modify community and home environments may increase exposure to and consumption of nutritious food as well.

A limited number of articles addressed food literacy interventions for Black adolescents ages 13-17. Adolescents are at a critical age for developing lifelong health habits, making this group important to target with interventions (Brooks & Begley, 2013). The aforementioned complexities and educational and environmental modifications should be further researched specifically among the Black American adolescent population.

Culturally relevant interventions were scarce. Only one intervention incorporated cultural aspects which showed promising results in increasing food literacy in relation to FV consumption (Resnicow et al., 2005). Interventions which sought input from community members and participation from community organizations showed improved FV consumption among intervention participants (Barnidge et al., 2015). We believe that community input and culturally relevant interventions are overlooked, but critical, because of the diversity in communities across the US. Specific regions and communities have different surface and deep structure dimensions which influence individuals' ability and motivation to change their FV consumption. Black Americans are not a monolith group of people. They have different experiences depending on their specific cultural community. Creating interventions that meet the diverse needs of a community can positively influence individuals' FV consumption and overall health.

Fruit and vegetable consumption was the predominant outcome measure in the literature, with several studies reporting FV access and attitudes about FV as secondary outcome measures (Bauer et al., 2019, Barnidge et al., 2015, Cullen et al., 2017, Knapp et al., 2019, Trude et al., 2018). We believe these secondary outcome measures are a critical aspect to individuals consuming FV because access to FV and attitudes about FV will impact an individual's overall consumption. Interventions involving community gardens show promising results in increasing availability of FV and willingness of individuals to try the FV grown in the garden (Barnidge et al., 2015, Knapp et al., 2019). Interventions which increase access to healthy food in local grocery stores is also linked to improvement in FV consumption among intervention participants (Trude et al., 2018).

Further research on culturally sensitive interventions involving Black adolescent participants is recommended to better understand what culturally sensitive food literacy and nutrition intervention programs might help to promote FV consumption among this group. There are implications for OT to be included in the creation and implementation of culturally sensitive food literacy and nutrition intervention programs for Black adolescents. Specifically, the results of this scoping review revealed that increasing FV consumption and improving health outcomes takes more than just education about food labels, math skills and health benefits. OT can play a role in engaging individuals and communities in interventions to help increase access to FV and consumption of FV through increasing exposure and influencing attitudes about FV.

A strength of this scoping review is that it had a broad scope for intervention types, and it looked at food literacy and nutrition interventions in a variety of locations, including schools, churches, and the community. Another strength is that the literature search process was completed in collaboration with a librarian, which meant there were two reviewers of the chosen literature for this scoping review.

A limitation of this scoping review was that the number of included articles was small, and many relevant articles may have been missed in the literature search. The limited number of articles may limit generalization of findings. The results should be interpreted with caution.

### **Conclusion**

This scoping review explored the existing literature on interventions to improve health outcomes among Black American adolescents. The study highlighted culturally relevant and community based interventions. Community based, educational food interventions show limited significant changes in FV consumption. Culturally sensitive and community informed

interventions, however, show promising results in FV consumption among participants. Understanding the barriers and facilitators that contribute to Black adolescent's food literacy and nutrition is important information if we want to create and implement intervention programs that improve nutritional knowledge and health.

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