Low-Income Children's Reported Motivators of and Barriers to Healthy Eating Behaviors: A Focus Group Study

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Background: Despite national attention to the childhood obesity epidemic, there are few US-based studies that directly ask children—especially children from low-income families and from multiple racial/ethnic groups—why they do or do not engage in healthy eating behaviors.

Objective: The purpose of this study was to identify motivators of and barriers to healthy eating behaviors, as reported by black, Hispanic, and white children from low-income families.

Method: Six gender- and race/ethnicity-concordant focus groups were conducted with 37 children who were aged 9 to 12 years and from families with an annual household income of $40000 or less. Multiple strategies were used to employ a culturally sensitive approach to both data collection and data analysis (eg, a team of culturally diverse researchers utilized inductive qualitative analysis to analyze focus group transcripts).

Results: The motivators of and barriers to healthy eating behaviors most commonly reported across the 6 focus groups included social influence, taste, issues of availability, weight concerns, and the desire to be healthy. A variety of less commonly reported motivators and barriers were also discussed. Findings were generally similar across gender and race/ethnicity.

Conclusions: Children in this age range can indeed identify a variety of motivators and barriers that influence their engagement in healthy eating behaviors. Interventions targeting obesity and eating behaviors should include an assessment of children's own perceived motivators of and barriers to healthy eating.

Keywords: children/adolescents ■ body weight ■ barriers ■ obesity ■ race/ethnicity ■ Latinos ■ African Americans

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Childhood obesity is clearly a national concern. Approximately 16% of children and adolescents in the United States have a body mass index (BMI) for their age that is at or above the 95th percentile, and approximately 32% have a BMI at or above the 85th percentile.[1] Interventions to prevent and reverse childhood obesity are especially warranted, given that childhood obesity has been found to be associated with a long list of physical health problems such as cardiovascular disease,[2] hypertension, glucose intolerance/insulin resistance, hepatic steatosis, sleep apnea, and orthopedic problems, as well as emotional/psychological consequences, such as social stigmatization, discrimination, and low self-esteem.[3]

It is particularly noteworthy that overweight and obesity among youth and adults have recently been added to the list of health disparities that disproportionately affect racial/ethnic minorities and low-income populations in the United States,[1,4-6] yet such minority and low-income groups have been traditionally underrepresented in research examining health-promoting behaviors. In fact, many studies focusing on youth's views of factors that influence their healthy eating have either not reported race/ethnicity or have consisted of predominantly non-Hispanic white participants.[7]

Despite the increasing rate of overweight and obesity over recent years, the levels of engagement in healthy eating behaviors among youth in the United States remain inadequate.[8,9] However, few interventions targeting children have demonstrated a sustained impact on healthy eating (or on physical activity behaviors).[10] One of the conclusions of investigators at the Centers for Disease Control and Prevention's Physical Activity and Nutrition in Children Program is that successful interventions must include "innovative approaches based on sound behavioral principals and an understanding of why children engage in

these behaviors…"[10(pS151)] However, few studies (especially in the United States) have examined children's own perceived motivators of and barriers to engagement in health-promoting behaviors, even though knowledge of such motivators and barriers could inform the development of interventions and assessment tools for effectively addressing the overweight/obesity epidemic among children.

In a systematic review of research conducted in the United Kingdom on the barriers and facilitators to healthy eating among youth, Shepherd et al[7] identified 8 studies that directly assessed the views of youth; of these 8 studies, only 5 included youth below the age of 13 years, and only 1 of the 5 reported the race/ethnicity of the sample. Additionally, among recent studies that have assessed motivators and barriers to healthy eating among children, many have used survey-based methods[11,12] rather than qualitative methods which—though typically more time intensive and less conducive to large samples—may allow children to respond in the context of fewer constraints. Studies that have used focus groups to elicit children's motivators of and barriers to healthy eating have reported motivators such as preventing disease or becoming overweight;[13] parental influence;[14] and (in schools) increased availability of healthy food, advertisements or menus identifying healthy foods, and cost reduction for healthy foods.[15] Examples of reported barriers have included a preference for unhealthy alternatives, limited availability of healthy foods,[14-18] appearance of food, filling power, time/effort, cost, risk of not liking it, rebellion,[16] easy access to nonnutritious snacks, quality of the food served, limited time period for lunch, and weight concerns (about eating full meals at school),[19] peer influence,[12,18] television influence,[17] and having pocket money to buy sweets.[13]

Few studies have been conducted in the United States that were similar to the current study with regard to using focus groups to assess motivators/barriers to healthy eating among children like those in the present study (ie, children of the same age range, from low-income backgrounds, and of multiple racial/ethnic backgrounds). One of these studies[17] was conducted in the classroom and utilized specific questions to elicit perceptions about particular (ie, previously determined) motivators/barriers to healthy eating (eg, availability, competing foods, social influence). In contrast, the focus groups of the present study were conducted in a community setting and assessed motivators/barriers using broad questions regarding why one does/does not eat healthy food. Another study[14] assessed environmental factors affecting children's food choices through the use of a questioning route that appeared to ask about children's healthy eating *behaviors* in specific environments; in contrast, children in the present study were asked about their reasons for eating or for not eating healthy foods. The reasons given included various types of factors (eg, family factors) in addition to environmental factors.

The purpose of this study was to use focus groups to identify motivators of and barriers to engagement in healthy eating behaviors as reported by African American/non-Hispanic black, Hispanic/Latino, and European American/non-Hispanic white American children from families with low household incomes. (Participants will be referred to as *black*, *Hispanic*, and *white* for the sake of brevity from here forth.) In accordance with the culturally sensitive difference model research approach,[20] the present research examined the motivators of and barriers to healthy eating separately by racial/ethnic group (and gender). The difference model research approach advocates examining the factors that may influence the behaviors of members of a particular cultural group, rather than comparing a minority group with a majority group, using the performance of a majority group as the norm, and viewing lower performance by a minority group as reflective of deficits rather than differences in performance (as, in contrast, is advocated by the deficit model research approach). Use of the difference model research approach may be particularly indicated for health research, given that factors influencing health outcomes and behaviors may vary according to ethnic background.[21-23] Furthermore, researchers have asserted that conducting qualitative studies that differentially examine children by age, gender, and/or culture may be necessary for the development of culturally sensitive childhood nutrition education programs.[24]

The present study examined the following primary research questions: What are the motivators of and barriers to healthy eating behaviors (ie, eating foods and snacks lower in fat and calories, eating fruits and vegetables) as reported by black, Hispanic, and white children from families with low household incomes? A secondary research question sought to determine if any noticeable differences existed among the children's reported motivators of and barriers to healthy eating behaviors in association with race/ethnicity and/or gender.

METHODS

Participants

Six race/ethnicity- and gender-concordant focus groups were conducted with a total of 37 children (17 females and 20 males). Each participant was required to meet the following inclusion criteria: (a) be 9 to 12 years old; (b) have a family income of $40 000 or below, as reported by the participant's parent/guardian; and (c) identify as black, Hispanic, or white, as reported by the participant's parent/guardian. The average age of participants was 10.7 years (SD = 1.1). The sample was 54% male. The racial/ethnic composition of the participants was 30% black, 40% Hispanic, and 30% white. Participants were from a small city in north central Florida. None of the participants reported being on a special diet due to a health condition. Thirty percent of

the participants reported that they were trying to lose weight. The number of participants per focus group ranged from 4 to 7 (median = 5). The 6 race/ethnicity- and gender-concordant focus groups were as follows: (a) a black female group, (b) a black male group, (c) a Hispanic female group, (d) a Hispanic male group, (e) a white female group, and (f) a white male group.

Instruments

A researcher-constructed participant information questionnaire, jointly completed by each participant and her/his parent/guardian, was used to assess the demographic and health information reported above. A researcher-constructed focus group questioning route was developed to guide the focus group discussion.[25,26] The questioning route was orally administered by trained focus group leaders for the purpose of exploring participants' motivators of and barriers to engaging in health-promoting behaviors. The present manuscript focuses specifically on the findings related to eating healthy foods and snacks and eating fruits and vegetables.

The questioning route was developed based on Stewart and Shamdasani's recommendations on conducting focus groups,[26] including building rapport in the group before beginning to ask questions, carefully crafting questions so as to maximize the number and variety of responses, asking open-ended questions, beginning with broad questions then narrowing the focus, and limiting the total number of questions to no more than 12. Although the questioning route included questions on multiple health-promoting behaviors, only 2 behaviors (ie, eating fruits and vegetables; eating healthy foods and snacks) were chosen as the focus of this manuscript, due to the length required for thoroughly explaining qualitative methodology and results. Questions posed to elicit motivators of these behaviors included, "If you eat fruits and vegetables (healthy foods and snacks) each day, why do you eat them?" and "If you do not eat fruits and vegetables (healthy foods and snacks) each day, what would encourage you to eat them?" Questions posed to elicit barriers to these behaviors included: "If you don't eat fruits and vegetables (healthy foods and snacks) each day, why not?" and "If you do eat fruits and vegetables (healthy foods and snacks) each day, why is it not always easy to eat them?" Before these questions were posed, a brief explanation of "healthy foods and snacks" was provided, along with a few examples of choosing healthy vs less healthy foods. After a main question was asked, follow-up prompts (ie, rewordings of the main question) were posed, if needed, to clarify or elicit further response.

Procedure

Participant recruitment. This study represents a component of the first phase of a larger intervention project, which was approved by the host university's institutional review board. Participants of this study were recruited using the following strategies: (a) disseminating English and Spanish recruitment flyers at local businesses; (b) recruiting participants on site at community locations (eg, churches, recreation centers, grocery stores); and (c) using snowball sampling—a strategy in which individuals who have agreed to participate in the project disseminate study information to others who may be interested in participating. Finally, given the difficulty of recruiting minority research participants,[27,28] community research consultants (eg, retired nurses, retired school teachers) were paid a small honorarium to assist in recruitment.

All recruitment materials provided potential focus group participants and their parent/guardian with information on the purpose and procedures of the present research. The stated purpose of the research was to identify what makes it easier for children to do things that benefit their health and what makes it difficult for children to do things that benefit their health. Potential participants were informed that the researchers were seeking individuals between the ages of 9 to 12 years who identify as black, Hispanic, or white and are from a family with an annual household income of $40 000 or less.

Potential participants and their parent/guardian were informed provided the following information: participating children would be asked to take part in an audiotaped and videotaped discussion group during which they would be asked about what makes it easy or difficult to engage in health behaviors, participation would require a total of approximately 2 hours, a meal would be served before the discussion group, and $15 cash would be given to participants after the discussion concluded. It was also stated that: (a) researchers would keep all materials confidential; (b) members in a discussion group would be similar in terms of race/ethnicity, age, and gender; (c) participants could choose to not respond to any question or could choose to discontinue participation at any point in time with no adverse consequences; and (d) participants, with the help of their parent/guardian, would be asked to complete a written participant information questionnaire prior to the discussion session.

Focus group organization and leader training. Each of the 6 focus groups was conducted by a leader, coleader, and note taker whose gender and race/ethnicity matched the gender and race/ethnicity of the participants in that group. Additionally, the 2 focus groups comprised of Hispanic children were conducted by individuals fluent in Spanish and English. Focus group leaders were typically university faculty members familiar with focus group methodology whose primary role was to use the questioning route to facilitate participants' identification of their motivators of and barriers to healthy eating behaviors. Focus group coleaders were typically undergraduate students whose primary role was to facilitate comfort among the participants. For the purpose of reducing researcher bias/influence, none of the authors of the present study served as focus group leaders or

coleaders. Note takers were undergraduate research assistants whose role was to record relevant nonverbal behaviors and interactions observed during the focus group discussion. Focus group leaders, coleaders, and note takers participated in a 2-hour training session that focused on focus group procedures, methods for facilitating communication, and strategies for managing group dynamics; they also were provided with a training manual and the questioning route.

Focus group implementation. Each focus group was held at a community location (eg, library). Upon arrival, participants were read an assent form and their parent/guardian was asked to read and sign a parental/guardian consent form. Each participant and her/his parent/guardian then jointly completed the participant information questionnaire. Next, the participants and their parents/guardians were served a meal, which consisted of baked chicken, brown rice, and vegetables. This meal was served for the following reasons: (a) to be a participation incentive for both the children and their accompanying family member(s), (b) to be sensitive to the fact that the focus groups occurred in close proximity to a typical meal time, and (c) to allow the children time to relax and become acquainted with the setting prior to engaging in the focus group. Although this meal was in fact nutritious (ie, a balanced meal low in sodium), it was not identified as such to the participants, in an effort to minimize potential positive or negative bias about healthy foods prior to the focus group. After this meal, parents/guardians were asked to leave the room so that the focus group could begin. The leader and coleader of the focus group began discussion with an "ice-breaker" activity before starting with the questioning route. Each focus group lasted approximately 1 to 1.5 hours, and each child was thanked for participating and given $15 in cash. Parents/guardians were not directly given monetary compensation; however, both the child and his/her parent/guardian (and the child's siblings, if present) were offered the meal.

Qualitative data analysis. Digital audio recordings of the focus groups were transcribed verbatim by a certified transcription company. The audio—rather than video—recordings were chosen for transcription in order to provide for greater participant confidentiality; video recordings were utilized only in the rare case of poor sound quality of an audio recording. Transcribers were asked to record all slang, slips of the tongue, and audible behaviors such as laughter, and to distinguish the voices of the focus group leaders and coleaders from those of the participants. Focus group transcripts were analyzed by a team of 8 trained researchers/research assistants (ie, coders) from diverse cultural backgrounds. Each focus group transcript was independently coded by each member of a 2-person coding team that included at least 1 coder whose race/ethnicity matched the race/ethnicity of that particular focus group's participants. Additionally, each transcript from a focus group comprised of Hispanic participants was coded by at least 1 coder who was Spanish-English bilingual. This matching procedure was used to facilitate comprehension of dialect and word usage during the coding process. In order to avoid a coder bias effect during transcript coding, coders were rotated so that coding teams did not always consist of the same 2 persons. A coding supervisor closely monitored the coding process to ensure adherence to agreed-upon procedures and to enhance internal consistency between transcripts.[29]

Focus group transcripts were coded using conventional content analysis[30] and the constant comparative method.[31] Specifically, an inductive category development[32] approach was used for the purpose of deriving codes directly from the data, as opposed to using a preexisting theory to preliminarily construct a coding scheme. To construct an initial coding scheme and increase intercoder reliability, coders read segments of a randomly selected transcript and agreed on an initial list of categories (ie, codes) and subcategories (ie, subcodes) that described participants' comments regarding specific motivators of or barriers to healthy eating behaviors. Each distinct unit of a participant's comment that described or referred to a particular motivator of or barrier to healthy eating was considered an "instance." Thus, a coded instance could be as short as a single word or as long as a participant's entire uninterrupted comment.

According to Schilling's recommendations,[33] coding guidelines were specified, and each instance was assigned either a main code only (eg, social influence) or a main code as well as a more specific subcode (eg, social influence from parents). Each coded instance was also labeled as either a motivator or a barrier. Comments by focus group leaders/coleaders—as well as comments by participants in reference to anything other than motivators of or barriers to healthy eating behaviors—were not coded.

After the initial list of codes was developed, coders independently coded each transcript by "constantly comparing" participants' comments to the most current version of the coding list in order to determine if each instance could be described using an existing code from the coding scheme. When coders found instances that did not fit within the existing coding scheme, a new code was created, and the coding list was appended and provided to all coders. On occasion, a code from the coding list was deemed to be too specific or too broad and was thus revised (ie, made more specific or combined with another code) to better fit within the coding scheme. Whenever an existing code was revised, coders also applied the revision to any instances in which the code had been used in previously coded transcripts.

Each transcript was independently and privately coded by hand (ie, no software other than word processing software was used) by each member of the 2-person coding team; then, each coding team met with

the coding supervisor to review and compare codes identified from the respective transcripts they had coded. The coding team and coding supervisor discussed each code that had been independently identified by each coder. If both coders categorized a given instance with the same code, that coded instance was recorded by the coding supervisor as an agreement. However, if one of the coders categorized a given instance differently than did the other coder, that instance was recorded as a discrepancy and then discussed, with the coding supervisor making all final discrepancy resolution decisions.

Only main codes were taken into consideration in determining discrepancies, as subcodes were considered artifacts of the main codes. Intercoder reliability was calculated by dividing the total number of coder agreements across all coded transcripts by the total number of coded instances (ie, the sum of total coder agreements and total coder discrepancies across all coded transcripts) and then multiplying that value by 100. Using this formula, the intercoder reliability among the 8 coders involved in the transcription coding process was 89%.

RESULTS

The factors (ie, motivators and barriers) that children reported as positively or negatively influencing their healthy eating behaviors are presented in the sections below. Rather than simply presenting the reported motivators and barriers, the reported motivators and barriers are additionally organized based on their frequency of occurrence *across* focus groups (ie, based on the number of groups within which a particular factor was reported, not based on the number of participants who reported a particular factor). This method of presentation was chosen based on the perspective that motivators/barriers reported in more than 1 focus group are likely to be more reliable than those reported by several persons within a single focus group. Additionally, though not typical to traditional qualitative research, frequency data are provided based on the desire to provide further information than simply reporting the many motivators and barriers (in no particular order) that were reported across the 6 focus groups.

The following sections are organized by the code that was chosen to describe each motivator or barrier and by the frequency with which a particular code occurred across focus groups. Codes are presented in the following order: (a) codes for motivators and barriers reported among more than half of the focus groups (ie, 4 to 6 of the 6 focus groups), (b) codes for motivators and barriers reported among half of the focus groups (ie, 3 of the 6 focus groups), and (c) codes for motivators and barriers reported among fewer than half of the focus groups (ie, 1 to 2 of the 6 focus groups). For motivators and barriers that were reported in at least half of the 6 focus groups, example quotes, along with the gender and race/ethnicity of the quoted participant, are additionally presented.

Motivators and barriers that were reported exclusively among a particular gender and/or race/ethnicity are noted throughout. Because the motivators and barriers related to eating healthy foods and snacks and those related to eating fruits and vegetables were very similar, these findings are presented together; however, the frequencies of motivators and barriers mentioned specifically in reference to eating fruits and vegetables are also noted. As a summary, the motivators and barriers that were reported among at least half (ie, ≥3) of the 6 focus groups are presented in the Table.

Motivators and Barriers Reported Among More Than Half of the 6 Focus Groups

The motivators and barriers reported in more than half of the 6 focus groups (ie, in ≥4 of these groups) are, for convenience, termed the *most common* motivators and barriers. The codes that describe the most commonly reported motivators of or barriers to eating healthy foods are as follows: social influence (motivator), taste (motivator/barrier), issues of availability (motivator/barrier), weight concern (motivator), and desire to be healthy (motivator). Each of these codes is described in the following sections.

Social influence (motivator). Social influence was reported as a motivator of eating healthy foods across all 6 focus groups. Social influence as a motivator was specifically reported in relation to eating fruits and vegetables among 5 of 6 focus groups. Influence from parents was the most frequently reported type of social influence; in fact, parental influence was reported, to varying degrees, across all 6 focus groups. Parental influence for eating fruits and vegetables was most often described in terms of an ultimatum, such as "My mom says, 'Eat your vegetables or else….'" (Hispanic male).

In addition to parental influence, children also reported influence from nonparental family members (eg, support from a brother) as a motivator of eating healthy foods. Other references to social influence were made in relation to peers, although this occurred with less frequency than did familial influence. Interestingly, 1 boy even mentioned eating fruits and vegetables to impress the opposite sex, and other comments were made in relation to indirect forms of social influence for healthy eating, such as the desire to avoid weight stigma. Finally, having a family member diagnosed with a health condition (ie, that requires making nutritional improvements) was also reported as an influence to eat healthier:

Sometimes we might eat them [vegetables]*, like since my daddy's on a diet 'cause he has to lose his stomach, and so he's eating healthy….He has to eat a lot of vegetables, because if he doesn't lose his stomach, the doctor said that he might end up dying, and so that's why I'm getting on him about his diet.* [Black female]

Taste (motivator/barrier). Not surprisingly, how a food tastes was one of the factors that was discussed with greatest frequency among the focus groups as either positively or negatively influencing their engagement in healthy eating behaviors. In fact, taste was discussed as a motivator of eating healthy foods across all six groups. Some children even reported preferring the taste of healthy foods to the taste of sugary foods. Taste was specifically discussed as a motivator in relation to eating fruits and vegetables among 5 of 6 focus groups. Liking the taste of fruits was reported more commonly than liking the taste of vegetables. Some children clarified that their reason for liking the taste of fruits was due to the sweetness of fruits, as conveyed in the following quote: "It's [fruit] sweet like candy" (black female). Although a preference for sweetness was clearly prominent, a few comments were made in reference to liking sour tastes as well. Interestingly, each of the comments about liking the taste of sour foods was made by a Hispanic participant, and each was in reference to a specific type of fruit (eg, sour apples).

In addition to being discussed as a motivator of eating healthy foods, taste was also discussed as a barrier to eating healthy foods. Taste was reported as a barrier among 5 of 6 focus groups; the only group that did not discuss taste as a barrier to eating healthy foods was the Hispanic male focus group. Additionally, 4 of 6 focus groups specifically reported taste as a barrier in reference to eating fruits and vegetables. Disliking the taste of vegetables was discussed among 3 focus groups, and disliking the taste of fruits was discussed among 2 focus groups. Taste was discussed as a barrier either in regard to not liking the taste of healthy foods or in regard to preferring the taste of unhealthy foods. Some participants stated that their desire or preference for sweetness (eg, having a "sweet tooth") is what causes them to choose unhealthy foods. Dislike of healthy foods was sometimes described as an overgeneralization: "Healthy foods are nasty… except for corn" (black male).

In addition to simply liking or disliking the taste of certain foods, other influential taste-related motivators of and/or barriers to eating healthy foods were reported in relation to: (a) the way a food is cooked/prepared [reported as both a motivator and a barrier] or (b) the addition of something (eg, salt) to increase flavor [reported as a motivator], as indicated by the following quotes: "I only like certain people's baked chicken because sometimes it be dry" (black female) and "…[Mango] tastes good with salt" (Hispanic male). Interestingly, only Hispanic children mentioned adding something (eg, salt) to increase flavor as a motivator for eating fruit.

Issues of availability (motivator/barrier). Availability of healthy foods was reported as a motivator for eating healthy foods across all 6 focus groups. Having *only* healthy foods available (ie, healthy foods being the only option vs being able to choose from healthy *or* unhealthy options) was specifically reported as a motivator in 2 of 6 focus groups. Additionally, availability as a motivator was discussed specifically in reference to eating fruits and vegetables in 4 of 6 groups. Across groups, children most often discussed the availability of healthy foods in the context of having these foods accessible at home; however, availability as a motivator for consuming healthy foods was also discussed in the context of school, restaurants, and social events, such as in the following comments*:* "More of that [healthy] stuff around your house…[would help me eat healthy foods]" (white male) and "Enough of them [fruits and vegetables] on the table would encourage me" (black male).

Just as the availability of healthy foods was cited as a motivator, the vast availability of *unhealthy* foods was cited as a barrier. The prevalence of unhealthy foods was discussed among 4 of 6 focus groups as a barrier to making healthy choices. This barrier was mentioned in the context of home, school, social events, and food provided by others (eg, a friend's family), for example,

Table. Motivators of and Barriers to Eating Healthy Foods Reported Among ≥3 of the 6 Focus Groups, Displayed by Race/Ethnicity and Gender

	Black		Hispanic		White	
Motivator/Barrier	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Social influence	M	M	M	M	M	M
Taste	MB	MB	MB	M	MB	MB
Availability of healthy foods	M	M	M	M	M	M
Availability of unhealthy foods	B	B	–	B	B	–
Lack of availability of healthy foods	B	B	–	–	–	B
Weight concerns	M	–	M	M	M	M
Desire to be healthy	M	–	M	M	–	M
Familiarity issues	B	B	–	–	B	–
Lack of variety	–	–	B	–	B	B
Physical activity	M	–	–	M	–	M
Cravings for junk food	–	B	–	–	B	B

Abbreviations: B, discussed as a barrier; M, discussed as a motivator; MB, discussed as a motivator and as a barrier.

"Like tonight, if I go to a party, I'm probably going to get 5000 things of cotton candy and popcorn, which I'm not supposed to have…" (white female).

Additionally, 3 of 6 groups reported lack of availability of fruits and vegetables at home as a barrier to consuming fruits and vegetables. Interestingly, neither the Hispanic male nor the Hispanic female focus group was among the groups that reported a lack of availability of fruits and vegetables. Within each of the 3 focus groups that mentioned the lack of availability of fruits and vegetables, at least 1 child reported the more specific barrier of fruits and/or vegetables being purchased but then consumed quickly and not replenished, "We got them, but by the time the next day, they be gone" (black male).

Weight concern (motivator). Allusions to body weight or concerns about one's weight were mentioned as motivators of healthy eating among nearly all (ie, 5 of 6) focus groups. The only focus group in which weight issues were not mentioned was the black male focus group. Some example quotes that reflect weight-related issues as motivators for healthy eating are as follows: "Salt…salt is fattening, so sometimes I don't put any on" (Hispanic female) and "You can eat a whole bunch of them [healthy foods] and not get bigger" (white male).

Among 3 of the 6 focus groups, weight-related motivation was reported specifically in relation to eating fruits and vegetables. Of particular interest is that a few children who mentioned weight issues as a motivator of eating fruits and vegetables connected the idea of gaining too much weight with the prospect of serious negative health consequences, including death. Statements such as the following were made: "When you get bigger and bigger and bigger, you could have more chance of a heart attack" (white female), "I heard on the news that someone died because they were too fat…" (Hispanic male), and "I think it [eating healthy foods] is important, because when you're too big, like overweight…you can faint" (black female). Some of the children discussed weight as a motivator for healthy eating in relation to wanting to maintain their weight (ie, not wanting to "become fat"), while others explicitly reported wanting to lose weight, such as "[I eat fruits and vegetables] so I won't be fat, and so I will be skinny but not too skinny" (Hispanic male) and "[I eat fruits and vegetables] to get into a shirt that is a little smaller than I am…" (Hispanic male).

Desire to be healthy (motivator). Of potential surprise is the finding that children reported being interested in healthy eating simply for the purpose of being healthy. In fact, the desire to be healthy was one of the most commonly reported motivators of eating healthy foods. Across 4 of the 6 focus groups, participants reported being motivated to eat healthy foods for the purpose of being healthy/having a healthy body, such as the following comment: "The reason I eat fruits and vegetables is because you can have a healthy body, and your bones will be very strong, and you won't have to worry about being all weak and lazy" (black female).

Motivators and Barriers Reported Among Half of the 6 Focus Groups

The codes describing motivators of or barriers to healthy eating reported among 3 of the 6 focus groups were as follows: issues of familiarity (barrier), issues of variety (motivator/barrier), physical activity (motivator), and cravings for junk food (barrier). Each of these codes is discussed in the following sections.

Issues of familiarity (barrier). Being more familiar with unhealthy foods or less familiar with healthy foods was discussed as a barrier to eating healthy foods among 3 of 6 focus groups. Children described this familiarity as being "used to," "not used to," or even "attached to" particular foods or types of foods. One example is as follows: "Our body isn't used to that healthy stuff, and so when we first eat it, it's like nasty, so we've got to like take some time and get used to it … and sometimes I don't get used to food … " (black female).

Lack of variety (barrier). Children among 3 of the 6 focus groups described lack of variety as a barrier to eating healthy foods, especially in reference to fruits and vegetables. It appears that although children are typically known for being reluctant to try new healthy foods, they may also eat fewer healthy foods simply because they are repeatedly presented with the same foods and find the lack of variety among these foods to be unappealing. For instance, participants reported that being "bored of" or "tired of" the fruits and vegetables they eat prevents them from eating more of these foods, such as in the following comment: "You get tired of eating the same thing all the time every day" (Hispanic female).

Physical activity (motivator). Of particular interest is the link made by some children between eating healthy foods and engaging in physical activity, such as the notion that eating healthy foods helps them to be active, and eating unhealthy foods may prevent them from being active (eg, becoming nauseous while exercising due to having eaten an unhealthy snack), as suggested by the following quotes: "You can't be not healthy, 'cause you're going to be doing a lot of running and jumping and stuff like that…and if you do that and you're not healthy you can just like faint" (black female), and "I eat it so I can get skinny, so I can run more and so I can do exercise" (Hispanic male).

Cravings for junk food (barrier). Children among 3 of 6 focus groups described a strong desire or "craving" for junk food or sweets as a barrier to eating healthy foods. Some example quotes are as follows: "…Especially at kids' age, you just want junk food for breakfast, lunch and dinner…" (white female), and "…How can you give it up? I can't stand it. One day without candy? I've got to sneak something in my life, and that's junk food" (white female).

Motivators and Barriers Reported Among Fewer Than Half of the Focus Groups

Motivators of eating healthy foods that were reported among 2 out of 6 focus groups included the following factors: (a) being vegetarian; (b) experiencing immediate effects/feelings as a result of eating certain foods (eg, feeling good or energetic after eating healthy foods vs feeling hyper after eating sugary foods); (c) having a variety of healthy foods; and (d) thinking about the consequences of eating unhealthy foods. There were no barriers that were specifically reported by only 2 of 6 focus groups.

Motivators of eating healthy foods that were reported among only 1 of 6 focus groups included the following factors: (a) gastrointestinal effects (eg, unhealthy foods causing a stomach ache); (b) the desire to feel satisfied (eg, the belief that eating healthy foods will "fill me up" more than eating sweets); (c) a health condition (eg, anemia); (d) familiarity with healthy foods (eg, being "used to" eating healthy foods), and (e) monetary incentives (eg, eating more fruits and vegetables if given an incentive to do so). Barriers to eating healthy foods that were reported among only 1 of 6 focus groups included the following factors: (a) the desire to feel satisfied (eg, the belief that salad is "not really a meal"); (b) not seeing/feeling improvements as a result of healthy eating; (c) the cost of fruit; and (d) the appearance of foods (eg, the perspective that unhealthy foods "look" better than healthy foods).

DISCUSSION

The first research question asked about the participants' reported motivators of and barriers to healthy eating behaviors. The codes representing the most commonly reported (ie, reported among ≥4 of the 6 focus groups) motivators of healthy eating behaviors were social influence, taste, availability of healthy foods, weight concern, and the desire to be healthy, while the most commonly reported barriers were taste and issues of availability. A number of the most commonly reported motivators of and barriers to healthy eating among the children in the present study are similar to those reported in qualitative and quantitative studies by other researchers who examined motivators of and barriers to healthy eating among children. These motivators and barriers include (a) issues of availability/ accessibility,[7,11,12,14-16,34] (b) social influence of family and of peers,[7,11,12,16,34,35] (c) taste,[14-18,34-35] and (d) weight concern.[7,13,16,19] However, some of the specific motivators of and barriers to healthy eating reported by participants of the present study are particularly noteworthy. For example, one particularly interesting finding is that weight concern (eg, whether or not a food is fattening, the desire to prevent gaining too much weight) was one of the most commonly mentioned motivators of healthy eating among the focus groups of the present study. In fact, concern about weight—or the potential for gaining weight due to unhealthy eating behaviors—was mentioned across 5 of the 6 focus groups conducted in the present study, suggesting that children are aware of potential negative mental and/or physical health consequences often associated with gaining too much weight. Other studies have also suggested that children are concerned about the effects of unhealthy eating on appearance or weight[7,13,16]; these studies, along with the present finding that children from low-income households reported weight concern as a motivator for eating healthy, suggest that helping children understand how to engage in healthy eating behaviors and maintain a healthy weight may be helpful in promoting both their mental health (eg, reducing stress related to weight concerns) and physical health. Whether or not children understand all of the potential consequences of healthy and unhealthy eating should be further examined.

Another novel finding in the present study is that the participating children identified physical activity as a motivator for healthy eating. Specifically, children discussed: (a) not wanting to eat unhealthy foods before being physically active due to fear of becoming nauseous and (b) being motivated to eat healthy foods that may help them engage and excel in enjoyable physical activities. Thus, encouraging children to engage in enjoyable physical activities might also indirectly motivate them to engage in healthy eating behaviors.

Additionally, the desire to eat a variety of foods and, conversely, the desire to eat familiar foods, were both reported among children as factors influencing their eating behaviors. These findings suggest the need for future research to determine whether children are more likely to choose familiar foods or get bored with eating the same foods repeatedly (particularly the same healthy foods). Thus, it may be important to encourage families to provide children with a variety of healthy foods, including fruits and vegetables. Involving children in the selection of new healthy foods may increase their interest in these foods, and in turn, facilitate consumption.

The desire for junk food/sweets is a noteworthy barrier to healthy eating that was reported with high frequency among the focus groups. This barrier is particularly noteworthy because some of the participants used terms such as *craving* and *addicted* to describe the intensity of their desire for junk food/sweets. Though such descriptions may simply be social constructions, they are of particular interest in the context of recent research that investigates potential addictive qualities of certain types of foods.[36-38] Findings in the present study related to the desire for junk food/sweets suggest that there is a need to teach children how to cope with sugar "cravings," as well as a need to teach parents and teachers the importance of not reinforcing the idea that children are "addicted to" sugary foods.

Other interesting findings, though less commonly reported among the focus groups, include the finding that experiencing immediate positive feelings (eg, feeling energetic/strong) after eating healthy foods was reported

as a motivator of eating healthy foods, whereas *not* seeing or feeling a "difference" (eg, not noticing any positive effects) after eating healthy foods was reported as a barrier. Children may expect to feel or look better immediately after eating healthy, possibly as a result of messages they have received from media sources or from influential adults. If such high expectations are then not met, children could discontinue eating healthy foods.

The second research question asked whether there were any differences in perceived motivators of and barriers to healthy eating behaviors in association with participants' gender and/or race/ethnicity. Few differences were found among the motivators and barriers reported across focus groups in association with gender and/or race/ethnicity. However, in a small number of instances, a difference was manifested when 1 group failed to report a certain motivator/barrier that was mentioned by all other groups. Specifically, the only focus group out of 6 focus groups in which taste was not discussed as a barrier to eating healthy foods was the Hispanic male focus group, and the only focus group out of 6 focus groups in which weight concern was not discussed as a motivator of eating healthy foods was the black male focus group. Additionally, neither the Hispanic male focus group nor the Hispanic female focus group discussed a lack of availability of fruits and vegetables as a barrier. The only found differences in the identified motivators and barriers in association with gender were that the following 2 motivators of healthy eating were identified by 2 of 3 female focus groups but not by any of the male focus groups: (a) the immediate effects/feelings that a food brings (eg, feeling energetic after eating it) and (b) thinking about the consequences of eating certain healthy or unhealthy foods.

The finding of minimal differences in association with gender and/or race/ethnicity in this sample's reported motivators and barriers could be interpreted as a true lack of significant differences in these children's motivators of and barriers to healthy eating in association with gender and/or race/ethnicity. Alternatively, it may be the case that low socioeconomic status might have served as an equalizer; that is, factors associated with low socioeconomic status might have masked potential race/ethnicity- and/or gender-related differences. Regardless of one's interpretation of the data, it is important to note that given the small size of this sample and the small number of focus groups per gender and race/ethnicity, it would be inappropriate to assume that any part of these data is representative of any particular demographic group; thus, generalizations beyond the present sample should not be made.

Aside from the findings, this study is also of importance in relation to its use of a culturally sensitive research approach. Such an approach empowers participants to share their views; respects and is informed by the cultural backgrounds of participants; enables participants to feel comfortable with, respected by, and trusting of the researchers; and is conducted by a culturally diverse research team. Specific examples of the use of a culturally sensitive research approach in the present study include (a) a culturally diverse sample of children; (b) inviting community leaders to aid in the recruitment process; (c) conducting the focus groups in a convenient community location (eg, a library or community center); (d) providing recruitment and data collection materials in Spanish as well as English; (e) serving a meal to participants and the parents/guardians who brought them to the site; (f) using focus group leaders, coleaders, and note takers of the same gender and race/ethnicity as the group's participants; (g) using bilingual focus group leaders in the groups conducted with Hispanic children; and (h) ensuring that the research team who implemented this research was culturally diverse and included several members of the same race/ethnicity and gender as the children in the study. Finally, the qualitative analysis coding team was structured such that each of the 3 racial/ethnic groups represented in this study was also represented among the coding team members, and each transcript was coded by at least 1 coder of the same race/ethnicity as the participants whose data were being coded.

Limitations

Findings from the present study must be viewed with caution given the small number of participants involved in the present research and the small number of groups by gender and race/ethnicity; one should not assume that the findings presented here are representative of black, Hispanic, and/or white children from families with low household incomes. Furthermore, participants all lived in a small city in the southeastern United States, where the motivators of and barriers to healthy eating behaviors may be different from those in other parts of the country. Similarly, caution is strongly indicated with regard to making interpretations in relation to the few motivators and barriers that were found to differ in association with race/ethnicity. This caution is warranted due to the fact there were only 2 focus groups conducted per racial/ethnic group. Indeed, there may be other race/ethnicity related differences in the motivators of and barriers to healthy eating in children that were not found in this study because of the small size of its sample; on the other hand, it is of course also possible that the few racial/ethnic differences that were found in the present study do not exist among a larger sample of children of these demographics. Nevertheless, the findings of this study may be useful in informing the formulation of variables to assess in larger studies that examine potential demographic differences in health beliefs and behaviors.

Another limitation is that eating fruits and eating vegetables were asked about within the same questions. Even though participants often still discussed motivators/barriers to eating fruits and vegetables separately, it would

have been more beneficial to ask about these behaviors in separate questions. It is also the case that the meaningfulness of the qualitative findings might have been increased had more descriptive information on the children's health status and their actual healthy eating behaviors been collected. In future similar studies it is important to examine the relationships between children's healthy eating behaviors and their reported motivators of/barriers to these behaviors. Additionally, the variety of focus group leaders and coleaders across groups—though a major strength with regard to the cultural sensitivity of matching moderators' race/ethnicity and gender with the race/ethnicity and gender of group participants—surely resulted in less consistency of implementation procedures. Given the paucity of focus group research conducted in the United States that examines motivators of and barriers to healthy eating among children—particularly racial/ethnic minority children and children from families with low household incomes—it is our opinion that the present study is valuable despite its small sample size (a common limitation in focus group research and other types of qualitative methodologies[9] and other limitations.

Implications for Research and Practice

Findings from the present study have several implications for practice and for future research. Perhaps the most important conclusion from the present study is that culturally diverse children can indeed identify motivators of and barriers to their engagement in healthy eating behaviors. Health care providers, researchers, and family members must empower children to provide this information. Indeed, it is children who are the "true experts" on the factors that influence them to engage (or not engage) in health-promoting behaviors. Thus, health care providers could verbally ask children to identify their own personal motivators of and barriers to engagement in health-promoting behaviors, such as healthy eating, and then problem solve ways to overcome barriers and capitalize on motivators. Motivators and barriers could alternatively be assessed by providing children with a measure called the Motivators of and Barriers to Health-Smart Behaviors Inventory: Youth Version,[39] which was recently developed by the present authors and is in press at the time of this writing (inventory available upon request).

Whether using a verbal or measurement-based approach to assessing motivators/barriers to health-promoting behaviors such as healthy eating, it will be important for health care professionals to encourage adults to allow youth to provide their own responses, given that children's reasons may be different than those provided on their behalf by parents/caregivers. Additionally, it may be necessary to help patients, as well as family members who are involved in their health care, distinguish between barriers that are within these patients' and caregivers' control vs barriers that are not—in order to ensure that the many barriers within individuals' control are not discounted. Health care providers can offer a variety of strategies that can help both children and adults overcome even those barriers that are out of their immediate control (eg, bringing fruit from home to supplement one's school lunch selection if fruits are not on the lunch menu or the lunch selection options are generally unhealthy). Finally, health care providers could increase patients' and families' awareness of common motivators and barriers to healthy eating and "prescribe" that they brainstorm strategies for overcoming these barriers and then implement the strategies that are practical for them. Providers can then later inquire about the chosen strategies and additionally provide patients and their families with culturally sensitive written materials that offer more strategies for overcoming barriers to healthy eating and other health-promoting behaviors (eg, physical activity). Ideally, providers should attend continuing education sessions on promoting healthy lifestyle behaviors in children and adults and should also serve as role models for their patients by incorporating recommended healthy eating and physical activity behaviors into their own lives.

Future research on the present topic is needed; comparing findings across studies will further the understanding of the perceived motivators of and barriers to healthy eating among diverse groups of children and could further clarify whether or not there are any differences in motivators of or barriers to healthy eating in association with gender, race/ethnicity, geographical location, and/or cultural background. Additionally, the findings of the present study, as well as the findings from future similar studies, may be useful for developing assessments to quantitatively measure perceived motivators of and barriers to healthy eating among of children from a diversity of race/ethnicities, cultures, and socioeconomic backgrounds. Such measures could enable assessment-based obesity prevention/intervention programs that are responsive to the factors that children identify as influencing their own engagement in healthy eating behaviors. Finally, interventions and policy changes with the ultimate goals of preventing/reversing obesity and promoting healthy eating behaviors among children should ideally involve children as partners in planning and implementation, including children from a variety of cultural backgrounds and children who are members of families with low household incomes.

The present study can be used as a model for conducting culturally sensitive focus group research in that procedures encouraging cultural sensitivity were employed throughout both the data collection and data analysis processes. Conducting qualitative studies that differentially examine children by age, gender, and/or culture may be necessary for the development of culturally sensitive childhood nutrition education programs[24] and may allow for the reporting of culture-specific factors that might

otherwise be lost in settings with mixed sociocultural demographics. Though health care providers and researchers of future studies may or may not chose to involve some or all of the earlier discussed methods of increasing cultural sensitivity in interactions with diverse populations, it is our hope that this study may assist in bringing awareness to some of the issues that may be considered by health care providers and researchers who work with culturally diverse groups.

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