Introduction

Approximately 22.8% of preschool children are classified as overweight or obese[1]; however, among low-income families this statistic increases to 31%.[1] Head Start (HS) is the largest federally funded preschool program in the US serving more than 1-million of these low-income preschoolers yearly. Approximately 1/3 of children entering HS may be classified as overweight or obesity (body mass index (BMI) at or above the 85th percentile),[2] making obesity prevention efforts in this setting critical. HS programs are guided by the Federal Program Performance Standards (PPS)[3] which have a comprehensive focus on children's physical, cognitive, and emotional development. These guiding standards position HS as an important partner in preventing childhood overweight and obesity.[4,5] In fact, some research has demonstrated that HS enrollment may result in improved weight status among at-risk children. Lumeng et al.[6] found that children who entered HS as obese or overweight were substantially less overweight and obese than children in comparisons groups by the time they entered kindergarten.

As part of these prevention efforts, the newly revised 2016 PPS mandate HS programs conduct screenings and assessments of children's nutrition and health needs within 45 days of enrollment. These screenings are conducted in an effort to identify and address health issues early.[3] Some programs choose to perform on-site health screenings, which generally include measurement of children's height, weight, vision, and hearing. These screenings allow the opportunity to collect anthropometric data that can be shared with parents about their child's health, including their child's weight status.[4] Height and weight screenings (also known as a BMI screening program[7]) have been theorized as potentially effective practices that HS programs can implement to promote healthy weight in early childhood.[6] BMI screening programs are

designed to assess the weight status of individual children to detect those at risk for weight-related health problems.[4] It is recommended that BMI-for-age percentiles be calculated utilizing a child's height and weight and then plotted on the appropriate growth chart to monitor growth. However, a single measurement should not be utilized to determine health status. Rather, it should be interpreted as an avenue for programs to focus on health rather than weight.[8] In a given school year, HS programs generally collect two height/weight measures (fall and spring) on each child.

Parental engagement has been cited as an important factor in the prevention and/or reduction of childhood overweight/obesity.[9-11] HS's BMI screening program may provide opportunities to engage families by communicating information about children's weight status. This form of communication is particularly important in the HS setting where children are at increased risk for childhood overweight and obesity and parents may also fail to recognize their children as overweight or obese.[12] Unfortunately, limited research is available to understand how HS programs engage families in this way. Hoffman and colleagues[4] conducted a series of studies that first explored understanding and acceptability of a drafted letter reporting children's weight status among a small group of HS parents. Letters were revised based on feedback obtained through focus groups and redistributed to obtain additional feedback. The second study expanded and evaluated the dissemination of the letter to a full HS program.[13] Findings revealed HS parents had varying reactions to receiving information about their child's weight status. Parents mostly had negative reactions to the inclusion of growth charts with the letter, stating they were difficult to understand. In general, HS parents have reportedly felt receiving specific information about their child's weight status was helpful.[4,14]

Communicating with parents regarding their child's weight status can serve as a strategy in targeting childhood obesity.[4] However, to date, few studies have explored differences in how HS programs communicate children's weight status information to parents across multiple HS programs. Studies to date have been conducted within single HS grantee programs and specifically focused on parent's reactions to letters describing children's weight status or a related nutrition education program. More research is needed to understand the broader context for the methods HS programs use to communicate weight status information to families and the potential challenges they face in the process. Therefore, the purpose of this study was to explore the experiences of HS Health and Nutrition Managers (HNM) across multiple states when communicating information to families about children's weight status.

Methods

Study Design

Researchers used in-depth, semi-structured interviews to explore how HS programs communicate with parents about their child(ren)'s weight status. Researchers designed data collection and analysis methods using a phenomenological approach. Phenomenology is a qualitative approach that focuses on the common lived experiences a group of individuals has had with a specific phenomenon.[15] The East Carolina University Institutional Review Board approved all study materials and methods.

Participants and Recruitment

Prior to beginning recruitment, researchers obtained a list of all funded HS programs in North Carolina (NC) and Ohio (OH) through the each state's Office of HS Collaboration (http://www.headstartnc.org/collaboration-office/ and https://eclkc.ohs.acf.hhs.gov/programs/ohio-head-start-collaboration-office). A total of 52 and 48

funded programs were identified as operational at the time of this study for NC and OH, respectively. Researchers in their respective states recruited HNM by contacting them individually via phone and/or email to participate in the study. Researchers also worked with state-level representatives to reach programs who did not respond through the primary method of recruitment (i.e., Director of HS Professional Development in OH and Director of the Office of HS Collaboration in NC). Inclusion criteria required participants to be affiliated directly with a funded HS program in NC or OH, 18 years or older, and employed as a HNM. HNM were defined by HS as the staff responsible for management and oversight of health services. These individuals were chosen because of their knowledge of the policies and procedures at their specific HS program related to health, wellness, and safety, which also generally includes oversight of BMI screening. Participants were compensated with a $20 gift card for their time.

Interview Guide Development and Training

Researchers created a semi-structured standardized interview guide featuring twelve interview questions; two questions used probes to specifically address parent communication (**Table 1**). Primary questions were open-ended and broad in nature; researchers used specific and general probes to gain additional insight into perceptions of HS role in communicating child(ren)'s weight status. To ensure credibility, interviewers were trained using the 5-Step Goodell method for interviewers.[16] The training included a review of basic ethical standards of research concerning human subjects, a review of qualitative research methods and data collection, listening to previous interviews with emphasis on note taking and conducting mock interviews as practice utilizing the interview guide. Finally, each data collector in NC and OH also completed 2 pilot interviews with either a current Manager or an individual who has had previous experience with HS. Minor revisions were completed to improve the guide.

Data Collection

HNM in each state were contacted by phone with details about the study and asked if they would be interesting in participating. Interested HNM received a follow-up email with a link to the research consent form and a brief demographic survey to be completed prior to the interview. Once the consent and survey were completed, an interview was scheduled via email at a time convenient for the participant. Prior to recording, participants identified a pseudonym to be used during the interview.

One trained interviewer in each state conducted all interviews using the in-depth, semi-structured guide. Interviews were audio-recorded and transcribed verbatim using the REV application (REV.com). Final interviews lasted 30-60 minutes and concluded with a review of answers received from participants. Participants were then asked for clarification or confirmation of each answer given, a technique also known as "member checking". Data collection continued until saturation was reached for the larger study within each state.[17] Saturation is reached on the full NC data set with interview 13; OH was reached at interview 11. An additional 2 interviews were conducted in NC and additional 3 interviews were conducted in Ohio to ensure no new insights would be obtained from additional interview responses.

Data Analysis

Coders were trained using the 5-Step Goodell method for coders; a phased training approach similar to interviewer training but specific to the coding process.[16] Researchers conducted the first phase of data analysis independently within each state. This approach ensured initial review of the data paid close attention to state-specific contextual factors such as structural differences between HS programs, differences in policies and regulations for childcare, geographic locations, and state-specific resources. Researchers used identical procedures for

independent analyses following a phenomenological approach. Two trained coders within each state independently reviewed each transcript. Initial state-specific coding focused on memoing and the identification of statements significant to the phenomenon of interest. These statements were highlighted and used to develop a preliminary coding manual and identify emergent themes. While there were specific questions in the interview guide focused on parents, coders analyzed across all questions to capture any additional conversations that related to the research question. Once codes were defined, final codes were applied to each transcript. Consensus on codes and code definitions during data analysis were reached via 100% verbal agreement between the two coders in each state.[15] Disagreements were discussed until consensus was obtained and a final code was determined. In the second phase of data analysis, coders from both states met to review each codebook and discuss similarities and differences between states' findings. Together coders from OH and NC created themes and subthemes that reflected findings from both states, emergent themes were confirmed across the data sets, and representative quotes identified for each theme.

Results

The final sample included 29 HS HNM interviews (15 Managers from NC and 14 from OH). All participants were female, primarily white (75.86%) . The average age was 47.4 years (SD of 16.55) and average years of experience was 13.9 years (SD of 12.33) (**Table 2**). The majority of participants stated obesity among children (93%), parents (89.6%), and teachers (96.5%) was a moderate to very large problem in their HS program. Consistent with the study objective, researchers identified four emergent themes: (1) Family Background; (2) Communication and Educational Opportunities for Parents; (3) HS Support and Counseling Strategies; (4) Family Response. Themes, subthemes, and related quotes are presented in Table 3

(Table 3). Figure 1 depicts a model of how the themes work together to describe the process of how HS programs communicate weight status information with families. (**Figure 1**).

Family Background was the first theme identified to include the subtheme *Family Socioeconomic Background.* Managers in both states described families as having limited knowledge about the importance of healthy eating and physical activity, and limited access to resources that could support healthy living. For example, families reportedly have limited resources (i.e., time, money available) to spend on and prepare healthy food options, and as a result, may be more likely to be food insecure. In the words of one NC Manager, "We're dealing with parents and children who are basically overfed, but undernourished. It's like they're searching for food everywhere they go, because they're not getting their food at home."

Managers also described a disconnect among families that stated how healthy eating and living can conflict with having a lower income. One NC Manager stated: "I think the problem is the lack of knowledge. Some people don't know that there is a better way. Eating healthy can be cost effective." Similar challenges were reported by Managers in OH: "Sometimes it's just easier [for parents] to give [children] less nutritious foods some stuff that's a little cheaper than buying fresh fruits and vegetables...especially with the population that we serve."

Communication and Educational Opportunities for Families was identified as the second emergent theme and included subthemes of *Parent Communication Strategies, Parental Educational Opportunities, and Parent Support*. Managers in both states frequently discussed communication strategies used to convey messages to parents about their child's weight status, including sending home detailed reports often in the form of a "BMI letter". Some Managers in NC often communicated with parents about a potential care plan if necessary, for the child even prior to sending home BMI letters. Programs in both NC and OH reported they communicated

with families face to face communication about the process for measuring children's BMI. Programs also overwhelmingly reported receiving consent from families to monitor their child's weight status at the beginning of the year during annual enrollment: "I tell them their child will be weighed and measured three times a year and that if they get a nutrition care plan not to panic or anything like that." Additionally, in the event of a weight status outside of "normal weight", families received additional support and follow-up.

The most frequently described form of communication, "BMI letters", were described by Managers as individualized letters sent to families that stated their child's BMI classification. Some Managers stated they provided the child's percentile, while others reported they only provided which weight classification the child fell in to (i.e., underweight, normal weight, overweight or obese). Families who received weight status information varied across and within both states. Some Managers reported sending information to all families, while other Managers reportedly only sent weight status information to families if the child's weight did not fall within a normal percentile range (85th-95th percentile). One Manager in OH stated: "I make copies of any of [the growth charts] that are 95 or over, or 5 and under. Those are the ones that I address by sending a letter and/or information home. Finally, there were some instances where Managers reported they did not send families information about children's weights status, regardless of the classification, and only sent home educational materials related to weight management.

Managers also frequently reported using educational strategies to engage parents in both general nutrition/health education and health-related information about health status. HS Managers stated they felt it was their role to provide nutrition education to families and children staff. Educational strategies included on-site, in-person opportunities as well as physical resources that were sent home to families. In-person educational opportunities reportedly

occurred during monthly parent meetings, during individual meetings with families, or during scheduled educational sessions focused on healthy eating or cooking. Managers recognized the importance of the relationship between parents and HS staff in order to be effective in serving families and children's needs. A Manager in OH stated HS's goal was "to educate and engage the parents and the children, but mostly the parents. Talking with parents and getting them onboard, because they have more control in their child's life than we do." In addition to sending home information about children's weight status, Managers also stated they send physical resources (i.e., handouts, flyers) pertaining to nutrition and/or physical activity, weight management, and related community resources. Variations were observed in what Managers sent home in regard to these topics across and within both states. Topics were reportedly chosen by HS or requested by families. Finally, Managers described a desire for more educational resources that would be useful for their families. For example, one NC Manager stated," [Our parents need education that would make them] more aware of how overweight and obese ratings for their child will impact their child's health down the road."

The third theme identified was **HS Support and Counseling Resources**. *Parent Support* and *Parent Counseling Resources.* Managers described providing family support through staff-led nutrition trainings and education. Personnel providing the trainings included the Health/Nutrition Manager, Nutrition Assistants, Family Service Workers, Peer Counselor Assistants and Social Workers. These roles varied across and within each state depending on the HS program's staff structure, but all staff received internal training specific to the education process and content. Managers reported individuals in these roles were available to families to provide education about childhood obesity and weight management topics. This form of support was often provided as follow-up after initial communication about a child's weight status was

received by families. For example, one Manager in NC reported: “Some [parents] may want one-on-one nutrition counseling. Then my nutrition assistant will contact the family and she’ll discuss healthy diets and that kind of thing.”

In the majority of cases, after initial conversations with HS staff, Managers reported families were referred to their family pediatrician. Managers expressed when strong communication occurred between HS centers and local physicians’ offices, it is easier to keep track of children who are overweight. A Manager in Ohio said: “In the [BMI] letter we send out, it says if you have any questions, refer to your family doctor. That's the first person they should talk to.” Families seeking individualized counseling were more frequently referred to their local Women, Infants, and Children (WIC) office, or a Registered Dietitian (RDN). The RDN, however, was the most frequently mentioned referral as this individual was generally described as being on staff or a contracted resource to the HS program. One Manager in OH stated: “We have a dietitian that we are contracted with that will call and do one-on-one work group sessions, or whatever that parent may want. Sometimes they just want pamphlets and paperwork and information. Other times they want to meet; they want to talk about skills and tactics and things like that that they would need to maybe make some changes and modifications at home.” Those usually referred for counseling with the RDN were families whose children were classified as overweight or obese. Managers stated that much of the counseling, which is focused on the risk factors of obesity, occurs outside of the HS setting and from their perspective is largely underutilized.

Finally, researchers identified **Family Awareness, Reaction, and Engagement** as the fourth theme. Subthemes included *Parent Reaction* and *Parent Engagement.* Managers reported families varying reactions to information regarding their child’s weight status. The topic was

described by participants as “a sensitive issue for parents.” Managers described some families were aware their child was overweight stating that the child’s pediatrician or WIC had already notified them of the issue. Managers reported families often reacted poorly to information about their child’s weight status when it fell in the overweight or obese classification. Despite their best efforts, Managers stated families reportedly felt they were “blaming” them for their child’s weight status or “calling their kid fat”. Some Managers stated they were concerned about offending families and therefore used the percentiles (“slightly above the 95% percentile”) instead of the terms “overweight” or “obese”. One Manager in NC stated: “We never tell the parents their child’s overweight. Because they’re not receptive to that. But we tell them “they’re slightly above the 95% percentile, they kind of hear that better than “your child’s obese.” When they’re overweight that’s like “oh gosh, are you telling me my child’s fat?” You know what I’m getting at? It's a sensitive issue for the child, but it is also a very sensitive issue for the parent.”

In some cases, the reported reactions led Managers to avoid sending families information about their child’s weight status altogether. An OH Manager stated: “We'll just send them a letter with educational information. We don't even necessarily mention in there that their child has been identified as being obese or overweight.” In some cases, Managers reported they did not bring up the issue unless a child is severely overweight in order to avoid negative interactions with parents.

Managers reported that engaging families in strategies for obesity prevention was challenging and families often did not appear to prioritize their child’s weight issues: “Our families are really busy and their priorities are not our priorities. So, we just have to do the best that we can and document our efforts. That’s all we can do.” Some managers reported “BMI letters” often led to parents reaching out for additional support. However, other Managers stated

parents appeared to "just not care" when programs communicated weight management information that will benefit their child's health and health education. Along these lines, Managers reported experiencing a variety of challenges when engaging families including poor attendance at educational sessions or parent meetings; limited utilization of provided RDN counseling services; reading physical educational materials sent home; and inconsistent follow-through when asking families to provide health information from their child's pediatrician (e.g., height, weight).

Discussion

The purpose of this study was to explore experiences of HS HNM when communicating information to their children about weight status. Parents' play a critical role in the prevention of childhood obesity.[9-10] HS programs may be able to support obesity prevention efforts through BMI screening programs and individualized communication with families regarding children's weight status.[5] However, more research is needed to understand the broader context for the methods HS programs use to communicate children's weight status to families and the potential challenges they face in the process. The four emergent themes included: (1) Family Background; (2) Communication and Educational Opportunities for Parents; (3) HS Support and Counseling Strategies; (4) Family Awareness, Reaction, and Engagement.

Managers in the current study described family's socioeconomic status and their personal knowledge of healthy eating and physical activity as limiting to their ability to lead a healthy lifestyle. For HS staff, the importance of understanding the influence of family background on food access, selection, and prioritization is paramount in developing effective communication messages and strategies. Multiple studies have reported consumption of less nutritious foods in low-income households.[18-22] Similar to the current study, prior studies have also reported HS

families may perceive healthier foods as being more expensive.[9,23] HS families are at increased risk for food insecurity[19] and may rely heavily on convenience foods, including fast foods, vending machines, and pre-packaged, processed foods.[9] Providing further insight into these challenges, Davis et al.[23] reported HS families face numerous barriers to engaging in healthy eating behaviors including cost, time, being fatigued, and/or not wanting to deprive themselves of foods they like which might be considered unhealthy. However, results of a recent study challenge the strategy of using nutrition education to improve healthy eating and ultimately children's healthy weight status. Nicely et al.[14] suggest that nutrition messaging should instead focus on limited, achievable steps to improve dietary choices that fit within cost, convenience, and taste barriers of low-income families. More research is needed to explore more targeted communication messaging and strategies related to health behaviors that promote a healthy weight status among young children. Nicely et al. also suggest providing this type of targeted communication to HS parents.[14]

One of the unique findings from the current study highlight the predominant use of "BMI letters" to communicate children's weight status to families. Mangers reported varying reactions sometimes negatively influenced the communication process between HS and families. Hoffman and colleauges[4] found similar results where HS parents had varying reactions to receiving information about their child's weight status. Parents mostly had negative reactions to the inclusion of growth charts with the letter, stating they were difficult to understand.[4] On the other hand, the current study and others[6] have reported some families are offended when any issue related to their child's weight status is addressed. In some cases, Managers reported negative reactions led HS programs to discontinue communication with parents about their children's weight status altogether. Prior research has reported that HS families may distrust BMI

measurements taken by HS due to inconsistencies observed between reports HS and other health providers (i.e., WIC, pediatrician).[23] Nicely et al.[14] and others[24-26] have described the importance of accurately measuring and classifying children's weight status prior to sending notifications to families, stating that families are more likely to be supportive of BMI screening programs when attention was given to standardization of how screenings were conducting, and parents notified.

Current study findings also revealed that individually funded HS programs across and within both states use different approaches when preparing BMI letters with some programs only sending letters to children who are classified outside of a normal percentile. In contrast, the Center for Disease Control's Safeguards for BMI Screening Programs[7] recommends that BMI letters should be sent to all families to reduce the risk of stigmatizing children. Further, programs should avoid definitive statements about a child's weight category to avoid the impression that a diagnosis is being made.[7] Additionally, BMI information should be shared with parents in a neutral manner, avoid weight labeling, and include information about how the overall family's nutrition and health can be improved.[25-26] HS should work towards creating clear and engaging messages regarding children's weight status that families can understand, trust in, and act on for families enrolled in their programs.[14]

Once parents were notified of a child's at-risk weight status, Managers reported families enrolled in their HS programs usually had access to weight management educational and counseling resources design to provide support needed to address the issue. Families were reportedly offered these resources through trained HS staff or referral to an outside community partner. Our study findings and others[4] suggest HS staff may be uncomfortable addressing children's weight status with families as they do not feel qualified to talk with parents about weight-related issues. Prior research suggests this may be due to staff's negative perceptions of

BMI and related weight classifications[4] and uncertainty for how to offer specific strategies to families that would help them change their child's behaviors.[27] Staff may be more willing to discuss children's weight status with families if they had specific training in how to do so. [28]

Beyond HS, referrals to outside community partners were perceived as critical role to providing families with weight management support and counseling. Managers reported pediatrician offices, Registered Dietitians (RDN), and WIC were important community partners for helping provide families with education and counseling focused on weight management. Pediatricians specifically play an important role in supporting parents' recognition of their children's weight issues. However, prior research has suggested pediatric providers may under-diagnose weight problems or fail to document overweight for the majority of children.[29] These findings may partially explain previously reported inconsistencies between HS's communication about children's weight status and that of the family's health provider. [14] The problem of low identification may also stem from pediatrician's low self-efficacy for managing obesity, perceptions of poor patient or parent motivation[30-31], or a lack of educational tools that can be used to support counseling efforts. [32]

Finally, previous research has also discussed the importance and value of Registered Dietitians (RDN) and Nurses because of their level of expertise in health and nutrition.[33] However, our study Managers suggested that these resources, particularly RDNs, were underutilized. It is possible the current educational and counseling resources offered to families through HS or community partnerships do not meet family's interests and/or needs. Ling and colleauges[34] reported HS family's preferred face-to-face meetings and support groups, but were aversive to counseling. Families reportedly did not like being told what they should cook, what buy at the grocery store, or to engage in more physical activity with their children. Other

successful parent engagement strategies have been identified in the literature including interactive educational sessions, group meetings/training, or sending home flyers, newsletters, or text messages.[34] More research is needed to determine if use of these strategies would improve HS family's engagement with community partners who offer weight management education and counseling resources.

Limitations

This study was not without limitations. All Managers were female and primarily white, however this is comparable to a national sample of Health Managers in HS program who were 95.6% female and 78.2% white.[35] Finally, Managers were only recruited from HS programs in two states (NC and OH). It is possible the experiences of HNM in other states are different and not fully reflected in this study. More research in a larger national sample of HNM is needed to further explore the phenomenon. Additionally, it is vitally important that future research consider exploring the process for how HS communicates children's weight status from the perspectives of the families receiving the information.

Implications

Little is known about how HS's BMI screening program is organized across grantees. This study adds to our understanding of how HS programs are communicating children's weight status information to families and the strategies used to support families when children are identified as at-risk for overweight or obesity. Participating HS programs acknowledged the importance of communicating with parents about their children's weight status, however, there are inconsistencies in the methods used and specific information communicated to families across participating HS programs. There is need for standardized resources (e.g., BMI letter template, parent communication policy, educational resources) for HS programs that are

consistent with CDC recommendations,[7] but can be adapted to meet family needs on the local level. HS programs also appear to have community partners who support their ability to provide families with weight management education and counseling resources, however, these partnerships may be underutilized indicating a need to better understand the kind of support family's need in this area. More research is needed to explore effective and sensitive communication methods for HS parents related to children's health behaviors and weight status. Current study findings indicated family background (socioeconomic status, health knowledge) and reactions to their child's weight status may influence the type of communication they receive and their willingness to utilize the aforementioned educational/counseling opportunities. Future research is needed to understand the effect of a standardized, sensitive approach for communicating children's weight status with HS families and its impact children's short- and long-term weight status.

Finally, some researchers have raised questions about the appropriateness[4,5] and effectiveness of BMI screening programs.[36-37] Studies describing the effectiveness of BMI letters, and screening programs in general, suggests that the practice does not positively impact children's weight status.[24] Prior research has also identified potential negative effects of collecting height and weight information in school settings including bullying, stigma, body image dissatisfaction and disordered eating. Additional limitations for programs can include the cost of data collection, burden on school staff, and potentially unreliable data.[36-37] Unfortunately, to date, the majority of studies exploring the effectiveness of BMI screening programs have been conducted in the K-12 setting. More research is needed to explore the effectiveness of BMI screening programs, including the practice of using BMI letters, in the preschool setting. Identification of weight concerns at an earlier age is important because families with young

children may be able to make fewer behavior changes while still observing positive health outcomes.[38]