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Exploring Innovative Approaches and Patient-Centered Outcomes from Positive Outliers in Childhood Obesity

Mona Sharifi, MD, MPH[1], **Gareth Marshall**[1], **Roberta Goldman, PhD**[2], **Sheryl L Rifas-Shiman, MPH**[3], **Christine M Horan, MPH**[1], **Renata Koziol, MPH**[3], **Richard Marshall, MD**[4], **Thomas D Sequist, MD, MPH**[4,5,6,7], and **Elsie M Taveras, MD, MPH**[1,3]

[1] Division of General Academic Pediatrics, Massachusetts General Hospital, Boston, MA

[2]Warren Alpert Medical School, Brown University, Providence, RI and Harvard School of Public Health, Boston, MA

[3]Obesity Prevention Program, Department of Population Medicine, Harvard Medical School/ Harvard Pilgrim Health Care Institute, Boston, MA

[4]Harvard Vanguard Medical Associates, Boston, MA

[5]Division of General Medicine and Primary Care, Brigham and Women's Hospital, Boston, MA

[6]Department of Health Care Policy, Harvard Medical School, Boston, MA

[7]Partners Healthcare System, Boston, MA

Abstract

Objective—New approaches for obesity prevention and management can be gleaned from 'positive outliers', i.e., individuals who have succeeded in changing health behaviors and reducing their body mass index (BMI) in the context of adverse built and social environments. We explored perspectives and strategies of parents of positive outlier children living in high risk neighborhoods.

Methods—We collected up to five years of height/weight data from the electronic health records of 22,443 Massachusetts children, ages 6-12 years, seen for well-child care. We identified children with any history of BMI ≥95th percentile (n=4007) and generated a BMI z-score slope for each child using a linear mixed effects model. We recruited parents for focus groups from the sub-sample of children with negative slopes who also lived in zip codes where >15% of children were obese. We analyzed focus group transcripts using an immersion/crystallization approach.

Address correspondence to: Mona Sharifi, MD, MPH, Division of General Academic Pediatrics, Department of Pediatrics, Massachusetts General Hospital *for* Children, 100 Cambridge Street, 15th floor, Suite 1523, Boston, MA 02114. msharifi@partners.org. Phone: 617-724-4007. Fax: 617-726-1812.

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Results—We reached thematic saturation after 5 focus groups with 41 parents. Commonly cited outcomes that mattered most to parents and motivated change were child inactivity, above-average clothing sizes, exercise intolerance, and negative peer interactions; few reported BMI as a motivator. Convergent strategies among positive outlier families were family-level changes, parent modeling, consistency, household rules/limits, and creativity in overcoming resistance. Parents voiced preferences for obesity interventions that include tailored education and support that extend outside clinical settings and are delivered by both health care professionals and successful peers.

Conclusions—Successful strategies learned from positive outlier families can be generalized and tested to accelerate progress in reducing childhood obesity.

Keywords

obesity; overweight; positive deviance; parents; attitude to health; qualitative

INTRODUCTION

While childhood obesity rates appear to have stabilized, overall rates remain high, and alarming racial/ethnic and socioeconomic disparities persist.[1] Innovative strategies and approaches are needed to advance obesity prevention among the very segments of the population who need it most. Sustainable, multi-sector strategies that support change at the individual, family, and community levels are among the most promising approaches for childhood obesity prevention and management and the reduction of related health disparities.[2,3] However, the effectiveness of interventions is often diminished by the myriad social and environmental factors that mediate and moderate obesity-related behaviors.

Adaptive solutions for promoting health behavior change within complex social contexts have been tested before and could provide lessons for obesity interventions. For example, interventions addressing malnutrition,[4,5] prenatal care,[6] and smoking cessation[7] have implemented a ‘positive deviance’ or 'positive outlier' theoretical approach[8] to identify and disseminate existing solutions in partnership with respective communities. The central premise of the positive outlier approach is that solutions to problems that face a community often *already exist* within that community, and that some individuals possess strategies that can be generalized and promoted to improve the outcomes of others.[8] Although prior studies have attempted to identify the characteristics and practices of successful individuals,[9-12] the positive outlier approach uniquely strives to limit *a priori* assumptions of what investigators hypothesize to be important and instead emphasizes inductive, qualitative inquiry to ascertain novel, feasible and often cost-effective solutions to complex problems.[13] To our knowledge, this approach has not been previously implemented to explore best practices of positive outliers around childhood obesity.

In this study, we applied principles of the positive outlier approach to identify perceptions, successful strategies and preferences among families of children who have succeeded, where many others have not, to change their health behaviors, improve their body mass index (BMI), and develop resilience in the context of adverse built and social environments. To inform obesity interventions and accelerate progress in reducing disparities in childhood

obesity, we conducted qualitative focus groups with parents of positive outlier children who demonstrated an improvement in their BMI z-scores over time despite residing in high risk neighborhoods.

METHODS

Sampling

We recruited focus group participants from among parents of children seen for well-child care at any of the 14 practices of Harvard Vanguard Medical Associates (HVMA), a multi-specialty practice group in eastern Massachusetts. To identify and rank positive outliers living in high risk neighborhoods, we used a purposive sampling approach[14] facilitated by longitudinal analyses of children's growth data and cross-sectional analysis of obesity prevalence by zip codes. The Institutional Review Board of Harvard Pilgrim Health Care approved the study protocol.

We collected residential address and up to 5 years of height and weight data from the electronic health records of 22,443 Massachusetts children who: (1) were age 6-12 years old at the time of study recruitment; (2) were seen for well child care visits at HVMA between August 2011 and August 2012; and (3) had no medical problems affecting growth or nutrition documented in their problem list or billing record. We calculated BMI as kg/m^2 and participants' age- and sex-specific BMI percentiles and z-scores.[15]

We then limited the larger sample to include only children with a BMI $\geq 95^{th}$ percentile at any point in the longitudinal data and at least two BMI values. For this remaining sample of 4007 children, we used a linear mixed effect model to calculate a BMI z-score slope for each child and found that 1468 children had a negative slope. We additionally excluded 72 children whose clinicians felt should not be contacted to participate and 132 children who were enrolled in a childhood obesity randomized controlled trial at HVMA.

We further limited the sample to children living in obesity "hot spot" zip codes. We defined hot spots as zip codes wherein >15% of children had a BMI ≥95th percentile for age and sex, excluding zip codes with fewer than 100 children. This definition was informed by state- and national-level estimates of childhood obesity prevelance.[1,1616,17] Figure 1 shows a map of the obesity hot spot zip codes and the focus group locations. Our final recruitment sample included parents of the remaining 521 children with a negative BMI z-score slope living in obesity hot spot zip codes.

Recruitment and Enrollment

We rank ordered by BMI z-score slope the 521 positive outlier children residing in obesity hot spots; children with the most negative slopes received the highest rank. Study staff sent recruitment letters, with an opt-out phone number, to parents of the 521 children. Four parents called our study telephone line to opt-out. Seven days after mailing the letter, staff began recruitment calls to those who had not opted out to establish eligibility, explain the study, answer questions, and schedule parents for focus groups. Letters and recruitment phone calls were staggered in order to ensure that parents of children with the most negative BMI z-score slopes were contacted and recruited earlier. Staff recruited 12-15 participants

for each group and discontinued calls upon thematic saturation. Ultimately, 451 parents were called, 78 parents were recruited, and 41 participants attended five focus groups. Figure 2 summarizes the purposive sampling strategy and recruitment flow.

Qualitative Protocol

Through several iterations, the study team of pediatricians, health services and public health researchers and an anthropologist created the focus group discussion guide (Table 1). The guide was informed by an extensive review of the literature on the positive outlier approach and parental perspectives on childhood overweight and obesity. Guided by a social contextual conceptual model adapted from Sorensen et al,[17] the questions focused primarily on exploring mediating mechanisms that led to improved BMI outcomes. These core questions were supplemented by spontaneous probes and follow-up questions to ensure full exploration of each topic. Focus groups were conducted by two moderators, an African American woman and a Latina/Hispanic woman, to maximize racial/ethnic congruency with participants. We completed five, 2-hour focus groups in English at three HVMA locations in the greater Boston area, selected to reflect obesity hot spot neighborhoods (Figure 1). At the end of each focus group, participants completed a brief demographic survey. They received a light meal and $50 as an incentive for participation.

Analysis

All sessions were audio-recorded and transcribed by an independent transcription company. Led by a qualitative expert (R.G.), five members of the research team participated in data analysis using the immersion-crystallization method.[18] This entailed all team members independently reading the transcripts, as they became available, making analytical notes as they did so. The next step, also in iterative fashion as each transcript was read, was for the team to meet as a group to discuss their independent analyses, and together identify emerging themes and, ultimately, develop their final interpretation of the data. Two members of the analysis team attended all focus groups in person and helped enhance the credibility of emerging themes by providing their observations for the group to consider along with the transcript data. We continued analysis until no new themes emerged. We then reviewed transcripts again in their entirety and linked extensive verbatim quotes to illustrate each theme. We used consensus among the analysis team to ensure consistency in data interpretation.

RESULTS

We reached thematic saturation after five focus groups with 41 parents of diverse racial/ethnic backgrounds. Table 2 provides participant sociodemographic characteristics. Overall, parents focused on their children’s behaviors, unhealthy choices, physical limitations, clothing size, peer comparisons and self-esteem when discussing what triggered identification of weight problems and motivated them to make changes. Measures for defining successful change among their children similarly focused on these behavioral and quality of life issues. Additionally, parents described their strategies for change, perceived facilitators and barriers, and suggestions for future interventions among similar families.

Tables 3, 4, and 5 present illustrative quotations for the topical categories and themes discussed in the text.

Parent Reported Outcomes of Interest I: Weight Related Issues Parents Notice and Care About that Motivated Change in Health Behaviors

Parents reported several factors that motivated them to work with their children to pursue behavior changes (Table 3). Clothing size was a key sign to many parents that their children had a weight problem. Parents noted that they often had to buy clothing labeled for older children and that their children themselves were frustrated by their inability to wear desired clothing sizes and styles. A majority of parents described unhealthy behaviors, ranging from "bad" eating habits and poor food choices to inactivity and excess sedentary time. School entry was described as a critical period and point of transition for many parents as peer comparisons and bullying alerted them to weight issues. They were also concerned with their children's limited ability to participate in activities or sports with peers. Some parents noted that their children had physical complaints such as shortness of breath and lack of endurance as well as emotional issues with low self-confidence and fear of failure. Children's BMIs, provided by their clinicians, garnered a mixed response from parents. Some found BMI to be a helpful and objective measure while others found it too generalized and not applicable to their specific case. Many were sensitive to having their children defined by a number. One mother said, "BMI is a box, and you're telling everyone from every nationality or background, bone structure, you need to fit into this box." Yet, even among parents who viewed BMI negatively, most reported that discussions with health care providers regarding their children's growth trends triggered reflection on their children's weight and health behaviors. Many parents also had a history of weight problems themselves or among family members, and several expressed hopes that their children could avoid the stigmatization that they themselves experienced in childhood.

Parent Reported Outcomes of Interest II: Measures of Success

The ways in which parents tracked their children's progress and success largely mirrored the behavioral and emotional factors that initially prompted them to identify their children's weight issues and to make changes (Table 3). Parents frequently cited improvement in their children's decision-making regarding health behaviors, such as choosing healthy foods, as a measure of success, and stated that they wanted to see that their children could make good choices on their own. Parents focused on their children's improved self-esteem and happiness as they moved towards a healthier weight, and described changes in the clothing that the children were able to wear as a way that both the parent and child could see improvement together. Their children's eagerness to participate in activities and ability to keep up with other children with less exercise intolerance and greater confidence and joy motivated parents to continue to commit resources to improving their children's health behaviors. Some parents also noted that tracking BMI with their children's primary care provider served as a helpful marker that their children had achieved a healthier weight.

Strategies for Change, Engagement and Maintenance among Positive Outlier Families

Parents presented various approaches to improving their children's weight (Table 4). They often reported initiating changes in their own behaviors or at the family level. Whether it

concerned food choices or physical activity, parents said changing their own patterns and leading by example was helpful in changing their children's habits. One father said, "It was really a household decision…to be a healthier house overall." Several parents mentioned rules and limits, such as limiting TV time or keeping unhealthy foods out of the house, as critical factors in changing behavior patterns. Parents repeatedly noted that consistency in behavior change and overcoming resistance were critical to sustaining change and ultimately achieving buy-in from their children and extended family. Some cited innovative and creative strategies for overcoming pitfalls personalized to their children's or family's situation such as dancing to YouTube videos together during cold weather months or "making water fun" to replace juice. Others noted the importance of planning ahead, e.g., having healthy snacks on hand to avoid the ease and convenience of fast food. Several emphasized maintaining a positive focus and shifting their children's attention from what they cannot have to what they can have instead (e.g., allowing the child to choose but limiting the options to healthy ones). If their children were not able to follow one pathway to a healthier weight, parents said they would try to develop alternatives tailored to their children's interests and abilities. Finally, some parents mentioned getting their children involved in decision-making and educating them about health behaviors.

Facilitators/Barriers to Children Achieving and Maintaining a Healthier Weight

Parents characterized aspects of the health care system, schools, communities, and family both in considering facilitators as well as barriers to promoting a healthier weight for their children. Parents reporting a positive experience with doctors or nurses appreciated that the providers communicated directly with their children in a positive way and helped set specific goals to encourage behavior change. Negative experiences with health care providers were largely related to feelings that their children were being inappropriately generalized, "put in a box" or assigned a number without considering the unique backgrounds of their children, i.e., the child's growth trajectory, race/ethnicity or culture. Several parents noted stigma and discomfort around use of the word obese by health providers. One mother said, "Please don't tell me my daughter is obese…obese is such a bad word." With regard to schools, about half of parents reported that healthy school lunches, educational efforts, and active time during the school day supported change, while half stated that their schools had unhealthy food and drink options and limited opportunities for physical activity. Similarly, some parents reported that community resources such as recreational space, organized activities, and community centers helped to facilitate weight-related behavior change, yet other parents reported that community resources and healthy food options were limited, inconvenient and/or costly. One parent said, "He has less activities because I can't afford [the]…and not only that, you can't buy the good healthy food because of the price." Safety concerns limiting outdoor activity and an abundance of unhealthy corner stores and fast food restaurants were also noted as barriers.

Many parents reported that extended family members presented a barrier to making and sustaining behavior change, particularly if they were directly involved in the children's care and did not agree with the parents' rules or limitations. One mother said, "One thing that makes it harder … is when you don't have family that understands what you're trying to do with [your children]." This barrier was overcome in some cases by parents maintaining

consistency around limits and rules with both their children and extended family members. Some described engaging grandparents and other family members in discussions to establish these policies, while one mother made a game of it by asking her daughter to collect all of the candy her grandfather gave her in exchange for a prize and then "showed him at the end of the two weeks."

Preferences and Suggestions for Family-Centered Obesity Interventions

Parents voiced interest in practical educational content focused on nutrition (e.g., appropriate portion sizes and label reading) and favored group-based health education. Many also felt it would be helpful to support families with identifying and connecting to available resources in their communities. Suggested interventions included a peer support structure and a professional health educator to lend a credible voice of authority to educational content and advice. Parents noted that education should be targeted to both parents and the children themselves, because children often made decisions when parents were not around. Remote and mobile communication technologies, such as websites, e-mail and mobile phones, were mentioned as a possible mechanisms for disseminating health information, advice and successful strategies.

DISCUSSION

Among parents of positive outlier children with demonstrated improvement in their BMI z-scores over time, commonly cited outcomes that mattered most and motivated change were child inactivity, clothing size, exercise intolerance, and peer comparisons. Convergent strategies among positive outlier families were family-level changes, parent modeling, consistency, household rules/limits, and creativity in overcoming resistance from children and among unsupportive family members. Parents voiced preferences for obesity interventions that include tailored education and support that extend outside clinical settings and that are delivered in a group setting by both successful peers and credible experts.

The positive outlier framework has been previously implemented to identify perspectives and disseminate best practices in adult obesity.[13] This study represents the first qualitative positive outlier inquiry among parents of obese children who have improved their weight status despite living in high risk neighborhoods. Our aim was to explore perspectives and strategies employed by these parents in pursuit of unique or novel mediators of their children's success, which can be tested and disseminated to more effectively target childhood obesity in high prevalence communities and accelerate progress in reducing persistent disparities.

Based on this study, one distinguishing feature of positive outlier parents is their penchant for creativity in overcoming resistance. Parents often described instances of resistance from their children or extended family, but then detailed specific examples or strategies they employed to overcome resistance. Many personalized their approach to their children's preferences and abilities, while others implemented household rules and focused on consistency. Others described efforts to maintain a positive focus by shifting their children's attention away from limitations toward their available choices among healthy options. Based on these findings and parent suggestions regarding childhood obesity interventions, we

hypothesize that a promising approach for promoting child and family behavior change may be to assist parents with identifying sources of resistance and collaboratively strategizing to develop individualized methods for navigating these barriers.

Misclassification of childhood overweight is prevalent among parents and has been well described in the literature, as has the need for effective strategies to correct these misperceptions, promote recognition of weight problems and trigger behavior change.[19-21] Efforts to improve clinician-parent communication regarding weight status have been successful.[22] However, our study results indicate that parents may dismiss the applicability of growth charts and percentiles to their own children. We hypothesize that higher levels of parent and family engagement can be achieved by shifting the focus from the *signs* of obesity, such as BMI or weight status, to the *symptoms* of obesity that parents care most about and that motivate change.

In this regard, the parents of positive outlier children reported similar weight-related outcomes that motivate change and mark success as those described in prior qualitative and survey studies with parents of overweight children – a focus on healthy eating and activity behaviors, peer comparisons, clothing size, exercise intolerance, self-esteem, and bullying.[23-26] Successful parents in our study also discussed similar barriers and facilitators to supporting their children's behavior change as those reported in other qualitative studies related to childhood obesity. Some parents noted the communities and schools as facilitators while other saw them as barriers. Alm et al. has shown that for inner city children who underwent a weight loss intervention, built environment can be a facilitator or a barrier.[27] Clinicians are often seen as an ally in broaching the subject of childhood obesity,[25,28,29] and this was similarly described by parents in our study as clinicans were generally seen as facilitators of change. The potential role of grandparents and extended family members as enablers of obesogenic behaviors and habits has been reported in other studies[26,29] and was brought up by parents in our groups as well. The recurrence of these themes across time and across populations supports their salience and potential generalizability.

In one qualitative study with mothers of overweight preschool children conducted over a decade ago, participants reported similar outcomes of interest centered on self-esteem and inactivity, yet the themes that emerged from their discussion of parenting styles and child health behaviors reflected an absence of structure and a lack of control around their children's eating behaviors.[30] Despite acknowledging difficulties with consistency and challenges with extended family, the parents of positive outlier children in our study described several successful strategies for modifying their children's weight-related behaviors. A recent systematic review examining the role of parents as agents of change in childhood obesity found inconclusive results regarding associations between specific parenting phenotypes and weight improvement.[31] Some evidence indicates that parenting style should ideally be tailored to the individual child,[32] as is also suggested by the results of our study.

Strengths of the study design included carefully considered eligibility criteria utilizing longitudinal, objective growth data from electronic health records and mixed effects linear regression modeling to purposively define the recruitment sample of parents of positive

outlier children living in obesity hot spot zip codes. The moderator's guide was informed by a theoretical framework, yet tempered with a positive outlier approach which seeks to limit *a priori* assumptions. The content analysis of participants' statements was conducted by a group of researchers with varying perspectives and backgrounds.

We lack information about parents who did not participate; thus non-responder bias is possible and may limit the generalizability of our findings. Furthermore, our sample population represents insured patients presenting routinely for well child visits, and focus group participants were all comfortable speaking in English and reported relatively high education levels compared to state and national census reports.[33] This limits the generalizability of our findings to populations of lower socio-economic status and non-English speakers. Parental education has been linked to child obesity,[34] and it is possible that higher education could be an important mediator of positive outlier status and parental creativity and resourcefulness in overcoming obstacles, yet our study is not designed or equipped to examine this hypothesis. The educational attainment reported by our participants is comparable to past studies among overweight and obese children at the same HVMA practices so it does not appear that these parents of positive outliers were more highly educated that other HVMA parents.[35] As with most qualitative studies, our results are not intended to be representative or to determine exact percentages of parents holding a given belief, but rather we aimed to explore concepts and stimulate hypotheses to guide the development of childhood obesity interventions. Nonetheless, themes repeatedly emerged across multiple groups, which supports their salience.

The successful strategies and perspectives learned from parents of positive outlier children living in high risk neighborhoods can be generalized and tested in developing multi-sector childhood obesity interventions to accelerate progress in reducing childhood obesity. Such interventions must be better aligned with family-centered outcomes of interests and measures of success and should be tailored to assist families in maintaining consistency and overcoming resistance within their unique family and community contexts.

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What's New:

Parents of positive outlier children reported successful strategies and suggestions for obesity management as well as perspectives regarding weight-related outcomes of interest and measures of success. These findings offer potential avenues for addressing persistent disparities in childhood obesity.

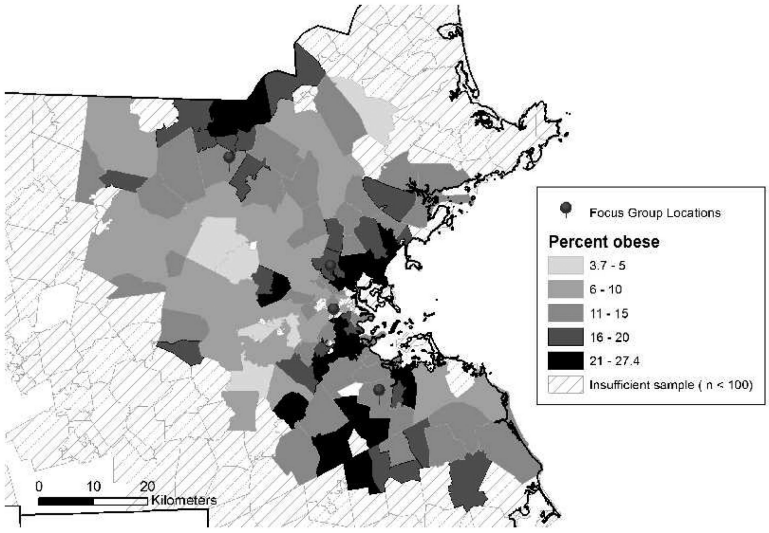

Figure 1.

Prevalence of Childhood Obesity by Zip Code Among 22, 443 Massachusetts Children ages 6-12 years-old and Focus Group Locations

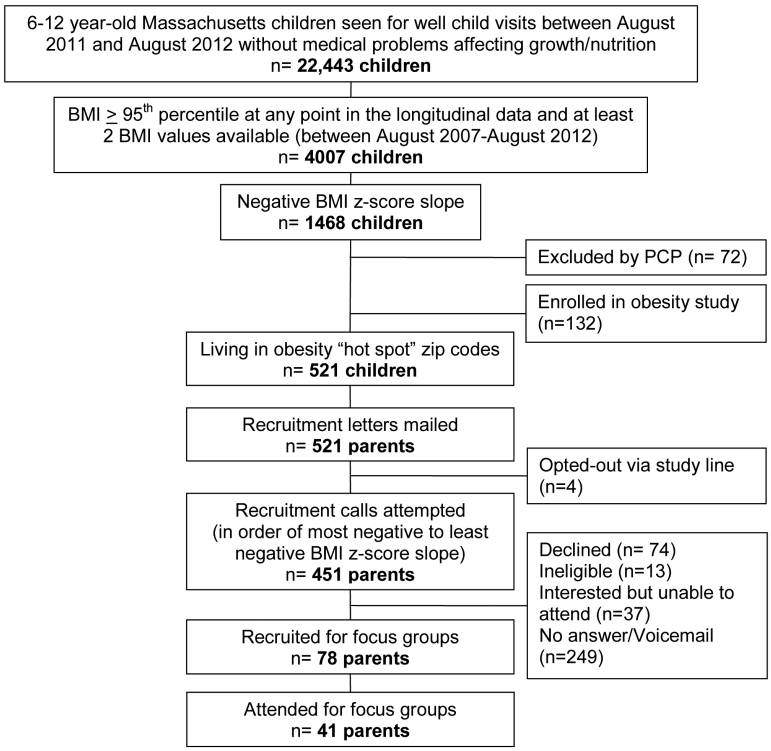

Figure 2.
Purposive Sampling Strategy and Recruitment Flow for Parent Focus Group

Table 1

Selected Questions from the Focus Group Discussion Guide on Perceptions, Strategies and Suggestions Among Parents of Positive Outlier Children

Topic	Selected Discussion Guide Questions
Perceptions of obesity and overweight	• How would you decide if a child is overweight? • How have your views about what a healthy weight is for a child changed over time? • Were you ever concerned that your child weighed too much? Why? What concerned you about your child's weight? • Has a health care provider, like your child's pediatrician or nurse practitioner, ever expressed concern about child's weight? If so, how did you feel about your provider's assessment of your child's weight? Did you agree or disagree? What are some things you think might have caused your child to gain weight?
Potential causes of change in weight status	• What happened that led to a healthier weight for your child and how did these things start to happen? • Can you think of a few specific things that might have helped your child achieve a healthier weight? • Who specifically made goals regarding your child's weight? What were they and how did you come up with them? • How did you measure success for your child as you tried to achieve these goals? In other words, how did you keep track and know that things were headed in the right direction? • What were some challenges related to these changes? What helped your children to overcome them? • Did any of you make changes as parents or together as a family that affected your child's weight and health? What kind of changes have you made in scheduling or family rules?
Sustaining change in weight status	• What are some things that are helping your child to stay at a healthier weight? • Does anybody or anything make it difficult for your child to stay at a healthier weight? How do you or your child deal with these difficulties to maintaining a healthier weight?
Role of the health care system	• Now I'd like to hear about any discussions you've had with a health care provider, like your child's pediatrician or nurse practitioner, about weight loss and weight maintenance. Who started this conversation and what was the conversation like?
Role of schools	• What goes on at school that might affect your child's weight?
Role of community	• What are some community resources (e.g. parks, boys and girls clubs, pools, basketball courts, fields) that have helped your child stay at a healthier weight?
Ideal obesity risk-reduction intervention	• How do you think we could help other parents/families with getting their children to a healthier weight?

Table 2

Sociodemographic Characteristics of Focus Group Participants

Parent and Household Characteristics	**(N=41) Mean (SD) or N (%)**
Age, years	41.3 (6.7)
Relationship to positive outlier child	
Mother	36 (88%)
Father	3 (7%)
Other Guardian	2 (5%)
Race/Ethnicity	
Non-Hispanic White	17 (42%)
Non-Hispanic Black	17 (42%)
Hispanic	5 (12%)
Other	2 (5%)
Education	
Post-graduate	8 (20%)
College graduate	18 (44%)
Some College	9 (22%)
High School or less	6 (15%)
Employment status, full-time	25 (61%)
Primary language spoken at home	
English	33 (81%)
Spanish	3 (7%)
Other	5 (12%)
≥2 children at home	31 (76%)
Positive Outlier Child Characteristics	
Age, years	8.8 (1.8)
Sex, female	13 (32%)
BMI z-score slope	−0.10 (0.06)
Time between first and last BMI measure, years	3.2 (0.8)

Table 3

Parent Reported Outcomes of Interest and Representative Quotations from Parents of Positive Outlier Children

Theme	Sample Quotations
Weight-Related Outcomes Parents Notice, Care About, and That Motivated Change in Health Decisions	
Clothing size	• "It's emotionally upsetting with [the children] going into school saying they can't fit into the clothes that they want to fit into." • "When you go into their age group and their [clothing] size … and you have to go to a bigger size for like a 12 year old."
Unhealthy behaviors/choices	• "He wanted to sit on the couch, and do nothing… He would come home from school and was just dead tired, and he'd have the snacks…and just sit there."
School entry, peer comparison, bullying	• "I think that my daughter has felt judged by her peers. It really hurts her feelings when her friends call her fat or 'I can't play with you because you're fat.'" • "He went to school, and he comes back saying, 'Mommy, they're telling me I'm fat.'"
Activity limitations/exercise intolerance	• "You know, she was like panting, 'Mommy, I can't climb the stairs.' … It just clicked." • "My daughter for example, I noticed she was just sitting [saying] Mommy, 'I can't do this.' … So I realized, OK, we really have to get something done because now she's feeling like, I can't do it."
Child self-awareness, self-esteem	• "My son, he said, 'Mommy, I don't feel like I'm my right size.'"
Health care providers/BMI charts	• "It's funny, because when I looked at my daughter, I didn't see her as overweight, because I'm looking at her every day… So, it really took hearing it, and the doctor really saying, 'Look, well, this is where her BMI is, this is what is average.' Seeing those charts, definitely made it clear to me, because I wasn't seeing it."
Parent/family history of obesity	• "I've always been concerned… My brother, sister, mom, we all have been overweight… I have to make the right choice for my kids." • "I look at myself at her age and I look at myself now, and my panic is, 'Is she going to follow in Mom's footsteps? Is she going to go through school bullied and teased because of it?"
Measures of Success	
Adoption of healthy habits/choices by child	• "I think it's when my daughter makes good choices, I feel like we've made a big victory. … She's picking a healthy choice instead of a junkier choice." • "I'll just say the eagerness of the child wanting to do the activity. For me, that's the success."
Child's self esteem	• "… When you see that they're getting tired and they're also learning self-esteem and confidence and standing up and taking care of themselves… OK then you can sacrifice the time and the money."
Clothing size	• "So, she's got a little pot belly, so, you know, she's funny, she has this one belt. She's like, 'Oh, this belt goes further now,' and it goes further. So, she likes that."
Keeping up with other children	• "You just see the changes, like with my daughter, I remember when we first started playing, 'Oh Mommy, I'm tired, I'm going to sit down for a minute.' But I don't get that anymore, I get, 'Oh Mommy, I'm just coming over to kiss you, not to sit down.'" • "We changed portions. We changed the snacks. And he feels good and he's active, and I want to see him be active with the other kids."

Theme	Sample Quotations
BMI/numbers	• "And also, [the doctor] goes onto the computer and shows me the graph of the growth. And so I can see that the BMI has leveled off over the last three years. It has not gone up, which is a big victory."

Table 4

Strategies for Change, Engagement and Maintenance from Parents of Positive Outlier Children

Theme	Sample Quotations
Parent Modeling/Family-level Change	• "Well, it starts out with me. I try to do it myself first. And then I incorporate it to them. Because if I'm not consistent, then I'm just going to slack off and … then they'll just fall back into their routine. So that's why I don't even watch TV myself. I show them that that's consistency." • "I had to get the entire family involved, everybody, we couldn't just focus on him….."
Rules/Limits	• "There's no TV during dinner. There's nothing after 8pm. No drinking of anything… because after 8pm the only thing you're thinking about doing is going to sleep." • "If it's in the house, he's going to keep asking….If I don't want him to have it, I just can't have it in the house." • "I buy the food, I put it in front of them, and I stay strong."
Consistency	• "If you have rules, you have to follow through. If you have rewards, they have to be consistent; you can't change them." • "I didn't want her to think, 'Oh now I'm doing great, I can go back to eating the way I used to.' Because they don't understand that you have to keep it up. They just think that once you get there, you can go back to the old ways and you'll still stay there, but that's not how it works." • "I'll be honest. We are weak. We will back down to the fit, the temper tantrum, the everything. I think you need to stand your ground and enforce it, and I think that what needs to be reiterated to parents, is when you say no and they cry, don't … say yes."
Overcoming Resistance	• "The hardest part was … getting him involved in certain things …. I think he was more afraid, because he didn't know if he could succeed…. I had to, like, physically get involved with a few other mothers to bring their kids, 'OK, all of your friends are going, so, let's go.' So when they go, and he sees that he's able to do it, now, he plays all the time." • "And if the kids that are resisting, they just don't want to do it, do it with them." • "So they struggle at the beginning or they fight. They want even a TV in their bedroom. But of course, absolutely no. And this is why." • "So like the whole thing with the snacks. 'Well Mom, this person brings Doritos and Oreos…I want three snacks like so-and-so.' … I'm like, 'You want three snacks, OK.' I pull out the celery bars and the carrots and the broccoli, and I say, 'Here you go, three snacks. Don't forget your water."
Positive Focus	• "Instead of looking at now, you need to lose weight, I was like, you don't need to lose weight, we need to eat better, we need to get you more active." • "We always tell her that she's beautiful and we love her just the way she is and she needs to love herself. In that same breath, we also explain, 'That's why we need to watch what you eat, and help you make the better decisions.'" • "What's been established in our house is really a lifestyle that is about healthy food and exercise. There is never talk about diet. So they never ask for [fast food] because it's just not a part of our lifestyle."
Personalization/Tailoring	• "My son didn't like the organized sports, the organized activities. And so I had to find activities that he could do … I bought a trampoline on craigslist. All the kids now play in my backyard on this trampoline for hours."
Child Involvement	• "I think the biggest part of it was my wife and I kind of saying, OK, she's at an age now where she can kind of understand that what she's eating is, it's not just food, it's fuel. … She can help us make better decisions." • "Yesterday, I sat across from my son, he was drinking a yogurt. … 'Mom, this is good for me, isn't it?' I said, '…Turn the bottle around, I want you to read to me, how many grams of sugar is in that.'"

Theme	Sample Quotations
	• "So one of our big things is my daughter cooks two meals a week. I mean, supervised, but she decides what she wants to cook and she cooks it. So getting them involved in the nutrition to teach themselves."

Table 5

Preferences and Suggestions for Family-Centered Obesity Interventions from Parents of Positive Outlier Children

Theme	Sample Quotations
Educational content	• "You want to educate the parents so they would know what the proper food guidelines are, what a healthy portion is for the children." • "Basic nutrition education. … I grew up with the food pyramid, and I know -- you know it backwards and forwards. But some parents don't know that."
Connecting families with available resources	• "Some kids don't have access to that, to services, so having knowledge of resources would be good."
Support groups with peers and experts	• "The fact that you guys have this [focus group], I think it's definitely something that would help parents to, like, listen to other parents who go through the same struggle that you're going through, and to actually get ideas, because I'm writing notes." • "One thing I did want to bring up, too, is in a group, the person running it should also teach the parents how to read the labels so they could show their children what they're looking at.
Reinforcement of message	• "We can scream whatever we want, and it falls on deaf ears. When they hear it from somebody else, it hits home."
Shared decision making/support	• "Or maybe working with the parents, what can we do together, what can we do as a group, how can we make this work, instead of what are you doing, what are you feeding your child."
Child involvement	• "You can educate a parent all you want, but if they don't do anything with it, then that child learns nothing. But if you educate the child and they learn about it, then they can take it where they want to go… So I think it needs to be more child-oriented."
Health information technology	• "A computer's a great tool. I mean, we use it for everything. There should be some kind of tracking. You can get online and talk to somebody online about what's going on."