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

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ABSTRACT

OBJECTIVE: New approaches for obesity prevention and management can be gleaned from positive outliers—that is, 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 5 years of height/weight data from the electronic health records of 22,443 Massachusetts children, ages 6 to 12 years, seen for well-child care. We identified children with any history of BMI in the 95th percentile or higher (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 subsample 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.

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

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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.

ALTHOUGH 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, multisector 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
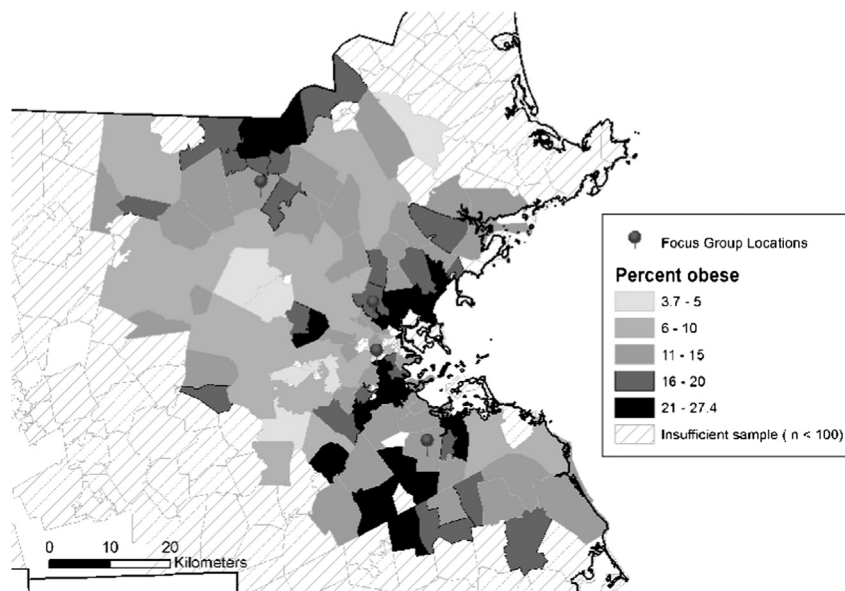
Figure 1. *Prevalence of childhood obesity by zip code among 22,443 Massachusetts children aged 6 to 12 years old and focus group locations.*

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 multispecialty 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 to 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 in the 95th percentile or higher at any point in the longitudinal data and at least 2 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 thought they 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 in the 95th percentile or higher 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 prevalence.[1,16,17] 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