Context Matters in Pediatric Obesity: Commentary on Innovative Treatment and Prevention Programs for Pediatric Overweight and Obesity

Barbara H. Fiese, PhD, and The STRONG Kids Team

1 Family Resiliency Center and 2 Department of Human and Community Development, University of Illinois at Urbana-Champaign

All correspondence concerning this article should be addressed to Barbara H. Fiese, PhD, University of Illinois at Urbana-Champaign, 904 West Nevada, Doris Kelley Christopher Hall, MC-081, Urbana, IL 61801, USA. E-mail: bhfiese@illinois.edu

Received July 16, 2013; revisions received July 27, 2013; accepted August 8, 2013

This commentary reviews the 9 articles in the Special Issue on Innovative Treatment and Prevention Programs for Pediatric Overweight and Obesity. Taking a socio-ecological perspective, contextual factors such as characteristics of the child, family, community, and culture are offered as ways to improve treatment and prevention programs. Using a more tailored approach that takes into account individual differences in family communication patterns and problem solving is warranted. Pediatric psychologists are urged to consider the role of prevention and targeted efforts during early childhood to reduce the prevalence of childhood obesity.

Key words family function obesity; prevention/control; weight management.

The Journal of Pediatric Psychology has long been a leader in publishing innovative approaches to treating and understanding complex health conditions in childhood and adolescence. There is perhaps a no more complicated and daunting condition than childhood obesity in its resistance to amelioration. Without exception, each article begins with dire statistics drawn from nationally representative datasets indicating that in 2009–2010, 16.9% of children and adolescents between 2 and 19 years of age were considered obese (Ogden, Carroll, Kit, & Flegal, 2012). The editors of this special issue are to be commended for collecting an excellent set of articles that represent the state of the science in treating overweight and obesity in childhood and adolescence. For some readers of this issue, there may be disappointing news in that many of the innovative and intensive treatments described had little appreciative effect above and beyond less intensive and standard forms of intervention. For example, Berkowitz and colleagues (2013) compared the relative effectiveness of an in-person 17 session family-based lifestyle management program with a self-directed family-based lifestyle management program and found that both were (modestly) effective in weight loss for adolescents. Similarly, Davis and colleagues report that an intensive family-based telemedicine intervention was equally effective in reducing BMI as a pediatrician-delivered program (Davis, Sampilo, Gallagher, Landrum, & Malaone, 2013). Motivational Interviewing (MI) techniques were also compared using enhanced approaches supporting more autonomy within the family (Saelens, Lozano, & Scholz, 2013) and self-efficacy in youth (Walpole, Dettmer, Morrongiello, McCrindle, & Hamilton, 2013). Both of these studies found little differences in BMI change between the enhanced approach or in comparison to a control group. A skeptic may conclude that family-based interventions add little value to obesity treatment for children and youth. This conclusion would be in contrast to the large literature base suggesting that family-based interventions are effective in weight management for children (Whitlock, O’Connor, Williams, Beil, & Lutz, 2010). What appears to be missing from the discussion in the carefully controlled randomized controlled trials (RCTs) is the context in which the family-based interventions are delivered and the daily experiences of the families receiving treatment.
The authors of these articles are not discouraged by their findings but rather offer discussions about universal elements of interventions as well as new directions in the treatment of pediatric obesity. The program described by Berkowitz and colleagues (2013) illustrates the important role that primary care providers can play in supporting weight loss with their patients. Similarly, Davis and colleagues (2013) found that treatment by physicians was just as effective as a more comprehensive telemedicine approach. Both the Berkowitz and Davis studies illustrate the role that unobserved factors such as the relationship between provider and patient may play in effecting change. For adolescents who may have established a relationship with their primary care provider over many years, implementing a lifestyle change may be as effective as implementing change when establishing new relationships—albeit with added support. Walpole and colleagues (2013) directly address how the client/therapist relationship may be more similar than different across treatment conditions.

In addition to characteristics of therapist and/or provider that may account similarities across treatment and comparison groups, it is also important to consider characteristics of the family. Saelens and colleagues (2013) incorporated a self-directed approach as did Berkowitz and colleagues (2013). The effectiveness of self-directed approaches may be better understood by readiness to change and a better understanding of family characteristics that make it more or less likely that the family will be receptive to the intervention. The remaining articles address some of these issues. First, it is important to consider what is meant by family context.

**Family Context of Pediatric Obesity**

In a previous special issue of the *Journal of Pediatric Psychology* dedicated to overweight in childhood, Black and Young-Hyman (2007) conclude “the articles in this Special Issue highlight the psychological, family, health, and social challenges associated with weight-related issues among children, illustrating the importance of incorporating contextual factors into an understanding of child overweight.” (p. 2). Several socio-ecological models have been put forth to elucidate the complexities in the causes of childhood obesity (Birch & Anzman, 2010; Fiese & Jones, 2012; Harrison et al., 2011). Harrison and colleagues (2011) describe the 6 Cs of the ecologies that contribute to childhood overweight and obesity: Cell, Child, Clan, Community, Country, and Culture. Fiese and Jones (2012) adapted this model to consider the intersecting role that the family plays in regulating eating behavior in children (Figure 1).

Children differ in terms of their acceptance of new foods and ability to self-regulate food intake. Differences in sensory sensitivities and inhibitory control may be associated with early patterns of food consumption (Smith, Roux, Naidoo, & Venter, 2005). However, these choices are likely moderated by parenting practices (Webber, Cooke, Hill, & Wardle, 2010). Providing food to children extends beyond the need to give sustenance, but rather it is embedded in daily routines, emotional regulation, and rule-making activities of family life. These activities extend across generations and are embedded in cultural practices and beliefs. The dyadic exchanges between parent and child may affect food consumption through its effect on emotion regulation and parental feeding practices. Pressure to eat and over-controlling feeding practices have been associated with increased risk for child overweight and eating disorders (Ventura & Birch, 2008). Thus, a family atmosphere whereby children are pressured to “clean their plate” may backfire against healthy nutrition practices, as children are less likely to attend to satiety cues and rely more on emotional or environmental cues to regulate food intake.

Even a relatively simple practice such as family meal-times has been found to reduce the odds of being overweight and developing an eating disorder (Hammons & Fiese, 2011). Families that engage in more regular meal-times (three or more times per week) also engage in better

---

Figure 1. Socio-Ecological Model Food and Family Adapted from Harrison et al. (2011) and Fiese and Jones (2012).
nutritional practices, serving more fruits and vegetables than those who share meals less regularly (Hammons & Fiese, 2011). However, it may not be sheer frequency of shared meals that account for better health outcomes, as the types of communication, including positive response to affect and expressed genuine concern about the child’s daily activities, are also associated with reduced risk for overweight and obesity (Fiese, Hammons, & Grigsby-Toussaint, 2012).

Societal factors also affect mealtime practices, such as exposure to media. Several studies have documented the effects of food advertising on the consumption of high fat foods and sugar sweetened beverages (Harrison, Liechty, & The STRONG Kids Program, 2012; Institute of Medicine, 2013). The ever presence of cell phones and other forms of mobile media at the table also present challenges in terms of distractions and preventing positive forms of communication known to promote healthy outcomes (Fiese, Winter, & Botti, 2011).

Families differ in terms of access to healthy foods. Low-income families and families living in rural communities have more difficulty accessing fresh fruits and vegetables and often have to rely on corner stores or convenience stores to procure food (Larson, Story, & Nelson, 2009). In addition to limited access to healthy foods, African American and Hispanic families in low-income neighborhoods often find it difficult to access culturally relevant foods common to their traditional diets (Grigsby-Toussaint, Zenk, Odoms-Young, Ruggiero, & Moise, 2010).

Relevant to this discussion and the studies reported in this special issue, is whether these contextual variables reported in descriptive studies have been taken into consideration and if so, how can it inform future prevention and treatment efforts?

Characteristics of the Child

Loss of Control (LOC) eating, body image, eating disorders, and body dissatisfaction were considered in two of the reports (Cassidy et al., 2013; Willsch & Wade, 2013). These are important characteristics to consider in an adolescent age-group and as comorbidities of obesity. As pointed out by Cassidy and colleagues, body image is integrally embedded in cultural values. If interventions address body image as part of weight reduction then cultural considerations must surely be taken into account. Surprisingly, outside of LOC little attention is paid to other self-regulatory features such as inhibition and emotional regulation more broadly speaking. Future research may want to consider individual differences in self-regulation that may influence responsiveness to treatment and the likelihood that individuals will stay engaged in treatment.

Family Structure and Process

Although the majority of the reports in this special issue refer to family-based interventions, none of the studies report on family structure. Given the rapid changes in family demographics, it is important to know whether the child or adolescent is being raised by a single parent, may reside in multiple households in a given week, and may be receiving different messages about eating and physical activity norms from multiple family members. Only the Cassidy report identified parent as the mother, grandmother, or father. There is increasing evidence that marital status is related to child health outcomes, with children living in households with cohabitating adults faring less well (Bzostek & Beck, 2011). The mechanism of this effect may be due to economic resources as well as the ability of adults to adequately monitor children’s health-related behaviors including sleep, TV viewing, and eating. Future obesity trials should include an assessment of family structure as well as adults responsible for feeding and arranging physical activity opportunities for the child or adolescent.

A promising approach taken by St. George and colleagues (2013) incorporates both a focus on family process variables and attention to variability within families. Project SHINE implemented a family communication and monitoring intervention to reduce sedentary behavior in adolescents. The family communication intervention was successful in decreasing sedentary behavior and further, those families that demonstrated the most positive communication had adolescents that improved the most in decreasing sedentary behavior. The results of this study are important from a conceptual and analytical perspective. Conceptually, the study incorporated a key feature of family functioning, positive communication, known to be associated with positive health outcomes (Alderfer et al., 2008). Families can communicate in a variety of ways—either directly—“It is time for our family walk.” Or indirectly—“Get your lazy body off the couch.” Future research may incorporate more nuanced and comprehensive approaches to family functioning including the McMaster model that assesses problem solving, communication, roles, affective responsiveness, affective involvement, behavior control, and general functioning (Epstein, Ryan, Bishop, Miller, & Keitner, 2003) and has been
applied to the study of chronic health conditions in children including obesity (Herzer et al., 2010). Theory-driven approaches to family communication and functioning are warranted for future research in this promising area.

The SHINE project also points toward innovative strategies in analyzing family response to treatment. In considering the interaction between treatment condition and communication scores, the authors were able to demonstrate that those families with high scores on communication had the most significant decrease in sedentary behavior. It is important to understand within-group differences, particularly as it comes to families, in planning for future intervention efforts. Tailored approaches that target families most receptive to change and most likely to benefit from interventions may explain some of the modest effects seen in previous RCTs. Clearly not all families are created equal. More sophisticated understanding of these differences in communication and problem solving strategies may improve the effectiveness of future clinical trials.

**Community as a Resource**

Ecological models require that the community be systematically integrated with family and institutional resources. Programs such as 5-2-1-0 as described by Rogers and colleagues (2013) have become increasingly popular across the United States, yet are infrequently evaluated. This innovative approach to evaluation is to be commended for its comprehensiveness and involvement of multiple stakeholders. There are several take home messages from this report for pediatric psychologists. First, it is important to consider the value of simple messages that can be repeated in multiple settings. Be assured, these are not simplistic messages, but ones that take much care and thought to develop as described by the authors. These messages can be reinforced by health care providers and practicing psychologists as lessons for healthy living not only for those seeking treatment for obesity and overweight. Indeed, the interventions described by Berkowitz and colleagues (2013) and Davis and colleagues (2013) are examples where a community-based intervention could be paired with primary care-based interventions for a more comprehensive approach. Second, this is the only report that addresses young children and child care settings. Recent estimates suggest that 27% of 2- to 5-year-old children are overweight and 12% are obese (Ogden et al., 2012). Pediatric psychologists can play an important role in preventing childhood obesity by working closely with childcare providers and directors in offering educational sessions on healthy eating and physical activity. Programs such as the 5-2-1-0 provide clear and easy to follow steps that can be implemented in early care and education settings. Third, this community-based effort illustrates how public campaigns can have an influence on policies at child care centers, schools, and the workplace. Active involvement by pediatric psychologists in these efforts can only strengthen the research to practice to policy connections.

**Cultural Context**

The Cassidy (Cassidy et al., 2013) and Olvera (Olvera, Leung, Kellam, & Liu, 2013) reports directly address cultural context of obesity interventions. Cassidy and colleagues highlight the need to consider how body image ideals may differ across cultures. Starting at an early age, parents tend to underestimate their child’s weight with parents of overweight children more likely to consider them to be of healthy weight (Hager et al., 2012). When cultural norms are considered, values for robust and full-figured physiques are often in contrast to media images of the “thin ideal.” The Cassidy report points to an important topic to discuss, particularly for adolescent girls who often struggle with body image as part of a normative process.

The Olvera report on the BOUNCE program illustrates the importance of considering the context of the daily lives of African American and Hispanic youth. Summer time is a vulnerable period for many low-income youth with few available resources. Planning physical activity programs as part of summer programs has the potential to affect a significant number of youth. It is impressive that these researchers were able to affect change in percent body fat after only a 30-day intervention. Future efforts may pair physical activity programs with the Summer Food Service Program sponsored by the United States Department of Agriculture (http://www.fns.usda.gov/summer-food-service-program-sfsp) to increase the likelihood that the program is sustainable over time.

**Conclusion**

The articles in this special issue represent some of the best science in the treatment of pediatric overweight and obesity. Carefully constructed and implemented RCTs are the gold standard for clinically based treatment programs. The investigators of these programs are to be commended for their innovation in adapting new paradigms and considering how treatment of childhood obesity can be improved. However, these trials do not come without costs. Strict
inclusionary and exclusionary criteria, time commitment for lengthy sessions, travel time to facilities, and coordination of family schedules often make it difficult to reach children and youth in need. Alternative approaches presented in this special issue such as telemedicine and self-directed programs are promising but require further work.

To increase the effectiveness of existing programs and inform new programs, greater attention to the socio-ecological context of childhood obesity is warranted. Variation in child self-regulation, family structure, family routines, cultural traditions, and community resources may influence the likelihood that any given treatment will have an effect. As we move more toward models of personalized medicine, pediatric psychology can take a leadership role in recognizing the contextual factors that are the causes and consequences of childhood obesity. This will result in a sharper and more refined approach to practice and policy.

A glaring omission, with the exception of the community-based effort (Rogers et al., 2013), was attention to early childhood and preventative efforts. The Institute of Medicine (2011) has called for increased attention for the prevention of childhood obesity starting at birth. There are clear and actionable steps that pediatric psychologists can take with working parents, pediatricians, health care providers, and hospitals to prevent childhood obesity. Simple steps include the promotion of breast feeding, responsive feeding practices during early childhood, reducing screen time to <2 hr per day, practicing good sleep hygiene, and being physically active as a family. It is incumbent on pediatric psychologists to be strong advocates for families to prevent childhood obesity and promote healthy habits from an early age.

Childhood obesity is complex condition. The last special issue dedicated to childhood overweight did not yet recognize obesity as a classification in childhood (Black & Young-Hyman, 2007). In many ways we have come a long way in better understanding just how multifaceted this condition is. Although the simple story is more calories in than expended, the persistent difficulty in turning the tide clearly suggests that context matters. The next generation of researchers will be challenged to integrate solid clinical science with an understanding of the intricacies of contemporary family life. Hopefully this can be done before the health of a significant number of children is further compromised.

Acknowledgments
The STRONG Kids Team includes Kristen Harrison, Kelly Bost, Brent McBride, Sharon Donovan, Diana Grigsby-Toussaint, Juhee Kim, Janet Liechty, Angela Wiley, Margarita Teran-Garcia, and Barbara Fiese.

Funding
Preparation of this manuscript was supported, in part, by USDA National Institute of Food and Agriculture, Hatch Project number 793 328, and the Christopher Family Foundation Food and Family Program.

Conflict of interest: None declared.

References


