RESEARCH
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He Said, She Said: Examining Parental Concordance on Home Environment Factors and Adolescent Health Behaviors and Weight Status

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ABSTRACT

Background Few studies have examined concordance/discordance between caregivers to identify whether caregivers see familial and parental factors in the home environment similarly or differently and whether the agreement or disagreement is related to adolescent obesity risk. Answers to these questions are important and may inform whether family-based childhood obesity interventions need to target both parents.

Objective The main objective of the study was to examine whether and how parental concordance/discordance on factors in the home environment (eg, importance of family meals, parent feeding practices, encouraging child physical activity, and limit setting on child screen time) are associated with adolescent health behaviors and weight status.

Design Data from two linked population-based studies were used in cross-sectional analyses. Linear regression models examined associations between parental concordance/discordance on home environment factors and adolescents' health behaviors and weight status.

Participant/settings Racially/ethnically and socioeconomically diverse adolescents (n=1,052; 54% girls; mean age=14.3 years) and their parents (n=2,104; 52% women; mean age=41.0 years) from Minneapolis and St Paul, MN, participated in the study. Anthropometric assessments and surveys were completed at school by adolescents and surveys were completed at home by parents.

Results Parental concordance on home environment factors was high for some factors (eg, 68% concordance on not pressuring adolescent to eat) and low for other factors (eg, 2% concordance on parent engaging in physically activity with child 4+ hours per week). Parental concordance on positive home environment factors (eg, frequency of family meals) was associated with more adolescent healthful eating patterns and hours of physical activity ($P<0.05$), but not consistently. When parents were discordant, adolescents had higher consumption of fast food and more unhealthy weight control behaviors ($P<0.05$), but not consistently.

Conclusions Results suggest there is some degree of parental concordance on home environment factors; however, the results were inconsistent and approximately one-third of parents were discordant on these factors. Future research is needed to further examine the role of parental concordance/discordance on adolescent health behaviors and weight status.
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RECENT RESEARCH WITHIN THE REALM OF childhood/adolescent obesity has aimed at increasing our understanding of the role of parents within the home environment and familial factors in increasing or decreasing childhood obesity risk.[1-5] Parent feeding practices,[6-9] frequent family meals,[10-14] and parent modeling and encouraging of healthful behaviors[15-17] have all been examined in relation to childhood obesity risk. Results have suggested that restrictive parent feeding practices are associated with increased obesity risk,[6-9] whereas parent modeling and encouraging of healthful behaviors and frequent family meals are often associated with lower body mass index (BMI),[13,14,17-19] although findings have not always been consistent.[20] However, the majority of previous studies have used a "primary parent," most often the mother, to report on the home environment.[1,2,21] Very few studies have gathered reports from both parents and fewer studies have looked at concordance and discordance between parents to identify whether parents see familial (eg, frequency of family meals and support for physical activity) and parental factors (eg, parent feeding practices and modeling physical activity) in the home environment similarly or differently. Examining the influence of parental agreement or disagreement on key home environment factors related to child weight and health

behaviors will be useful for informing the creation of future interventions to address childhood obesity.[1,21]

Given the high prevalence of adolescent obesity and its negative health consequences,[22-24] it is important to know whether parents see familial and parental factors in the home environment the same way to inform data collection and family-based interventions. In the case that both parents agree on these elements of the home environment, it may be adequate to collect data from one parent, thus increasing the cost-effectiveness of data collection. In addition, intervening with one parent may be adequate for change within the home environment. However, in the case that parents disagree on familial and parental factors in the home environment, or they agree on aspects of familial and parental factors in the home environment that are linked with negative health outcomes in adolescents (eg, restrictive feeding practices and increased disordered eating behaviors in youth),[4,7,25] it would be important to gather data from both parents. For example, if parents disagree (ie, discordance) on whether they should encourage their child to be physically active, it may give mixed messages to the child about the importance of engaging in physical activity themselves. Or, if parents both agree (ie, concordance) that they engage in food restriction with their child, the child may be exposed to more food restriction overall, which may put them at even higher risk of unhealthy weight control behaviors. Thus, a comprehensive picture of the home environment may help to understand whether public health interventions need to intervene with both parents to decrease adolescent obesity risk.

Examining dyadic concordance or discordance between parents is consistent with Family Systems Theory,[26,27] which purports that the family environment is the most proximal level of influence on adolescents' weight and health behaviors. This theory indicates that agreement or disagreement between multiple family members' beliefs, perceptions, and behaviors regarding weight and health behaviors may influence young people's own weight and health behaviors for better or for worse. Specifically, in the case that there is concordance between the parental dyad about positive familial and parental home environment factors (eg, importance of family meals and being physically active with the child), then it is expected that adolescents will be more likely to engage in healthy behaviors (eg, have more frequent family meals, be more physically active). However, in the case that parents are concordant on home environment factors that are negative, such as both parents agreeing that they engage in food restriction with their child, it is expected that children will engage in more unhealthy behaviors (eg, unhealthy weight control behaviors). Furthermore, if there is discordance between the parental dyad about familial and parental factors in the home environment, then it is expected that adolescents will be more likely to engage in unhealthy behaviors (eg, more fast-food consumption and more sedentary behavior). For example, if one parent consumes fast food and sugar-sweetened beverages but the other parent does not, these mixed messages may make it difficult for the child to eat healthfully.

Thus, the current study will describe how two parents perceive familial and parental factors in the home environment and will examine the association between parental concordance and discordance on familial and parental factors in the home environment and adolescent weight and health behaviors. The two main research questions are: Do parents agree on familial and parental factors in the home environment, including how frequent family meals occur, importance of family meals, rules around media use at family meals, parent feeding practices, support for physical activity, and sedentary behaviors?; and, Is parental concordance on familial and parental factors in the home environment associated with more positive adolescent health behaviors (ie, more fruit and vegetable intake and physical activity and less fast-food consumption, unhealthy weight control behaviors, and sedentary behavior) and lower BMI percentile?

METHODS

Study Design and Population

Data for this cross-sectional analysis were drawn from two linked, population-based studies. Eating and Activity in Teens (EAT) 2010 was designed to examine dietary intake, physical activity, weight control behaviors, weight status, and factors associated with these outcomes in adolescents.[28-30] Project Families and Eating and Activity Among Teens (F-EAT) was designed to examine factors within the family and home environment of potential relevance to weight and weight-related behaviors in youth.[29] All study procedures were approved by the University of Minnesota Institutional Review Board Human Subjects Committee and the participating school districts.

For EAT 2010, surveys and anthropometric measures were completed by 2,793 adolescents from 20 public middle schools and high schools in the Minneapolis/St Paul metropolitan area of Minnesota during the 2009-2010 academic year. Eligibility criteria for adolescents included being in middle or high school in one of the 20 Twin Cities public schools and speaking English. Adolescents were given the opportunity to assent to the study if their parent/guardian returned a signed consent form approving the child's participation. Among adolescents who were at school on the days of survey administration, 96.3% had parental consent and chose to participate. The mean age of the study population was 14.4±2.0 years. Forty-seven percent of the adolescents were boys and 53% were girls. The racial/ethnic backgrounds of participants were: 18.9% white, 29.0% African American or black, 19.9% Asian American, 16.9% Hispanic, 3.7% Native American, and 11.6% mixed or other. The annual household income of participants in the EAT 2010 study included 39% earning <$35,000 per year, 22% earning between $35,000 and $49,999 per year, 17% earning between $50,000 and $79,999 per year, 14% earning between $80,000 and $99,999 per year, and 8% earning >$100,000 per year.

For Project F-EAT, data were collected by surveying up to two parents/caregivers (n=3,709) of the adolescents in EAT 2010 by mail or telephone interviews. Adolescent participants in the EAT 2010 study (n=2,793), were asked to identify up to two parents or guardians; 30% provided contact information for one parent/guardian and 70% provided information for two parents/guardians. Eligibility criteria for parents included having an adolescent in the EAT 2010 study and speaking English. Parents consented for participation in the study via sending in their completed survey. In total, 2,382