



Development of a Comprehensive Assessment of Food Parenting Practices: The Home Self-Administered Tool for Environmental Assessment of Activity and Diet Family Food Practices Survey



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ABSTRACT

Background Parents' food parenting practices influence children's dietary intake and risk for obesity and chronic disease. Understanding the influence and interactions between parents' practices and children's behavior is limited by a lack of development and psychometric testing and/or limited scope of current measures. The Home Self-Administered Tool for Environmental Assessment of Activity and Diet (HomeSTEAD) was created to address this gap.

Objective This article describes development and psychometric testing of the HomeSTEAD family food practices survey.

Participants/design Between August 2010 and May 2011, a convenience sample of 129 parents of children aged 3 to 12 years were recruited from central North Carolina and completed the self-administered HomeSTEAD survey on three occasions during a 12- to 18-day window. Demographic characteristics and child diet were assessed at Time 1. Child height and weight were measured during the in-home observations (following Time 1 survey).

Statistical analysis Exploratory factor analysis with Time 1 data was used to identify potential scales. Scales with more than three items were examined for scale reduction. Following this, mean scores were calculated at each time point. Construct validity was assessed by examining Spearman rank correlations between mean scores (Time 1) and children's diet (fruits and vegetables, sugar-sweetened beverages, snacks, sweets) and body mass index (BMI) z scores. Repeated measures analysis of variance was used to examine differences in mean scores between time points, and single-measure intraclass correlations were calculated to examine test–retest reliability between time points.

Results Exploratory factor analysis identified 24 factors and retained 124 items; however, scale reduction narrowed items to 86. The final instrument captures five coercive control practices (16 items), seven autonomy support practices (24 items), and 12 structure practices (46 items). All scales demonstrated good internal reliability ($\alpha > .62$), 18 factors demonstrated construct validity (significant association with child diet, $P < 0.05$), and 22 demonstrated good reliability (intraclass correlation coefficient > 0.61).

Conclusions The HomeSTEAD family food practices survey provides a brief, yet comprehensive and psychometrically sound assessment of food parenting practices.

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DIETARY GUIDELINES OFFER ADVICE FOR A healthful diet; that is, one that provides adequate nutrition, promotes a healthy weight, and prevents chronic disease.¹ Unfortunately, data from many countries around the world (Australia,² Europe,³ and North America^{4,5}) have demonstrated that children's eating patterns fail to meet these recommendations. For example, few children in the United States consume recommended intakes of whole grains (<1%), vegetables (7%), fruit (29%), and milk

(37%), and most exceed recommended limits for solid fats (97%) and added sugars (90%).⁴

Parents play an important role in children's socialization, including the norms and habits they adopt with regard to food and eating.⁶ Parents' behaviors shape the physical and social environment in which their children grow up, influencing their home environment as well as their children's interactions with the outside world. Food parenting practices refers to the behaviors or actions (intentional or

unintentional) performed by parents for child-rearing purposes that influence their children's attitudes, behaviors, or beliefs around food and eating.⁷ Literature in this area suggests that parent practices such as making healthy foods more available, modeling healthy eating, and providing encouragement to eat healthy foods help promote children's consumption of those healthy foods.^{7,8} In comparison, practices such as restriction, pressure, and food bribes may inadvertently promote increased intake of unhealthy foods.⁹⁻¹⁴

One of the barriers to fully understanding how the home environment and, specifically, food parenting practices, influence children's dietary intake is availability of appropriate measures.¹⁵ Although there are many measures available, they are often limited in scope and have not undergone a comprehensive process of development.¹⁵ Development often lacks clear conceptualization of what the instrument is designed to measure, fails to use systematic or informed approaches to selecting and refining items, and includes incomplete reliability and validity testing.¹⁵ To advance our understanding of how the home environment influences children's dietary intake and eating behaviors, the field needs a comprehensive measure of food parenting practices with items that have undergone a rigorous development process, including reliability and validity testing.

The Home Self-Administered Tool for Environmental Assessment of Activity and Diet (HomeSTEAD) is a newly developed instrument designed to address this gap in measurement by providing a comprehensive evaluation of home environment factors thought to influence children's diet and physical activity.¹⁶ HomeSTEAD builds on our previous work to develop the Healthy Home Survey,¹⁷ an assessment of the home environment related to children's eating and activity. Although the Healthy Home Survey provided a useful pilot measure, a more expanded instrument was needed.

For HomeSTEAD, two frameworks were adopted to help guide identification of relevant constructs and ensure comprehensive coverage. The Analysis Grid for Environments Linked to Obesity (ANGELO) framework¹⁸ and the Model of the Home Food Environment Pertaining to Child Obesity¹⁹ both recognize multiple spheres of influence—physical, political, sociocultural, and economic—that influence child weight and weight-related behaviors. When considering their application to the home environment, it resulted in the development of a four-part instrument: a home food inventory (physical food environment), a family food practices survey (social food environment), a home physical activity and media equipment inventory (physical environment around physical activity), and a family physical activity and screen time practices survey (social environment around physical activity).¹⁶ The development of this new instrument, specifically the component for the social environment around food, afforded the opportunity to develop a comprehensive assessment of food parenting practices.

The purpose of this article is to describe the development and psychometric testing of the scales related to a home's social food environment. This has been conceptualized primarily as food parenting practices.

METHODS

Methods used to develop the HomeSTEAD tool are described in detail elsewhere, but the aspects most relevant to the

development of its family food practices survey are provided below.¹⁶ All protocols were approved by the Institutional Review Board at the University of North Carolina at Chapel Hill (09-1177), and all participants provided written informed consent.

HomeSTEAD Instrument Development

HomeSTEAD's family food practices survey was developed using a mixed-methods approach, which began with identifying a theoretical framework and conducting a systematic review of the literature. Following the application of the ANGELO framework,^{18,19} a systematic review was conducted to identify current measures of food parenting practices.¹⁵ The review led to the refinement of constructs resulting in a content map of food parenting practices that has recently been published.⁷ Concurrently, items and scales from existing measures identified in this review were cataloged into a database and categorized according to the content map. When existing items were available, the research team reviewed sets of similar items and selected those that were deemed to be the most relevant for that construct. When existing items were not available, the research team developed new items. Where possible, response options were standardized across sections of the HomeSTEAD survey. For example, food parenting-related items generally used 5-point Likert-type response scales (eg, 1=never, 2=rarely, 3=sometimes, 4=often, and 5=always; or 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree).

Content validity of this initial collection of items was assessed with the help of two expert reviewers. Experts were asked to provide feedback and suggestions related to content coverage, item relevance and intention, and question format and clarity. The instrument was refined based on this feedback.

Then, one-on-one guided cognitive interviews were conducted with parents of children aged 3 to 12 years to examine clarity and comprehension of items. Participants for the cognitive interviews were recruited through newspaper advertisements, listserv notifications, and community postings. Each cognitive interview focused on just one of the four sections in HomeSTEAD, which reduced participant burden and limited interviews to 45 minutes or less. For the family food practices section, the first round of cognitive interviews included 11 parents. Content analysis of these interviews allowed problematic items to be identified, discussed by the team, and revised. Revised items underwent a second round of cognitive interviews with five additional parents, at which time items were deemed acceptable (no remaining issues regarding clarity or interpretation of items). Participants received \$15 as an incentive for participation.

At the end of this stage, HomeSTEAD included 214 items dedicated to assessment of food parenting practices.

Survey Administration

A convenience sample of 129 families with at least one child between ages 3 and 12 years were recruited for instrument testing (August 2010 to April 2011). Recruitment strategies employed were similar to those described above for cognitive interviews. The sample size was based on power calculations that would ensure adequate reliability evidence (assuming

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