



Development of an item bank for food parenting practices based on published instruments and reports from Canadian and US parents



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ABSTRACT

Research to understand how parents influence their children's dietary intake and eating behaviors has expanded in the past decades and a growing number of instruments are available to assess food parenting practices. Unfortunately, there is no consensus on how constructs should be defined or operationalized, making comparison of results across studies difficult. The aim of this study was to develop a food parenting practice item bank with items from published scales and supplement with parenting practices that parents report using. Items from published scales were identified from two published systematic reviews along with an additional systematic review conducted for this study. Parents ($n = 135$) with children 5–12 years old from the US and Canada, stratified to represent the demographic distribution of each country, were recruited to participate in an online semi-qualitative survey on food parenting. Published items and parent responses were coded using the same framework to reduce the number of items into representative concepts using a binning and winnowing process. The literature contributed 1392 items and parents contributed 1985 items, which were reduced to 262 different food parenting concepts (26% exclusive from literature, 12% exclusive from parents, and 62% represented in both). Food parenting practices related to 'Structure of Food Environment' and 'Behavioral and Educational' were emphasized more by parent responses, while practices related to 'Consistency of Feeding Environment' and 'Emotional Regulation' were more represented among published items. The resulting food parenting item bank should next be calibrated with item response modeling for scientists to use in the future.

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1. Introduction

Childhood obesity continues to be a public health concern in much of the world, and children's dietary intake is an important contributing factor to the development of obesity. Many children do not meet dietary guideline recommendations; instead their intake patterns increase their risk of developing obesity, diabetes, heart disease and some cancers (Ogata & Hayes, 2014; US Department of Health and Human Services, US Department of Agriculture, Dietary

Advisory Guidelines Committee, 2005). In the United States (US), only about 3% of 2–18 year old children met the 2005 US Dietary Guideline (US Department of Health and Human Services, US Department of Agriculture, Dietary Advisory Guidelines Committee, 2005) limits for energy from solid fats and added sugar (Kirkpatrick, Dodd, Reedy, & Krebs-Smith, 2012), while 15% and 0.5% met the recommended total fruit and vegetable intakes, respectively (Kirkpatrick et al., 2012). Moreover, merely 10–37% of US children (Guenther, Dodd, Reedy, & Krebs-Smith, 2006) and about 30–40% of Canadian children (Garriguet, 2004) consumed at least five servings of fruit and vegetables per day (lower than the 2005 US Dietary Guidelines).

Recommendations by the American Heart Association and the American Academy of Pediatrics state that prevention and treatment of childhood obesity should be targeted at the family level

Abbreviations: US, United States; NIH, National Institutes of Health; IRM, Item Response Modeling; CIHR, Canadian Institute of Health Research.

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(Barlow, 2007; Daniels et al., 2005), with a growing interest in targeting and understanding how parenting can promote healthier lifestyle behaviors in children. From this, a large body of studies has evolved to assess the impact of food parenting practices on children's food consumption. Parenting practices are the actions parents engage in to influence their child's corresponding behavior in a specific context, such as eating (Darling & Steinberg, 1993). These practices differ from parenting styles, which represent the emotional climate that a parent establishes between him/herself and their child (Darling & Steinberg, 1993).

With the growing interest in food parenting practices, numerous instruments have been developed to measure these practices. Two recent reviews identified 57 unique food parenting practice instruments for children 2–12 years old (A. Vaughn, Tabak, Bryant, & Ward, 2013) and 21 unique food parenting practices for children 0–5 years old (de Lauzon-Guillain et al., 2012). The large number of available instruments from different fields of study (e.g. nutrition, psychology, and medicine) has led to inconsistency in defining food parenting constructs. There is currently no agreement as to which parenting constructs or dimensions should be assessed by these instruments or how a specific dimension should be operationalized. What has resulted is a field in which different investigators will use a similar item to assess constructs with different labels. For example, versions of the item "Offer/Reward your child with sweets/desserts if they eat (meal or healthy option)" have been used in several measures in which the authors classified it into a different dimension, including instrumental feeding (Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002), parent-centered feeding (Hughes, Power, Orlet Fisher, Mueller, & Nicklas, 2005), practical methods (O'Connor, Hughes, et al., 2010), pushing the child to eat more (Baughcum et al., 2001), and use of rewards (Hendy, Williams, Camise, Eckman, & Hedemann, 2009). As a result, it is not always clear what these dimensions mean, how they relate, or whether they can be compared across studies. In addition, a wide range of approaches have been used to develop items for food parenting practice instruments and authors have inconsistently reported on the psychometric properties of resulting scales (de Lauzon-Guillain et al., 2012; A.; Vaughn et al., 2013), making it even more difficult to compare or aggregate results across studies.

One approach to address these measurement concerns is to utilize the framework of the NIH PROMIS initiative for developing a repository of calibrated items (i.e., an item bank) with Item Response Modeling (IRM) which has improved the assessment of patient reported outcomes (see www.nihpromis.org/ NIH PROMIS initiative) (Revicki & Cella, 1997). However, such methods have received little attention in the behavioral sciences (Måsse, Wilson, Baranowski, & Nebeling, 2006) or food parenting research (Måsse & Watts, 2013). IRM item banking provides an ideal platform for creating a repository of items in which only psychometrically-valid items are ultimately included in the item bank. Most importantly, IRM item banking provides the platform for using Computerized Adaptive Testing (CAT) which allows scientists the flexibility of selecting which items are included as relevant in a given study while maintaining the ability to compare results across studies, yet reducing participant burden (Måsse et al., 2006). The initial step in developing a food parenting practice IRM item bank is to populate the bank with published items that can be further assessed in planned future studies. These items should be "binned" or classified into the appropriate latent construct to represent the dimensions of the conceptual framework (DeWalt, Rothrock, Yount, & Stone, 2007). The pool of items should then be reduced into representative items using a winnowing process to eliminate redundancy, rewritten to eliminate double-barrelled items, and modified to clarify poorly worded items. Finally, new items should be generated

to cover missing constructs or concepts less well represented.

The specific aims of this study were to a) populate a food parenting practice item bank with published items, b) supplement the published items with parenting practices that parents report using to get their child to eat healthy (that are/were not included in the published measures), and c) examine the extent to which the parent reported food parenting practices were incorporated in published instruments. The ultimate goal is to develop an item bank of food parenting practices with expert-derived dimensions to facilitate consistent measurement of food parenting practices.

2. Methods

To develop an item bank of food parenting practices for elementary school aged children (5–12 years old), published instruments were systematically identified and scales and items were retrieved. To ensure our final item bank included those parenting practices that parents reported using, data were also collected on Canadian and US parents to determine what practices they commonly used to get their 5–12 year old children to eat healthily. After comparison with what was retrieved from the literature, the parent reported practices were used to supplement the published items to create a more complete item bank. This research protocol was approved by the Research Ethics Board at the University of British Columbia and received Institutional Review Board approval from Baylor College of Medicine.

2.1. Identifying published instruments

Published food parenting practice (food parenting practice) instruments were identified by: 1) assessing published systematic reviews for related articles, 2) conducting an additional systematic review to include recent studies, and 3) reviewing reference lists from retrieved articles to identify publications not included in the systematic reviews (Fig. 1). The process for developing the nutrition-related parenting practice item bank was conducted in parallel with identifying physical activity related parenting practice measures (Måsse et al., 2016). Therefore, instruments were also identified that included both physical activity and nutrition items.

2.1.1. Published systematic reviews

Recently published systematic reviews of food parenting practice instruments were used as a starting point to identify measures (de Lauzon-Guillain et al., 2012; A.; Vaughn et al., 2013). All articles and instruments from these reviews were obtained and evaluated to determine their inclusion in the database. If the article did not provide the complete or original measure, the original authors were contacted in attempts to obtain the items.

Articles were included in the database if they utilized measures with: a) at least one scale on parenting or caregiver behaviors related to children's eating, nutrition, or food intake; b) more than one item; c) parent, child, or proxy report; d) an English version; and e) a target population that included children between 2 and 16 years old in part or whole (in order to be comprehensive and identify those instruments within our targeted age range of 5–12 years old, such that instruments for 2–5 year olds or 10–16 years old were also included). A broad age range was included for the published articles to capture instruments assessing food parenting from preschool through adolescents to increase the pool of items. Articles that described the development or evaluation of a measure, or the modification or addition of items, structure, or psychometrics to an existing measure were also included.

Exclusion criteria were measures that: a) focused solely on breastfeeding, age of introduction of specific food groups, direct observation of behaviors, or children with clinical pathologies or

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