Eating Behaviors 24 (2017) 89–94

Contents lists available at ScienceDirect

Eating Behaviors

Mindful feeding and child dietary health

Elizabeth A. Emley *, Maija B. Taylor, Dara R. Musher-Eizenman

Department of Psychology, Bowling Green State University, Bowling Green, OH 43403, United States

ARTICLE INFO

Article history:
Received 28 August 2016
Received in revised form 15 December 2016
Accepted 19 December 2016
Available online 21 December 2016

ABSTRACT

Objective: This study examined the relationship between mindful feeding as a novel construct and parent-reported child dietary intake.
Methods: Participants (N = 497) were parents of children ages 2.9 to 7.5 recruited through Amazon Mechanical Turk (MTurk). Parents were primarily non-Hispanic white (79%) and female (76%). Simple and hierarchical regression analyses were conducted to examine the associations between parental mindful feeding (i.e., parent mental and emotional presence while feeding a child) and their children's dietary intake.
Results: Mindful feeding accounted for 5.1% of the unadjusted variance in child fruit and vegetable intake. Mindful feeding accounted for 4.2% of the unadjusted variance in child added sugar consumption after accounting for relevant covariates. Specifically, higher parental mindful feeding predicted higher fruit and vegetable intake and lower sugar intake among children.
Conclusions: Mindful feeding was associated with almost all indicators of healthier child diet, indicating great potential for this approach to improve child health. If incorporated into general or health-focused interventions for parents, mindfulness could significantly improve child health outcomes. Further development and validation of the Mindful Feeding Questionnaire is also recommended, as it could become a useful survey tool to assess for this construct.

1. Introduction

1.1. Mindfulness and health

Mindfulness is the ability to bring one's attention to experiences in the present moment in a nonjudgmental way (Kabat-Zinn, 1990). Among adults, higher mindfulness is associated with greater cardiovascular health, which is mediated by the associations between higher mindfulness and nonsmoking, lower body mass index, lower fasting glucose, and higher physical activity (Loucks, Britton, Howe, Eaton, & Buka, 2015). Mindfulness has also been associated with reduced calorie consumption and healthier snack choices (Jordan, Wang, Donatoni, & Meier, 2014).

In youth, mindfulness has also been found to be associated with eating behaviors. Higher mindfulness among adolescent (12–17 year-old) girls was associated with lower odds of binge eating and lower consumption of foods due to fatigue and boredom in the absence of hunger (Pivarunas et al., 2015). Recently, researchers have started investigating a school-based mindfulness intervention to promote healthy diet and physical activity in youth (Salmoirago-Blotcher et al., 2015) as well as a family-based mindful eating intervention for overweight youth (Oregon Research Institute, 2016). Researchers have provided a compelling rationale for creating mindfulness-based health programs for youth which aim to improve health behaviors and positively impact health (Dalen, Brody, Staples, & Sedillo, 2015). However, the development of these programs is in its infancy.

1.2. Mindful feeding

Mindful feeding is an understudied parenting variable that may be relevant to child health behavior and health outcomes. This concept has been operationalized by Meers as high mental and emotional presence while feeding a child (unpublished dissertation, 2013). In her research, Meers found that mindful feeding is related to higher general mindfulness among parents and higher mindful parenting. Specifically, mindful feeding was significantly positively associated with all factors of the Kentucky Inventory of Mindfulness Skills (i.e., non-reactivity, observation, description, acting with awareness, and nonjudgmental acceptance; Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Furthermore, she found that mindful feeding was significantly positively associated with all factors of the Interpersonal Mindfulness in Parenting Scale (i.e., present-centered emotional awareness, present-centered awareness, nonjudgmental receptivity, and the ability to regulate reactivity; Duncan, 2007, unpublished dissertation). These results suggest that parents who are more mindful in general

* Corresponding author.
E-mail addresses: emleye@bgsu.edu (E.A. Emley), maijat@bgsu.edu (M.B. Taylor), mushere@bgsu.edu (D.R. Musher-Eizenman).

http://dx.doi.org/10.1016/j.eatbeh.2016.12.002
1471-0153/

and exhibit more mindful parenting practices are also more mindful feeders.

Regarding mindful feeding and other child feeding practices, Meers found that mindful feeding is associated with various feeding practices, as measured by the Comprehensive Feeding Practices Questionnaire (Musher-Eizenman & Holub, 2007). Specifically, higher mindful feeding is related to lower use of food to regulate children's emotions, lower use of food as a reward for children, higher encouragement of balance and variety in children's food intake, and having more healthy food available in the home. These results suggest that parents who are more mindful feeders may demonstrate a profile of feeding behaviors that promotes healthy diet in children.

Research clearly demonstrates that parenting styles and various associated feeding practices are linked with child health behavior and physical and mental health outcomes (Berge, Wall, Loth, & Neumark-Sztainer, 2010; Collins, Duncanson, & Burrows, 2014; Kremers, Brug, de Vries, & Engels, 2003; Sleddens, Gerards, Thijs, de Vries, & Kremers, 2011; Zahra, Ford, & Jodrell, 2014). However, the relationship between mindful feeding as a parenting practice and child health behavior is largely unknown.

1.3. Child dietary intake and health

Consuming a nutritious diet is critical for preventing negative chronic health conditions such as diabetes, heart disease, stroke, and some cancers (WHO, 2015). According to data from the National Health and Nutrition Examination Survey (NHANES), children and adolescents overall fail to meet the American Dietary Guidelines, typically consuming too many refined grains and empty calories (e.g., added sugars) and not enough fruits, vegetables, and whole grains (Banfield, Liu, Davis, Chang, & Frazier-Wood, 2016; Ervin, Kit, Carroll, & Ogden, 2012).

Fruit and vegetable (FV) and sugar consumption are particularly important dietary components in regards to health outcomes. FV intake is associated with numerous positive health outcomes, including greater weight stability, lower waist circumference, and reduced risk of adiposity (Schwingshackl et al., 2015). It is also inversely associated with risk of all-cause mortality (Nguyen et al., 2016). Additionally, sugar intake is associated with numerous negative health outcomes, including greater prevalence of diabetes and cardiovascular disease, independent of body mass index (Basu, Yoffe, & Lustig, 2013; Weeratunga, Jayasinghe, Perera, Jayasena, & Jayasinghe, 2014; Yang et al., 2014).

1.4. Purpose of the present study

The goal of the current study was to examine the relationship between mindful feeding (i.e., parent mental and emotional presence while feeding a child) and child dietary behaviors and BMI. Mindful feeding is a largely unexplored phenomenon that has the potential to critically improve child dietary and mental health. Thus, evidence from this study will contribute to our knowledge on this topic. It was hypothesized that greater mindful feeding would be associated with lower parent BMI and child BMI percentile levels; greater fruit and vegetable, whole grain, fiber, and calcium intake; and lower added sugar and sugar-sweetened beverage intake.

2. Methods

2.1. Participants

A total of 535 adult parents were recruited from Amazon Mechanical Turk (MTurk), an online survey distributor that has been shown to provide socioeconomically and ethnically diverse samples as well as high quality data (Casler, Bickel, & Hackett, 2013). Participants were required to have at least one child between the ages of three and seven. To avoid excluding participants with a child whose age was slightly outside our criteria, children whose birthdays were within six months of this age range were maintained. This age range was chosen to examine eating patterns in pre-school to early elementary school children. Exclusion criteria included (1) parent age < 18 years old, (2) child's date of birth outside of our desired age range, and (3) non-U. S. residency. Responses were omitted from the final sample if (1) participants missed more than one quality control item, (2) the completion duration was <15 min, and/or (3) the IP address originated outside of the U.S. As a result of excluding these responses, a final sample of 497 participants were paid $0.50 for completing the 30–40-minute survey, a typical rate of payment on MTurk. Because all survey items were required, there was no missing data.

2.2. Measures

2.2.1. Mindful Feeding Questionnaire (MFQ)

This questionnaire (Meers, 2013), comprises four items that measure parent mental presence while feeding a child. These items are, "*I tend to feed my child while I am doing many other things* (Reverse coded)" "*When I feed my child, I am often distracted by other thoughts* (Reverse coded)," "*When I am feeding my child, I am completely focused on what I am doing*," and "*I rush through meals with my child without really paying attention to them* (Reverse coded)." A five-point response scale (1 = never, 5 = often) is used. In Meers' study, the internal consistency alpha coefficient of 0.73. In the current sample, the MFQ had an internal consistency alpha coefficient of 0.75.

As mentioned above, Meers found that mindful feeding shows good convergent validity with general mindfulness among parents (i.e., nonreactivity, observation, description, acting with awareness, and nonjudgmental acceptance), mindful parenting (i.e., present-centered emotional awareness, present-centered awareness, nonjudgmental receptivity, and ability to regulate reactivity), and other child feeding practices (i.e., using food to regulate children's emotions, using food as a reward for children, encouraging balance and variety in children's food intake, and having more healthy food available in the home).

2.2.2. Diet

Diet was measured using the Dietary Screener Questionnaire (DSQ; NCI, 2015). The DSQ was developed for use in the 2009–2010 National Health and Nutrition Examination Survey (NHANES). It features 26 items about the frequency of consumption of a variety of foods and drinks in the past month. This measure was modified to ask parents about their children's dietary behavior in the past month. Using an algorithm for scoring the DSQ (executed using SAS statistical software), estimations of daily fruit and vegetable (both with and without the inclusion of fried potatoes; cup equivalents), whole grains (ounce equivalents), added sugar (tsp equivalents), sugar sweetened beverages (tsp equivalents), fiber (g), and calcium (mg) consumption can be calculated. Most items were measured on a Likert scale, ranging from 0 (Never) to 9 (2 or more times per day). Modified sample items include, "*During the past month, how often did your child eat green leafy or lettuce salad, with or without other vegetables?*" and "*During the past month, how often did your child eat cookies, cake, pie or brownies? (Do not include sugar-free kinds)?*"

2.2.3. Child body mass index (BMI) percentile

Child BMI was calculated from parent-reported child height and weight. Weight was reported in pounds and height was reported in inches. BMI was calculated using the formula: (weight in pounds) / (height in inches)^2 × 703. Children's BMIs vary by age, so BMI scores were converted to BMI percentiles for age and gender (CDC, 2015). Parents who were unable to recall their child's height or weight were asked to report their child's height or weight percentile from their most recent doctor's visit if possible.