Perceptions of How Parents of Early Adolescents Will Personally Benefit From Calcium-Rich Food and Beverage Parenting Practices

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Perceptions of How Parents of Early Adolescents Will Personally Benefit From Calcium-Rich Food and Beverage Parenting Practices

Rickelle Richards, PhD, MPH, RDN1; Marla Reicks, PhD, RD2; Siew Sun Wong, PhD3; Carolyn Gunther, PhD4; Mary Cluskey, PhD, RD5; Miriam S. Ballejos, PhD, RD5,†; Christine Bruhn, PhD6; N. Paul Johnston, PhD1; Scottie Misner, PhD, RD7; Corilee Watters, PhD, RD8

ABSTRACT
Objective: To identify and rank perceived personal benefits from parenting practices that promote intake of calcium-rich foods and beverages (CRF/B) by early adolescents.
Methods: A convenience sample of parents/caregivers (n = 133) of early adolescents (10–13 years) from 6 states (CA, HI, MN, OH, OR, UT) participated in a qualitative study using a Nominal Group Technique process. Benefits identified by parents/caregivers were ranked by importance, given a score weight, and summed to create a total weighted score across states.
Results: The top benefit from making CRF/B available was parent emotional rewards. The top benefit perceived by parents from role modeling intake of CRF/B and setting expectations for intake of CRB was child health promotion.
Conclusions and Implications: Child health promotion and parent emotional rewards were important perceived benefits derived from CRF/B parenting practices, and thus, should be included as the focus of education to increase the frequency of these practices.
Key Words: adolescents, calcium-rich foods and beverages, parents, practices, availability, expectations, role modeling (J Nutr Educ Behav. 2014;46:595-601.)
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INTRODUCTION
National Health and Nutrition Examination Survey data (2003–2006) indicated that only 15% and 22% of early adolescent girls and boys (9–13 years) in the US, respectively, had intakes of calcium above 1300 mg/d from food sources. Therefore, few adolescents meet recommendations to address the role of calcium in bone health. Several studies have examined factors associated with intake of calcium-rich food/beverages (CRF/B) by adolescents, including the physical and social environment in the home, consistent with Social Cognitive Theory (SCT) constructs. The physical availability of dairy foods and milk in the home at mealtimes was positively associated with calcium intakes among a cross-sectional sample of adolescents at baseline (n = 4,079) and at follow up 5 years later (n = 1,521). The social environment involves the ability of adolescents to see parents or other adults role modeling CRF/B consumption. Based on national intake data, parent–child correlations with respect to calcium and dairy intakes were moderate for mother–daughter dyads (r = 0.30) and significantly stronger than correlations for father–daughter dyads. These findings were similar to a report by Fisher et al in which consumption of milk by girls was positively related to their

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mothers’ milk intake, and greater milk and lower soft drink intakes were related to higher calcium intakes. Survey data from 661 multi-ethnic parents showed that parental expectation for healthful beverage intake among their adolescent children was positively associated with parental calcium intake from dairy foods.\(^\text{10}\)

Qualitative semistructured individual interviews with parents of early adolescent children (n = 168) have further indicated that parents use several strategies to promote CRF/B intakes in their child.\(^\text{11}\) These included setting expectations that children would consume calcium-rich foods, making these foods available, and preparing these foods for their children. Focus group interviews indicated that parental expectations for healthful beverage intakes by adolescents were managed by making healthful beverages (eg, milk) available and accessible at home and limiting intake of beverages perceived as less healthful (eg, soft drinks).\(^\text{12}\)

Making CRF/B available, role modeling, and setting expectations for healthful beverage intakes are positive parenting practices that may influence intake of CRF/B by early adolescents; therefore, a better understanding of the underlying motivation for parents to engage in these practices is needed. Although studies examining associations between these practices and intakes by early adolescents exist, little is known about the benefits parents expect as a result of engaging in these practices. These motivational factors could serve as the basis for educational efforts to increase the frequency of positive parenting practices with respect to CRF/B. The purpose of this study was to identify perceived benefits from parenting practices that promote intake of CRF/B by early adolescents using qualitative methods and to prioritize by degree of importance.

**METHODS**

**Study Design and Data Collection**

For this qualitative study, a convenience sample of parents or caregivers of children aged 10 to 13 years (n = 133) across 6 states (California [n = 27], Hawaii [n = 21], Minnesota [n = 19], Ohio [n = 30], Oregon [n = 15], and Utah [n = 21]) participated in a series of group sessions involving a Nominal Group Technique (NGT) process (described below) from October 2010 to October 2011. Inclusion criteria were: 1) being the parent or caregiver of a child (10–13 years) and the adult responsible for food acquisition and preparation for this child; 2) having lived in the US for at least 12 months; 3) being comfortable speaking English; and 4) self-identifying as non-Hispanic white, Hispanic or Latino, Asian or Asian American, or African American, or a mixture of any of these 4 groups. Each site recruited all participants from only 1 race/ethnic group for each session to encourage participation and openness based on a common background and cultural perspective.

Prior to recruitment, each researcher chose to recruit parents from racial/ethnic populations based on previous experience conducting research with that particular group in their study location, and to gain insights on how to develop future nutrition education materials that would be culturally accepted among racial/ethnic populations of interest to each researcher in their state. This strategy was used to ensure an adequate representation of a wide variety of sociocultural perspectives on personal benefits derived from parenting practices. Perceived benefits from parenting practices (making CRF/B available, role modeling CRF/B intake, setting healthy beverage expectations) were explored with 5–6 group NGT sessions per practice, for a total of 16 sessions across all states. Each state conducted 1 session for each parenting practice, except Oregon (n = 2; making CRF/B available and setting expectations), Hawaii (n = 2; both role modeling), and Utah (n = 3; making CRF/B available and 2 for setting expectations). Each parent participated in only 1 session. The total number of participants across sessions for each parenting practice was: making CRF/B available (n = 39, 29%), role modeling (n = 49, 37%), or setting expectations for healthful beverage intake (n = 45, 34%).

Participants were recruited using fliers, e-mail, verbal and written announcements in bulletins or newsletters, personal contacts, and presentations at groups. Organizations and groups involved in this study included Cooperative Extension Service (eg, Expanded Food and Nutrition Education Program), community centers, food shelves/pantries, faith-based groups, after-school programs, schools, sports teams, scouting groups, and adult groups. Sessions were conducted with parents/caregivers in various settings, such as university conference rooms, church meeting rooms, parks, community centers, libraries, and athletic facilities. Sessions lasted between 60 and 105 minutes. In return for participation, parents were given cash, gift certificates/cards, or merchandise per each institution’s remuneration guidelines. All groups were conducted in English, except for 2 states where some phrases were translated into Spanish or Mandarin for clarification. The study protocols were approved by the institutional review board of each participating university, and each participant provided informed consent.

**NGT Procedures**

NGT is a qualitative research method that helps generate ideas about an unknown phenomenon through a 4-stage process in which individuals silently reflect on a question and write down thoughts, the group members’ ideas are shared in a round-robin fashion, the group discusses each idea for clarification, and individuals rank the ideas presented based on those felt to be of highest priority related to the initial question.\(^\text{13,14}\) Advantages to using NGT methodology include the ability to have all group members share ideas equally, without any one person dominating the conversation or ideas presented; to provide an environment in which every idea is considered; to enhance an individual’s commitment to generating ideas because of the written portion of the NGT process; and to minimize judgment errors of researchers in pooling respondents’ thoughts about the question, because of the group ranking process.\(^\text{13,14}\) In this study, NGT sessions were conducted using a standardized script that was
developed and used by all interviewers to ensure that all group sessions were conducted in a similar manner. The scripts were pretested in 5 states by researchers who had previously attended training regarding focus group methodology with parents who were graduate students, faculty, staff, or community members. In all sessions at each site, 1 researcher served as moderator and an assistant moderator took notes during the discussions. The NGT script included the 4 NGT steps, including individual reflection, information sharing, clarification of responses, and group prioritization.

First, each participant was asked, on an individual basis, to brainstorm or think of as many answers as possible to a central question about the session's parenting practice, and to list them on an empty sheet of paper. For example, for the sessions addressing the practice of making CRF/B available, the question provided was: “When I have (THESE FOODS) in my home so that my child will eat them, I will personally benefit in this way.” For setting expectations for healthful beverage intake and role modeling intake, the first phrase in the question was replaced with: “When I have rules or expectations about (THESE BEVERAGES) for my child,” and “When I set a good example about eating and drinking (THESE FOODS) for my child,” respectively. The term “THESE FOODS/BEVERAGES” was replaced by another term/phrase the group agreed to use to describe CRF/B.

Second, participants presented their individual responses one by one in a round-robin oral presentation format while the moderator recorded each response on a white board or flip chart. The third step involved clarification of each response with a discussion among all participants in the group. The moderator asked participants to indicate if there were comments or questions about each response to make sure everyone understood each response the same way. Lastly, each participant identified his/her top 3 responses on an individual basis and then ranked them according to degree of importance where 3 = most important, 2 = second, and 1 = least important. No additional benefits were identified in the last session for each practice that had not already been identified in previous sessions, indicating data saturation.

Data Analysis

Descriptive statistics were used to characterize the sample regarding demographic characteristics (SAS, version 9.2, SAS Institute, Inc., Cary, NC, 2007). Chi-square tests were used to determine whether differences existed in participant characteristics by session topic (availability, role modeling, and setting expectations); \( P < .05 \) for statistical significance. All benefits to engaging in parenting practices identified from the final ranking step (availability sessions, \( n = 45 \) benefits; role modeling sessions, \( n = 32 \) benefits; and setting expectations sessions, \( n = 49 \) benefits) were sorted into similar categories independently by 2 investigators who have extensive experience (10+ years) and expertise in qualitative research methods/analysis. When opinions diverged, agreement was reached through open discussion. Benefit categories were named jointly by the 2 investigators, with a final total of 8, 7, and 8 categories for availability, role modeling, and setting expectations sessions, respectively.

Within each benefit category, the number of votes ranking a benefit as important (most, second, or least) was summed. A weighted score for each benefit category was also calculated by multiplying the number of votes for each benefit included in the category by its ranking (3 = most important, 2 = second, or 1 = least important). Weighted scores were then summed across states to create a total weighted score for each benefit category. For example, under the “expectations for healthful beverages” parental practice, the weighted scores for the “child health promotion” benefit category by state were summed together to equal 94 (17 + 17 + 35 + 10 + 15). The perceived importance of benefits by categories was assessed by the number of votes, the total weighted scores, and the number of sessions for each parenting practice where benefit categories were ranked as important. For example, “child health promotion” was the most important benefit category for the parent practice of setting expectations, because the total weighted scores across states was the highest for this benefit category (94 vs 14-51 for other benefit categories) and the number of states with participants identifying the benefit category was the highest (5 states vs 2-4 states for other benefit categories).

RESULTS

The majority of participants were 31–51 years of age, mothers, and had some college education or were college graduates. No differences were observed in participant characteristics by session topic except for employment. Participants in the role modeling sessions were more likely to be employed full-time compared to participants in the availability and setting expectation sessions (\( P = .007 \)).
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CA indicates California; CRF/B, calcium-rich foods/beverages; HI, Hawaii; MN, Minnesota; OH, Ohio; OR = Oregon; UT-BYU, Utah – Brigham Young University; UT-USU, Utah – Utah State University.

*Number of participants includes 1 parent who participated in generation of benefits and discussion, but did not rank votes according to directions, so their rankings were not included in the Table; *This site conducted 2 Nominal Group Technique groups for Role Modeling (n = 10 and n = 11); Missing data across both groups, n = 12 (12 participants cast only 2/3 votes); *Missing data, n = 1 (1 participant did not submit any votes).
For the parenting practice of making CRF/B available in the home, the benefit category with the highest total weighted score was emotional rewards for parents, closely followed by promotion of child health (Table 1). Participants in 3 of the 5 groups ranked parent emotional rewards as important. Emotional rewards from making CRF/B available in the home included pride, confidence, and relief from stress/worry. Parents described these benefits in the following ways: “sleep better knowing children are healthy”; “pride in having happy, active, and healthy kids”; “confidence in knowing will have healthy children”; “prevents osteoporosis when they are older”; and “peace of mind/doing good job as mom/satisfaction/feeling like better parent.”

Child health promotion was ranked as the top 1 or 2 benefit categories for all 3 parenting practices based on total weight scores and on the number of sessions where this benefit category was ranked as important. Benefits in this category included short- and long-term health impacts. Parents described these benefits in the following terms: “strong bone structure now and good growth”; “active/energetic in sports and other activities”; “healthy now and building a foundation for healthier adulthood”; and “strong bones later in life and not having osteoporosis.” Participants also cited general health benefits (good health for their child) in addition to specific health benefits (healthy bones and teeth).

Child nutritional benefits were also ranked as important for the practices of making CRF/B available and setting expectations for healthful beverage intakes based on total weighted scores. Further, the frequency with which participants ranked child nutrition benefits as important for making CRF/B available and setting expectations was 4 of 5 groups and 4 of 6 groups, respectively. These benefits were described in specific and general terms (healthy eating habits; calcium and vitamin D; balance diet/satisfy food groups).

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DISCUSSION

The findings from the current study indicated the importance of child health promotion and parent emotional rewards as key perceived benefits that may motivate parents to engage in at least 2 practices regarding CRF/B. Behavior change strategies intended to improve dairy food and calcium intakes among early adolescent children were identified in a review of intervention studies. These studies evaluated effectiveness of the strategies within an intervention, but, however, motivation for engaging in the specific parenting practices was not explored. For example, nutritionists made milk available to Chilean children (8–10 years) through weekly home deliveries, provided instructions to parents about how children were to consume the milk, and encouraged parents to remove sugar-sweetened beverages from the home. In an intervention with children (10–13 years), parents were taught to use behavior management techniques, including modeling, to increase intake of calcium-rich foods.

One study that did examine parental motivations was conducted with parents of younger children and focused on specific vegetable parenting practices. Black, Hispanic, and white parents of 3- to 5-year-old children described motivations based on attitudes, emotions, norms, and perceived behavioral control. Attitudes included child health issues such as having energy, developing good eating habits, having a healthy weight, and increasing vitamin intake. Emotions included positive or negative reactions to acceptance of new and familiar foods. The role of emotions in parenting practices was also explored by others who asked mothers with at least 2 children < 18 years of age at home to evaluate the personality of the food preparer when vegetables were served with an entrée. Those who served vegetables were thought to have positive personality characteristics with respect to caring for others, compared to those who didn’t serve vegetables. Although these findings were based on different parenting practices among parents with children in other age groups, they generally support the concept that emotional rewards are important motivators. These emotional rewards may be universal for parents who acknowledge that they are doing the best for their children in terms of providing healthful foods.

Parents reported experiencing an emotional or internal reward when making calcium-rich foods and beverages available based on feeling like a good parent or feeling less stress or worry. This interaction demonstrates the concept of reciprocal determinism in the SCT, in that parents make CRF/B available (behavior) for their children to access at home (environment) and, in turn, this behavior provides parents with affirmation of being a good parent and feeling less worried (personal), which may serve to reinforce future purchasing behaviors (environment). Parents reported a benefit of long- and short-term physical health for their child when engaging in the parenting practices of setting expectations and role modeling. In relation to the SCT, these findings suggest that the anticipated effects or outcome expectations (personal) of parents' behavior with respect to their children's health may motivate them to set expectations at home (environment) or to have children learn through observing their actions (behavior). Collectively, the variety of benefits identified in the current study indicates that SCT can be used to guide the development of an intervention to encourage CRF/B parenting practices.

A unique observation in the current study was that primary caregivers were more likely to identify perceived benefits for their child (instead of for themselves) for engaging in CRF/B parenting practices. All of the phrases used to describe a parent emotional reward were based in part on child health. For example, mothers felt relief from worry if their child was healthy or they felt proud of having a healthy child. Madden and Chamberlain discussed the complexity of motivations for women with children to engage in dietary practices in the context of their everyday lives as guardians. Focus group discussions indicated that, based on the mothers' role as a nurturer, those who do not engage in “correct” dietary practices were thought of as immoral. This was true in the context of being self-indulgent or not focused on the health of their children. Therefore, identifying motivations based on their own emotional reward instead of child health may be difficult for mothers because of their strongly ingrained role as a nurturer. Consistent with this suggestion is the finding that among parents of children (12–13 years), the strongest associations between children’s eating patterns and parental food choice motives involved family health.

LIMITATIONS

This study provided a unique methodology (NGT) to obtain parental consensus on the motivators or benefits derived from parenting practices to encourage consumption of CRF/B. The study provided a multi-state perspective with a diverse sample of subjects. However, the education level of the subjects included a majority with a college degree, thus, the sample does not reflect the educational profile of the US in general or among the ethnic groups represented. The limitations may include subjects' challenges in identifying or articulating what motivates their behavior. Thus, although the NGT process assisted in prompting the process of idea generation, it may also have limited other motivators that were not suggested. Other limitations included not measuring parents' level of nutrition knowledge, their actual dietary intake, or the intake of their child, which likely decreases the validity of the study findings.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Previous research has tested the frequency of use of parenting practices to improve intake of CRF/B among early adolescents, but not the motivations underlying these parenting practices. The current study provides preliminary findings to better understand these motivations, which could be used in future quantitative studies to further explore the underlying motivations for parents/caregivers to encourage the intake of CRF/B. Future research could also explore whether the identified benefits under each parenting practice influence actual CRF/B intake of early adolescents.
This study suggests that intervention messages and content related to making CRF/B available might benefit from focusing on child health or parent emotional rewards, and messages/content related to setting healthful beverage expectations may need to focus primarily on child health or teeth (both now and later in life).

ACKNOWLEDGMENTS

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REFERENCES