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A Model of Goal Directed Vegetable Parenting Practices

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Abstract

The aim of this study was to explore factors underlying parents' motivations to use vegetable parenting practices (VPP) using the Model of Goal Directed Vegetable Parenting Practices (MGDVPP) (an adaptation of the Model of Goal Directed Behavior) as the theoretical basis for qualitative interviews.

In-depth interviews with parents of 3–5-year-old children were conducted over the telephone by trained interviewers following a script. MGDVPP constructs provided the theoretical framework guiding script development. Audio-recordings were transcribed and analyzed, with themes coded independently by two interviewers. Fifteen participants completed the study. Interviews elicited information about possible predictors of motivations as they related to VPP, and themes emerged related to each of the MGDVPP constructs (attitudes, positive anticipated emotions, negative anticipated emotions, subjective norms, and perceived behavioral control). Parents believed child vegetable consumption was important and associated with child health and vitality. Parents described motivations to engage in specific VPP in terms of emotional responses, influential relationships, food preferences, resources, and food preparation skills. Parents discussed specific strategies to encourage child vegetable intake. Interview data suggested parents used diverse VPP to encourage child intake and that varied factors predicted their use. Understanding these factors could inform the design of interventions to increase parents' use of parenting practices that promote long-term child consumption of vegetables.

Keywords

eating behavior; food parenting practices; behavioral theories; Model of Goal Directed Behavior; preschooler nutrition

Introduction

Vegetable intake has been consistently and inversely associated with chronic disease risk (World Health Organization, 2003; Riboli & Norat, 2003; World Cancer Research Fund, 1997; Hu, 2003) and metabolic syndrome in children (Ventura et al., 2008). Despite the benefits of frequent vegetable intake, consumption of the low-energy, nutrient-dense

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varieties of vegetables fell below recommended levels in all age groups (Krebs-Smith, et al., 2010), while consumption of sweetened carbonated beverages, grain-based desserts, high-fat dairy products, and fatty meats was high (Bachman, et al., 2008). Food consumption patterns in childhood predicted adolescent (Cutler, Flood, Hannan, & Neumark-Sztainer 2009) and adult consumption patterns (Singer, Moore, Garrahie, & Ellison, 1995). Thus, establishing healthy eating habits early in life should decrease lifetime disease risk. Development of child dietary behavior was in part influenced through parents' use of food parenting practices, which are actions or behaviors designed to influence children's eating behavior (Darling & Steinberg, 1993). Substantial correlational evidence supports relationships between the use of food parenting practices and child attitudes toward food (Nicklas et al., 2001), child food intake (Bante, Elliot, Harrod, & Haire-Joshu, 2008; Brown, Ogden, Voegele & Gibson, 2008; Wardle, Carnell, & Cooke, 2005) and child body weight (Ventura & Birch, 2008; Brown, Ogden, Voegele & Gibson, 2008). What motivates parents to engage in specific food parenting behaviors remains unclear. Understanding influences on these behaviors could inform the design of interventions to increase parents' use of "effective" food parenting practices, i.e. those that promote child consumption of low-energy, nutrient-dense foods, thereby decreasing chronic disease risk.

Behavioral theories specify variables and interrelationships that may provide mechanisms through which behavioral change procedures can affect outcome behaviors (Baranowski et al., 2003). These variables have been labeled "mediating variables" (Baranowski et al., 2003). The Theory of Planned Behavior (TPB) (Ajzen, 1991) posits that behavior is a function of intentions, which in turn are a function of attitudes, norms, and perceived behavioral control, and has been highly predictive of health behaviors (Baranowski et al., 2003). The Model of Goal Directed Behavior (MGDB) (Bagozzi, Baumgartner, & Pieters, 1998) is an expansion of TPB that enhanced its predictiveness (Perugini & Bagozzi, 2001) through the addition of emotions and desires (intrinsic motivations) (Taylor, Bagozzi, & Gaither, 2005). This study explored factors underlying parents' motivations to use food parenting practices, adapting MGDB Vegetable Parenting Practices (MGDVPP) as the theoretical basis for qualitative interviews [Fig. 1].

Methods

Participants and Recruitment

Recruitment methods included flyers posted throughout the Texas Medical Center and announcements posted to the Baylor College of Medicine and Texas Children's Hospital websites. Additionally, participants were recruited from the Children's Nutrition Research Center's volunteer database. Eligibility was determined by a brief, online screening questionnaire, which determined whether the respondent read and understood English, and was the primary caregiver of a 3–5-year-old child. Respondents were excluded if they or their child had a disease or condition that resulted in atypical food intake patterns (i.e. a food allergy or G.I. disorder) that might impact vegetable consumption. The full study protocol was reviewed and approved by the Institutional Review Board at Baylor College of Medicine.

Procedures

Eligible respondents who provided written informed consent were invited to complete an online demographic survey and were scheduled for a phone interview. Two members of the research team were trained to conduct one-on-one in-depth telephone interviews with participants, following standard procedures (Krueger, 1998). The research team developed the interview script using constructs from the MGDVPP [Fig. 1] as the underlying theoretical framework. The script consisted of twelve open-ended questions with suggested

prompts and probes, and interviewers were trained to follow up questions with these prompts and probes as appropriate. (See Table 1.)

Prior to conducting interviews with participants, each interviewer pilot-tested script questions with colleagues who had a child between the ages of 3 and 5. Four practice interviews were conducted by phone and audio-recorded, and interviewers independently coded all four interviews. The study trainer, an expert in the conduct of focus groups, interviews, and in the collection and analysis of qualitative data, reviewed the audio-recordings and codes and provided feedback to both interviewers.

All participant interviews were conducted in English between December 2008 and February 2009. Verbal permission was obtained for audio-recordings at the time of the interview. Participants were mailed a $20 cheque after completing the interview.

Data Analysis

Data collection and analysis were undertaken concurrently. Data were coded and analyzed using deductive thematic analysis as described by Braun & Clarke (Braun & Clarke, 2006). A codebook was developed by the research team to facilitate analysis. Five broad categories corresponding to the constructs of the MGDVPP formed the basis for the codebook (attitudes, subjective norms, perceived behavioral control, positive anticipated emotions, and negative anticipated emotions as they related to vegetable parenting practices). Each category was assigned a label (e.g. “attitudes”), a definition (e.g. “product of behavioral beliefs”), and a brief description of how to know when to categorize a finding under that particular code or label (e.g. “participant expresses their experiences or perceptions in terms of perceived outcomes and value placed on those outcomes”) (See Table 1 for details on each MGDVPP construct).

Audio-recordings of interviews were professionally transcribed in batches of five. Transcription accuracy was verified by the primary interviewer who listened to the recording while reading the corresponding transcript. Modifications were made as needed to ensure accuracy. Both interviewers independently read all approved transcripts, summarized interview data, created a summary of responses to each question, and identified initial themes that emerged from the data. Interviewers met weekly during this process to compare findings and to resolve inconsistencies in coding. All data (including transcripts) were entered into NVivo to facilitate organization, coding, retrieval, and analysis of data.

The research team met regularly to discuss and interpret study findings. Themes that emerged from the data were expanded and refined over time as additional interviews were conducted, and participant responses overlapped.

Results

Fifteen participants completed the study. Interviews lasted between 30 and 45 minutes. Participants identified themselves as Black, Hispanic, or White [Table 2]. All but two participants were female. Repetition of participants’ responses was observed after the eighth interview, and theoretical saturation (Corbin & Strauss, 2008) was confirmed with the remaining seven interviews. Themes identified from interview data were summarized in relation to MGVPP constructs [Table 1].

Attitudes toward vegetable parenting practices

Parents reported varied reasons why child vegetable consumption was important to them, including child health, weight management, and cognitive function. One mother said, *“Because they’re good nutritional foods for their body. And their brain development is still*

pretty much in gear, and I just want them to have good eating habits in the long run." Helping their child develop healthy eating habits, meeting the Dietary Guidelines, and having enough (and the right kind of) fuel for physical activity were additional reasons why their child's vegetable consumption was important to parents. Parents articulated expectations of child behavior and health status associated with consumption of the daily recommended amount of vegetables (3 servings) including improved energy (vitality), development of good eating habits, setting a good example for others (e.g. younger siblings), being more open to trying new foods, achieving and maintaining a healthy weight, and increased vitamin intake. As one father stated, *"You can tell the difference in the way your kid acts giving them some fresh good foods, wholesome foods. And I think that's the best benefit for her where she can function better and concentrate better and feel better."* When parents were asked what they thought would happen if their child *did not* eat at least 3 servings of vegetables each day, parents suggested negative child outcomes such as increased behavioral problems (e.g. poor concentration), nutrient deficiencies, increased preference for junk food, gastrointestinal issues (e.g. constipation), or more frequent illness. In one mother's words, *"It's very important because I worry if she's getting enough iron and vitamins because sometimes when I take her to the doctor, he'd say it's just a little bit on the low side. So, I'm trying to make sure it's done everyday."*

Conversely, the majority of parents didn't see disadvantages to their child eating 3 or more servings each day, although several parents suggested increased costs or increased food waste would be associated with more frequent vegetable purchases. One concerned parent stated, *"Not only can it be costly to purchase it, as opposed to some other less healthy options, but then if it's not used within a short amount of time then it gets thrown out."* Several parents mentioned the possibility of increased pesticide exposure with increased vegetable consumption if food was not properly washed and peeled, while another parent suggested the possibility of their child developing a vegetable aversion if "forced" to eat 3 or more servings daily.

Positive and negative anticipated emotions for vegetable parenting practices

To explore the potential role of emotions in food parenting motivation, parents were asked to imagine offering their child an unfamiliar vegetable; a familiar, liked vegetable; and a familiar, disliked vegetable, and then describe their feelings when they imagined their child eating or rejecting each of these foods.

When parents imagined their child eating a previously unfamiliar vegetable, most parents described their own responses as "I would be happy" and "I would be [pleasantly] surprised." Several parents were neutral and did not ascribe any emotional response to this scenario. When asked to imagine that their child *refused* to eat a vegetable that was unfamiliar to him/her, about half of parents used negative emotional descriptors such as "challenged," "disappointed," and "frustrated," while the other half said they would not be surprised or would feel neutral.

When asked to imagine that their child ate a familiar, liked vegetable, more parents reported neutral emotional responses, which many said was due to the fact that this behavior was consistent with their child's typical behavior. However, when parents imagined their child refusing to eat a familiar, liked vegetable, many parents said they would feel disappointed or upset, and that they would be concerned that their child was ill or believed that their child might be playing a game. As one mother stated, "I would wonder why he doesn't want to eat it. I would tell him to at least give it a try and see."

When asked to think about their child eating a familiar, *disliked* vegetable, parents expressed a range of positive emotional responses, including surprise, excitement, happiness, as well

as a "sense of accomplishment" or "feeling proud" about their child's behavior. One mother described her response as, *"I'll be excited. Well, wow, you know, her mind is like open."* When asked to imagine their child refusing to eat a familiar, *disliked* vegetable, parents reported primarily negative emotions, including feelings of disappointment, frustration, and distress. A mother described her frustration as *"I probably wouldn't be surprised because I know he doesn't like it. But I would still be discouraged ... it's not that he doesn't like it, it's that he won't try it. And so I get frustrated and irritated sometimes."* As before, several parents were neutral in their responses.

Subjective norms for vegetable parenting practices

Parents were asked to name the people who were most important in determining whether and how often vegetables were served to the family. Parents most frequently named their spouse or partner followed by their child or children. Spouses or partners were often reported as nutrition role models for the family. One mother described her and her husband's roles as "I think it's very important for us both because we're role models. My husband is pretty big on health and he eats vegetables. So when I don't feed him vegetables, he goes, 'there's no vegetables.'" Mother or mother-in-law, siblings or sisters or brothers-in-law, and friends were also cited by some as persons whose opinion mattered. As one parent said, "My mom has had some health conditions so she has changed the style of eating that she normally would eat. I'd like to have her approval, and I'd very much like to show her that I am making a conscious effort to feed my son good food." When parents were asked how important it was to their spouse or partner, friend, sibling, or parent that their child ate at least three servings per day, all parents said it was "important" or "very important."

Perceived behavioral control related to vegetable parenting practices

While all parents emphasized it was very important for children to eat adequate amounts of vegetables each day, most stated that their children did not regularly meet vegetable consumption guidelines. Reasons for not meeting the guidelines were often framed as "being in a struggle" or a "losing a battle" with children. As one mother put it, *"Well, it's important. I would like for her to but I just know that it's a losing battle."* Child vegetable preferences, parent and spouse or partner vegetable preferences, vegetable availability in the home, availability of other foods in the home, and parent food preparation skills and resources were also reported as barriers to child vegetable consumption.

Food preferences were among the most often reported factors influencing child vegetable consumption. Parents spoke of their child's preferences for meat over vegetables, hesitation to try new vegetables, preferences for (or aversions to) specific food textures or consistencies, and preferences for specific food presentation styles as examples of significant influences on child vegetable consumption. As one mother stated, *"She doesn't eat enough vegetables, and it's because she doesn't like hardly anything ... I literally bribe her most of the time to eat something."* Parents sometimes cited their own dislike of vegetables as a barrier to their child's consumption of these foods. In one mother's words, *"She's a meat lover so she likes to consume her meat first prior to eating her vegetables. And she's not the only one."*

Availability of vegetables in the home and the related issues of cost, time, and preparation or cooking skills were also deterrents to some parents. Perceived lack of time to prepare these foods was a repeated theme, as was a perception of increased expense associated with purchasing vegetables. Several parents reported that while vegetables were available in their home, children chose snack foods rather than vegetables since they were easier to grab and eat, and parents preferred these foods since they required little to no preparation. One mother explained, *"Sometimes the problem is for me to make sure that I have this peeled or*

chopped or prepared … a lot of times he'll say, "I'm hungry" by the time I get the food ready he's already like bugging me for some crackers or something else." Several parents also said that they did not prepare vegetables due to lack of cooking or presentation skills, or a limited repertoire of vegetable recipes.

When asked how they might overcome these challenges, parents suggested specific practices that they have used or could use to increase their child's vegetable intake including bribing their child with other more appealing foods, hiding vegetables in foods to "disguise the taste", learning and using more kid-friendly preparation and serving methods, increasing availability and accessibility of vegetables in the home, and getting older siblings to role model healthy eating.

When asked who they go to for help to get their child to eat vegetables, parents cited friends, family members, caregivers, pediatricians, and the media. One mother said, *"I would ask friends what they do or try. Internet is second probably. Look at the recipe and try it and see what could be kid friendly."* When asked to rate overall how difficult it was to get their child to eat vegetables, all parents in our sample rated this task as 'somewhat difficult.'

Discussion

Guided by the Model of Goal Directed Vegetable Parenting Practices (MGDVPP), this study explored factors that motivated parents to use vegetable parenting practices, including parental attitudes, positive and negative anticipated emotions, subjective norms, and perceived behavioral control. All parents stated that regular vegetable consumption was very important for their child's health and well being, however, the majority of parents reported their child did not meet dietary recommendations. This supports previous findings that knowledge is necessary, but not sufficient to motivate diet-related behavior change (Contento, 1995). Parents reported many perceived barriers to child consumption of vegetables, and described possible strategies they might use to overcome these challenges.

A novel finding of our study was confirmation that parents were able to describe their motivations to engage in child feeding interactions and the use of specific food parenting practices in terms of emotions. Interestingly, several parents were neutral when asked to describe their responses, even though they were encouraged to talk about their experiences in terms of how they felt.

Strengths of our study included the use of a behavioral theory highly predictive of desires/motivations to engage in behavior, the use of vegetable parenting practices as a dependent variable, and the inclusion of emotional variables in explaining parental motivations. Additionally, parents were recruited from diverse racial/ethnic and socioeconomic backgrounds. Limitations included data collection from one geographic region, and predominantly female participants. Although interviewers were trained to ask questions and respond with open-ended questions, prompts and probes, it is possible that some parents may have provided socially desirable responses, i.e. describing what they believed 'good' parents would do when confronted with a similar situation rather than what they actually think, feel, or do. Multiple interviews with a larger sample are warranted in order to stratify findings by race/ethnicity as well as socioeconomic status.

While parenting practices have shown promise as a means to positively influence child fruit and vegetable intake (Hughes, O'Connor, & Power, 2008; O'Connor et al., 2009), reasons why parents might use specific practices have not been explored. Future research should continue to examine motivations for the use of specific food parenting practices, and explore mechanisms to move parents from thinking to engaging in a particular approach or behavior. If anticipatory emotions are determined to substantially contribute to parents' motivation to

use specific food parenting practices, a better understanding of the emotional context of parent-child feeding behavior will be necessary to develop effective interventions.

Related topics that would benefit from further exploration, include a better understanding of the dominant socio-cultural norms surrounding child vegetable intake – specifically, their origins and how these norms shape parents' attitudes and behaviors; and, why partners and family members are positioned as powerful others with regard to food parenting practices.

It has been suggested that advances in basic behavioral research will help advance the effectiveness of diet interventions to change behavior (Baranowski, 2006). One goal of this study was to identify items for a questionnaire on the constructs in the MGDVPP, and parental responses collected as part of this study will provide the basis for questionnaire items. The next step in this line of research will be to develop those items and validate a measure of the MGDVPP constructs.

Parents are a highly heterogeneous population with diverse motivations for their use of food parenting practices (Ventura, Gromis, & Lohse, 2010). Understanding these motivations will allow interventions to be designed to address these factors and enhance the relevance of suggested strategies to the participants' lives, thereby increasing the probability that parents will adopt and use effective strategies as their own.

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- Explore factors underlying parent motivations to use vegetable parenting practices
- Use of a behavioral theory highly predictive of motivations to engage in behavior
- Inclusion of emotional variables to help explain parental motivations
- Parents reported using diverse practices to encourage child vegetable intake

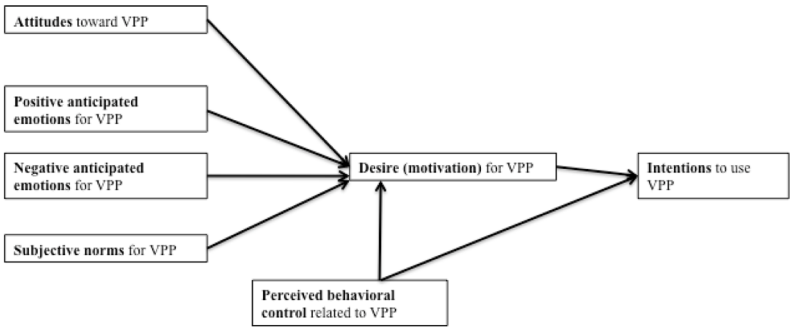

Figure I.
Model of Goal Directed Vegetable Parenting Practices (VPP)

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Table 1

Model of Goal Directed Behavior Vegetable Parenting Practices (MGDVPP) Codebook and Themes, n=15 interviews

MGDVPP Constructs and Construct Definitions • **Interview questions based on MGDVPP constructs**	**Themes**
Attitudes toward VPP = product of behavioral beliefs; attitudes are assessed in terms of perceived outcomes and value placed on those outcomes; these reflect the reasons for acting	
• How important, if at all, is it to you that your child eats at least 3 servings of vegetables each day? Tell me your reasons for saying that.	Child has better functioning; Develop good habits; Follow nutrition guidelines; More energy for activity; Better health; Help with weight management; Important but parent doesn't do it
• What are some good things that might happen if your child ate at least 3 servings of vegetables each day?	Child will be healthier, have more energy; Develop good habits; Exposes to variety of new foods; Good example for others; Helps with weight management; Increased vitamin intake
• What are some bad things that might happen if your child ate at least 3 servings of vegetables each day?	Costs associated with buying preparing vegetables; GI effects (gas, constipation); No bad effects from eating vegetables; Pesticide exposure; Child won't like them in future
• What are some good or bad things that might happen if your child did not eat at least 3 servings of vegetables each day?	Child will be frequently sick; Malnutrition; be deficient in nutrients; would have bad eating habits GI effects; Possible obesity risk
Positive anticipated emotions for VPP = emotional reactions to the prospect of successful decision enactment (e.g. excited, happy, delighted, glad, satisfied, self- assured, proud)	
• How would you feel if your child ate the vegetable that was new to him/her?	Excited; Feels good; Feels great; Happy; Neutral; Surprised
• Now imagine you're trying to get your child to eat a vegetable that he/she likes. How would you feel if your child ate that vegetable?	Excited; Neutral; Happy; Proud
• Now imagine you're trying to get your child to eat a vegetable that they don't like. How would you feel if your child ate that vegetable?	Confused; Excited; Neutral; Happy; Proud; Sense of accomplishment; Surprised
Negative anticipated emotions for VPP = emotional reactions to the prospect of failing to enact the decision (e.g. angry, frustrated, guilty, ashamed, sad, disappointed, depressed, worried, uncomfortable)	
• How would you feel if your child refused to eat the vegetable?	Challenged; Disappointed; Frustrated; Hurt; Neutral; Unsurprised; Perplexed; Upset
• How would you feel if your child refused to eat the vegetable?	Confused; Disappointed; Frustrated; Thinks child is playing game; Upset; Wonder if child is sick
• How would you feel if your child refused to eat the vegetable?	Challenged; Disappointed; Frustrated; Hurt; Neutral; Upset
Subjective norms for VPP = normative beliefs that result in perceived social pressures; assessed as social pressures by significant others and one's motivation to comply with their expectations	
• Think about the people in your life who are most important in determining what foods you serve. This can be in positive or negative ways. Who are you thinking of?	Spouse; Mother; Siblings; Mother-in-law; Children; Friends;
• On a scale from 1 to 3, where 1 is "not at all important" and 3 is "very important," how important, if at all, do you think it is to *[RELATIONSHIP]* that your child eat at least 3 servings of vegetables each day?	Important Very Important

MGDVPP Constructs and Construct Definitions • **Interview questions based on MGDVPP constructs**	**Themes**
Perceived behavioral control related to VPP = control beliefs; how easy it is to perform the behavior related to past skill, experience, ability, confidence, and a reflection of perceived barriers (e.g. time, opportunity, money)	
• Please tell me about any problems you have getting your child to eat vegetables - probe [child preferences]	Child a picky eater; prefers meat to other foods; wants to eat the same foods all the time; has fear of new foods; Texture, consistency, presentation a problem
• Please tell me about any problems you have getting your child to eat vegetables - probe [parent preferences]	Other family members like foods prepared differently; Parent doesn't like vegetables; Spouse or partner doesn't like vegetables
• Please tell me about any problems you have getting your child to eat vegetables – probe [home environment]	Child would eat if it was available; Other snack foods compete with vegetables; Produce spoils quickly; High cost of vegetables
• Please tell me about any problems you have getting your child to eat vegetables – probe [food preparation skills]	Lack of cooking skills; Lack of presentation skills; Lack of recipe ideas; Time consuming to prepare vegetables compared to snack foods
• “You mentioned [RESTATE BARRIER PARTICIPANT CITED ABOVE] is a problem in getting your child to eat vegetables. How might you solve this problem?”	Bribe child with favorite foods; Force to eat vegetables; Hide vegetables in other food; Negotiate with child; Prepare food differently; Role model eating vegetables

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Table 2

Participant and Child Characteristics , n=15 interviews

Parent Characteristics	**n**
Total N	15
Parent Race/Ethnicity	
White	5
Black	5
Hispanic	5
Parent Gender	
Female	13
Male	2
Marital status	
Married	12
Single	2
Divorce, separated or widowed	1
Household Income	
<$30,000	3
$30,000–$60,000	5
≥$60,000	7
Employed	
Yes	9
No	6
Highest Household Education	
High school graduate or less	2
Some college/technical school	5
College graduate	5
Post graduate	3
Child's Gender	
Boy	6
Girl	9
Child's Age (years)	
3	5

Parent Characteristics	n
4	4
5	6