Parents' Perceptions of Child Feeding: A Qualitative Study Based on the Theory of Planned Behavior

Kerith Duncanson, Grad Dip N&D,*†‡ Tracy Burrows, PhD,*† Brett Holman, BS,* Clare Collins, PhD*†

ABSTRACT: ***Objective:*** **The aim of this qualitative study was to investigate the child-feeding behaviors and attitudes of parents of children aged 2 to 5 years, within the theory of planned behavior (TPB) framework.** ***Methods:*** **Semistructured telephone interviews were conducted in October 2011. The interviewer conducted and recorded the interviews from a community health center, to interviewees who were in their own home environment. Verbatim transcription of interviews preceded manual coding of data. Emergent themes were mapped into a matrix against a priori-coded TPB constructs (attitudes, beliefs, subjective norms, perceived behavioral control, and behavioral intention).** ***Results:*** **Twenty-one consenting parents participated in interviews. Participants were predominantly tertiary-educated (65%) mothers (85%) who were older than 30 years (76%). Parents believed that optimal child nutrition is important but difficult to achieve. Behavioral intention to change feeding practices was limited by a belief that child's dietary intake is above average compared with their peer group. Perceived control over child dietary intake was influenced by food advertising, extended family, and peer influences. Parents supported targeting nutrition education directly at children and a policy approach to offset the costs of fresh foods by taxing "junk" foods.** ***Conclusions:*** **The application of TPB to child feeding may explain the disparity between parents' child-feeding intentions and behaviors. Parents' feeding behaviors are more influenced by peers than by dietary guidelines. Future interventions need to target parents' perceived child-feeding responsibilities, influence subjective norms, and increase parents' perceived control over child feeding. Peer nutrition education is proposed as an intervention model.**

*(J Dev Behav Pediatr 34:*227–236, 2013) **Index terms:** qualitative, theory of planned behavior, child feeding, parent, dietary intake.

Parents desire the best health outcomes for their children[1] and consider good nutrition to be paramount in childhood health.[2] At the same time, parents have consistently reported that feeding children a healthy, balanced diet is one of the most challenging and frustrating aspects of parenting[3–8] and perceive that changing child dietary intake would be difficult.[3,9,10]

The disparity between the intentions and actual behaviors of parents relating to child feeding deserves further exploration. Ambivalence to changing behavior despite knowledge of the health implications can be explained using the theory of planned behavior (TPB).[11] This health behavior theory was originally developed to predict and explain human social behavior and to serve as a framework for behavior change interventions.[12]

The components of the TPB that resonate within a parental child-feeding context are the complex interactions between attitudes, perceived control, normative beliefs, and motivation to comply with norms and how this interaction influences behavioral intention and ultimately behavior.[13] It is possible that parents benchmark their personal feeding practices and their children's dietary intake against their peers,[14,15] rather than against the National Dietary Guidelines for Children and Adolescents.[16] If parents believe that their child's feeding practices are better than most of the peer group, this may potentially reduce their intention or motivation to change child-feeding behavior. The application of the TPB within a child-feeding context is depicted in Figure 1.

Parents are the "gate keepers" of young children's food environment until at least the age of 6 years,[13] after which external factors such as peer pressure start to exert more influence.[14] The extensively researched

From the *Nutrition and Dietetics, School of Health Sciences, Faculty of Health, The University of Newcastle, University Drive, Callaghan, NSW 2308, Australia; †Hunter New England Local Health District, Forster, NSW 2428, Australia; ‡Priority Research Center in Physical Activity and Nutrition, The University of Newcastle, Callaghan, NSW 2308, Australia.

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Address for reprints: Kerith Duncanson, Nutrition and Dietetics, School of Health Sciences, Faculty of Health, The University of Newcastle, University Drive, Forster Community Health Centre, PO Box 448, Forster, NSW 2428, Australia; e-mail: kerith.duncanson@hnehealth.nsw.gov.au.

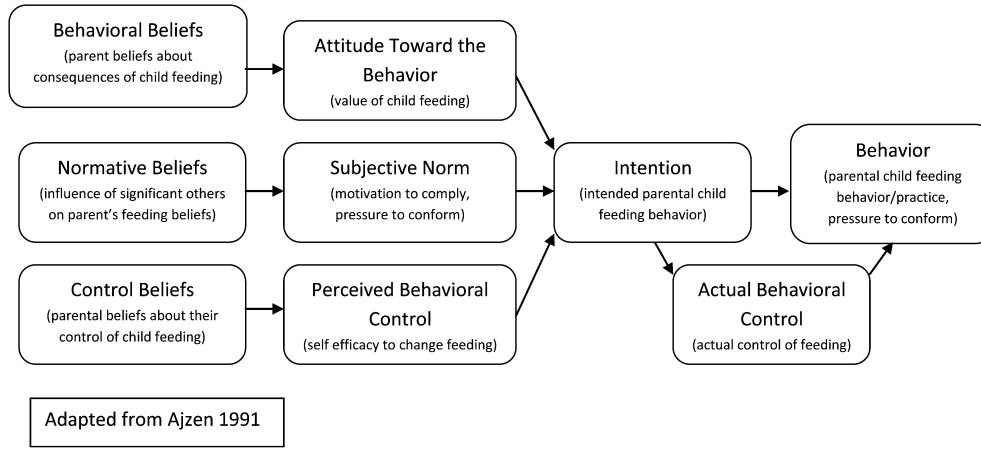

Figure 1. Application of the theory of planned behavior model in a child-feeding context.[12]

and reported barriers to optimal child feeding relate to parents' attitudes, beliefs, and perceived lack of control. They include poor maternal nutrition knowledge,[15,16] low maternal self-efficacy,[4] authoritarian or permissive parenting styles,[17,18] and role modeling of noncore food consumption.[9,19] The impact of food marketing,[20] poor food availability,[14] and a perceived lack of appropriate nutrition resources[21] compound the challenges of child feeding.

Parent-focused nutrition interventions that positively impact on the child-feeding practices of parents or the dietary intake of their young children are scarce.[22] Nutrition education programs that have had the most encouraging outcomes are targeted at parents of overweight children,[10,23,24] are resource intensive, and are not transferable to whole populations.[19,22] At a population level, key success factors for nutrition education programs include the use of a theoretical framework for programs,[21,25] targeting parenting skills (K. Duncanson et al., submitted for publication),[17,25] balancing regulation and educational components of interventions,[26] and the use of a "parents-as-teachers" model.[27]

It is important to find out how parents evaluate their children's dietary intake and judge their own feeding practices and to understand what prevents parents from changing their child-feeding practices despite their desire for the best health outcomes for their children.[14,15,28] In this study, the key components of the TPB were used to predict the child-feeding practices and behaviors of parents. The aim was to use the TPB[12] to conduct a qualitative exploration of parents' perceptions of their child-feeding practices and the dietary intakes of their children.

METHODS

Methodology and Theoretical Framework

A qualitative methodology was chosen to analyze concepts and themes derived from an exploration of parent's perceptions about their child-feeding practices.[29]

Interview questions were grouped into predefined sets, with each relating to an element of the theory of planned behavior (TPB), including the following:

1. Attitudes toward child feeding: a result of personal beliefs about feeding children and personal evaluation of children's dietary intake;
2. Subjective norms: derived from parent's perception of what significant others think about the parents' child feeding (normative beliefs) and their motivation to comply with norms;
3. Perceived behavior control: parent's beliefs about the degree of control they have over child feeding;
4. Behavioral intention: the culmination of the attitude, subjective norm, and the perceived control. Intention is assumed to be the immediate antecedent of behavior.

The interview protocol and sequencing of questions was developed by the research team after reviewing relevant literature in the context of the TPB and pilot testing the interview with 2 parents who were not part of the study. Probing and prompting suggestions were included in the interview guide to enable expansion and clarification of responses (Table 1).

Participants

Participants were recruited using purposive sampling from the Feeding Healthy Food to Kids (FHFK) preschool nutrition randomized controlled trial (RCT) cohort in 3 rural areas in Northern New South Wales (NSW), Australia. The FHFK RCT (K. Duncanson et al., submitted for publication) was a low-intensity nutrition education intervention that involved dissemination of computer-based nutrition and parenting resources to parents of children aged 2 to 5 years, the details of which have been previously described.[30] No significant changes to child-feeding practices of parents were identified as a result of the FHFK RCT. The impact of the trial is, therefore, not likely to have modified the interview responses.

Sixty parents who had previously provided written consent to be recontacted about future research studies received a written invitation to participate in the interviews. Of these 60, 25 parents (42%) consented to

Table 1. The Relationship Between Feeding Healthy Food to Kids Interview Questions and Elements of the Theory of Planned Behavior

Theory of Planned Behavior Component	Interview Question
Attitude toward behavior	• What are your responsibilities as a parent in feeding your children?
	• What are some of the rewarding things about feeding your children?
	• What are the challenges or frustrations of feeding your children?
	• Please recall the main nutrition guidelines for children that you are aware of.
	• How important are childhood eating habits and nutrition in terms of lifelong health?
Subjective norm	• If you were to compare the eating habits of your children with the dietary guidelines, how do you think they would rate?
	• If you were to compare your children's diet (eating) with the eating habits of their friends and the children of your friends, how would they be similar and how would they be different?
Perceived behavior control	• To what extent do you keep check of or limit the foods your children have?
	• How much influence do your children have in choosing what they eat?
	• What do you think are the main influences on what children eat?
	• What are your thoughts about taxing junk foods or making healthier food cheaper?
Behavioral intention	• Talk to me about parts of your children's food intake or eating habits that you would like to change.
	• Can you think of any reasons why you would want to change the way you feed your children?

participate in interviews and 3 fathers from these families were then recruited using snowball sampling.[31] All 28 potential participants completed interview consent forms and participant information statements, and a total of 21 interviews were conducted. The remaining 7 consenting participants were not required because of the achievement of thematic saturation or inability to be interviewed in the study time frame.

Demographic information including parent age, gender, and educational attainment had been collected previously. Inclusion criteria were as follows:

- parents who had participated in the FHFK study;
- partners or peers of parents who had participated in the FHFK study;
- parents raising at least 1 child aged between 2 and 5 years (at the commencement of the FHFK RCT).

Exclusion criteria: child suffering from a nutrition-related health condition.

Ethics Approval

Approval for the study was received from the Hunter New England Human Research Ethics Committee (Reference No: 08/12/17/4.02).

Procedure

Semistructured telephone interviews were conducted in September 2011 at prearranged mutually suitable times for the interviewer and interviewee. All interviews were conducted by 1 member of the research team (K.D.), a community nutritionist with extensive experience in early childhood nutrition.[1] The interviewer has been trained to conduct qualitative interviews as part of the New South Wales Rural Research Capacity Building Program. Interview telephone calls were initiated from a community health center, with interviewees answering the calls from their own homes. Interview duration ranged from 24 to 45 minutes, with an average of 35 minutes.

Interviewees were asked to respond to questions with particular reference to the study child and to focus on their experiences of child feeding when their children were aged 2 to 5 years. The interview process was set to continue until either thematic saturation was achieved or all potential interviewees had been interviewed. Interviews were digitally recorded and sent electronically to a transcription service in a de-identified format. The transcription service transcribed each interview verbatim and returned it electronically to the researcher in a word document format. Participants were invited to review transcripts for accuracy before analysis, but all declined this invitation. Interview transcripts were checked for accuracy by 2 researchers (K.D. and B.H.) against recordings before analysis.

Data Analysis

Transcripts were systematically coded for themes by 2 researchers (K.D. and B.H.) independently. Discrepancies in interpretation or coding were verbally negotiated[32] to increase interrater reliability and achieve consensus. A combination of deductive and inductive coding was used to populate a matrix model, with a priori codes for theory of planned behavior (TPB) constructs, mapped against dominant emergent theme codes that were developed as analysis progressed.[29]

A descriptive summary of each resulting theme was then collated into a table, with supporting quotes added to provide context and evidence for the theme.[33] Axial coding was used to disaggregate themes and create subthemes.[34] The themes and subthemes were cross checked with components of the TPB, to determine the

potential for application to child-feeding practices of parents. Thematic saturation was considered to have been achieved when no new themes or subthemes were identified in an interview.

RESULTS

The demographic profiles of all areas were rural, with lower-than-state-average socioeconomic status and a higher-than-state-average Aboriginal population. Participants were predominantly female and aged 30 years or older. There were no statistically significant differences in age or educational attainment of participants in this study compared with the larger Feeding Healthy Food to Kids (FHFK) sample (Table 2).

Resultant themes that were identified are displayed in Table 3. Four dominant themes were identified, each with several distinct subthemes. The 4 themes identified within the 21 interviews mirrored the components of the theory of planned behavior (TPB), and therefore this was considered an adequate sample size for the purposes of this study.

Feeding Competence

Participating parents consistently identified that the nutritional health of their children was paramount in their parenting role, regardless of whether they believed that they did a good job or struggled to feed their children a nutritious diet. "Nutrition is the main priority for me, number one" (mother of 3 children, 3-year-old girl study child).

Parents were relatively confident regarding their nutrition knowledge and believed that their sources of nutrition information were reputable. The more confident parents felt in their nutrition knowledge, the less likely to believe that they required further nutritional education. "I'm sure there's a broad spectrum of people in our community that would not have been exposed to the things that I have and therefore that (nutrition education) would be beneficial" (mother of 2, 2-year-old girl study child).

Despite believing that their nutrition knowledge was adequate, the parents appeared to have considerable difficulty in recalling or verbalizing the current dietary guidelines. "Okay, oh gosh, I can't even remember to tell you the truth" (mother of 1, 5-year-old girl study child). Australian nutrition promotion campaign messages, such as the "two fruit and five veg" were not consistently recalled correctly by parents. A mother of a 5-year-old boy study child reported "I can recall, I mean two, one to two pieces of fruit a day, I think it's three to four serves of vegetables a day; I couldn't tell you the amount of meat, I honestly don't know."

Substantial differences were noticed in parent's perceptions about suitable frequency of energy-dense, nutrient-poor food. Some parents believed that one high sugar or high fat item each week was excessive, some thought that was appropriate, whereas others included these foods more than once a day. "I'll often slip and I'll give a sandwich and … I might put a muesli bar in, but for the snack attack I might have a little packet of tiny teddies, and I think they're too sugary" (mother of 1, 4-year-old boy study child).

Parents readily admitted that their own child-feeding practices were not ideal and could easily identify areas for dietary improvement. However, they justified their own child-feeding inadequacies by referencing these against practices of their peers, family, and friends, rather than to the dietary guidelines. A mother of 3 children explained, "I think (he eats) fairly well. I think the junk food would probably be more than what he should have, compared to that (dietary guidelines). Comparing it to what his friends eat I think it would be perfect." The parents consistently rated their personal practices and children's dietary intake as superior to those of their peers.

Participants strongly expressed their attitudes and beliefs about the child-feeding practices of their peers. Issues that were cited included role modeling of poor eating habits, unwillingness to change feeding habits, and lack of prioritizing of nutrition within family life. "If the parents have bad eating habits, they're going to struggle teaching their children anything better" (father of 2, 4-year-old girl study child).

Although parents expressed concerns about child-feeding practices of other parents and dietary intake of

Table 2. Comparison of the Demographic Profile of Participants in Qualitative Interviews with a Sample of Participants from the Feeding Healthy Food to Kids Randomized Controlled Trial

Variable		FHFK Interviews (n = 21)		FHFK RCT (n = 146)	
		N	%	N	%
Educational attainment	Secondary education	6	35	66	45
	University education	15	65	80	55
Age	Under 30 years	5	24	32	22
	30 years or older	16	76	114	78
Gender	Female	18	85	145	99
	Male	3	15	1	1
Family composition	One parent	1	5	11	8
	Two parents	20	95	135	92

FHFK, feeding healthy food to kids; RCT, randomized controlled trial.

Table 3. Themes and Subthemes Matched with Theory of Planned Behavior Components

Theory Component	Theme	Subtheme
Subjective norm	Feeding competence	Children's nutrition is a high priority
Behavioral intention		Parents rate their child-feeding practices as above average
		Parents believe their nutrition knowledge is adequate
		Recall of dietary guidelines poor but recall of nutrition messages is good
		Definition of "sometimes" food varies
		Changing other parents' attitudes to nutrition is difficult
"I have a friend whose 4-year-old daughter doesn't eat well at all, and is quite obese, and my friend can't see it … and I just haven't really come up with a way that I can suggest something to my friend."		
Attitudes	Responsibility for feeding	Repeated exposure results in food acceptance
Beliefs		Children require opportunities to try new foods
Behavioral intention		Children need a degree of food choice
		Covert and overt food restriction both used by parents
		Monitoring of food intake is perceived as vital
		Role modeling of healthy eating behaviors is critical
		Responsibility can result in feeling guilty or mean
"People say to me 'how do you do it', and I say just be consistent with whatever it is you've got to be consistent with in your house."		
Perceived behavioral control	Barriers and challenges	Fussy eating behaviors are frustrating for parents
		Parents feel rewarded when children eat a wide variety of foods
		Increasing vegetable consumption is difficult
		A wide range of strategies are used to increase vegetable intake
		Restrictive feeding results in rebound overeating
		Parents feel they lack the skills to apply their knowledge
		Feeding fussy eaters can result in feelings of helplessness
		Family health issues influence child feeding
"You feel like you're banging your head against a brick wall sometimes. … my main experience has been frustration and not knowing how to tackle the refusal."		
Subjective norms	Environmental influences	Food advertising influences children's food preferences
Beliefs		Family and friends influence children's dietary intake
Attitudes		Nutrition education aimed at children is effective
		Support for taxing "junk foods" to offset fresh food costs
		Feeding practices are strongly influenced by life experience
"Tax the junk food and definitely make the healthier ones cheaper. Yeah, I think it's a great idea. There needs to be a government approach. It needs to come from the top down as well as the bottom up."		

other children, they reported feeling awkward or uncomfortable about broaching the subject. "I have a friend whose 4-year-old daughter doesn't eat well at all, and is quite obese, and my friend can't see it.… and I just haven't really come up with a way that I can suggest something to my friend" (mother of 2, 2-year-old boy study child). It was considered especially difficult when child-feeding advice was not sought by their peers.

Responsibility for Feeding

All interviewed parents accepted responsibility for providing healthy food and beverages to their children. They strongly indicated that it is a parent's role to provide a balanced diet for their children, although their child feeding and childhood nutrition priorities varied. Some parents focused more on food and nutrition. "My responsibility is to expose them to foods from all of the food groups and make sure that they're all in good balance" (mother of 3, 3-year-old girl study child). Other parents were more concerned with eating habits and environment. A mother of 2, with a 3-year-old girl study child, reported that "homemade food is a big one (issue). I also think the opportunity to sit down and eat together as a family is a really big important thing in our household."

Parents felt responsible for giving children the opportunity to try new foods, to give children a degree of choice around what they eat, to repeatedly expose children to unfamiliar foods, to role model healthy eating behaviors, and to monitor child food intake. "Just encouraging them to try new things, and be consistent with it. You get on a winner eventually" (mother of 2, 3-year-old boy study child).

A common concern of parents was that their feeding practices were perceived by others as too restrictive or strict. They described their feeding practices as "freakish" or "being the food police." Comments such as "I've got to be the mean and nasty mum. I am probably a bit freakish over you know, what will get brought into the house and what won't be brought into the house," from a participating mother of 2, implied that participants believed their behaviors were abnormal in their peer group.

Barriers and Challenges

The disparity between child-feeding ideals of parents and the actual dietary intake of their children is compounded by the barriers and challenges that parents believe to impact on child feeding. Parents reported difficulties in applying general parenting skills within a child-feeding context. It was equally challenging for parents to change their child-feeding practices.

Parents admitted to lacking consistency in their child-feeding practices, particularly when feeling exasperated, tired, or rushed. "Sometimes it is like, 'Oh, … why do I try?' I mean, I'm cooking a meal and I'm the only one sitting there eating it. It does get frustrating and it does sort of … I'm just like, whatever" (mother of 2, 4-year-old boy study child).

The most commonly reported frustration for parents was fussy eating, particularly food refusal. Participants felt there was a chasm between their responsibilities as parents to feed children well, and their capacity to translate this into actual dietary intake of children. A mother of 2, with a 3-year-old study child revealed, "You feel like you're banging your head against a brick wall sometimes. … my main experience has been frustration and not knowing how to tackle the refusal. Like I've got an idea as to what to do but when that doesn't work out it's like, well, what's the next step?"

However, parents also reported some strategies that they thought had worked well to improve child feeding. Positive reinforcement and role modeling to encourage healthy eating behaviors were consistently reported as effective strategies. "I'd be chopping stuff and she'd be like 'What's that' and I'd be like 'Here try it, it's nice, it's capsicum" (mother of 2, 5-year-old girl study child). Another strategy that was reported to be effective was consistency in parenting. A mother of 6 stated, "People say to me 'how do you do it?' I say 'just be consistent with whatever it is you've got to be consistent with in your house'."

Covert restriction of food, whereby the exposure is minimized in a manner, which is not detected by the child,[35] was also perceived by parents to be an effective strategy. The most common means of decreasing availability of energy-dense, nutrient-poor foods to children was not purchasing these foods when grocery shopping. "If I don't want to go down the lolly aisle or the biscuit aisle then I won't go down there, and I do keep those foods sort of high up in the cupboards in a non-see-through lunchbox so they can't actually see what's in there" (mother of 1, 3-year-old boy study child). Other reported strategies included preparing these foods only for celebrations, keeping "sometimes" foods out of children's sights, or parents consuming those foods when away from home.

In contrast with the perceived effectiveness of covert restriction, overt restriction of food, whereby children are aware of the restriction,[35] was reported as being counterproductive. Participants reported that overt restriction often resulted in rebound overeating, especially when children were outside the home environment. "I find that (other environments) really, really hard. Whilst I may not be happy about my children eating that, I also know that they'll stockpile because they don't get it at home" (other of 2, 4-year-old boy study child).

Participating parents identified child dislike of vegetables as a major barrier to optimal child feeding and an area that they struggled to change. "I probably cook a meal with vegetables one to two times a week" (mother of 1, 4-year-old boy study child). In particular, parents reported that their motivation to change feeding practices related to vegetables was influenced by children's resistance to eating vegetables, the high cost of fresh foods, and their own dislike of vegetables.

When parents tried to encourage and support healthy eating habits, their comments were sometimes contradictory or counter-productive. For example, a father of 2

reported, "So we say … have it with a bit of meat or something like that to try to mask that horrible flavor of the particular vegetable" (father of 2, 2-year-old girl study child).

The reported difficulties in encouraging vegetable consumption were balanced by the number and wide range of strategies used to increase vegetable intake. In particular, involving children in gardening and cooking was seen as a positive strategy to broaden food variety. "I've heard other parents say that they have had trouble with vegetables but from an early age I've always tried to involve her in food preparation, and we've always had a veggie patch, and always encouraged just eating straight from the vegetable patch. Before you rang we were all eating parsley" (mother of 2, 3-year-old boy study child).

For some participants, the frustration and anxiety of child feeding was offset by the joy and pleasure participants experienced when children ate nutritious meals or tried new foods. Comments to highlight this pleasure in nurturing through food included, "There's not a better feeling than knowing that you've sent your kids off with a healthy lunchbox or they've gone to bed with a really good dinner," from a mother of 2 with a 4-year-old girl study child. Parents felt encouraged by these experiences to continue to try new recipes and ideas and to pursue healthier family eating.

Parents' levels of motivation to change their feeding practices were heavily influenced by their perceptions of the child's health status and by parents' own health, family histories, and health risks. A mother of a 5-year-old girl hypothesized, "I guess you'd have to be motivated to change the way she ate if she were to have any illness … or if it was to be found that she was lacking in some sort of nutrient."

Particularly noticeable was the high degree of awareness and concern among parents with a strong family history of lifestyle-related diseases. "Because we've got, our family, my dad, my brother, they're all very big people and they are bigger because they eat lots of sometimes food. So I think that's why I'm so stern on what I teach my kids too because yeah, it's hereditary" (mother of 2, 2-year-old girl study child).

Environmental Influences on Child Feeding

In addition to the reported barriers and challenges faced by parents in feeding children, a parallel theme that emerged related to factors that the parents perceived they had little or no control over. Parents believe that extrinsic factors strongly influence child feeding and children's eating habits. A mother of 2 indicated that food advertising on television influenced her children. She recalled one child saying, "Oh they look funny, we should get those." In addition to television advertising, fast food chain advertising and supermarket promotions appeared to be strong influences on children.

In contrast with the negative perception about food advertising that influenced children, parents supported the concept of directing nutrition education and promotion at children. They provided examples of children changing their eating behaviors as a result of a particular nutrition education strategy. "If the kids saw it then it's going to combine with what they are being taught at places like long day care, and obviously it's had an impact" (father of 1, 5-year-old girl study child).

Similarly, parents strongly communicated their support for a government approach to influencing food supply and demand by taxing "junk foods" to offset the cost of fresh foods. "Tax the junk food and definitely make the healthier ones cheaper. Yeah, I think it's a great idea. There needs to be a government approach. It needs to come from the top down as well as the bottom up" (mother of 1, 5-year-old girl study child).

Health-promoting school policies and health education programs were perceived as having a positive influence on children's food preferences. "I think preschools do teach the kids quite a bit (about nutrition) and I think once they get to school it kind of matures them a bit more" (mother of 2, 4-year-old girl study child).

The school eating environment was considered an equally influential factor, with participants citing examples where peers and teachers exerted a positive impact on children's food choices. "She is always asking for cheese sticks because one of her little friends has cheese sticks in her lunchbox. … so I would say that other children are probably their influence, what they have in their lunchboxes" (mother of 2, 2-year-old girl study child).

The influence of extended family on feeding of children varied considerably depending on the extent and nature of their involvement in caring for young children. "Their Nan and Pop think it's awesome when the kids come to visit and they can feed them a whole heap of …, but there's no joy in giving them foods that are …. Well, I don't think so anyway" (mother of 2, 2-year-old girl study child). Parents described both positive and negative influences of grandparents, reporting that it was difficult to dictate preferred child-feeding behaviors to significant others when they are in a caregiving role.

The ways in which parents feed their children are strongly influenced by their own parents and upbringings. In the interviews, a proportion of participants perceived their own parents' child-feeding practices as desirable and were trying to replicate them with their own children. A mother of 3 related, "How I've managed that in my children's life is not really much different from how I, it was when I grew up. We didn't have processed or manufactured foods, I think probably the worst thing we had was white bread as kids but it was always lots of whole fresh food, lots of fresh fruit and veggies." However, other parents did not have pleasant experiences or memories of their own childhood eating. Their desire was to approach child feeding differently, to improve the dietary and nutritional health of their own children. "I

wouldn't do to them what my parents did to us which was that you had to eat everything on your plate. … I think if they said they've had enough and you know, what you've offered is healthy, I think that's, you know that's fair enough, it's a fair call" (mother of 2, 3-year-old girl study child).

DISCUSSION

Parents require considerable motivation, knowledge, and skills to assimilate dietary recommendations into their child-feeding practices, which in turn influences the dietary intake of their children. This study contributes to understanding the perceived role of parents in children's dietary intake, through the use of a qualitative methodology to explore parents' attitudes, beliefs, and perceived control of child feeding within the theory of planned behavior (TPB) theoretical framework.

Although previous studies have examined the impact of intensive nutrition interventions on the dietary intake of children[36–38] and highlighted the barriers to improving child dietary intake,[3,19] little analytic attention has focused on why parents find it difficult to change child-feeding practices. In this study, we found that parents' child-feeding practices were strongly influenced by the component parts of the TPB.

Attitudes and Beliefs

The attitudes and beliefs of participating parents' regarding child feeding were expressed as a strong sense of responsibility regarding child feeding. Parents' beliefs that external factors and their own upbringing influence feeding reinforced and highlighted results of previous studies.[3,20,38,39] Food advertising directed at children is the most commonly cited and most criticized factor.[39,40] However, participants also provided examples of how advertising and nutrition promotion can be used in a proactive positive way to influence children's own food choices and preferences.

Nutrition educators already use the school setting to promote nutrition directly to children[41] but could benefit from further exploring other mediums such as appropriately targeted television- and Internet-based nutrition promotion interventions.

Both mediums were considered by parents to be suitable and effective means of supporting the nutrition messages that parents are trying to promote to children in the home environment.[41–43]

A cautious approach to television- and Internet-based nutrition education is warranted, given that parents in the current study believed that the Internet, other parents, and media are equally credible sources of nutrition information as resources developed by health professionals. These mediums are well suited to the promotion of simple nutrition messages, which were found to be much easier to recall than dietary guidelines among this cohort of motivated, educated parents.

The strong support for policy level intervention relating to offsetting the cost of health foods by taxing junk food was unexpected. Although it was expected that some parents would agree with subsidies for fresh foods, the strength of this support and willingness of parents to pay more for noncore foods is worth further exploration and consideration by policy makers.

Subjective Norm

Although parents believed that childhood nutrition was one of their key responsibilities as a parent, they also believed it to be one of the most challenging parenting roles. Participants believed that their child-feeding practices were superior to their peers, so that there was no reason to change, despite their children's dietary intake not meeting the dietary guidelines. These results are highly consistent with previous studies[3,9,10] and the conceptual framework of the theory of planned behavior (TPB).[3,9,10,12] We propose that parents' ambivalence toward changing their child-feeding practices relates to the subjective norm for child feeding.

The results of this study support previous findings that indicate an inverse relationship between motivation to change and the perceived difficulty in changing behaviors. Although the challenges of child feeding were consistent with previous studies,[2,5] explaining these in the context of the TPB provides more scope to address and overcome the barriers.

Perceived Behavioral Control and Behavioral Intention

The degree of perceived control over child eating exerted by parents reflected the relative balance of positive and negative factors influencing their own child-feeding experiences. The feelings of frustration and helplessness associated with fussy eating and the perceived difficulty of changing child feeding were offset to a varying extent by the sense of achievement experienced when parents felt they were providing their child with a balanced diet.

A high degree of perceived control over child feeding combined with high self-efficacy among parents would represent an ideal formula for increasing behavioral intention with regard to changing child-feeding practices. Self-efficacy is increasingly recognized as a key facilitator of change with regard to a range of parenting behaviors,[2,4] and the link with child feeding is evident in responses from participants in this study.

Strengths and Limitations

Parents who participated in the interview process were of fairly high average educational attainment and were predominantly mothers. It is possible that the study population placed a higher importance on healthy child-feeding practices and that parents were influenced by the "halo effect" and provided socially desirable responses. Therefore, study results may not accurately represent the general population.

However, if the results of this study paint a "best picture" scenario, the need for further research in the field is even more important, as the parents in this cohort reported considerable challenges and frustrations in their efforts to improve their child-feeding practices.

The generalizability of the findings in this qualitative study was limited to the demographic profile of the participants. However, as there is limited research conducted in rural areas,[44] this study makes a valuable contribution to the field of child-feeding research. The findings may be less applicable in an urban context that has a higher socioeconomic profile. Male participant numbers were small, as is typical within studies that include both male and female participants.[28,45] To further elucidate and compare the respective child-feeding experiences of mothers and fathers, interviews with more fathers of young children are warranted.

Thematic saturation within subthemes may not have been fully realized, despite no new themes emerging after 21 interviews. However, this sample size was large enough to determine the potential application of the theory of planned behavior (TPB) model to child feeding.

CONCLUSIONS

Although the National Dietary Guidelines for Children and Adolescents[46] are a useful tool for nutrition educators, simply providing dietary guidelines to parents is not enough to influence child feeding. This qualitative study has drawn attention to the need for interventions with a focus beyond aiming for adherence to the dietary guidelines, because these are not a significant reference point for childhood nutrition information for the majority of parents.

Our findings indicate that the application of the the ory of planned behavior (TPB) to child feeding may explain the disparity between parents' child-feeding intentions and actual behaviors. By identifying that parent attitudes, subjective norms, and perceived child-feeding control do influence parental child-feeding practices, this study has strengthened the knowledge base for shaping future childhood nutrition interventions.

Future interventions should capitalize on parents' sense of responsibility around child feeding and focus on influencing the subjective norms associated with child feeding in a constructive way. For example, by identifying potential peer educators from new parents' groups or prenatal classes, nutrition educators could up-skill individuals who could influence the child-feeding practices of a large number of their parenting peers. If this approach could positively influence TPB constructs, the result would be increased behavioral intention to improve child-feeding practices, which in turn would result in constructive changes to actual child-feeding practices of parents.

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