

Development of Perception-Focused Nutrition Education Material for Mothers of Children in Early Childhood

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ABSTRACT

Purpose: Mothers play a crucial role in shaping the eating behavior of their children. Several studies have shown that mothers misperceive the diet quality, total energy intake, and portion sizes of their children. This misperception leads to overestimation or even underestimation of their children's dietary intake which can have a detrimental effect on their health. Mothers associate a chubby child with good health and have a lot of emotional investment related to the amount of food their child ate.

Design/Methodology/Approach: Even though past research articles acknowledge the existence of these perceptions, nutrition education material that could target these misperceptions has not been developed. The first step was to conduct a needs assessment and the second was to develop perception-focused nutrition education material.

Findings: Three themes were identified by conducting a needs assessment and six themes were identified by going through research articles from the past. These nine themes identified were then organized and developed into three lesson plans with specific objectives.

Practice implications: The perception-focused nutrition education material, thus developed, can be delivered to mothers through oral and visual aids. Through our developed nutrition educational material, future researchers will be able to test the perceptions of mothers regarding their child's diet.

Keywords: Children, Diet, Maternal misperception, Nutrition education, Picky eating

1. BACKGROUND

Behavior is directly affected by perceptions (Dijksterhuis, 2001) and mothers play a pivotal role in shaping the eating behaviors of their children (Scaglioni et al., 2018). The effect of parental perception on children's academic achievements was studied in the USA in 2006 and the authors found positive perceptions of parents lead to higher grades (Pomerantz & Dong, 2006). This effect is yet to be studied in relevance to the eating behavior of children. And since mothers are conventionally the primary caregivers of children, their perceptions can influence children's eating behavior.

Several past studies have shown that mothers often misperceive the eating behavior of their children: around 83% of mothers overestimated the quality of their child's diets; the total energy intake in children of mothers who overestimated diet quality was also high (Kourlaba, Kondaki, Grammatikaki, Roma-Giannikou, & Manios, 2009). Moreover, parents perceived intake of specific food groups (that were rich in fiber and low in energy) like vegetables, fish, and beans as 'good' dietary habits (Kano, Tani, Ochi, Sudo, & Fujiwara, 2019). According to another research, caregivers perceived the dietary intake of children as healthy, even though many children did not consume The Recommended Daily Allowance (According to the National Institutes of Health, NIH, RDA is defined as the average daily level of intake sufficient to meet the nutrient requirements of nearly all 97–98% healthy individuals). RDA of some nutrients and dairy products were not considered in this research despite dairy products being an essential part of the diet (Kano et al., 2019). Mothers thought they knew what was the right amount of food for their kids and showed to have a lot of emotional investment related to what and how much their child eats (Johnson, Goodell, Williams, Power, & Hughes, 2015).

Carruth and Skinner discussed in a 2000 study that children display their likes and dislike quite strongly, and it is the mothers who perceive these strong expressions of likes and dislikes as either bothersome behavior or picky eating (Carruth & Skinner, 2000).

Misperceptions lead to overestimation or underestimation of the dietary intake of children (Aksu & Öztürk, 2021). This might make it difficult for mothers to recognize whether their child is obese, overweight, or underweight.

To combat child malnutrition, nutrition interventions in the past have focused more on educating mothers on breastfeeding, child growth, parenting menu making, hygiene, complementary foods, and cooking demonstrations (Majamanda, Maureen, Munkhondia, & Carrier, 2014; Mitra, Susmaneli, Septiani, & Nurlisis, 2020; Mushaphi, Dannhauser, Walsh, Mbhenyane, & Van Rooyen, 2015). The mode of delivering nutrition education in these aforementioned research studies varied from WhatsApp text messages to quizzes, games, role-playing, group discussions, counseling, and group meetings.

It is important to note that past research studies have acknowledged the existence of misperceptions that mothers have regarding their child's eating behavior. However, to the best of our knowledge, no research has developed educational material to target mothers' perceptions about the eating behavior of children as shown in Table 1. With the development of evidence-based educational material, we aim to positively influence the perception of mothers regarding the eating behavior of their children.

Table 1. Research gaps that called for this research.

Author	Year	Research article title	Findings	Gaps
Wu et al. (2021)	2021	Caregivers' perceptions, challenges and service needs related to tackling childhood overweight and obesity: A qualitative study in three districts of Shanghai, China.	Some caregivers of overweight children viewed them as a sign of good parental care. Terms like chubby and little fatties were used with positive connotations.	No educational material was developed that could target perception of chubby appearance of child as healthy.
Kano et al. (2019)	2020	Association between caregiver's perception of "Good" dietary habits and food group intake among preschool children in Tokyo.	A better diet for children was perceived by parents to be constituted of a large proportion of vegetables, shellfish, eggs, and smaller quantities of fat, oil, and soft drinks.	No educational material was developed that could target why parents perceive certain food groups as healthy.
Carruth and Skinner (2000)	2000	Revisiting the picky eater phenomenon: Neophobic behaviors of young children.	Mothers were inconsistent regarding the picky eating of their children.	There is a need for nutrition education material that could differentiate picky eating from bothersome behavior.
Kourlaba et al. (2009)	2009	Diet quality of preschool children and maternal perceptions/misperceptions: The GENESIS study.	86% of mothers misperceived and overestimated their child's diet to be healthy. The total energy intake of these children was also high.	There is a need for the development of educational material that could target these perceptions.
Johnson et al. (2015)	2015	Getting my child to eat the right amount. Mothers' considerations when deciding how much food to offer their child at a meal.	Mothers associated their self-esteem with what and how much they think their children should eat.	No educational material was developed that could target the self-esteem of mothers concerning how much their children ate.
Aksu and Öztürk (2021)	2021	Evaluation of mothers' opinions on appetite and body shape perception of their children.	Mothers misperceived the BMI of their underweight, overweight and obese children.	There is a lack of maternal knowledge regarding what constitutes a healthy weight. There is a need for nutrition education material in this regard.

Our methodology consisted of 1) Needs Assessment and 2) Phase 1 i.e., development of educational content as illustrated in Figure 1. The needs assessment was conducted by comparing the 24-hour recall of 19 children aged 2-8, with a questionnaire regarding their mothers' perception of their diet.

2. DEVELOPMENT OF LESSON PLANS

The development of lesson plans was conducted qualitatively by seeking references to themes identified in past research articles as well as themes identified in the needs assessment. We converted the themes into educational material: two PowerPoint presentations and two activities. In addition, two videos from an online source were also used. These themes have been described in Table 2. These themes were converted into lesson plans as described in Table 3.

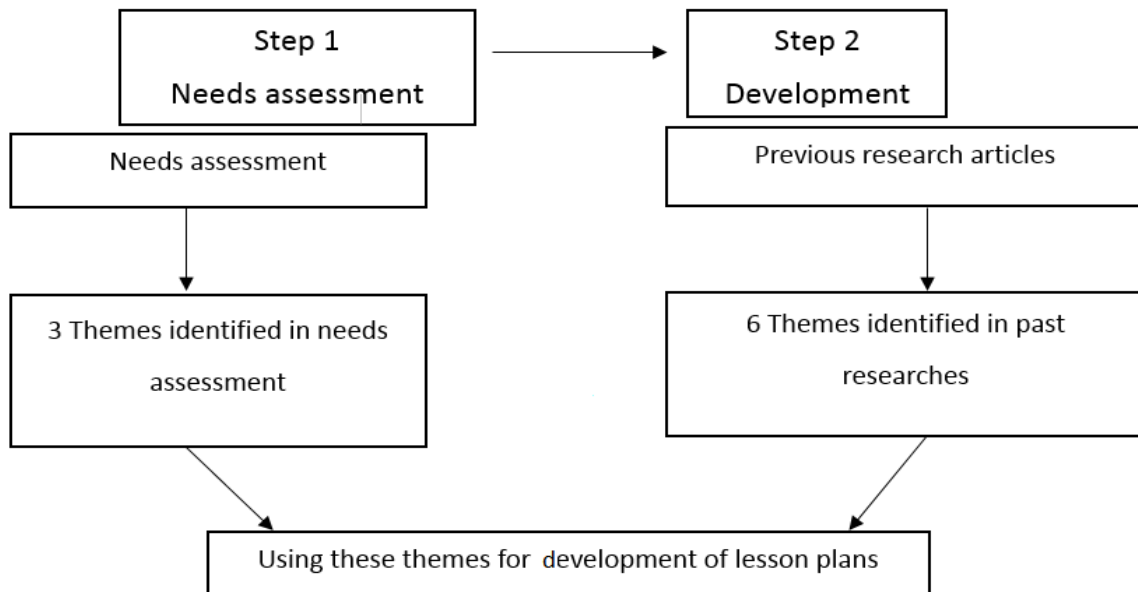


Figure 1. Illustrates steps taken to identify themes for the development of lesson plans for perception-focused nutrition education for mothers.

Table 2. Themes identified for perception-focused educational intervention.

Themes identified in needs assessment	
Theme 1	Lack of mothers' knowledge regarding what constitutes a healthy weight for a child. They perceived a chubby child as healthy.
Theme 2	Mothers associated eating "roti", as the only source of energy and displayed incorrect perceptions of varieties in food groups.
Theme 3	Low self-esteem and fear/concern of mothers about their child's intake even if their child's intake is adequate.
Themes identified in past research articles	
Theme 4	Mothers see a chubby child as healthy (Wu et al., 2021).
Theme 5	Parents perceive good eaters to have a certain portion size and that to them is the right amount of food (Johnson et al., 2015).
Theme 6	Parents associated a good diet with the intake of specific food groups like vegetables, beans, shellfish, and fish. Parents were likely to associate a healthy diet with the intake of these foods (Kano et al., 2019).
Theme 7	Some mothers look at strong emotional dislikes of children and perceive it to be picky eating while others just look at it as bothersome behavior (Carruth & Skinner, 2000).
Theme 8	Mothers associated their self-esteem with what and how much they think their children should eat (Johnson et al., 2015). Some mothers associated seeing their children eating 'enough' with how successful they thought they were as a parent (Cano, Hoek, & Bryant-Waugh, 2015).
Theme 9	Unavailability of existing instructional/educational material that could positively influence the mother's perceptions.

Table 3. Perception-focused nutrition education material-lesson plans.

Topics	Perception-focused nutrition education topics
Lesson plan 1	Healthy weight and portion size
	<ol style="list-style-type: none">1. To improve perception regarding what mothers believe is the "healthy" weight of a child.2. To improve mothers' perception regarding what they believe is a "healthy" portion size of a child.
Lesson plan 2	Food group variety and likes/dislikes of children
	<ol style="list-style-type: none">1. To improve mothers' perception regarding the variety of different options from the same food group.2. To improve mothers' perceptions regarding children's likes and dislikes of some food items.3. To improve mothers' perception regarding what they perceive is their child's picky eating.
Lesson plan 3	Self-esteem
	<ol style="list-style-type: none">1. To improve mothers' self-esteem.

3. EXPECTED OUTCOMES

The perception-focused nutrition education material will be delivered through visual aids to mothers of children in the early childhood phase.

1. We will be able to improve mothers' perceptions regarding what constitutes a child's healthy weight. We will be able to change the perception of viewing only a chubby child as a healthy child.
2. We will be able to improve mothers' perceptions regarding portion sizes such that they would not associate a healthy child with a larger portion size.
3. We will improve the perception of mothers regarding the likes and dislikes of their children. We will make sure they understand that if their child expresses dislike for a single vegetable, it does not mean that he or she does not eat any vegetable.
4. We will be able to improve mothers' perception regarding the strong expression of likes and dislikes of children, which mothers might misperceive as their child's picky eating. Moreover, we will be able to educate them that they should avoid labeling their child.
5. We will also be able to improve mothers' self-esteem such that their self-esteem is not tied to the amount of food their child eats.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

All authors contributed equally to the conception and design of the study.

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