



ORIGINAL ARTICLE

Perception of Childhood Obesity in Mothers of Preschool Children

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Abstract

Objectives: The purpose of this study was to identify the perception of childhood obesity in mothers of preschool children using Q methodology.

Methods: A total of 38 Q statements about childhood obesity were obtained from 41 participants. The QUANL PC program was used to analyze the results.

Results: There were three types of perception toward obesity in mothers of preschool children: the “authoritative discipline type,” the “generous home meal focused type,” and the “home meal based on household financial situation type.”

Conclusion: The perception of mothers toward childhood obesity can affect the extent of maternal interaction with children or meal preparation for the family. Based on these results, it is necessary to plan specific programs according to the types of maternal perception toward childhood obesity.

1. Introduction

Childhood obesity is a problem in both developed and developing countries. Preschool children are at risk of developing several nutritional disorders. The most common problem is obesity, which is becoming increasingly prevalent in children aged 3–5 years [1]. The reported rate of preschool obesity varies among countries. It has increased from 4.2% in 1990 to 6.7% in 2010 [2], indicating a rate of increase of approximately 63%. Currently, 40–50 million children are classified as

overweight or obese [3]. Efforts to reduce obesity, such as intervention for childhood obesity, are not aggressive enough, even though the prevalence rate of obesity is exponential. It was predicted that the population of obesity would increase continuously [4].

In Korea, it was reported that the high influence of Western-style meals and lack of physical activities have caused 3–5-year-old preschoolers to become obese at a rate of 6.4% [5]. Childhood obesity is a public health problem that has to be dealt with, because it can be a starting point of chronic diseases, such as cardiovascular

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disease, hypertension, diabetes mellitus, cancer, asthma, liver disease, and joint disease, both in childhood and adulthood [6].

Healthy habits and concrete perception of health start to form during the preschool period, which can be highly influenced by culture including family, nurturing environments, and public policies [7]. In addition, it is important to have early-stage intervention and obesity prevention during preschool stage compared to the other stages of life as preschoolers tend to gain more weight rather than grow in height. During the preschool period, the number of adipose cell tissue could increase rapidly, which can easily lead to obesity. Obesity developed during this stage can progress through adolescence and adulthood as well [8].

Weight is a phenomenon that can be affected by one's sociocultural background [9]. Thus, mothers' perception toward the weight of children is important in terms of obesity management. In many countries, there are systemic studies on toddlers [10] or infants [11] in each developing stage with increased awareness to meet the requirements for obesity management. However, in Korea, few studies have focused on obesity and influencing factors of preschoolers, although numerous studies have been conducted on obesity among those who are older than school-age children [12,13].

Q methodology is a research method that redeems the weaknesses of quantitative and qualitative studies, which makes it possible to stereotype the awareness among participants. At the same time, it specifically allows participants to express subjective responses through an objective process. Therefore, this method can be used for the subjective perception of people with specific classes or for applying logical methods to investigate a social phenomenon [14]. Thus, this study uses Q methodology to identify mothers' perceptions of obesity in preschoolers. Through this method, the study outlined the characteristics of the different types of maternal perception of obesity in preschoolers.

2. Materials and methods

2.1. Design

This study was an exploratory research that identified the types of maternal perception of obesity in their preschoolers and described the characteristics of each type of perception by applying the Q methodology (Table 1).

2.2. Participants

The study participants included 41 mothers with preschoolers aged between 3 years and 5 years. Preschoolers underwent normal development stage without experiencing any chronic disease, malformation, or health problems at birth. Participants were aged between 27 years and 43 years with a body mass index of 15.8–26.34.

2.3. Procedure

2.3.1. Q population

In this study, three ways were used to construct the Q population. First, the literature was reviewed and salient statements were identified. Second, parents with preschool aged children were asked to write down statements that generally represented the characteristics of childhood obesity. These statements were systematically organized as sentences. From both the literature and statements from parents with preschool aged children, a total of 117 sentences were collected as the Q population. The 117 sentences were reviewed by a nutritionist, two pediatricians who majored in childhood obesity, and two laypersons who were interested in childhood obesity. A final group of 38 Q statements were identified as being distinctive and representative of childhood obesity.

2.3.2. P sampling

One of the most salient characteristics of Q methodology is that it is possible to use a small participant sample because intraindividual differences are considered significant. The participants in this study were 41 mothers who had preschool children.

2.3.3. Q sorting

The study participants were informed that the purpose of this study was to identify their perceptions about childhood obesity. It was stressed that there was no wrong or right answer, and that their opinions were valued as correct. They were first asked to read through the statements to become familiar with the range of opinions that they needed to consider. Participants were asked to rank-order the Q sample statements into levels of personal agreement or disagreement. The statements were sorted into a matrix ranging from -4 (strong disagreement) to $+4$ (strong agreement). Following card sorting, the participants were asked to give reasons for their particular ranking. A scoring of $+4$ or -4 was recorded depending on the reasons cited for the given choice.

2.4. Ethical issue

This study received institution ethics approval from the Kyungnam University Committee (No: 1040460-A-2014-009). Information on the study was placed on a parent notice board to recruit participants. Mothers who were interested in this study were given a brief verbal explanation of the research. They were given a copy of the consent form. They were also told about the voluntary nature of their participation and their right not to be involved or to withdraw from participation at a later stage. Mothers were offered a washing preparation for kitchens for their participation.

2.5. Data analysis

What differentiates Q methodology from other qualitative methods is the transformation of qualitative

Table 1. Research procedures used in this study.

Stage 1	Establishment Q population	– In-depth interviews – Searching articles – Literature reviews
Stage 2	Selection of Q sample	– Content analysis – Measurement of reliability
Stage 3	Selection of P sample	– 41 mothers' of preschool children
Stage 4	Q classification	– Duration 30 min to 1 h – Follow-up question for classification
Stage 5	Data analysis	– PC QUANL program
Stage 6	Data interpretation	– Utilization of stage 1 in-depth interview and stage 4 interview material

data into numerical results using a mathematical analysis involving three steps. First, Q sorts generated by the respondents are intercorrelated using Pearson correlation coefficient, resulting in an intercorrelation matrix of all Qsorts. In the second step, a by-person factor analysis is performed on the intercorrelation matrix. The last step in statistical analysis involves separately calculating factor scores for each different viewpoint to assess the relative importance of each statement in the identification of the factor. Finally, related statements are arranged into clusters, and the meaning is imputed to each.

The principal component factors were analyzed using the QUANL PC program (freely available at www.kssss.org/pds_kssss.php) after grading the contents of the P-sample. The optimum number of factors was confirmed by selecting the best completed types that could be adequately explained, from which results were extracted. Results were attained by testing various factors that exceeded the eigenvalue of 1.0.

3. Results

By using the QUANL PC program, three types were confirmed after analyzing the outcomes of mothers' perception of preschool obesity. Among the selected statements that noted strong agreement or strong disagreement to themselves for each type, the characteristics of types focusing on statements above an average score of +1.00 were described. An in-depth interview was conducted in order to specifically define the characteristics of the participants for each type.

3.1. Type 1: Authoritative discipline type

The respondents of type 1 could recognize the importance of balancing salt or nutrition of meals for the health of their families. However, they could not put it into practice because of their busy schedules. In addition, they were the ones who had the tendency to reprimand their children to develop a better eating habit because they want their children to eat better. However, their children were not interested in food, especially fruits and vegetables. Based on these outcomes, this group was named "authoritative discipline type."

3.2. Type 2: Generous home meal focused type

The respondents of type 2 believed that home-made meals were nutritionally well balanced. They had the tendency to take care of meals for children better than for themselves. They were proud of contributing to family health by considering the development of their children. In addition, they believed that the eating habits of mothers, the ones who spend more time with their children in comparison to the fathers who go to work and prepare meals by themselves, are more important to children. Based on these outcomes, type 2 was named "generous home meal focused type."

3.3. Type 3: Home meal based on household financial situation type

The respondents of type 3 perceived that parents should serve as role models to their children in terms of eating habit development as they are like mirrors to their children. They believed that using chemical seasoning and TV to make children eat better immediately would cause a long-term health problem. They are the types who would like to provide a better organic healthy meal for their children but are constrained by financial restrictions. Based on these outcomes, type 3 was named "home meal based on household financial situation type."

3.4. Consensus

All three types have a positive perception toward such statements as "Healthy children are active and energetic," "Unbalanced nutrition intake can cause cardiovascular diseases, diabetes, and bone weakness," and "Adults' active play increases children's physical activity." However, they all have a negative perception toward the following statements: "Although I know that chemical seasonings are included in the food, I choose to have that food to make my children eat," "It is okay for children to eat any types of snacks if they do not eat meals," "I follow around my children to feed them when they do not stay in the kitchen table and move around," "Obstacles to children's physical activity are TV and computers."

4. Discussion

The aim of this study was to investigate the subjective perception types of Korean mothers with preschool children and their characteristics. As a result of this study, three categories were constructed. Based on these findings, the meanings and specific characteristics of each perception type are discussed.

Type 1 (“authoritative discipline type”) respondents could recognize the advantages and importance of home-made meals, but they could not manage to have a balanced meal for their families because of the difficulty of putting it into practice. However, they were putting efforts to establish appropriate table manners because they believed that the eating habits of parents could influence the eating habits of their children. They showed ambivalent feelings. They were concerned that their children might lose interest in meals, and therefore become smaller and thinner compared to other children. They worried that childhood obesity could progress to adulthood obesity at the same time. According to the research conducted by Collins et al [15] for a preschooler population, researchers noted that parents were concerned and worried about the weight status of their children. This finding was in consistent with the research conducted by Wen and Hui [16], who reported that increased concern toward the weight of children was highly associated with the knowledge gain of parents. However, it is important to provide education for type 1 parents focused on meal restriction and its outcomes, because the report conducted by Clark et al [17] noted that control over food was lost whereas the tendency to become overweight increased as more restrictions and increased pressure were exerted on meal restriction. In addition, it is important for type 1 mothers to recognize pressure on food and its impact because pressure on food can reduce satiety, which could cause no recognition of hunger or satiety [18].

Type 2 (“generous home meal focused type”) respondents exerted efforts to prepare meal plans by themselves and encourage children to eat fruits and vegetables. They did not seem to care about weight gain although they were focused on food of children’s liking because their children are at the stage of exponential growth. Frankel et al [19] investigated parents’ perception of preschoolers’ ability to control eating and discussed four types of meal providing styles (authoritative, authoritarian, indulgent, and uninvolved). Among these styles, the indulgent style accounted for the largest portion. Indulgent-style parents were similar. They did not force food on children. They freely provided foods that their children liked. They noted that allowing children to choose their own meals only raised the chances for these children to consume low-nutrient value meals [20]. Energy consumption increased owing to increased meal portions. The development of

self-regulation of meal consumption among children will be deterred when parents have an indulgent style of providing meals [21]. Based on this research outcome, there is a need to develop an education program focusing on this part so that “generous home meal focused type” parents can help their children develop self-regulation of food intake.

Type 3 mothers (“home meal based on household financial situation type”) recognized that parents had to be role models for developing a healthy eating habit to prevent obesity. They feel obligated to choose expensive ingredients for children although they view themselves as middle class. It is important to evaluate the risk of obesity among children of this group. The risk of obesity for children is reported to increase substantially when one of the parents is overweight or obese [22]. Six out of 16 type 3 mothers were overweight or obese. Mothers of this type should focus on losing weight themselves. Overweight or obese parents have the tendency to underestimate the overweight of their children [23]. Parents who deny or misperceive their children’s weight cannot take a recommendation to have their children lose weight even though their children are really obese.

According to traditional Korean culture, overweight was recognized as a symbol of health and luxury [24]. Parents of preschoolers who were raised by parents who have this perception (as described above) could not be freed from this perception either. Moreover, parents have the desire to feed their children with good quality food with high nutritional value when their financial situation allows it because they are exposed to a social environment where overweight is considered a sign of successful rearing of children. At the preschool stage, parents have to be responsible for their children’s health, nutrition, and activity opportunity [10].

Mothers of preschoolers agree that healthy children are active and full of energy. They also agree that unbalanced nutritional intake could cause health problems and that adults need to be active to increase children’s activity level. Parents with preschoolers measure children’s appetite and activity levels as positive and healthy signs [25]. Because meals and activity of preschoolers are highly influenced by the control of parents [23], more consideration should be given to this part especially when developing a weight loss program for overweight and obese children.

In addition, mothers with preschoolers disagree that adding food seasoning or feeding snacks instead of meals would break table manners. Therefore, increased knowledge should be given to parents in terms of obesity risk factors or obesity-related health warning signs. It will help parents promote healthy meal selection, improve physical activities of all family members, and help children how to make healthy choices. Parents themselves could be good role models [26].

Conflicts of interest

The authors declare that they have no conflicts of interest.

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