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ORIGINAL ARTICLE

The family system seeking to transform its eating behavior in the face of childhood obesity

O sistema familiar buscando a transformação do seu comportamento alimentar diante da obesidade infantil

El sistema familiar que busca transformar su conducta alimentaria frente a la obesidad infantil

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ABSTRACT

Objectives: to understand families' behaviors and eating practices in the face of childhood obesity. **Methods:** a qualitative study, which used the Grounded Theory as a methodological framework and the Complexity Theory as a theoretical framework. Twenty-six informants participated in the study, who were part of two sample groups. Data were collected through intensive interviews, using a semi-structured script. **Results:** "The family system seeking to change eating behavior patterns in the face of childhood obesity" emerged as a central concept, relating three conceptual categories: "Recognizing its behavior patterns and eating practices"; "Reorganizing in the face of childhood obesity"; "Responding to change". **Final Considerations**: the family influences children's eating behavior and contributes to changes that occur in it, which highlights the relevance of the family approach in childhood obesity care, raising reflection on the current nursing practice together with families who experience the same problem.
Descriptors: Family; Pediatric Obesity; Feeding Behavior; Grounded Theory; Nursing.

RESUMO

Objetivos: compreender os comportamentos e as práticas alimentares de famílias diante da obesidade infantil. **Métodos**: estudo qualitativo, que utilizou como referencial metodológico a Teoria Fundamentada nos Dados, e, referencial teórico, a Teoria da Complexidade. Participaram do estudo 26 informantes, que integraram dois grupos amostrais. Os dados foram coletados por meio de entrevista intensiva, com uso de roteiro semiestruturado. **Resultados**: emergiu como conceito central "O sistema familiar buscando a transformação dos padrões de comportamento alimentar diante da obesidade infantil", relacionando três categorias conceituais: "Reconhecendo os seus padrões de comportamentos e práticas alimentares"; "Reorganizando-se diante da obesidade infantil; "Respondendo às mudanças". **Considerações Finais**: a família influencia o comportamento alimentar da criança e contribui para mudanças que ocorrem nele, o que evidencia a relevância da abordagem familiar na atenção à obesidade infantil, suscitando reflexão sobre a prática de enfermagem atual juntos às famílias que vivenciam a mesma problemática.
Descritores: Família; Obesidade Infantil; Comportamento Alimentar; Teoria Fundamentada; Enfermagem.

RESUMEN

Objetivos: comprender los comportamientos y prácticas alimentarias de las familias frente a la obesidad infantil. **Métodos:** estudio cualitativo, que utilizó como marco metodológico la Teoría Fundamentada en Datos y, como marco teórico, la Teoría de la Complejidad. Veintiséis informantes participaron en el estudio, que formaron parte de dos grupos de muestra. Los datos fueron recolectados a través de entrevistas intensivas, utilizando un cuestionario semiestructurado. **Resultados:** surgió como concepto central "El sistema familiar que busca la transformación de los patrones de conducta alimentaria frente a la obesidad infantil", relacionando tres categorías conceptuales reconociendo sus patrones de comportamiento y prácticas alimentarias"; "Reorganizarse frente a la obesidad infantil; "Respondiendo al cambio". **Consideraciones Finales:** la familia influye en la conducta alimentaria del niño y contribuye a los cambios que se producen en ella, lo que destaca la relevancia del abordaje familiar en el cuidado de la obesidad infantil, suscitando la reflexión sobre la práctica actual de enfermería junto a las familias que viven el mismo problema.
Descriptores: Familia; Obesidad Pediátrica; Conducta Alimentaria; Teoría Fundamentada; Enfermería.

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INTRODUCTION

Obesity resulting from an energy imbalance between calories consumed and calories expended can harm health[1]. The worldwide prevalence of obesity has almost tripled in the last 40 years, as just under 1% of children and adolescents aged 5 to 19 years were obese in 1975. In 2016, 6% of girls and 8% of boys were affected by this comorbidity. If rates continue to grow at this rate, there could be more children and adolescents with obesity than moderate and severe malnutrition by 2022[2]. According to official data from the Nutritional Status Report of the Food Surveillance System[3], in Brazil, in 2020, 8.69% of children between 0 and 5 years old and 11.95% between 5 and 10 years old had high weight for their age.

A systematic review study on the situation of childhood obesity in Brazil, from 2014 to 2019, showed a high incidence of overweight and obesity in children aged 0 to 11 years, of both sexes and regardless of socioeconomic status. These data were associated with the children's inadequate dietary pattern, characterized by high consumption of processed foods and sedentary behavior. It is considered that, for the reversal of the current situation experienced by the child population in Brazil, new awareness approaches are needed, aimed at preventing childhood obesity and promoting healthy lifestyle habits, using the school environment, day care centers and family life as a strategy, which have a great impact on this age group[4].

The literature also shows the significant influence of the family environment on food choices and interventions related to childhood obesity[5]. Thus, the concept of eating practices and behaviors stands out as the association of sociocultural attributes with subjective, individual and collective aspects related to eating and food, foods and preparations appropriate for different situations, food choices, food combinations, desired and appreciated foods, values attached to foods and preparations, and what we think we eat or would like to have eaten[6].

Thus, the family is an important system that generates behaviors in the face of each member's experience, such as the simple act of attributing and relating food as an energy source. International studies reveal that the family's eating habits directly influence the way the child eats[7-8]. From this perspective, treatment of childhood obesity outcome can be affected by family factors, which include understanding the causes of weight gain, stigma, family resources, and motivation to make and maintain dietary changes in the family system[9].

Considering that childhood obesity is a persistent public health problem, the Complexity Theory presents itself with a proposal to seek new answers to old problems. However, its application in clinical practice and health care still needs to be explored[10]. This theory has been used in knowledge translation research, and the most commonly used properties in the health area are relationships, self-organization and diversity. In complexity, relationships and communication between individuals in a system can influence change[11].

The family is understood as a complex system capable of creating a balance in the face of instabilities experienced with changes. Each family member is an individual subsystem or system that makes up the family system, and a change in one of its members affects all the others[12]. In addition to being a biological system, the family is a social system permeated by changing symbols and concepts related to roles and functions. It is also considered complex networks, which have components such as self-organization, feedback, self-maintenance, among other properties. As a result, the family can be studied from the concept of self-organization and, for that, it is necessary to understand the importance of pattern as a characteristic of a system and that the systemic properties cannot be measured, but mapped, since they are presented in the settings of the relationships of its components[13].

Therefore, the family plays an important role in the development of dietary patterns in childhood, through behavior, attitudes and food choices[14]. The family's role in childhood obesity has been approached from a quantitative perspective, evaluating the results of family care and management. However, family-centered behavioral interventions are an underused, evidence-based approach that can significantly prevent disease[15].

In this way, the understanding of the family experience conceptualized in data, through the methodological assumptions of Grounded Theory, and theoretical assumptions of Complexity, can support nursing assessments and interventions with families, considering the relevance of family eating behavior for childhood obesity management.

OBJECTIVES

To understand families' behaviors and eating practices in the face of childhood obesity.

METHODS

Ethical aspects

The research was approved by the Health Sciences Research Ethics Committee of the *Universidade Federal do Paraná*. Participants' consent was documented with the signing of the Informed Consent Form by family participants, Assent Form, when participating as a child and the Informed Consent Form, for parents or legal guardian for the child. The Resolution 466/2012 norms of the Brazilian National Health Council (*Conselho Nacional de Saúde*) were followed. To preserve participants' anonymity, the interviews were identified with alphanumeric codes and in the same way the transcripts.

Study design

This is a qualitative study of Grounded Theory (GT) type, which aims to create a framework of concepts or theory construction through inductive data analysis[16]. To understand dietary practices in the experience of families with children with obesity, Kathy Charmaz's constructivist approach was chosen[17].

The main characteristics of the method are listed by Charmaz[17], as established by Glaser and Strauss[18], initially: simultaneous data collection and analysis; building codes and analytical categories based on data; constant comparisons in each analysis phase; advancement in theory development at each stage of data collection and analysis; writing memos to develop the categories, specify their properties and identify gaps; theoretical sampling; and literature review after the development of analysis. The study was guided by the COnsolidated criteria for REporting Qualitative research (COREQ)[19].

Study setting

The study was conducted at a pediatric endocrinology outpatient clinic of a public hospital in a city in southern Brazil, which currently assists an average of 350 children monthly with different endocrine conditions, which is a reference for the care of children with obesity by the Unified Health System (*Sistema Único de Saúde*).

Data source

For the beginning of data collection, the family members who accompanied the child at the time of the medical appointment were chosen. Family members of a child (aged 0 to 10 years) in treatment of childhood obesity were included, and minors were excluded.

Analysis of the data collected, initially with 7 family members, suggested the hypothesis that childhood obesity impacts the family's experience and food routine and that there is a movement of this around the child, aiming at changing habits for treatment of obesity. In view of this, the following questions were raised: how does the family experience changes in eating habits in the face of childhood obesity? How is it for the family to feed the child?

Continuing with the collection and analysis, after interviewing 8 more family members, gaps related to food control actions developed by the family and the child's perspective emerged in the data, with the following questions: how has it been for the child to experience changes in eating habits, in the treatment of obesity? What has changed?

Therefore, it was considered relevant to listen to the child, in order to understand their own point of view and the meanings attributed to their experiences with childhood obesity. Therefore, children made up the second sample group in the study. The inclusion criteria for this group were being between 7 and 10 years old and being treated for obesity at the same outpatient clinic, and as an exclusion criterion, having had less than three months of treatment (return time for consultation). Thus, the first sample group consisted of 20 family members (14 mothers, 3 fathers, 1 grandmother, 1 aunt and 1 cousin) and the second, 6 children.

Data collection and organization

Data were collected from January 2019 to March 2020, through an intensive interview, with a semi-structured script containing questions related to the family's experience with childhood obesity. The interviews were carried out by the main researcher, a nurse, a doctoral student in nursing during the period of development of the study.

In the interview with the children, a comic book about obesity and a flannelgraph (frame covered with felt, on which illustrations and signs can be placed, removed or moved from their initial position (Figure 1)) were used as an approach strategy, in which the children identified the family and its daily and food routine. A structured script was also used to collect participants' sociodemographic data, which was answered by the family members.

The interviews were conducted in a private room at the outpatient clinic, audio-recorded on a smartphone, with an average duration of 40 minutes for family members and 25 minutes for children. In interviews with family members, the child undergoing treatment for childhood obesity was present, even when the child was not a participant in the research. In the interview with the children, the accompanying family members were also present in the room during the interview.

Figure 1 – Photographic record of a flannelgraph mounted at the end of an interview with a child

Two interviews were carried out as a pilot test, which were also included in the data analysis. Among those invited to participate in the research, two family members (mothers) refused and one of them indicated the child's father, who agreed to participate. Data collection ended after reaching theoretical saturation, when the collection of new data did not provoke further reflection or reveal new properties in the categories. Interviews' audios were transcribed and analyzed soon after they were carried out, with simultaneous collection and analysis, as recommended in the method.

Data analysis

Data analysis took place through the coding process, in which the data were synthesized and reorganized in three stages[17]: 1) initial coding (line by line), to identify the meanings of the statements; 2) focused coding, to gather the most significant initial codes, group them into categories and subcategories with tentative names and specify their properties; 3) theoretical coding, to help "tell an analytical story coherently" (p.94), help to conceptualize and integrate the codes gathered in the previous step, circumventing the story under a theoretical orientation. At this stage, with the development of analysis, some codes emerge as conceptual categories. Data were explored and theoretical saturation was reached when data collection did not generate new insights or reveal new properties in the categories.

For this, the analysis ran in a deductive-inductive way, and the codes became abstract, while they were integrated and related to confer intra and inter-category consistency. When coding the data and specifying the properties of the categories (as summarized in Chart 1), the central concept "The family system seeking to change eating behavior patterns in the face of childhood obesity" emerged, which interconnects the three conceptual categories that represent the family's eating behaviors and practices in the face of childhood obesity.

To assist in the process of organizing and comparing codes, WebQDA was used from the focused coding stage to integration of conceptual categories.

Chart 1 - Presenting the conceptual categories, subcategories and participants' statements

CONCEPTUAL CATEGORY	SUBCATEGORY	PARTICIPANTS' STATEMENTS
Recognizing its behavior patterns and eating practices	Having regular meal times	*So, always at this time, they are already having lunch* [between 12:00 p.m. and 12:30 p.m.]. (I9)
	Choosing, preparing and combining food	*For breakfast, I* [child] *drink chocolate milk. The meal is kind of varied, it's not the same thing. Mom ends up doing something different at every meal.* (I16)
	Reporting where and with whom they feed	*When we* [family] *go to lunch, we all have lunch together at the table.* (I6)
	Pleasing the child with food	*Oh, when I* [mother] *say no to some food, he* [child] *makes a little naughty face, a little smile like that for me... like that* [smile]. (I8)
	The child eating what they see	*If there are cookies around, he* [child] *eats them. If it's kept, he won't eat it.* (I5)
	The child asking to eat	*Ask the mother, she* [child] *asks what to eat every day. Sometimes then* [...] *she asks me* [father] *what to eat too.* (I21)
Reorganizing in the face of childhood obesity	Seeking healthy eating habits	*The fats and soda changed. My mother [of child] sometimes buys it* [after starting treatment]. (I23)
	Treatment of obesity affecting the family	*We* [family] *end up not putting some food on the table, not eating because of him* [child]. (I12)
	Restricting the child's food	*And I* [mother] *have to tell everyone no. It's just a plate for him* [child] *to eat. There it is!* (I10)
	Leaving the new food routine	*Every Friday and Saturday, there is a snack at home. Leaving the rice and beans pattern.* (I8)
Responding to change	Adapting well	*Nowadays, if I* [grandmother] *say You can't eat this one, it's not good for you to eat it, she* [child] *doesn't eat it.* (I3)
	Checking for changes in the child's eating behavior	*After she started to follow up here* [obesity clinic], *she also became more understanding about things* [food] (I4)
	Having difficulties adapting	*It's more difficult when she* [child] *asks for it, this week she asked for* [something different to eat]. (I7)
	Believing in food reeducation as a strategy	*If there's an easy way to get rid of the fat, the pasta you can't eat* [...] *you have to find a way to help.* (I4)

RESULTS

The 20 family participants were aged between 25 and 53 years, being 16 women and 4 men. Half of these had incomplete elementary education, 1 had elementary education, 7 had secondary education, 1 had incomplete higher education and 1 had higher education. Participants' professions included day laborer, general service assistant, finance, market and sewing, cashier, rural worker, electrician, teacher, school attendant, and photographer.

The 6 children who participated were between 7 and 10 years old, 3 males and 3 females. Regarding education, 1 child was in 2nd grade, 1 was in 3rd grade, 3 were in 4th grade, and 1 was in 5th grade.

The central concept "The family system seeking to change eating behavior patterns in the face of childhood obesity" relates the three conceptual categories (Figure 2). "Recognizing its behavior patterns and eating practices" reveals the family's condition in the face of childhood obesity, in which it recognizes their patterns of behavior and usual eating practices and identifies that some of these favor weight gain in the child. Therefore, in "Reorganizing in the face of childhood obesity", the family develops strategies to achieve the expected changes in the child's eating habits, seeking to develop a new routine based on this experience, meeting the demands of this process. "Responding to change" emerges as a consequence of family adaptations and new behaviors learned by its members in favor of family system balance. However, the difficulties that arise in this family movement can contribute to maintenance of behavior pattern initially revealed, preventing change.

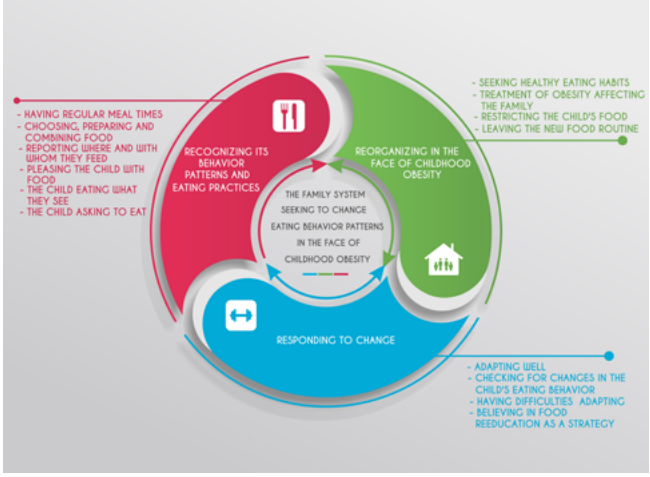

Figure 2 - Diagram of central concept "The family system seeking to change eating behavior patterns in the face of childhood obesity"

"Recognizing its behavior patterns and eating practices" points out the regularity of times for main meals, represented by the subcategory "Having regular meal times". For families, breakfast takes place between 8:00 a.m. and 10:00 a.m., lunch between 11:00 a.m. and 12:00 p.m., and dinner between 7:00 p.m. and 8:00 p.m.. Some families have "afternoon coffee" as an afternoon snack. However, some families report not following any routine of meal times. The children have a controlled diet, that is, they do not eat outside the hours scheduled by the main caregiver, who is usually the mother.

In the process of recognizing their eating behavior pattern "Choosing, preparing and combining food", it is shown that, in most families, meals are prepared by the mother. As for food combination, in the morning, the child is used to eating bread with cheese and ham, juice or chocolate, coffee with milk and fruit. The children have a snack in the middle of the morning with a fruit. Lunch usually consists of a carbohydrate (pasta, rice or polenta), beans, salad (vegetables or vegetables) and a protein (meat, sausage, chicken). This combination is referred to by some families as the trivial. At dinner, they usually repeat the same foods that made up the lunch of the day. Some families report eating something lighter, such as vegetable soup and bread. Soup for dinner is common in many families.

There are families that mentioned differences in the composition of the child's plate in relation to the rest of the family, for example, the child's plate with more vegetables and less carbohydrates, and the family's plate with more protein, more carbohydrates and less vegetables.

Reporting where and with whom they feed showed that the family has the habit of eating together at the table daily and at every meal. However, when a family member has a boyfriend, he/she sometimes does not sit at the table and have meals with him/her. In some families, the child has meals with the sibling when the family members are working.

As it is a tradition to eat at the table, the default behavior of families is to have their meals at home. However, some variants arise, such as the family eating on the couch, because there is no table, and also fighting for the child to eat at the table.

One of the environments where children at this age have meals is the school. Those who attend full-time eat all or almost all meals at school, but the child also eats the lunch they take from home to school and/or eats the school lunch prepared, according to the medical guidelines prescribed for them. It still happens that the child has meals in other environments, such as a family home and social project. On these occasions, families report that the food available to the child is usually unhealthy or the child eats as much as they can, since there is no way for the family to control the amount. Healthy foods may also be available in these environments.

The family also recognizes another behavior in "Pleasing the child with food", using it as a strategy to calm the child when they are agitated, offering food to avoid conflict or for them not to throw a tantrum, either because the child is asking for it, or because they ask in a way that moves the family emotionally.

Tangible food availability emerged in the behavior "The child eating what they see". The range and ease of food are factors related by the family to unhealthy eating. Another situation is when family members do not have meals at the same time, and the child wants to eat with each family member who sits at the table.

Similar to food availability, "The child asking to eat" is related to compulsive eating behavior. The child looks for food during the day for grabbing bites. The child eats what they like until they run out, for example, a whole pizza. The family refers to the desire to eat expressed by the child and the need to set limits so that they stop eating.

"Reorganizing in the face of childhood obesity" is a conceptual category that represents a process initiated with "Seeking healthy eating habits", a strategy to achieve the necessary changes in children's eating habits. For this, sugar was replaced by a sweetener, the amount of chocolate milk was reduced, whole foods were consumed and the diet was supplemented with fruits and vegetables. Foods such as pasta, sweets, candies, fried foods, crackers and fast foods were removed from the child's diet. Pizza and snacks consumed daily were also removed. Food withdrawal is implemented by not buying and/or preparing them, with the aim of not having that food available at home.

Another strategy experienced was the replacement of kitchen utensils, for example, a Teflon frying pan, with the objective of using less fat in food preparation, and also the use of a plate with dividers, as guided by a nutritionist, to limit the amount of food.

"Treatment of obesity affecting the family" reveals that the family starts to deprive itself of some types of food, consuming foods indicated for the treatment of childhood obesity. Therefore, foods not recommended for the child are placed on the table. If someone in the family wants something different, they prepare it separately. Thus, families realized that the action of one member influences the rest of the family. In some families, it happened that a member changed his eating habits and started to follow the same healthy eating guidelines as the child, due to being overweight or because they do not think or feel that they are eating differently from the rest of the family.

"Leaving the new food routine" refers to situations in which variation occurs in the child's new diet and the initial eating behavior is experienced. Usually, on the weekend, the family allows some of the child's favorite foods, which are not recommended in the treatment of obesity, such as fast foods, pizza, ice cream, chocolate, pie and fast food. This behavior is referred to as something pleasant for the child and the whole family as a way of compensating for the limitation and control of eating habits during the week. These variations in the change in eating habits occur only for the child and also in meals with the family.

"Restricting the child's food" is a strategy to control the child's food consumption. However, this attempt is made as much as possible during the week and one of the measures used is talking and explaining the need for food restriction and preventing the child from eating outside. For the child not to eat any more or not to eat some type of specific food, family members also offer fruits, vegetables, or lighter foods. Families report that they became more controlling, i.e., before they could not say no when the child asked for food and they changed over time, but putting it into practice was very difficult for most families.

Through the new experiences that the family system experiences to modify its eating practices, "Responding to change" is the conceptual category that represents the family's responses

through the reorganization process. "Adapting well" means that sometimes children accept food control and "do well". Time is an aspect that influences this adaptation, as some families reported that it was more difficult at the beginning of the implementation of new dietary practices.

Moreover, "Checking for changes in the child's eating behavior" denotes the child's new eating behavior, a consequence of one of the changes adopted by the family in the reorganization process, by allowing them to make healthy food choices. According to the family, the child recognized the need to change their eating behavior based on medical guidelines during the treatment of childhood obesity.

Difficulties were identified in "Having difficulties adapting", when there are families that react, not being able to understand and follow the changes in dietary practices necessary for the treatment of childhood obesity, resulting in difficulties to carry out food control, for example. They referred to it as very difficult and complicated to deny food to the child. Furthermore, there are complaints from other family members regarding the changes experienced. Generally, the difficulty occurs when there are siblings who are close in age to a child with obesity, in which there is a need to supervise the overweight child's food and not the other.

In "Believing in food reeducation as a strategy", the family demonstrates that they are familiar with healthy and suitable foods for the child and believe that the main way to achieve obesity treatment is through food with food reeducation and monitoring of the child's diet. In addition to this, they recognize the need to adapt the behaviors and eating practices of the entire family system so that the child can modify and restore their state of health.

DISCUSSION

The family system starts from the recognition of their behavior patterns, habits and eating rituals that may or may not weaken the child's nutritional status. As the family rationalizes its errors in food, it also conditions and relativizes its eating routine to organize itself in front of the child. In this sense, family dynamics can change the behavior patterns or eating practices of children with obesity, as evidence suggests that children exposed to a communicative, functional and regulated environment are less predisposed to body weight gain[20].

Although this study represents the family's perspective, the individual action of the child or another family member emerges as a condition for the phenomenon, in which the offer of food in moments of fragility of the child or the continuous desire for food also influences the family's behavior and eating practices. This has been described as family functionality, in which family organization around schedules, habits and rituals may or may not promote a healthy environment[21].

The recognition of family behavior patterns and eating practices connected with childhood obesity was identified in the availability of food to the child, in some food preferences and in the attribution of the affective meaning of food when the family uses it to calm them down. Similar data to these were observed in a systematic review[22], in which parents' eating style and behavior were associated with the child's healthy habits, such as the pre-setting of meal times, the type of food offered and the parental approach through children's requests for treats.

Given the above, the family system begins a process of creating new behaviors from the recognition of the initial condition of their eating practices. According to complex thinking, self-organizing models only emerge with new forms of behavior when the system is far from balance[13]; in the same way, the emerging organization of the eating routine of families of children with obesity was understood, when seeking new behaviors. In this study, the family system realized that it needed to change its eating habits, so that the child could effectively change theirs, an emerging fact in the conceptual category "Reorganizing in the face of childhood obesity".

Reorganization represents the strategies built by the family based on the recognition of its strengths and resources in search of healthy habits and a family environment favorable to changes in the child's eating habits. From this, it was necessary to adjust the choice, preparation and combination of foods in the child's meals, according to the medical guidelines received in treatment. In addition to changes in food choice, we sought to limit the child's eating behavior, recognized by families as compulsive.

It is noteworthy that the child's food choice is not exclusive to them, as it also depends on the family and who is responsible for their care. In addition, preparation, choice and combination are different elements of food choice, but, in this research, they were unified, to represent that, for the child, the person who prepares also chooses and combines foods.

In this study, it was also identified that family functioning can be a strategic point for the adoption of healthy or harmful measures to food. As it is considered a protective factor for health, care for children with obesity should broaden the focus on this family approach as a way to improve behaviors that influence weight[23]. Therefore, family interventions to treat childhood obesity are widely used, but it is necessary to know how the family is affected by these interventions[24]. In view of this, understanding the influence of family functioning on weight gain may allow the change of modifiable family behaviors, such as communication, behavioral control and problem solving, to improve health behaviors[25].

In this investigation, communication was a strategy used by family members to define limits in the child's compulsive eating behavior and to clarify the need for new eating practices for the whole family based on the medical guidelines received when initiating the treatment of childhood obesity. In this aspect, communication is used as a way of trying to restrict the child's eating and is closely related to the limits within the parent-child subsystem, impacting family functioning.

Despite the relevant adaptations, other families were not successful in seeking healthy eating practices. This may be correlated with education, food culture or socioeconomic status. The way families deal with the child's reactions to the imposition of limits has been approached as an interventionist strategy, which can be inserted in nursing practice[26]. Thus, the change in the child's eating behavior is a consequence of the reorganization of the family's eating routine. Even when they cannot, due to difficulties, families follow and continue in the process, seeking to transform their behavior patterns. This family network's circularity of actions

in search of change and the interrelationships of the members with each other, and within the parent-child and siblings subsystems, was represented in the central concept "The family system seeking to change eating behavior patterns in the face of childhood obesity".

Therefore, this family's commitment to change is considered as a consequent circular movement in the complexity paradigm, when it comes to complex systems such as the family system. In light of the complexity, this behavior is natural so that new rearrangements are incorporated for the very survival of the system[13]. Similar to this, interventionist studies based on family systems theory have shown that families experience difficulties in the face of adaptations, but manage to change their status in a positive way[22,26].

As can be seen in the graphic representation of Figure 2, the process of transforming eating practices begins with the recognition of patterns of eating behavior in the family system, moving on to seek ways to achieve the necessary changes. But the family is a living, interactive, dynamic and organized system, in view of its internal rules and routines, and thus the process of transforming family behaviors emerged as a phenomenon of reorganization of eating practices.

The family's movement in search of adaptation is circular, that is, continuous, and changes occur successively, and the family network components transform each other[12]. However, in this study, when conceptualizing the family system seeking to transform their behaviors and eating practices in the face of obesity, even when they are undergoing changes and reorganizing themselves, the family can also behave, maintaining its identity and initial food pattern, when it leaves the new food routine as a strategy to maintain the system stability as in a complex adaptive system.

However, it is assumed that the family system is out of balance when experiencing a situation of stress, problem, disturbance or disease such as childhood obesity. This occurs even if this system returns to its initial state of balance, modifying its behavior patterns and eating practices through the changes experienced. Some measures discovered and implemented in the experience of this process will probably still need to be maintained, in order to guarantee the health status and maintenance of the child's adequate weight, as well as the balance of the entire family network.

Study limitations

The study has as a limitation the fact that it was carried out with families from a single public service context, making it necessary to explore other social realities in which the family experience with childhood obesity is also lived. Another limitation refers to the non-validation of concepts that emerged with families that have similar experiences.

Contributions to nursing

The main contribution of this study is the production of evidence on the family's experience in the process of changing the behavior and eating practices of children with obesity, as well as the identification of difficulties experienced and successful strategies implemented by the family in this process.

Thus, it is expected that the data emerging from this research generate reflections on the current treatment model for childhood obesity, which focuses on individual behavior change, even though there is recognition that obesity is the product of a complex adaptive system[27]. Therefore, this study can contribute to the clinical practice of family nursing, expanding attention to the family context, when care involves the behavior and eating practices of children with obesity.

FINAL CONSIDERATIONS

The family system seeks to modify its behaviors considering the need to change the eating habits of children with obesity, since the disease affects the family as a result of responsibility for child care and commitment to treatment.

Constructivist GT allowed revealing the experience in the family's eating practice in the development of strategies with the conceptual category "Reorganizing in the face of childhood obesity", which can corroborate the construction of a theoretical model and be considered in nursing interventions with other families that experience the same reality.

Given the understanding that the family system is capable of contributing positively to changing eating behavior pattern, this study generated new evidence for the inclusion of the family in the approach to treatment of childhood obesity, since, generally, the approach to the disease is individual.

However, it is suggested that further research seeks to explore aspects related to the family system's difficulties in the process of transforming their eating behavior patterns, since some families are able to modify them and others cannot, and to identify aspects of family functioning that are relevant for modifying the eating practices of families of children with obesity.

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