RESEARCH

THE PERCEPTION OF EARLY CHILDHOOD EDUCATORS ABOUT WEIGHT GAIN IN PRE-SCHOOLERS

PERCEPÇÃO DOS EDUCADORES INFANTIS QUANTO AO PROCESSO DE ALTERAÇÃO DO PESO EM PRÉ-ESCOLARES

PERCEPCIÓN DE LOS EDUCADORES INFANTILES SOBRE EL PROCESO DE ALTERACIÓN DE PESO EN NIÑOS PREESCOLARES

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ABSTRACT

Currently, 42 million children are overweight; this is caused, partially, by unhealthy habits acquired in early childhood. The present study aims to identify and characterize the perceptions and beliefs of early childhood educators about childhood overweight, as well as preschool strategies that address the issue. It is a qualitative descriptive exploratory study conducted through semi-structured interviews with four educators and six parents. The results revealed that teachers have accurate perceptions regarding the factors that contribute to body weight gain and its deleterious consequences. They built a repertoire of strategies in order to encourage healthy eating habits; however, such strategies (positive or not) are not employed on a regular basis. Physical activities are not frequent either. In conclusion, the studied preschool institutions are losing the opportunity to influence children's health in a more effective way.
Keywords: Overweight; Obesity; Child, Preschool; School Health.

RESUMO

O excesso de peso é um sério problema e atinge 42 milhões de crianças no mundo, sendo causado, em parte, por hábitos não saudáveis adquiridos na infância. **Objetivo:** *identificar e caracterizar percepções e crenças de educadores infantis acerca de excesso de peso infantil, bem como estratégias que usam na pré-escola para lidar com essa situação.* **Métodos:** *estudo qualitativo, exploratório-descritivo, realizado com entrevistas semiestruturadas a quatro educadores e seis pais de pré-escolares.* **Resultados:** *as educadoras têm percepções corretas quanto aos fatores que colaboram para o ganho de peso corporal e às consequências deletérias de seu excesso. Por consequência, usam estratégias no âmbito da pré-escola a fim de incentivar a aquisição de bons hábitos alimentares, porém o emprego dessas não é constante, havendo também estratégias negativas. Quanto às atividades físicas, estas também não são frequentes.* **Conclusões:** *as pré-escolas estudadas perdem a oportunidade de influenciar de forma mais efetiva na saúde das crianças.*
Palavras-chave: *Sobrepeso; Obesidade; Pré-Escolar; Saúde Escolar.*

RESUMEN

El sobrepeso es un grave problema de salud que afecta a 42 millones de niños en todo el mundo y que se debe, en parte, a las malas costumbres adquiridas en la infancia. Con este trabajo se ha buscado identificar y caracterizar las percepciones y creencias de los educadores infantiles acerca del sobrepeso infantil, así como las estrategias que utilizan en la pre-escuela para hacer frente a esta situación. Se trata de un estudio cualitativo, exploratorio y descriptivo, realizado a través de entrevistas semiestructuradas con cuatro educadores y seis padres de niños preescolares. Los resultados señalan que los educadores tienen percepciones correctas acerca de los factores que contribuyen al aumento de peso y las consecuencias perjudiciales de su exceso. Para ello utilizan estrategias con miras a incentivar la adquisición de buenas costumbres alimenticias; sin embargo, no son constantes y también hay estrategias negativas. En relación a las actividades físicas, tampoco son frecuentes. Se observa que las pre-escuelas objeto de este estudio pierden la oportunidad de ejercer más influencia en la salud infantil.
Palabras clave*: Sobrepeso; Obesidad; Preescolar; Salud Escolar.*

INTRODUCTION

Excess weight is a global epidemic and a serious public health problem[1]. The World Health Organization (WHO) defines overweight and obesity as the abnormal or excessive accumulation of fat that may impair health. Body mass index (BMI) is used to classify overweight and obesity. In adults, a BMI greater or equal to 25 kg/m^2 is overweight; a BMI greater than or equal to 30 kg/m^2[2,2] is obesity. There is no simple index for measuring overweight and obesity in children given the physical alterations due to normal growth and development. Therefore, growth charts and BMI index used on children depend on their age and gender.[1]

Overweight and obesity are associated to increased risk of cardiovascular disease, hypertension, atherosclerosis, type II diabetes, liver dysfunction, orthopaedic and respiratory disorders as well as to low self-esteem.[3,4] Furthermore, obesity can trigger metabolic disorders in children that increase the risk of early cardiovascular disorders in adulthood.[1]

It is estimated that 42 million children under the age of five are overweight worldwide.[1] Representative studies of the Brazilian population demonstrate that, between 1970 and 1997, the rate of overweight and obesity among children and adolescents aged 6 to 18, went from 4% to 13%.[5] From 1975 to 1997 overweight rates increased from 2.6% to 11.8% in the Northeast and Southeast of the country.[6] Recent studies also reveal the same tendency.[7,8]

The aetiology of this chronic disease is multifactorial, genetic and environmental.[9] Several studies have identified the influence of biological aspects involving genetics and metabolism.[10,11] Genetic influences on overweight and obesity are probably related to the child's metabolic characteristics being altered by obesity syndromes:[1,2] 30 to 50% of body shape determination, fat distribution patterns and response to overfeeding can be attributed to genetic factors in people more susceptible to weight gain in a permissive environment. Thus, the complex mixture of genetic and environmental factors influences an individual's weight.[5,9] However, it is estimated however that only a small percentage of current obesity cases can be attributed to genetic factors. Since no substantial genetic changes were detected in recent years, genetics do not explain the dramatic increase in cases in the last 30 years, whereas the population's lifestyle changed significantly in that period.[1,2] Consequently, current high rates of overweight and obesity in most of the countries seem to indicate that, despite genetic susceptibility to such disorders, environmental factors play the main role.[12]

For pre-schoolers, the early education institution is a vital environmental influence given the continuous and daily psychosocial and cultural interactions_established there. The development of physical activities and nutrition education programs in these institutions as well as the interaction between parents and teachers could promote the internalization of healthy habits amongst that group.[13] The impact of such policy could be easily understood since 4.8 million children attend pre-school institutions in Brazil.[14]

A previous research in a nursery school in São Bernardo do Campo[15] revealed a positive change in eating habits among most of the children. The studied institution developed programs aimed specifically at the acquisition of healthy eating behaviours, besides offering dietary diversity and quality meals.

A study carried out in the United States with 39 children aged from two to five years[16] revealed that children change their food preferences according to those of their colleagues. However, teachers can exercise a significant influence over small children in the acceptance of new food choices.[17]

Although parents and teachers influence the practice of physical activity, a research with children from nine European countries emphasized that a children's best friend participation in sports had more influence than that of a family member.[18]

Likewise, pre-school institutions can offer examples of unsavoury practices; in a study carried out in nine nurseries in the Netherlands more than half of the children were encouraged to eat more than they wanted – average rate of insistence varying from 1.8 to 10 times per child during a meal.[19] Teachers can also influence negatively by refusing to eat a specific food. Accordingly, teachers' practices and attitudes may or may not establish and reinforce healthy habits, depending on their beliefs, experiences and educational background.

In view of the increasing prevalence of childhood overweight and obesity and considering the significant influence of nursery schools on the development of healthy habits, the researchers sought to understand the perceptions and practices of early childhood educators about the subject as well as the activities aimed at reducing its occurrence.

OBJECTIVE

To identify the teachers' perceptions about childhood overweight and obesity, as well as the strategies used in pre-school institutions to address the issue.

METHOD

This is a qualitative exploratory descriptive study. It was carried out between May and December 2008 in two pre-school institutions: a public one and a private one, both in the urban area of São Bernardo do Campo.

The public nursery school, located in the centre of the city, had 496 pupils aged three to six on a half-day program (morning or afternoon). The school dining hall was wide, clean, well-lit and had sixteen small tables for six children each; the number of children per table enabled interaction during meals. At snack time, children were organized in three groups of thirty-two pupils. The indoor

yard next to the dining hall was used during meals, which produced excessive and distracting noise. Food was placed in a thermal counter and the children waited in a queue to help themselves under the teachers' supervision. Due to the large number of pupils, there was little supervision of those already served. Pates, butter, bread and fruit juice were set in large quantities on the tables. Teachers had their snack with the children but, instead of sitting down, they ate standing up with another teacher. Supervision consisted of verbal commands to those who had already finished and were going to brush their teeth in the toilets located in the same room.

At the time of the research, there were no comprehensive projects or activities being carried out to encourage the acceptance of less-palatable foods. Existing initiatives (like talking groups in which less-accepted foods were introduced and tasted) were teachers' single attempts to address the issue.

There were 30 minutes of daily physical activity in a large external playground; other 30 minutes were allocated to teacher-directed activities such as running or the so called "body and movement." The latter consisted of balance activities, steeplechase, hopping, turn somersaults, etc. The external, good-sized sports court was adequate for large classes, but could not be used in rainy days since it was roofless. On such occasions, activities were restricted to a small covered patio next to the dining hall.

The private nursery school stood in the southern area of the city; it catered for 166 children from three to five years, attending a full-day program (11 hours) or a half-day program (4 hours); there were as well children in a 7 hours program. The dining hall system was also self-service. Full-day care pupils were given lunch and two snacks; the others, only a snack. The dining hall was large and clean, with five large rectangular tables and two big benches at the sides of the table for five children each. Children in full-day care and some in half-day care (at the parents' request) had lunch together. There were 36 children for mid-day lunch and about 40 for the snacks. The teachers remained standing during lunch and snacks and did not eat with the children; thus, they did not provide any social model during meals. At lunch, meal was placed on four stainless steel chafing dishes, arranged inside a Formica counter; children waited for their turn in line, always supervised by the teachers who tried to encourage the acceptance of less-palatable foods. Snack was served at a sideboard. The children waited in line for the teachers' help. There was adequate supervision for two and three years old toddlers, but little supervision for those aged four and five.

There were two activities being carried out to improve the children's acceptance of less familiar foods: a talking group and at a literary project. In the first one, food was served and presented in class by teachers 20 minutes before lunch; children had the opportunity to handle and taste it. The second activity was an interdisciplinary project involving food manipulation and tasting with music and language activities.

Thirty minutes of physical activities were carried out daily in two small indoor courts: one with playground equipment and the other one without. The playground was covered by **an** aluminium roof. During activities children were organized in groups of 10. The large outdoor court was also used for 30 minutes of teacher-directed activities ("fun and games") such as racing, hopscotch, steeplechase and other traditional games. Once a week a "movement class" with races, nursery rhymes, hula hoop, tag, kick the can and football was held either indoors or outdoors.

At the time of the research, the studied schools did not have any health care professional or physical education specialist and all the activities were guided by the teachers.

DATA COLLECTION AND ANALYSIS

The educators had at least three years of experience and were randomly selected.

Data was collected through semi-structured interviews with open-ended questions. The interviews were carried out at the participant's house or at the nursery school. It was important that the place was quiet and private.

Data analysis used Bardin's thematic content analysis[20], which consists of the following steps: pre-analysis, material exploration, processing and data interpretation.

ETHICAL CONSIDERATIONS

The study followed the National Health Board Resolution No 196/1996 and was approved by the Research Ethics Committee of the Nursing School of the University of São Paulo (protocol No 743/2008/CEP-EEUSP). To ensure the anonymity of the study subjects, names used herein are fictitious.

RESULTS AND DISCUSSION

The researchers interviewed four teachers aged 27 to 44 years. All had a degree in Education and were the tutors of each class. None of them had attended postgraduate school. Two categories emerged from the analysis of the teachers' narratives: *teachers' perceptions about childhood overweight and obesity, and preschool activities to control excessive weight.*

EDUCATORS' PERCEPTION ABOUT CHILDHOOD OVERWEIGHT AND OBESITY

According to teachers, the ideal body weight is the one that does not damage health and allows the practice of physical and normal daily activities.

It is the one you feel good in, you don't feel heavy, you can climb a ladder, climb a hill, run, play, speak, talk [...] (E4)

An obese child cannot overdo. They play in the court, run a little and say: "Oh, Miss, I'm tired" already sweating and red, as if fainting [...] (E2)

Teachers talked subjectively about the issue, describing the ideal weight as the one that is proportion to the person's height, although no measures had been taken and families had not provided information on that respect.

It's someone you look at and see no fat (E4).

It's the child's physical structure;[...] neither too fat nor too thin[...] like weight being compatible to the child's height, isn't it? (E3).

One of the teachers gave the example of her own son, whose weight she considered normal. After the interview, and with her authorization, the child's anthropometric measurements were taken and he was characterised as being overweight (p>85). This example and the following statement show that these subjective assessments can be risky.

Last year there was a fat little boy; I talked to my supervisor and she said I had to promote activities so he could exercise [...] (E3).

This child was probably already obese since it seems difficult for teachers to identify overweight cases. In the above instance, a more complete assessment than the one proposed by the supervisor would have been necessary. Nevertheless, teachers are not the only ones to act this way. A study carried out in the state of São Paulo with 180 mothers of children under two years old investigated their opinion about their child's weight. Results demonstrated that, amongst the four nutritional status (malnutrition, normal weight, overweight and obesity) the highest error rates were related to overweight, proving that mothers, like teachers, seem to be unable to recognize it.[21]

It is worth mentioning that the two nursery schools analysed did not have a health care professional to assess the child's body weight and such task was a teacher's responsibility. It is a quite usual situation. Data from the National Institute for Educational Studies Anísio Teixeira (INEP) show that only 8.1% of nurseries and 3.8% of pre-school institutions in Brazil have a professional health care (nurses, auxiliary nurses, doctors, dentists, etc.).[22] Consequently, in view of the mothers' mistaken assessments and the lack of health professionals in schools, the teachers' role is of the utmost importance as can be demonstrated by the following example:

If I see something I talk to my supervisor and to the mother as well [...]. I noticed he couldn't run and had problems following the others during physical activities[...] we suggested the mother to take him to a nutritionist. She did so [...] (E4).

Regarding the factors that lead to weight gain, they mentioned the consumption of high-calorie foods, eating in front of the television, computer or video game and sedentary games.

Eating in front of the TV sometimes (laughs) causes her to overeat; it is my own experience[...] if you give her a pack of cookies and sit her in front of the television she can eat it all there [...] (E1).

Several studies have associated weight gain in childhood with sedentary activities like watching television.[23,24] A study carried out with children aged 9 to 14 years in Toronto, Canada revealed that those who ate pizza in front of the television ate 228 more calories than those who were not in front of the TV,[25] i.e. one piece and a half more. Watching TV distracts the child and keeps him from recognizing the signals of satiety, favouring weight gain. Furthermore, much of that food is unhealthy, which promotes even more weight gain.[25,26]

Teachers made comments on the consequences of obesity, highlighting present and future health hazards, difficulties to participate in physical activities and low self-esteem.

An overweight child will be an adult with problems [...] we will have obese children, ill children in the future. It is already happening: we hear a lot about children with hypertension, high cholesterol levels[...] the children I teach are four years old and some of them realise they can't do what their friends do [...] And it messes up with their self-esteem, doesn't it? [...] For instance, hopscotch, which my class likes very much [...] it's something you realise by the way the child looks when he can do it [...] children say "Well, done! You've done it!"; but others go: "yeah, but he didn't do it properly". What am I supposed to do then? I say we should congratulate him regardless. But some say "he didn't do it right, he can't do it!" (E4).

Literature lists many limitations imposed by obesity, particularly, to sports.[27] Obese people have their motor skills impaired; this condition normally leads to lack of motivation and consequent abandonment of the activity altogether.[27,28] A study carried out in Campinas, São Paulo, with 30 children

demonstrated that heartbeat frequency of obese children rises quicker than normal weight children during physical activity.[29] .Moreover, excessive weight reduces the child's physical ability and makes him feel inferior to their more agile counterparts.[28]

Teachers may have misapprehensions about a child's nutritional status, but are basically correct as to the factors that contribute to excessive weight, as well as to its harmful consequences. Such situation motivates them to develop strategies in order to change the child's lifestyle.

PRESCHOOL ACTIVITIES AIMED AT CONTROLLING EXCESSIVE WEIGHT

Teachers from both institutions reported that consumption of fruit and vegetables was encouraged through food projects such as talks, food presentation and food tasting as well as teacher modelling to encourage food acceptance.

> *We promote activities and projects all year round. For instance, last year the theme of the cultural fair was food. So each class talked about fruits and vegetables. Each child had to bring a fruit or vegetable dish. They brought them and participated [...] We sang, saw videos about food, it was very good! [...] we had a talking group, we talked about getting old and being healthy[...] each week we chose four parents to bring a dish with leftovers such as watercress stalks, banana peel, pumpkin and other vegetables[...] the condition was that it had to be healthy food. It was terrific! (E4).*

> *B is for banana [...] then we started playing with the ball and the balloons[...] I took a banana and gave it to them and said: "Look, banana is a fruit, how lovely!" None of them used to eat it but after the game they did so (laughs) (E1).*

Such strategies, endorsed by the literature, are considered positive since they encourage children to eat less-palatable foods, especially vegetables[15,17,30].

Teacher modelling is a vital strategy during mealtimes; however, in the case of the private school, teachers were only present during snack time. During lunch children were attended by school assistants that did not eat with them.

According to one public nursery school teacher, educators should act as social models during meals; however, as they used to eat standing up, they did not provide a proper model for children. Besides, during data collection lunch was not being offered due to repairs in the school dining hall.

Social modelling during meals has a significant impact on children's eating habits, especially if performed by adults who are close to them, as parents and teachers[17]. A study conducted in the United States with 26 pre-schoolers demonstrated that teachers are reference for children at mealtimes[17]; they tended to accept a variety of foods, especially when adults showed enthusiasm about them ("I love mangoes!").

Despite the several positive strategies mentioned above, they were not carried out by all teachers. One of them even revealed a certain indifference and fatalism regarding the situation:

> *I try to talk; but if the child doesn't want to eat you can talk as much as you want that he won't eat anyway[...] (E3).*

The implementation and development of such projects should involve the whole institution so their success will not depend on teachers' individual preferences.

Naturally, sometimes results are not the expected ones since children reject meals. If teachers do not try all the available strategies they might lose the chance of positively influencing the child's eating behaviour. Literature mentions several strategies to be used in pre-schooling in order to improve the acceptance of vegetables and fruits: teaching about the features and health benefits of different foods through storytelling; using a kitchen garden so as to motivate the child to plant and harvest the food he is going to eat; introducing new foods through games; organizing talking groups to encourage children to smell and touch healthy foods and to notice their different colour and shapes; cooking and tasting dishes usually rejected.[15,30]

Furthermore, the study participants commented on strategies to limit the amount of food offered to children, according to what they considered appropriate. Some of the educators realized the amount of food was excessive, especially bread. They were concerned about the tendency to replace meals with bread and raised the issue with parents.

> *If a child eats a lot of bread, I try to ask the family if he is having lunch properly at home or if he is swapping it for bread[...] (E2).*

In some teachers' opinion, children should never leave food on the plate, even if they are already satiated. Surely those teachers are being influenced by the family and do not realise the harm they are doing to the child. This happened in the private nursery school:

> *Sometimes a child puts the snack in the lunchbox and says he has already eaten it. So I open the lunchbox and check it (laughs) [...] Now I know them well, don't I? Then I say: "No, you didn't!" or "you haven't finished! Now, let us have a bite" So they have one, two, four, six till they finish it. Otherwise, their mothers ask why the food is in the lunchbox. So I started to pay more attention to this. (E4).*

Both teacher and parent's attitude is wrong. This is a good opportunity to discuss perceptions of hunger and satiety. It is also worth questioning whether the teacher is properly informed so as to address such an important issue.

Although there were nutritional projects developed by both public and private nursery schools (the latter being planned by the school board) the teacher was ultimately the one responsible for their implementation. Thus, lack of planning in the public school and lack of training in both schools led to the implementation of negative and wrong strategies that demonstrated the educators' ignorance on the issue.

According to the National Curriculum for Early Childhood Education,[31] preschool institutions should promote activities that contribute to creating healthy environments so as to influence children towards a healthier lifestyle. The Brazilian Department of Education website provides information on early childhood education.[32,33] One of the documents discusses the services quality, and proposes a problematizing approach to all professionals.[32] Therefore it suggests regular meetings to evaluate the services in order to achieve the goals of promoting child development, which includes healthy eating habits.

In other words, pre-school institutions should exhaust all positive strategies to encourage healthy habits in children; negative strategies should be thwarted by training and by the intervention of health care professionals. Forcing the child to eat hampers the perception of satiety signals and promotes weight gain. A study conducted in the United States with 22 pre-schoolers highlighted that a child's ability to regulate energy consumption fails when he focuses on environmental stimuli, e.g. when an adult draws his attention to the food left on the plate.[34]

Regarding the amount of snacks consumed by public preschool children, one teacher pointed out that there was an imbalance between the child's routine at school and at home, which led to either excessive consumption or to no consumption at all.

> *I think the school snack is some children's lunch. For some of them it is, but a sandwich doesn't replace beans, rice and salad. Other children don't want bread because they just ate at home. At four o'clock they fill up the tummy with milk. Some children drink three glasses of milk, they are hungry, but that is not enough[...] I don't know if they are going to have a proper meal at home. I think that the child who eats too many snacks probably didn't have lunch at home (E2)*

Both schools carried out physical activities that were practiced on a daily basis: 30 minutes in the playground and other 30 minutes at the school court.

According to the "Physical Activities Guidelines for Children" of the Centre for Disease Control and Prevention (CDC),[35] children should have at least 60 minutes exercise daily. In our study both schools were impaired during winter and rainy days. The situation was worse in the public preschool since it had no indoor gymnasium and children were obliged to share the dining hall with those who were eating. Thus, both meal time and physical activities were not properly done. Therefore children had either the minimum recommended of physical activities (in the private nursery school) or less than that (in the public nursery school).

> *If it is cold or raining, we can't keep them in the classroom so we do something indoors [...]. Here we have the dining hall connected to the yard; sometimes it is extremely noisy, children playing while others are eating, it is complicated [...]. I've seen schools with a dining hall totally apart. You can hear the normal school hubbub but it is not near; so you have a little corner for the meals. You can sit down and don't see children hopping about, running around[...] (E2).*

> *When it is very cold, we exercise in the classroom, but there is little space, so we are not able to do many movements[...] but if it is sunny we go out every day (E1).*

These findings corroborate other researches. A study conducted with 220 users of a public park in the state of Paraná demonstrated that climate works as an inhibitor of physical activity[36]. The temperature also impacts on social perception and judgment: the research revealed that people's opinions tend to be more positive when it is warmer[37].

Analysing the situation according to literature, it is possible to assess the damage to child development. A longitudinal study carried out in Canada followed up children until the age of 35 years and revealed that regular physical activity at school has a positive impact in adulthood. Since the pattern of childhood physical activity tends to persist in adulthood, schools have a very important role in fighting against sedentary lifestyle[38,39].

FINAL CONSIDERATIONS

Preschool teachers have both right and wrong assumptions about children's nutritional status. They were basically correct as to the factors that contribute to weigh gain as well as to the harmful consequences of excessive weight. Therefore they try to develop several strategies (adequate or not) to change children's pattern of food consumption and of physical activity at school.

Although there were projects planned by the private school board that aimed at changing eating habits (talking groups and literary project), they were developed mostly by the teachers. This shows that the institutions should be able to manage their own programs so that children are not subject to individual preferences.

Physical activities were doubly undermined: by the teacher's own conceptions about the influence of the climate and by the limited possibilities due to the physical structure of the nurseries. Such factors accounted for the children having merely the minimum recommended amount of daily exercise.

Some teachers contacted, on their own accord, the children's parents in order to discuss eating habits, but the institutions had no specific programs to address the issue. A partnership with the health system could favour the implementation of such programs and their assessment.

STUDY LIMITATIONS

A limitation of the study is the small number of schools included in the research; however, literature confirms the present study findings.

RECOMMENDATIONS

Pre-schools institutions assemble a high number of children and adults and are excellent for health education and for the promotion of healthy habits. According to the guidelines of the "Program for Healthy Eating in Early Childhood, Elementary and Secondary Education" – sponsored by the Brazilian Health Department and the Brazilian Education Department[40] – and the "National Curriculum for Early Childhood Education"[31] nutrition and physical activities must be planned in order to contribute to the structuring of healthy environments. Health care policies should focus on promoting health in schools by planning and implementing a "health curriculum" in preschools as well as by establishing partnerships with universities in order to develop training courses that will benefit not only children but also education professionals.

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