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Research Report

Influence of grandparents on eating behaviors of young children in Chinese three-generation families

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Abstract

Aim: To investigate how grandparents influence their young grandchildren's eating behaviors in Chinese three-generation families.

Methods: This qualitative study used semi-structured in-depth interviews with 12 parents (3 male and 9 female) and 11 grandparents (4 male and 7 female) in Beijing, China.

Results: Three domains emerged in this study: (1) grandparents were the primary caretakers of children in the three-generation families. They played an important role in planning and cooking family meals; (2) grandparents' attitudes influenced young children's nutrition and eating habits. They held the belief that children being heavy at a young age would assure that they had a good nutrition status and would become tall in the future. They showed a tendency towards urging the children to eat more meals and larger portions at served meals; (3) grandparents used food as an educational and emotional tool. They shaped the behavior of their grandchildren and expressed love and caring through food.

Conclusions: Grandparents were dominant in shaping children's eating behavior in some three-generation families in Chinese urban areas. Nutrition education involving grandparents is a potential framework for developing a healthy dietary behavior in young children.

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Keywords: Family; Grandparents; Influence; Young children; Eating behavior

Introduction

Childhood obesity has been a growing health problem in many countries in recent years (James, Leach, Kalamara, & Shayeghi, 2001; Ogden, Flegal, Carroll, & Johnson, 2002). The fast economic development in China has added the country to those experiencing the world epidemic of obesity (Iwata, Hara, Okada, Harada, & Li, 2003; Luo & Hu, 2002). Obesity in childhood is associated with an increased risk for chronic illnesses, such as cardiovascular diseases and diabetes mellitus (Freedman, 2002), and it also has a profoundly negative effect on the psychological health of children (Davison & Birch, 2001). Although

childhood obesity is a multi-factorial problem, food intake and dietary behavior are key aspects (Richkett, 1997). Children's eating habits, in turn, are influenced by a variety of factors, one of the most important of these being family food environment (Klesges, Stein, Eck, Isbell, & Klesges, 1991; Nicklas et al., 2001; Tiggemann & Lowes, 2002) as dietary habits acquired in childhood tend to persist throughout adulthood (Nicklas, 1995).

For young children the most influential aspect of the immediate social context is the family. The family eating environment includes parents' actual child feeding practices, their own dietary habits, as well as the beliefs and attitudes they verbally convey concerning healthy nutrition and promoted eating behavior. There is naturally an interaction between the above factors, therefore parental influences can be transmitted directly (through the food served) and indirectly (through conveying behavioral

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models and social norms) to children (Cook et al., 2004; Gibson, Wardle, & Watts, 1998). The food environment that parents provide during early childhood undoubtedly helps shape children's food preference as well as their subsequent selection patterns and eating styles (Birch & Fisher, 1998). A highly influential component of the home food environment is obviously what is served at and between meals, i.e. parents' child feeding practices. Children eat more of what is available: preschoolers whose families served more fruits and vegetables were shown to have higher consumption of the above (Hannon, Bowen, Moinpour, & McLerran, 2003).

Parents also influence their children's food preferences through their verbal dietary comments and restrictions employed (Baker, Whisman, & Brownell, 2000; Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002). In terms of restrictions, either of the extremes—excessive control or excessive permissiveness—of children's eating can negatively affect a child's healthy eating behavior. A previous study has shown that parents' restriction of palatable snacks promoted consumption of restricted foods in the absence of hunger in young girls, while at the same time this type of behavior led to negative self-evaluation in these children (Fisher & Birch, 2000). Permissiveness, at the other end of the scale, was associated with a higher likelihood of frequent soft drink- and sweets consumption (Vereecken, Keukelier, & Maes, 2004).

Most research on risk factors for childhood obesity originates from a Western cultural context where a sedentary lifestyle and the excessive consumption of soft drinks and fatty foods have been implicated as major contributing factors. Given that the social structure in China is quite different, it is plausible that additional or other culture-bound risk factors play a role in the growing rate of childhood obesity. While there is certainly a lack of research with such a specific focus, given the magnitude of the problem of childhood obesity in China, there is a definite need for effective and culturally sensitive prevention strategies. To tailor such strategies, a genuine knowledge is needed about factors influencing children's lifestyles in China.

Most families in Chinese urban areas only have one child due to the "family planning policy" implemented in the 1980s. We investigated 5608 families with children between 0 and 6 years of age, who were selected randomly from 12 communities and 5 kindergartens in urban Beijing in 2004. One-child families covered 92.8% of the whole sample (data not shown). According to the report of the Fifth Population Census of China, 90% of the children between 0 and 6 years of age were 'only child' in urban Beijing (Statistics Bureau of Beijing, 2002). Therefore, these 'only child' tend to be over-cared for and often overfed by adult caregivers, especially in three-generation families. In these families children share a household with both their parents and grandparents; in Chinese urban areas 50–70% of young children are mainly looked after by their grandparents (Li, 2005; Lu, 2004). Therefore, a specific culture-

bound factor influencing children's eating behaviors in China would entail the attitudes, feeding practices and dietary styles of grandparents. Indeed, significant correlations have been observed between the grandparents' lifestyle and children's BMI (Cullen et al., 2001).

The aim of the present study was to investigate how grandparents influence their young grandchildren's eating behaviors in Chinese three-generation families. Because the objective of this study was to explore the complex and multifaceted topic of feeding practices and eating behaviors, a qualitative research design was used. Qualitative data can provide a rich description of how people think and understand the world around them, allowing a unique insight into attitudes and factors that motivate certain forms of behavior. The findings may be useful for a framework of childhood obesity prevention.

Methods

Sample

We interviewed 12 parents (3 male and 9 female) and 11 grandparents (4 male and 7 female) from 23 different families in the Beijing urban area. To enhance the transferability of our findings, we selected the sample from parents and grandparents of children who attended four kindergartens in two different districts in Beijing. We chose participants to reflect a range of different characteristics in terms of income levels, occupational status and place of residence. From the 23 interviewees 13 had graduated from high school or primary school (5 parents and 8 grandparents) and 10 from college or above (7 parents and 3 grandparents). All 23 families were three-generation families and each parented a single child. The children's age range was 3–6 years (4.4 years of age in average) and there were 13 boys and 10 girls. Thirteen (57%) of the children were obese according to the IOTF (International Obesity Task Force) BMI (body mass index) reference (Cole, Bellizzi, Flegal, & Dietz, 2000).

Interviews

The individual interviews were conducted by a pediatrician during the period of November 2003–March 2004. The interviews were semi-structured and an interview guide was used including the following questions:

1. *Who is generally responsible for looking after the young child in your family?* Probes included why this person is the main caregiver and what the caregiving includes;
2. *Who is responsible for family meals?* Probes included why this person is mainly responsible and what this responsibility includes in practice; and
3. *What is your own view on how a small child should be fed?* Probes included opinions of other adult family members.

The interviews lasted 1–1.5 h and were audio-taped. The study was approved by the Ethics Committee of the Chinese National Center for Women's and Children's Health. Informed consent was obtained from participants before the interviews.

Data analysis

Data were analyzed between July 2004 and May 2005. The audiotapes were transcribed verbatim and analyzed systematically by the research team to identify recurrent patterns. The transcripts were read by each of our local team members. Main codes were evaluated by the research team. We independently coded all interviews and identified common themes. Quotations were selected from the coded transcripts as evidence of each theme. Seven major themes were identified by group discussion and consensus and then organized into three domains. One outside reviewer also participated in a discussion with the research team to reach consensus as to how the material could best be organized. In addition, three parents and four grandparents who were interviewed in this study were recruited to participate in a group discussion. The research findings were summarized and discussed in the group. All participants agreed on the main findings.

Results

The three domains identified through the seven themes included: (1) grandparents as primary caretakers of children in the three-generation family, (2) grandparents' attitudes to child nutrition and healthy eating habits, and (3) the role of food as an educational and emotional tool.

Domain 1. Grandparents as primary caretakers of children in the three-generation family: The grandparents were the ones to look after the child in all of the interviewed families. Most grandparents had retired and therefore had time to take the children to kindergarten in the morning and pick them up in the afternoon. The children spent much more time with their grandparents than with their parents, including the time after kindergarten. All parents worked full time and letting the grandparents take care of the child was viewed as both convenient and necessary:

Usually, I look after the child. Her parents are busy working. They go to work early in the morning and come home late in the evening every day. They haven't got time to be with their child. (No. 9, grandmother)

Theme 1. The role of grandparents in planning and cooking family meals: Grandparents were responsible for shopping for food in most interviewed three-generation families. The reason given for this was that grandparents usually had time to do the shopping, whereas the parents were busy working. The parents only cooked on some weekends.

My husband and I have retired. We buy food and cook every day. We like to do so because we have time and have nothing else to do. (No. 16, grandmother)

My child is at kindergarten in the daytime. My parents have a lot of spare time, since they are retired. They cook the family meals every day. I sometimes buy food, but most of the time they do the shopping. (No. 10, mother)

In most interviewed families, the grandmothers cooked the family meal each day. They did so according to their own preferences and in line with what they believed was good and nutritious for the whole family. Grandparents originating from the Northern parts of China preferred food based on wheat, whereas those from the South preferred rice. Grandparents who liked salty food put more salt in the food and the same was true for sugar. The young children, in turn, tended to follow their grandparents' preferences since they were used to their cooking style:

Wheat-based food is the main food type in my family. My mother likes food based on wheat, so she always cooks with flour in various ways, such as dumplings, noodles, steamed buns etc. My daughter has been with my mother since she was born, so she also likes wheat-based food. (No. 14, father)

Grandparents' personal preferences sometimes also helped them in choosing healthy meals for their families:

I don't like oil soaked food. It's not healthy. I seldom cook this kind of food in my family. (No. 18, grandmother)

Theme 2. Weighed by the responsibility of fostering a child: It was important for the grandparents in this study to do a good job in fostering the child in the absence of the parents. They did not want to be accused of not doing well in taking care of the family's only child. A central aspect in this caretaking duty was feeding the child. Most grandparents thought that a heavy child was a healthy child and that accumulated body fat was the result of successful feeding and care. Thus, the fostering responsibility was, in fact, a motivation for grandparents to overfeed their grandchildren:

They [the parents] cannot say that I haven't done my best in looking after the child if the baby is big. (No. 11, grandmother)

At least it means that I treat the child well... if the child is fat. (No. 16, grandmother)

On the contrary, being thin was viewed as negative and hazardous for the child's health:

I always feel sorry when I compare my granddaughter with other children, because my granddaughter is just too thin. (No. 9, grandmother)

Domain 2. Grandparents' attitudes to child nutrition and healthy eating habits

Theme 3. Grandparents' perceptions of healthy child nutrition: "Good and nourishing food" was what grandparents wanted to select for their families. In their opinion, good foods were expensive and of a kind that could not be bought easily before the reform and opening in China.

Good food is not cheap. You should not be afraid to spend a lot of money if you want to buy good food. (No. 1, grandmother)

Most of the grandparents believed that meat was especially nutritious and a desirable component of the family's diet. They assumed that growing children particularly need meat. Several grandparents also emphasized that children's being heavy at a young age will assure that they become tall in the future. It is interesting to note that grandfathers also had strong opinions about healthy child nutrition and influenced food choices.

It doesn't matter if a young child is fat. He [the child] will be thin when he grows up. I want him to eat more and grow taller. (No. 19, grandfather)

A young child must eat meat often. The child will be tall if he eats more meat. (No. 17, grandfather)

Meat is definitely more nourishing than vegetables. A person will be weak if he eats little meat. This is my experience. (No. 13, grandfather)

Theme 4. Grandparents' experience of poverty: All the grandparents questioned had experienced food shortage in their lives and seemed to have a profound recollection of hunger and poverty. With this experience, they did not want their grandchildren ever having to be hungry with now both food and money being available. They wanted to let the children experience a "happy life" by providing them with plenty of food. Although many grandparents knew that they should not always satisfy their grandchildren with food, they could not restrict themselves because they were reminded of their own experience of hunger when their grandchild demanded food.

Hunger is a very painful feeling. You cannot sleep when you're hungry. (No. 18, grandmother)

Happiness in life is to eat what you want, to eat the amount you want, and to eat whenever you want to. (No. 9, grandmother)

I did not get enough food when I was young. I also still feel sorry for my own children because we didn't have enough money to buy the foods they wanted. (...) Life is quite different now. Young children should be able to have enough food to satisfy them. (No. 13, grandfather)

Another aspect of having experienced poverty was the imperative to save food. Grandparents could not bear the thought of throwing away what was left over from a meal:

I always push my grandson to finish the food in his bowl. It is not good to waste food. (No. 22, grandfather)

Theme 5. Conflicting ideas about child nutrition between generations: In many interviewed families, the grandparents

had different opinions from parents concerning the child's eating patterns. Grandparents generally wanted the children to eat more meals and larger portions at served meals, whereas parents were of a different opinion.

My mother-in-law would always put a lot of food in my child's bowl when we are eating dinner. Then she would push my son to eat more when he can't eat up everything. When I put less food into my child's bowl, she would ask my child again and again if the meal was enough. (No. 20, father)

Almost all young children in interviewed families were encouraged by their grandparents to have supper after they had had supper at kindergarten. In addition, children were provided with ample snacks and sweets, despite the parents' disapproval:

When I am not at home, my father-in-law always buys for my son what I don't want him to eat. (...) Once, I told my son not to eat candy. He said, 'Okay, I will have it when you leave'. I was surprised and asked him why he said that. My son said that he had learnt this from his grandmother. (No. 10, mother)

The conflict over child nutrition between generations was especially obvious in families with obese children. Several parents expressed frustration over not being able to influence the grandparents' way of feeding the child. The main problem seemed to be that, while parents defined the child's obesity as a problem, the grandparents strongly disagreed:

I advised my mother not to push my daughter to eat so much. My mother argued with me and said that she really knew how to feed children, because she had brought up three children. (No. 2, father)

Grandparents declared in these families that the child was strong, not fat. Although parents disagreed, the grandparents' feeding practices prevailed as they were the primary caretakers.

My son is already fat. But my mother-in-law often encourages my child to eat when he feels full. (No. 5, mother)

Usually, mothers were most concerned about the child's weight. However, because they had so little power in the current constellation of a three-generation family home, to live separately was the most common proposal to solve the conflict:

I will change my work time next month and won't need to work at night. My husband and I have decided to move out from my parents-in-law's home. We will look after the child ourselves. This is the only way I can avoid my mother-in-law's overfeeding my child. (No. 7, mother)

Domain 3. The role of food as an educational and emotional tool

Theme 6. Shaping child behavior through food: Most grandparents tended to control child behavior through food reward or deprivation. Young children's good behavior was awarded with providing snacks.

My daughter won a prize at a piano competition last month. My mother-in-law bought a lot of chips for her as soon as she found out. (No. 7, mother)

The first response of most grandparents to their grandchildren's good behavior was often to say: "Let me know what you want to eat!" Western fast foods were commonly used to influence young children's behaviors, because almost all the young children liked these. Threatening not to go to McDonald's was used as an example.

Theme 7. Expressing love and care through food: Most grandparents thought that satisfying children with food was the basic way to love them. They enjoyed watching their grandchild eat because food was viewed as a way to transmit love.

My parents-in-law take along food when they pick up my child at the kindergarten every afternoon. It makes them really happy to see their grandson eat. (No. 12, mother)

My granddaughter has always had a very good appetite. She always opens her mouth whenever I feed her. I enjoy feeding her so much. (No. 8, grandmother)

Grandparents chose and bought food for their families according to the young children's preference. They always took the child's wishes into consideration when buying and preparing meals.

My mother-in-law asks my child what she wants to eat every morning. She will then buy and cook for her the foods my daughter wants to have. (No. 21, mother)

The choice of food for supper in my family is often decided by my child's preference. He likes shredded potatoes. So this dish is always a part of our supper. (No. 2, father)

Grandparents were likely to purchase food items the child asked them to buy after having seen them in the supermarket. The young child's preference was considered important enough to be satisfied at all costs:

My father-in-law is a thrifty man. But he always satisfies my child's wishes in food, even if it is expensive. (No. 6, mother)

Discussion

Methodological considerations

Credibility, a commonly used term addressing the validity of qualitative studies, was enhanced by giving the reader the full interview guide and by using respondent validation, i.e. interview participants were invited to evaluate and comment on the findings. The sample was

purposely chosen to represent all stakeholders in a three-generation family, and 23 interviews provide a sound base for thematic analysis within the qualitative research tradition. The fact that the interviewer was a pediatrician probably influenced the way participants expressed themselves, although it is difficult to evaluate the direction of this effect. *Dependability*, a factor concerning the reliability of findings, was enhanced by employing several researchers during the analysis process, thus, ensuring interrater reliability. Because the original interviews were in Chinese, the identified domains and themes needed translation before the senior researcher could assess their suitability. There is always a risk that some details of language get lost in translation which, however, is unavoidable when preparing a manuscript for publication in another language. *Transferability* refers to the utility of findings. The sample was purposive and chosen to represent three-generation families from urban China with diverse educational and income backgrounds. Thus, it is within this context that the findings are most specifically useful, although it is probably fair to say that three-generation families in China overall probably deal with similar issues.

The central role of grandparents

We aimed at exploring the ways in which grandparents affect their grandchild's eating attitudes and behavior. In this qualitative study, we have observed the influence of grandparents on several aspects of children's eating behavior. Grandparents were the primary caretakers and the ones providing the immediate family food environment for their grandchildren. Their views and ideals of healthy child nutrition were colored by their own experiences of poverty, the conception that obesity is a sign of health, and that their fostering duty comprised providing the family's only child with ample amounts of food of the kind the child likes and which are thought to be nutritious. These findings may have revealed a key concern in the childhood obesity epidemic of China, i.e. the major role of grandparents in children's nutritional intake and the fostering of their eating habits. Our study showed that the family environment in many three-generation families did not provide an opportunity to promote a healthy diet for children. Despite the high levels of parent knowledge about healthy foods, this knowledge did not generally translate into the actual child-feeding practice and children's healthy eating behaviors. Clearly, grandparents play a crucial role in forming the family dietary environment.

Because of their own experience of poverty and hunger and the belief that caring for and loving children means feeding them well, grandparents tended to provide young children with excessive food. However, pressurizing a child to eat in the absence of hunger may have detrimental effects on the child's ability to regulate energy intake. Birch and Davison (2001) have indicated that pressurizing children to eat was effective in increasing their energy intake. In addition, providing children with free access to

palatable snacks immediately following a meal produced a substantial additional intake in another study. Snacks offered to satiated children led them to consume approximately 12% of the total recommended daily amount of energy for children of this age on this single occasion (Fisher & Birch, 1999). It is therefore quite plausible to assume that the grandparents' pattern of feeding their grandchildren may contribute to the emergence of obesity, especially in children who are genetically predisposed. We also found that grandparents offered high energy value foods as rewards to promote better conduct in children. Using food as a reward, however, tends to increase preference for the reward foods (Birch, 1992), leading to less healthy food preferences in children.

While several parents considered their child's being overweight to be a problem, grandparents believed, quite on the contrary, that overweight children were happy, strong and healthy. Only very few grandparents agreed with parents when it came to restricting obese children's overeating. We noted that it was grandparents with higher educational levels who showed such agreement. Among the 11 interviewed grandparents, 1 and 7 graduated from primary school and high school, respectively, while 3 graduated from college. However, the education level of grandparents was only investigated among the interviewed grandparents and not among all families in the sample. Therefore, the possible influence of grandparents' education level on child nutrition is merely explorative in this study. Nevertheless, it is plausible that grandparents with higher levels of education might be more receptive to health education messages, although more evidence is needed to support this hypothesis.

The period of "adiposity rebound" in childhood is critical for the development of adult obesity (Dietz, 1994). Therefore, measures for prevention should be aimed at preschoolers and their families. Because grandparents seem to have the role of primary caregivers in most three-generation families, traditional ways of conveying information to parents through the maternal and child health care system will not be useful in influencing grandparents' parenting practices. Given that grandparents' ideas of healthy nutrition in childhood seem too often diametrically different from what is thought to be a healthy diet for children today, a key issue in prevention is how these attitudes might be altered in a way that carries a lower risk of the children becoming obese. One possible strategy is to consider the grandparents as the primary caretakers they are and offer them parenting education along with the parents where appropriate. To pursue such education a home-based approach might be useful, mindful of the venues where children, parents and grandparents congregate. As food seems to have a major role as a means of rewarding and expressing love towards children, this might be another possible opening in planning a public health campaign directed at grandparents. Obviously, practices deeply rooted in tradition, a collective history of famine and children's fondness of fatty and sweet food makes a

change in attitudes and behavior especially difficult. One important lesson is, however, that the specific cultural context in China requires special attention to grandparents as stakeholders in any effort addressing children's nutrition.

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