BREASTFEEDING, COMPLEMENTARY FEEDING AND HEALTH

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Knowledge and Practices of Parents of Children aged 6-12 months about Complementary Feeding: Challenges for Healthcare

Conhecimentos e práticas dos pais de crianças de 6 a 12 meses sobre alimentação complementar: desafios para o cuidado em saúde

Abstract

This study aimed to identify the knowledge and practices of parents of children aged 6-12 months, about complementary feeding and factors that influence their behavior. This research used the theoretical-methodological framework of the Theory of Planned Behavior and a qualitative and exploratory approach through two techniques: focal group with mothers and in-depth interviews with fathers, whose children received healthcare in either a public health service or a private pediatric clinic. Content analysis was performed, based on the empirical data collected from the recorded and transcribed reports. The following categories were identified: Beliefs, opinions and attitudes, reorganized according to how they relate to the recommendations of the Ministry of Health, included in the *Food Guide For Children Younger Than 2 Years*; Formal and informal influences on complementary feeding practices; and Role of socioeconomic factors. It was concluded that the behaviors of parents are the result of the complex interaction between their beliefs, social pressures and the perception of their competence to feed their children, and that they have all types of dilemmas and doubt,

regardless of their sociocultural background. Pediatricians and other health professionals are less and less of a reference compared to informal influences, which can directly affect children's eating practices. Guidance on complementary feeding need to be contextualized to be in line with the socioeconomic status of parents, and the Internet should be used by reliable sources for dissemination of knowledge.

Keywords: Complementary feeding. Child Nutrition. Child Care.

Resumo

Este estudo buscou identificar conhecimentos e práticas de pais de crianças de 6 a 12 meses de idade, sobre alimentação complementar e fatores que influenciam seu comportamento. Adotou-se o referencial teórico-metodológico da Teoria do Comportamento Planejado e optou-se por uma abordagem qualitativa e exploratória através de duas técnicas: grupo focal com mães e entrevistas em profundidade com pais, frequentadores de um serviço público de saúde e de uma clínica de pediatria privada. Do material empírico advindo dos relatos gravados e transcritos, por meio da análise de conteúdo, identificaram-se as categorias: Crenças, opiniões e atitudes, reorganizadas de acordo com suas relações com as recomendações do Ministério da Saúde incluídas no *Guia Alimentar Para Crianças Menores de 2 anos*; Influências formais e informais sobre as práticas de alimentação complementar; e Papel dos fatores socioeconômicos. Concluiu-se que os comportamentos dos pais são resultado da interação complexa entre suas crenças, pressões sociais e a percepção sobre sua competência para alimentar seus filhos, e que os dilemas e dúvidas são de toda ordem e independem da realidade sociocultural. O pediatra e outros profissionais da saúde perdem espaço para as influências informais que afetam diretamente as práticas de alimentação das crianças. Apontou-se a necessidade de prover orientações sobre alimentação complementar contextualizadas à realidade dos pais e que a internet seja utilizada por fontes confiáveis para disseminação do conhecimento.

Palavras-chave: Alimentação Complementar. Nutrição da Criança. Cuidado da Criança.

INTRODUCTION

Complementary feeding consists of nutritious, solid, semi-solid and liquid foods, other than human milk, which are offered to infants.[1] As the name suggests, it has the function of complementing the energy and micronutrients required for a child's full development, from the age of six months.[1,2] In order to be appropriate, it has to be added in this period, and it should contain fresh and/or minimally processed food, have appropriate energy density, be free of sugar and ultra-processed ingredients, be harmless and safe to prepare,[3,4] and include a responsive approach from parents.[5]

The importance of child nutrition, especially in early years, is well-documented, and its impact has been discussed in various international and health policy documents,[1,6] especially food guides aimed at children.[7] If nutrition is appropriate during the first thousand days after birth, it will determine a child's full development at all stages of life; also, it will contribute to prevention of illnesses and diseases in adult years, as well as ensure an active life.[2,8] which is necessary for people to adequately cope with aging, another major challenge for the public policy agenda.

Although the importance of nutrition is evident, Brazilian and international studies have found that the complementary feeding offered to children has low quality.[9,10] In Brazil, in addition to the low supply of fruits and vegetables, which results in deficiency of vital micronutrients and vitamins for growth, there is frequent consumption of cow's milk, flours, chocolate, sugar, snacks, sodas and sweets - foods that have been related to the increasing prevalence of childhood obesity.[11-13]

Thus, these data show a mismatch between evidence, awareness-raising activities and the behavior of children's parents or primary caregivers.[4,6,14] Thus, the hypothesis of this research is: understanding caregivers' behaviors could help improve approaches to food and nutrition education.

The qualitative approach has much to contribute to research in the field of Food and Nutrition, among many other objects, especially the importance of further understanding subjective production, expressed in beliefs, attitudes and behaviors.[15] Therefore, the objective of this research was to identify knowledge and practices based on the perceptions, beliefs and opinions of parents of children aged 6 to 12 months, and factors that influence their behavior, in order to support increasingly effective strategies and approaches to address and strengthen policies aimed at promoting healthy complementary eating in our environment.

METHODS

We opted for a qualitative approach, which allows us to explore behaviors and perceptions in greater detail.[6] It is characterized by the appreciation of understanding, in which the object and the subject of study coincide, and knowledge is produced by both of them, in a dialectical relationship.[16,17]

As a theoretical-methodological framework, we adopted the Theory of Planned Behavior (TPB),[18] which postulates that the probability of an individual adopting a new behavior is determined by his *intention* to perform such behavior, which, in turn, is influenced by his *attitude* (his belief in the benefits that will be brought by that behavior), by the construct *subjective norms* (which refer to the opinion of others that he considers important) and by *perceived or behavioral control* (his perception of the ability to perform a new behavior).

Based on this perspective, two research techniques were used: the focus group and the in-depth, semi-structured interview. Data production through the focus group occurred between March and April 2018 and involved two groups of mothers of children between 6 and 12 months, recruited in two locations with different socioeconomic characteristics, in order to gather information about the study subject in different circumstances and contexts. Eight participants formed the group recruited fat Jardim Esperança Basic Health Unit, in Francisco Morato, a town located in the metropolitan area of the city of São Paulo. In this study, it is referred to as G1. The other group (G2) consisted of women recruited from a private clinic, Casa Curumim, located in a western district in the city of São Paulo. Twelve mothers were contacted; eight confirmed their presence and four participated in the study.

To create a link between the research objectives and the focus groups, data collection used a semi-structured script organized into topics. It had been previously piloted, and it covered aspects of the moment when caregivers started complementary feeding, their doubts and difficulties, the type of support received and the child's behavior at the time of meals. During the meetings, which lasted 90 minutes on average, the researcher assumed the role of moderator and was aided by an assistant. The participants' accounts were audio recorded only after their consent. Some data were asked at the beginning of the study to characterize the participants.

A total of four in-depth semi-structured interviews were conducted with fathers, between April and May 2018, to foster further understanding of the processes of inclusion and experience of gender on the complementary feeding of their children - all aged between 6 and 12 months old. Two of them had children who received healthcare at Jardim Esperança Health Clinic in Francisco Morato (referred to as E1) while the other two had children who received

healthcare at Casa Curumim, a private pediatric clinic, in São Paulo (referred to as E2). They represent the impressions of males with two different socioeconomic statuses.

The previously tested data production instrument was a script with open questions, similar to the focus group script; it allowed the participants to openly express themselves. It was applied by the researcher with the aid of an assistant. The interviews lasted for 19 minutes on average; they were audio recorded and later transcribed.

For data analysis, we use the content analysis[17] technique, after careful transcription of the recordings and reading of all the material. The process included two complementary moments: the specific analysis of each group in which, in a pre-analysis,[15,16] we grouped all content based on the accounts of each participant. Then, there was a cumulative and comparative analysis of the set of groups and interviews conducted.[19] This exploration required us to read and reread each account and enabled us to become very familiar with both the objective and the subjective contents.[17]

The content from both the focus groups and the interviews was organized, according to the objectives of this study, into the following categories:[17] Beliefs, opinions and attitudes; Formal and informal influences on complementary feeding practices, and Role of socioeconomic factors in the adoption of complementary feeding practices. In the first category, the contents were reorganized[16,17] according to their relationship with the recommendations of the Ministry of Health,[7] included in the document "Food Guide For Children Younger Than 2 Years", through ten of the Twelve Steps to Healthy Eating. This step was taken because of the caregivers' statements, as they indicate important obstacles to the implementation of such recommendations and enable the referral of appropriate approaches to health professionals.

It is noteworthy that Steps 10 - "*Take care of hygiene at all stages of child feeding"* and 12 - *"Protect the child from food advertising"* were not covered because they were not mentioned by the caregivers, and the script was not aimed, beforehand, at an analysis through the "Twelve Steps". The other two categories allowed us to explore the influence of different actors (family members, health professionals and social media) and socioeconomic statuses on complementary feeding practices.

The results were analyzed through discussion, reflections and problematizations, based on the review of the literature, and complemented by the contents of the participants' accounts, as enabled by the qualitative approach.

As required by Resolution no.510/2016 of the National Health Council, which provides on the rules applicable to research in Humanities and Social Sciences, this research was

approved by the Ethics Committee of the School of Public Health, (CAAE: 78929317.7.0000.5421) through the Opinion number 2.358.135.

RESULTS AND DISCUSSION

Among participants in both focus groups, level of education was higher in G2, where all of them had earned a college or university degree. In G1, most participants had finished high school. Age in G1 ranged from 21 to 30 years, and half of them reported having other children, while in G2, all the participants were first-time mothers, aged between 29 and 37 years. In G1, only one of the mothers worked outside the home, while in G2 all of them reported having formal professional activities.

Respondents from both E1 and E2 were similar in age, which ranged from 34 to 35 years old. They all had formal jobs; in E1, their workloads allowed them to spend more time with their children. There were differences between the two groups in terms of educational level: higher for E2 (complete and incomplete higher education) and lower for E1 (complete and incomplete high school). Coincidentally, both parents in E1 reported having another child between 13 and 14 years old. The participants in E2 were first-time fathers.

Beliefs, Opinions and Attitudes

Step 1. Breastfeeding up to 2 years or older, offering only breast milk up to 6 months of age.

> she was already nibbling at things three months after birth... she was very hungry ... I believe there is no problem in giving her food (KG1).
> I gave him milk powder, it dried out, I gave him cow milk, he didn't like it, he just wants to feed from my breast, and wakes up about 5 times. So I think he's not feeding much from milk... I don't know if it's because of his small teeth. (ABG1).
> I gave her chamomile tea when she was 3 months old, because she cried with colic. (JoG1).

The mothers were unaware or underestimated the wide range of consequences of early introduction of food;[9,20] they associate crying and/or anguish with hunger,[5] although they suspected there may be a different cause. Interruption of exclusive breastfeeding was found to be a common practice among these mothers. The reasons given for the early introduction of other types of milk and food are based on the belief that their child is hungry, and milk is not sufficient in quantity and/or quality. Beliefs represent one of the most important structures of behavior: "When we really believe in something, we behave consistently with that belief".[21]

There is also a set of inherited beliefs (e.g., tea for colic) that signals the influences of the family context. It is a "food taboo", which is reinforced by the fact that it is acknowledged by a particular group of people as part of their ways, increases their cohesion, and maintains their identity in the face of others, thus creating a sense of "belonging".[22]

The participants' accounts suggest the need for early guidance, which includes a responsive approach5 for mothers and caregivers,[5,6] in order to help them adopt a new behavior,[18] as well as identify and address limiting beliefs[21]

Step 2. Offer foods other than breast milk after 6 months of age

> I've already experienced breastfeeding, so everything that comes after that will be easy. Said no one ever. It's just like a video game. (MG2).
> [...] and when I had an appointment with Dr. A, I used to ask her and she would say: after 6 months, but lighter foods. (Jo G1).
> [...] also because of the difficulty I have with the savory purees, which started one year ago. (NG2).
> The fact that she doesn't eat a full plate makes me distressed. (BG2).

Mothers who used to go to the public health service and the private clinic showed to be unprepared in face of the transition[23,24] between breastfeeding and introduction of new foods. There are critical moments of shifting from one stage to another in the development cycle involving awareness of new skills and adoption of behavioral responses.[18,23,24] The statements still focus on the lack of formal guidance from pediatricians or other health professionals.[5]

Step 3. Provide your child with drinking water instead of juice, soda and other sugary drinks.

> He [pediatrician] did not allow any juice; only after 12 months. But some of my workmates already give it to their children. Juice is not allowed because of the sugar? Why it will cause a stuffed belly? (NG2).
> I have the same opinion as my wife, you have to do it with the fruit, because the fruit has a different effect. (CRE1).

The offer of fruit juice is based on the belief that it is healthy and should be provided. In addition, this behavior is influenced by *subjective norms,*[18] which refer to the opinion of others who are considered to be important, as in this case, the colleague who already offers juice to her child, despite the pediatrician's advice. Clearly understanding that offering juice before 12

months may interfere with taste preferences and may be a predictor of obesity[25] might have influenced her attitude, which predisposes the motivation for change.[18]

Step 4. Feed the child with fresh or minimally processed foods.

> Are manioc starch cookies processed? Can I give them to my child? (BG2)
> She eats what we eat, she just doesn't like noodles. (SG1).
> Ready-made baby vegetable puree... I don't give him food. (ABG1).

It was found that caregivers are unsure about the harms of ultra-processed foods and are unaware of the advantages of eating fresh and/or minimally processed foods.[26] Marketing of these products is a pressure factor for the adoption of attitudes[18] and influences the creation of misperceptions.[27] This clearly signals the need for protective measures28 for food advertising, which often conveys incomplete or incorrect information, thereby confusing consumers.

Step 5. Offer the child thicker foods when it begins to have foods other than breast milk.

> They (other mothers) added filtered water ... it became more liquid, then it worked out fine. (BG2).
> There's the BLW ... I get distressed ... that thing gets stuck in her throat and then she spits it out. (MG2).
> [...] that's when she choked, now I mix everything in the blender. (JoG1).

In group conversations or interviews, none of the caregivers reported being told about the fact that children have limited stomach capacity, and for this reason, they need to be fed small portions. Hence the importance of correct consistency.[1,5] Insecurity about consistency refers to *perceived* or *behavioral control,*[18] which interferes with the ability to perform, leading to harmful attitudes for children, e.g., liquefying, diluting, following fads, checking less reliable sources on the Internet.

Step 6. Do not offer sugar to your child until it is 2 years old.

> When I go to my sister's house, she pampers him. Sandwich cookies and everything you're not supposed to give a child at this point. (ABG1).

In other reports, ABG1 has expressed her concern about her already diabetic ten-year-old son, but she underestimates the consequences of offering sugary foods and products to her youngest child.[5] In this sense, the logic of truth becomes deficient when it comes to health

practices.[27] Scientific knowledge as a producer of truths may not be a sufficient condition for attainment of a healthy attitude or behavior.[27] Practitioners select and decide their actions, guided by expected results and effects.[18,27]

In addition to clearly warning caregivers about the far-reaching risks of offering sugar, motivating and instructing them in building a new perception might facilitate the adoption of the new behavior.[18]

Step 7. Do not offer ultra-processed foods to your child.

> I've always wondered: can I offer Danone or not; is it bad or not? I'm more liberal in terms of food. I don't offer soda because I know it's bad for anyone. (SG1).
> You can't give soda, we won't give it to our child. (CRE1).

Misunderstanding about the risks of consuming ultra-processed foods goes hand in hand with awareness of the harmful effects of soft drinks. Perception is part of a structure built around the individual,[27] which gives us the clue that well-publicized evidence may predispose to an attitude and/or habit[27] and motivate behavior change.[18]

Step 8. Cook the same food for both the family and the child, using fresh and minimally processed foods

> I feel totally insecure about cooking for my daughter, because I hardly ever cook for myself. (AG2).
> And then I started to add more spices and she started to eat better. It is not a dummy, like, you offer flavorless food and it'll eat it. (BG2).

It can be inferred that autonomy in food preparation (cooking skills) can interfere with the introduction of complementary foods. In the statement above, self-efficacy was operationalized with confidence.[18] Therefore, there is an actual need to provide guidance to parents with messages that enhance meal preparations and cooking habits.

Step 9. Ensure that the child's feeding time is a moment of positive experiences, learning and affection.

> I work at home and having to offer her meals made me feel very insecure ... I had to make her eat at my break time ... so I could get back to work; It's a bit of a drama: she gives it up and moves towards my breast. (BG2).

The mother feels insecure; thus, she takes control of feeding, and pressure behavior leads to frustration, interfering with the development and learning of new skills.[5] Perceived

control or behavioral control includes perception of the ability to perform a given behavior; empowering caregivers with skills and knowledge is a facilitator for new behavior.[18]

> When she doesn't want to eat anymore and starts messing around with her food, I take her off the table and put her in her walker. I think if you give them food, it doesn't fill them up as much as when they eat alone (JoG1).

At another time, recorded in this study, JoG1 states:

> [...] instead of having lunch at noon, she doesn't want it. Then I give her some juice, a banana, and then she goes on eating all afternoon: she won't stop eating for a minute.

In this situation, the caregiver, based on his or her belief, ignores the child and does not engage with its expectations.[5] This is one of the undesirable results of unresponsive feeding,[5] which has been associated with poor eating habits and an increase in childhood obesity.[29] Limiting beliefs pose barriers to new behaviors;[21] motivating beliefs positively predispose to a behavioral reaction (intention) to a fact or situation (behavior).[18]

Step 10. Offer the child adequate and healthy food also outside the home

> Yesterday I went to the movies with her... I bought snacks because she wouldn't keep quiet. She is distracted by food. I feel a little worried because G is so greedy. (KG1).

This mother's lack of knowledge about appropriate leisure for an 11-month-old child,[30] together with her perception of her daughter's eating behavior, leads her to use inappropriate food[31] as a calming technique.[5] Her account points to the role that responsive parenting plays in establishing the eating behaviors and physical activity of young children and their importance in ensuring healthy growth, social, emotional and cognitive development.[5]

> The logistics: taking, storing, offering, because she rejects 90% and only eats 10%. So I haven't taken it. (BG2).

Without adequate information, the mother underestimates the opportunity for a small snack, which at this stage of life is an important source of nutrients for the child's development.[32] Perception of the ability to perform a given behavior directly interferes with *intent to perform this behavior and compromises the incorporation of a new habit.*[18]

Influences on formal and informal complementary feeding practices

> I didn't follow the pediatrician's advice that much... it was safer to do what my mother used to say... because mothers are very experienced. (KG1).
> I followed my mother's advice ... (JuG1).
> I ask my mother-in-law about everything, I feel safer ... (SG1).

The statements indicate the influence of grandparents as determinants of most behaviors, because they provide the major instrumental support.[33] Also the Internet and social media groups seem to exert a protective influence,[24] which allows caregivers to see themselves as more effective[18] and respond appropriately to them children's needs,[33,34] revealing the lack of influence of pediatricians.

> The pediatrician recommended the introduction of solid foods ... we ended up complementing this advice with information from the Internet. (MiE2).
> I am the type of mother who wants to follow the pediatrician's recommendations 100%, but what if he [my child] does not eat? Then I resort to the Internet. (NG2).

Importantly, in this study, pediatricians are replaced with or "complemented" by support networks of family members and relatives, social media and the Internet; there is a strong tendency for pediatricians to be left aside, but this situation urgently needs to be changed. Pediatricians, given their privileged role, as well as other professionals, should be thoroughly trained in how to educate and support caregivers, especially at this time of transition.

The role of socioeconomic factors in the adoption of complementary feeding practices

> It is different [from feeding my first child] because my knowledge and also my financial situation have improved. [...] About help, not money: fruits, vegetables would be essential. Because if people eat good food, hospitals have fewer people, fewer people with illnesses. (CRE1).
> I have a 10-year-old son, but I couldn't spend much time with him during his childhood. I used to leave home at five in the morning to go to work and to school. Now I am having the full experience of what it is like to be a mother ... (ABG1).
> It would be nice if we were aware of that, have someone teach us how we can feed our children ... because sometimes children end up having a health problem because of us, because we don't know ... (KG1).

Through the statements of G and E1, it can be inferred that there were differences resulting from changes in socioeconomic conditions,[35] which are expressed in the awareness of the importance of food for health, both in the desire to receive adequate guidance, and in the

importance of supporting public policies that promote access to healthy food.[36] It makes us reflect on the vicious circle that is formed through inappropriate eating practices and their consequences, because they are major obstacles to socioeconomic development and poverty reduction.[37]

However, an impacting factor for the adoption of complementary feeding is that parents have all types of doubt, regardless of socioeconomic conditions. The word "insecurity", in its turn, was the one repeated most frequently among the participants, followed by expressions that carried the same meaning, both among primiparous mothers,[38,39] and among multiparous ones,[40] revealing that the birth of a child is in itself a challenging phase for any mother.[41,42]

The statements also show that mothers are the ones who are expected to play the major role as caregivers,[43,44] even among participants in groups G and E2, in which both husband and wife do paid work.

> Actually, I didn't know anything ... I think mothers are a little more cautious about this ... (MiE2)
> Mothers are the ones who do the cooking, mommies are the ones who organize things... I just have to feed him. (RE2).

In the group with lower socioeconomic status (G1 and E1), it was more common for the introduction of solid foods to start early. In G2, however, mothers were reluctant to introduce new foods at six months, which coincides with the insecurity in cooking ability, revealed among mothers in this group. Also, it may have meant a barrier to the introduction of new foods.[18] The feeding of children, still a responsibility of women nowadays,[45] depends on a certain ability to cook, and this is not a very popular skill among women of the present generation in this socioeconomic group.[46]

It is noteworthy that in the group with the highest socioeconomic vulnerability (G1/E1), both the consumption of ultra-processed products[47] and the use of milk formulas and other foods, were the most frequently mentioned, concomitantly with breast milk.

> It is really hard for them to stay away from us even for a little while ... Is it just because of our milk? (JG1).
> I wondered how I could make her become less dependent... I don't know if it's because I'm still breastfeeding her ... (KG1).

The devaluation of breast milk among the participants and the pejorative association they make between "breastfeeding" and the dependence it causes point to a possible change of perception in the adoption of breastfeeding among the most vulnerable groups.[8,48] Therefore,

more acknowledgment is needed of the importance of breast milk and of initiatives for protection, promotion and effective support to breastfeeding, and this possible trend needs to be assessed in different socioeconomic and demographic groups.[49]

CONCLUSIONS

Parental behaviors are the result of the complex interaction between their beliefs, social pressures, and their perception of their ability to feed their children. Family belief systems influence and affect children's eating practices. The feeling of "lack of competence to care" leads caregivers to seek different help strategies, ranging from looking for family members and significant people with more experience, especially grandparents, to resorting to websites and social media on the Internet, as the second major force of influence in this study. The parents have all types of dilemmas and doubt, regardless of sociocultural status.

The results point to the need for information and support, with health services as sources of dissemination of information. However, they need to be able to provide guidance clearly and closely to the cultural reality of the group, with examples operationalized by the impact caused by each choice, in order to motivate parents to a new behavior or change.

Interventions conducted by skilled professionals, including community meetings involving grandparents and other family members, for discussion, reflection, exchange of experiences and clarification of doubts, could positively change old beliefs and habits. Encouraging parental participation in the process and care of child feeding through interventions and social marketing, would be a potential facilitator for the adoption of complementary feeding. Also, a new perspective of education and information that should be seriously considered is that the Internet be used by competent and reliable channels for dissemination of knowledge and dynamics about complementary feeding to young children.

Finally, we consider that this study allowed us to understand the dynamics of the transition process and the introduction of complementary feeding in children aged 6 to 12 months, serving as a point of reflection for the formative and practical contexts.

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Contributors

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