FOOD AND NUTRITION
IN COLLECTIVE HEALTH
DOI: 10.12957/demetra.2024.80071

DEMETRA
Alimentação, Nutrição & Saúde

e-ISSN:2238-913X

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Financial support: Study funded by the Conselho Nacional de Desenvolvimento Científico e Tecnológico,CNPq (National Council for Scientific and Technological Development, CNPq), Public Notice number 27/2020; Fundación MAPFRE.

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Assistent Editor
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Potentials and weaknesses in childhood obesity management from the Primary Health Care professionals' perspective

Potencialidades e fragilidades do manejo da obesidade infantil na perspectiva dos profissionais da Atenção Primária à Saúde

Abstract

Introduction: Obesity-management challenges faced in Primary Health Care (PHC) can be associated with multiple factors. ***Aim:*** Identifying the potential and weaknesses in childhood obesity-management processes in the PHC service of Betim County, MG. *Methods*: Descriptive and qualitative research based on three focus groups carried out in videoconference format. Participants received an online form comprising questions about their sociodemographic data (sex, age and schooling) and professional performance (profession, hiring type, working hours and time working in PHC). Two trained researchers used a guiding script with ten questions. Interviews were recorded, transcribed and analyzed based on Content Analysis. ***Results***: In total, 14 professionals participated in the study, 78.5% of them belonged to the female sex, their median age was 38 years and most of them were physical education professionals (42.8%). Seven categories and eight subcategories in childhood obesity management were identified; 60 weaknesses and 20 potentials were taken into consideration. Subcategory "Work processes" was the one mostly seen as weakness (n=30). With respect to potentials, "School: health promotion space" was seen as important category (n=9), since school is one of the places for proper and healthy eating promotion. ***Conclusion***: From PHC professionals' perspective, the school is potentially effective in managing childhood obesity.

Keywords: Primary Health Care. Childhood Obesity. Public health. Qualitative research.

Resumo

Introdução: Na Atenção Primária à Saúde (APS), os desafios do manejo da obesidade podem estar relacionados a múltiplos fatores. ***Objetivo:*** O objetivo deste trabalho é identificar potencialidades e fragilidades do manejo da obesidade infantil na APS do município de Betim, MG. ***Métodos***: Pesquisa descritiva e qualitativa em que foram realizados três grupos focais em formato de videoconferência. Os participantes receberam um formulário *on-line*com perguntas sobre características sociodemográficas (sexo, idade, escolaridade) e da atuação profissional (profissão, tipo de contrato, jornada de trabalho e tempo de atuação). Foi utilizado roteiro de condução por dois pesquisadores treinados, com dez questões. As entrevistas foram gravadas, transcritas e analisadas utilizando-se da Análise de Conteúdo. ***Resultados***: Participaram 14 profissionais, 78,5% do sexo feminino, com mediana de idade de 38 anos, a maioria profissionais de educação física (42,8%). Foram identificadas sete

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categorias e oito subcategorias no manejo da obesidade infantil e consideradas 60 fragilidades e 20 potencialidades. A subcategoria "Processos de trabalho" apareceu em maior número de vezes como fragilidade (n=30). Quanto às potencialidades, "Escola: espaço de promoção da saúde" foi vista como uma importante categoria (n=9), por ser um local de promoção da alimentação adequada e saudável. *Conclusão*: Sob a perspectiva dos profissionais da APS, a escola foi considerada potencialmente efetiva para o manejo da obesidade infantil.

Palavras-chave: Atenção Primária à Saúde. Obesidade Infantil. Saúde Pública. Pesquisa Qualitativa.

INTRODUCTION

Increased obesity prevalence in children and adolescents has become a public health issue in Brazil and abroad.[1] According to estimates, 34% of children and adolescents in the age group 0-19 years in Brazil are overweight.[2,3] Based on data about overweight, obesity and unhealthy food intake among Brazilian children monitored in Primary Health Care (PHC) services, the chance of reversing their current condition only reaches 2%, if no action is taken. [4]

If one takes into consideration that PHC is where users' have the first contact with *Sistema Único de Saúde* – also known as SUS (Brazilian Unified Health System), professional qualification and implementing effective inter-sectoral measures are important factors enabling comprehensive health care services to fight chronic non-communicable diseases (NCDs).[1] Because childhood obesity is a multicausal issue involving genetic, psychosocial, nutritional and behavioral factors,[5] multiple components must be taken into consideration to help preventing and/or treating it by integrating the environment these children are inserted in to this process.[1]

It is essential implementing new working processes based on multiple components to help better understanding and developing approaches focused on managing childhood obesity at SUS. Thus, the aim of the present study was to identify potentials and weaknesses in childhood obesity management processes, from the perspective of PHC professionals who work in Betim County-MG, to help better understanding PHC teams' work processes and whether they involve children obesity management, as well as the (in)feasibility of implementing actions focused on multiple components.

METHODS

Descriptive research of qualitative nature carried out in Betim County, MG, as part of the study titled "Childhood obesity management in the Primary Health Care context: approach based on intensive intervention comprising multiple components", which was approved by the research ethics committee of *Universidade Federal de Minas Gerais* (Federal University of Minas Gerais), under CAAE n. 39508720.6.0000.5149.

Betim is part of Belo Horizonte's metropolitan region. Its territorial area covers 343,884 km² and its Municipal Human Development Index (MHDI) is 0.749; its population comprises 378,089 inhabitants[6]: 34.2% of them are children and young individuals, whereas 58.7% and 7.1% are adult and elderly individuals, respectively. Betim has 37 Basic Health Units (BHU) operating at PHC scope, and they are distributed across nine managerial regions.[7]

Three focus groups were held with health professionals to elaborate protocols to provide care for 6-10-year-old children with obesity treated at Betim's PHC service. They were held on the same day, in November 2021, at three different times (02:00 am and 01:00 pm) in order to meet professionals' demands. The herein adopted research technique was selected due to its relevance for evaluative research[8] carried out in studies focused on analyzing the implementation of health programs and actions whose goal is to capture both the opinions and perceptions of individuals directly involved with the object to be assessed.

Convenience sample was formed by inviting 23 professionals to participate in the study; among them, doctors (n=3), psychologists (n=2), physical education professionals (n=5), nurses (n=5) and all dieticians working at PHC (n=8). This group was basically composed of professionals available in the aforementioned fields. The recruitment process was based on invitation letters sent online, via WhatsApp, to all professionals working at PHC who were informed about the conversation topic and time (60 to 90 minutes). Interested

parties have signed up by using a form available on *Google Forms*. Participants received messages with reminders the day before the meeting to minimize losses.

Data collection technique was carried out based on videoconference held at Zoom platform. This format was selected due to physical contact restrictions imposed by the Covid-19 pandemic. In addition, this modality boosts technologies' advancement and allows easy access to resources, besides providing broad geographic coverage, secure data archiving, low cost, group influence effect minimization and likely anonymity.[9]

Before starting the group interview, the moderator and its assistant made a presentation to explain the study's aim to participants and the importance of recording the meeting; participants were also informed that there was no right or wrong answer. Two experienced external researchers who had no previous relationship with PHC professionals were appointed to carry out the interviews in order to minimize limitations inherent to the adopted technique, such as likely interference by moderators with value judgments. The free and informed consent form (ICF) was read and validated online, along with participants. An online form comprising questions about sociodemographic data (sex, age and schooling) and professional performance (profession, hiring type, working hours and time working in PHC) was also sent to them. A script to guide the discussion was developed by three researchers from *Grupo de Estudos, Pesquisas e Práticas em Ambiente Alimentar e Saúde* – also known as GEPPAAS – (Group of Studies, Research and Practices in Food Environment and Health), based on issues addressed in the literature, such as increased obesity prevalence, as well as different changes in society and in the environment (political, economic, social and cultural), beyond individuals and their choices.[10] The script comprised main and secondary questions (n=10), which converged to the main research goal.[11] It was done to allow flexibility to record the covered topics and to avoid conclusive answers that did not encourage discussions, such as 'yes' and 'no' answers.[8] The developed script is available in section "supplementary material".

Data analysis

Interviews were recorded in at Zoom online platform; they were fully transcribed by a qualified professional and checked by researchers. Codes like M. (moderator), P. (health professional) and L. (workplaces) were used to ensure confidentiality towards moderator, health professionals and workplaces' identity, as they were mentioned in the transcription. All health professionals who answered the questions proposed by the moderators were previously identified with letter A, which was followed by sequential numbers any time statements appeared in the interviews.

Content Analysis[12] was applied to analyze and interpret the collected data. This analysis type gathers a set of communication analysis techniques that use systematic and objective procedures to describe the content of a given message. Thematic analysis was adopted by taking into consideration the importance of meaning cores; it was carried out in compliance with the following steps recommended by Bardin: pre-analysis; material exploration and treatment; inference and data interpretation.[12]

Pre-analysis features the material organization stage. Categories/topics were built by using significant expressions or words, based on which, the content of a given speech was organized to achieve such an organization stage. Therefore, no defined categories were used at first – all categories emerged from participants' transcribed speeches. The code guide was developed at the second stage. This resource - which comprises codes, their meanings, descriptions and rules on how they should be applied – both enables and adds rigor to the coding and analysis process.

Kappa coefficient (GraphPad Software, Inc. [online]) was used to assess agreement between raters in order to minimize limitations inherent to the adopted method – i.e., inter-rater interpretation divergence. This coefficient describes the intensity of agreement between two or more raters, based on the number of agreeing/disagreeing responses. Finally, topics were featured, inferences were proposed and interpretations were carried out at the third, and final, stage.[13]

RESULTS AND DISCUSSION

Table 1 shows the description and professional features of focus group participants. Three focus groups were held with BHU professionals from Betim County, MG. More than half (78.57%) of participants belonged to the female sex and presented median age of 38 [27-50] years. Most participants were physical education professionals (42.86%) and postgraduate degree was their highest schooling level (92.86%).

Table 1. Description and professional features of focus groups' participants. Betim County-MG, 2021.

Variable	Description	% (n)
Total n. of participants		**100 (14)**
Sex	Female	78.5 (11)
	Male	21.4 (3)
Age (years)	38[27-50] *	
Profession	Physical Education Professional	42.8 (6)
	Physician	7.1 (1)
	Dietician	35.7 (5)
	Psychologist	7.1 (1)
	Nursing Technician	7.1 (1)
Schooling	Post- graduation (doctorate, master's degree, specialization)	92.8 (13)
	High School	7.1 (1)
Hiring type	Formal job (CLT)	21.4 (3)
	Temporary employment	7.1 (1)
	Statutory/effective	50 (7)
	Programa Mais Médicos (More Doctors Program)	7.1 (1)
	Did not answer	14.2 (2)
Working hours (h)	20	14.2 (2)
	30	7.1 (1)
	36	7.1 (1)
	40	28.5 (4)
	44	14.2 (2)
	8	7.1 (1)
	Did not answer	21.4 (3)

Table 1. Description and professional features of focus groups' participants. Betim County-MG, 2021. (Continues)

Variable	Description	% (n)
Time working at PHC	< 1 year	14.2 (2)
	From 1 to 2 years	14.2 (2)
	From 3 to 6 years	35.7 (5)
	From 7 to 15 years	21.4 (3)
	> 15 years	14.2 (2)

* median age, and minimum and maximum value; CLT: Consolidation of Labor Laws; PHC: Primary Health Care

With respect to hiring type, half of participants reported to provide statutory/effective service (50.00%); however, 14.29% of them did not answer this question. On the other hand, 28.57% of professionals reported to work 40 hours a week and most of them (35.71%) worked at PHC for more than three years.

Inter-rater agreement analysis has indicated 90% agreement, which was expressed by Kappa coefficient value = 0.737 – this value was classified as "substantial agreement".[14]

Seven categories associated with professionals' perception about weaknesses, issues and demands linked to childhood obesity management have emerged from the analysis applied to the research *corpus*. These findings are summarized in Chart 1. The identified perceptions were classified as weaknesses and/or potentials, as they emerged in participants' statements in the childhood obesity management context. These data are shown in Chart 2, in supplementary material.

Chart 1. Categories and subcategories identified through participants' speech.

CATEGORY		SUBCATEGORY
Childhood obesity consequences	Professionals' perception about the consequences of not treating childhood obesity, its multicausality and repercussions on adult life.	Not applicable
Pandemic repercussions	Impact of the COVID-19 pandemic on actions developed, and to be developed, in the service.	Not applicable
Healthcare services	Factors influencing service functioning and effectiveness.	Children adherence to the service: Children's presence and participation in the service. Working processes: Referral and service flows.
Impact on Childhood Obesity Treatment	Issues improving or hindering adherence to treatment.	Educational actions: Developed with children to improve adherence. Teamwork: Expectations and perception about, and experience in, the work. Raising parents/caregivers' awareness: Raising awareness about the importance of treating childhood obesity.

Chart 1. Categories and subcategories identified through participants' speech. (Continues)

CATEGORY		SUBCATEGORY
School: health promotion space	Physical space, food availability and *Programa Saúde na Escola* (Health-at-School Program) were addressed.	Not applicable
Childhood obesity: context	Multicausality of obesity and the context children are inserted in.	Not applicable
Environment	Food environment features.	**Financial access to food:** Users' financial conditions. **Features of physical activity spaces:** Spaces used to practice physical activity. **Home environment:** Caregivers' correlation to children in the environment they live in.

Childhood obesity consequences

This category was only identified in the first interview, since the interviewed group was the most heterogeneous in terms of professions/functions performed in the service. This category presents professionals' perception about the outcomes of not treating childhood obesity, its multicausality and repercussions in adult life (A3, A5). These repercussions are mainly correlated to CNCDs development and to risk of developing cardiovascular diseases in adulthood - cardiovascular diseases are one of the main causes of morbidity and mortality cases in the population.[15]

> A3: "[...] It will be hard to reverse, I think this generation will be affected, I think, for the rest of their lives, right?"
>
> A5: "[...] thus, we see significant increase in the number of obese children and, consequently, of future hypertensive and diabetic adults with irreversible diseases that could have been avoided during childhood."

Besides the hard time treating obesity, late diagnosis and lack of actions to prevent obesity cases (A1) were also mentioned; these issues got worse due to the COVID-19 pandemic (A5):

> A1: "[...] the cases she gets to closely monitor are already overweight and obese [...]".
>
> A5: "We can see what happened during the pandemic, children became obese; in the future, they will join the group of individuals who seek help in basic health units and overload the system with health issues that could have been avoided during childhood [...]".

Accordingly, timely treatment and failure to monitor patients in the network have negative impact on both obesity treatment success and lifestyle changes (A2).

> A2: "[...] Then I think: poor punctual medical care, you know, because we did not have *Saúde da Familia* (Family Health Program) for a long time. The huge turnover of health professionals, so there is... when someone arrives and starts to engage, it starts to be longitudinally treated; then, bam, everything falls apart. We face a lot of obstacles, unfortunately all we do is to provide punctual services, and it is sad and discouraging [...]".

Pandemic repercussions

This category was identified in all interviews and it concerns COVID-19 pandemic's impact on both developed actions and in those yet to be developed in the investigated service, as well as on the habits and working conditions of SUS system users. Participants' statements showed worsened patients' financial conditions and higher anxiety levels in children due to lack of social interaction and to collective activities' suspension (A1). These reports are in compliance with studies focused on investigating challenges faced by health professionals to prevent and treat childhood obesity during the COVID-19 pandemic, besides evidencing other challenges to childhood obesity management, such as inadequate infrastructure to enable virtual communication and healthcare in BHUs.[16,17]

> A1: "[...] I think that I had already heard about that before the pandemic and, nowadays, it has just gotten a lot worse, it is... it is really a matter of money, you know? Hum, ... I think some children have been showing worsened anxiety, because things got all mixed up during the pandemic, you know, not going to school, lack of social interaction, of playing on the street, and... and the very things they had, [...] thinking about collective activities for children, you now, at CRAS (Social Assistance Reference Center), anyways, about several other things; everything collective was shut down [...]".

However, online activities were held during the pandemic as attempt to keep contact with families and, later on, one-on-one meetings were gradually reestablished through individual referral, given the significant challenge to resume these activities (A3; A11).

> A3: "[...] I think this activity-resuming time will be very hard, you know? [...]. So, hum... the pandemic is coming to an end, we were authorized to hold group activities, you know, to carry out collective activities, for now [short-duration activities], and we tried to develop physical activities online during the pandemic period."

> A11: "[...] the health center remains quite focused on pandemic actions, vaccines, and the welcoming process in some units is even more restricted. Hum... so, we cannot say that this population [with obesity] is coming to us in large numbers during this period, right, the post-pandemic period, we cannot say that services are back to normal."

Healthcare services

The service provided by these professionals is affected by several factors, be they internal or external. Thus, two subcategories have emerged from participants' perception about service functioning and they comprised children's adherence to the health service and working processes. They not only influenced the way the service works, but also its effectiveness.

- *Children adherence to the service*

Children's presence and participation in the service and issues influencing their adherence to actions developed for the child population featured this subcategory. Based on participants' reports, it was possible seeing that caregivers sought healthcare for children in the investigated service during the acute phase of some disease, and that obesity was not one of the reasons for seeking care, as seen in participants' statements during the interview.

> A2: "Hum... I think ... what I noticed is, like, that children do not come here much to the clinic for... like, simple things, they come more, like, due to illnesses, like ... because they are really sick. Because before, mothers took their children to: "ah, I want to do a checkup", something like that, nowadays, the children get there with some... you know ... respiratory issue [or with some related issue] [...]"

> A10: "[...] there is little demand and many obese children, and the hardest thing is to have parents bringing their children to my activities."

Participants reported that children's participation in actions aimed at them tends to be small, since they depend on other people to take them to BHUs. Dhaliwal and colleagues[18] have investigated the reasons why caregivers tend to discontinue care focused on childhood obesity management and observed that lack of treatment progress, of family support and of children encouragement, in addition to logistical factors, such as distance and financial costs, can contribute to lack of success in obesity treatment processes.

According to the herein investigated professionals, actions carried out in PHC to manage obesity take place during business hours and often overlap school hours. Another point highlighted by participants lied on obesity appropriation as something to be addressed and treated in BHUs.

> A3: "[...] One of the biggest issues I have, about the child's participation, is whether the parent [can] take the child, because the groups take place during business hours or at a time when the child is at school [...]".

> A1: "[...] So, when we think about promoting health, or about preventing something that might happen down the road, unfortunately, nowadays we do not see much adherence by parents [...]."

- *Working processes*

Working processes regard how the work is organized. They also refer to factors interfering with the work and affecting service functioning. Based on participants' reports, it was possible understanding how the service's referral and flows were carried out, as well as the factors interfering with this process.

With respect to referral flows, participants have mentioned the demand for acute treatment, which suppresses health promotion actions, service structuring, as well as service structure turnover (professional, manager), which hinders work continuity. Care provided to children by professionals from Núcleo de Apoio à Saúde da Família – also known as NASF (Family Health Support Center) - comes from referrals made after anthropometric assessment carried out at Programa Saúde na Escola (Health-at-School Program) or after receiving support from Programa Saúde da Família's (Family Health Program) team (A11).

> A11: "[...] either it comes from the anthropometric assessment carried out at PSE, or it comes after receiving support from *Programa Saúde da Família's* (Family Health Program) team. Then, we identify their age to put them closer to other children at the same age and to form the groups."

Agendas are organized based on monthly demands, without prioritizing children. Dieticians are mainly committed to provide home visits and to renew patients' diet. There are specific groups when there is demand for them, but it is not high among children. In addition, the network does not have childhood obesity care/treatment flow or standardized assessment (A11). Anthropometric assessment and changes in eating habits are used to reassess the child in continuous monitoring cases; however, punctual actions were mentioned as non-effective (A14).

> A11: "[...] We never standardized the way to approach childhood obesity, so, each dietician develops strategies to provide service to any patient in its regional center, in its NASF (Family Health Support Center) [...]"

> A14: "[...] So, punctual actions may not bring as much benefit as continuous actions, it was a ... a difficulty faced by us. [...]"

With respect to the structure to assist children with childhood obesity, participants mentioned lack of strategies and material to work with this population. Other studies have shown that effectiveness in treating childhood obesity depends on implementing an integrated approach focused on raising health professionals, caregivers and children's awareness about the obesity issue, as well as on addressing social and structural issues faced by both BHUs and assisted families.[19–21]

> A3: "[...] So, I cannot tell you that we do not have a hard time finding space or getting materials, basic things, you know, we end up having to reinvent stuff all the time, you know?"

The structure and working conditions encompassing BHUs' specificities affect professionals' performance since lack of physical space, local violence, public authorities' interest in health-promotion actions and even the centered medical model hinder the way patients perceive health education actions capable of affecting childhood obesity treatment and management processes.[22]

Impact on Childhood Obesity Treatment

Issues affecting childhood obesity treatment emerged in participants' statements. Thus, it was possible identifying issues capable of improving or hindering patients' adherence to treatment, such as compliance with guidelines provided by health professionals, as well as children and caregivers' participation in different actions. It is worth emphasizing that the reported actions do not necessarily happen in BHUs. They can be just ideas expressed by health professionals or proposals to work with this target public. It was possible identifying three subcategories covering educational actions, teamwork and raising parents/caregivers' awareness.

Koetsier and collaborators[23] carried out a review aimed at identifying healthcare professionals' experiences in, and opinions about, childhood obesity integrated care. They observed that aspects, such as knowledge about obesity complexity, healthy eating and tools available to manage this disease were mentioned as important means to achieve treatment success.

- *Educational actions*

Actions developed with children, or suggestions about actions that could be effective and/or help improving this public adhesion to these actions were addressed in this subcategory. Participants' speeches highlighted the importance of guiding not only children, but also caregivers, to adopt healthy lifestyle habits (A6). Improved adhesion was mentioned when there was simultaneous participation of both caregivers and children in the groups, in association with implementing periodic individual assessment strategy, which had positive influence on it (A11).

> A6: "[...] Guiding both children and parents about these changes. Sometimes children take information to their parents, you know [...] I think information is an important thing."

> A11: "[...] Both the child and the parent participate in this group at the same time. It is ... like a strategy to maintain adherence to the group, group activities face this, hum ... sometimes they miss the activities, they start well, then they start to miss them. In order to maintain adherence, I established that children who attended all three focus groups would undergo individual assessment every 3 months, because my groups were held on a monthly basis. Then, children who participated in three group meetings underwent individual assessment [...]".

Participants' reports have shown that practical and theoretical actions, such as conversation circles, games, playful activities, sports and specific operating groups focused on reinforcing actions to call children's

attention (A9), can be developed in group meetings. Food and nutrition education appeared as key piece in group actions conducted with children, but these reports were based on actions taken in schools where participants were once allocated in (A14).

> A9: "We must develop both practical and theoretical actions, right? With respect to the theory, maybe conversation circles, right ... raising awareness about healthy eating. Working with children, maybe playing with more movements [...]"

> A14: "Look, I think we need time (laughs). I mean ... I know, right, it is a little hard, but working with children is a change of habit [...] I really believe in nutritional education, [...] it is truly health promotion. [...] If we could do it, for example, once a week, once every 15 days, it would be interesting [...]; however, nowadays, I believe ... no, I know we cannot do it."

- *Teamwork*

This subcategory has significant impact on treatment, besides being the fundamental element necessary to achieve the focus group's ultimate goal. It addresses participants' expectations towards, perception about and experience with teamwork; professionals from different fields have acknowledged the importance of the work performed by their counterparts:

> A9: "[...] We have the psychologist, the occupational therapist, the social worker, the physical education professional. Hum... Of course, there are other professionals, like the dietician, right? ..., but I think they have ... how can I put it? hum... a better opening, right? They... they are mostly focused on working with it. So, I see the potential to gather the group [...]"

- *Raising parents/caregivers' awareness*

Work continuity to enable successful childhood obesity prevention and treatment, as well as changes in lifestyle and adopting healthy practices, are closely linked to raising parents/caregivers' awareness about the importance of treating and even acknowledging obesity as something to be careful with and/or treated (A3, A1).

A study addressed the risk of developing overweight and obesity in childhood, based on semi-structured individual interviews, and led to the conclusion that, according to caregivers, actions involving simple and practical instructions and guidance on when to seek healthcare are important tools to help managing child obesity. In addition, lack of support from caregivers was seen as harmful to children's treatment.[23]

> A3: "[...] As much as we try, hum, to raise awareness, to give lectures in schools, to talk to parents, you know, there is no adhesion to it. So, I think that parents' lack of understanding about the need of promoting health may be the factor mostly interfering with these children's health [...]"

> A1: "[...] Thinking about healthy eating, hum ... the dietician says it a lot to us: "it is hard to work with children alone because this awareness has to come from parents first [...]"

School: health promotion space

In addition to individuals' (parents/caregivers) homes, school is a primary place to promote children's health and to influence healthy habits. This category took into consideration physical space, food availability influence, as well as support and flow of services provided through *Programa Saúde na Escola* (Health-at-School Program). Based on participants' speech, schools are places to promote proper and healthy eating,

and they not only allow covering immediate demands deriving from some disease, but they also enable taking prevention actions with larger groups of children (A9).

Thus, the joint work between school and PHC is paramount to help managing childhood obesity. It is worth emphasizing that punctual and unilateral actions are poorly effective in this regard. In addition, childhood obesity rates are lower in schools that have consistent public policies focused on children's nutrition and on the school environment they are inserted in.[24]

> A9: "[...] I think something could work this way in daycare centers and schools, right?... because the kids are already there, right? it would be a more comprehensive thing [...] maybe that is a strategy to really ... to make it happen, huh?"

Childhood obesity: context

Several factors can influence childhood obesity management. In other words, the context these children are inserted in plays key role in this process. Based on participants' statements in this category, it was possible identifying obesity multicausality, the invisibility of children with obesity and the fact that this condition is not often seen as an issue (A3).

Health professionals reported to have perceived increased number of children with obesity and they attributed such an increase to a set of factors, such as family structure, psychological aspects and food preferences. Children treated by participants tended to prefer ultra-processed food and to show aversion to fresh food, such as fruits and vegetables (A13, A15).

> A3: "hum... all young individuals ... and children who were referred to me, as physical education professional in this region, came to me either due to overweight and obesity, or to attention deficit and hyperactivity. They have never come to me for health promotion purposes."

> A13: "So, hum... I have more to say about the children I am following up in the group. These children have a hard time eating fruits, greens and vegetables [...]"

> A15: "I have seen several children with obesity here, at the unit. They all show strong preference for sweets, stuffed cookies, packaged snacks and soft drinks.

Environment

It was necessary including a new category to encompass different environmental factors capable of leading to, and influencing, more or lesser healthy habits. Food environment is part of built–environment concept, which encompasses space modified by man.[25–27] Food environment features, such as access to commercial establishments, good prices and healthy food availability, as well as features of spaces aimed at practicing physical activities, have straight influence on eating habits and, consequently, on individuals' nutritional status, mainly on children's.[25,28] These findings can be confirmed in subcategories, such as financial access to food, features of spaces used for physical activity purposes and domestic environment.

- *Financial access to food*

This subcategory refers to users' financial/economic status, which influences access to healthy food. It is necessary understanding the investigated public's profile at the time to propose appropriate and effective actions and conditions to enable childhood obesity care and management. According to participants, this

public belongs to a low socioeconomic level class and it affects their food choices, as shown in the excerpt below:

> A13: "[...] There is also the financial issue. Hum, I work in a regional unit, so the population there is poorer, you know, the... one of them is worse. And, then, there is this issue of having a hard time purchasing fruits, greens and vegetables, you know? Hum... that is where I see a problem, it is hard to ask to them to buy fruits, because sometimes there are [a lot of] children at home, hum... parents are unemployed because of the pandemic, [...] maybe, like, hum... they do not eat it because they do not even have access to it ... to buy it [...]."

Furthermore, the lower prices asked for ultra-processed food products, to the detriment of fresh/minimally-processed food sold at retail, are a factor capable of influencing individuals' decision-making at purchase time.[29]

> A4: "[...] I have always worked with Primary Care, so these individuals do not have much financial resources, but they had access to cookies, to these... these treats that were very cheap, and access to these treats was easier due to the price issue [...]."

- *Features of physical activity spaces*

These are spaces where physical activity is practiced as health promotion action. Based on participants' statements, it was possible noticing the incidence of spaces marked by violence and drug trafficking, a fact that hinders the practice of physical activity and favors longer screen time (A4). Neighborhood features, such as pedestrians' sense of safety, lack of crimes and trust in neighbors, contribute to generate a more or lesser healthy environment in urban zones.[30] Furthermore, distance from users' residence to the unit, deficient public transportation in the municipality and the impossibility of paying for bus tickets due to users' economic difficulties are factors to be taken into consideration[31] (A1).

> A4: "[...] Access to physical activity is not really encouraged, you know? If we go back to our childhood, we had more space to play and it was more like playing on the street [...]. Nowadays, children can no longer stay on the streets, because there is the drug trafficking issue, and... they have to stay indoors, so they end up using, you know, electronics to keep these children under control [...]"

> A1: "[...] Then, the mother would say: "It takes half an hour for me to get there on foot; then if I go and come back, it is already time to go to school again", you know? It is like that. It was hard to fit into the logistics of their routine. It is one thing to do it at a consultation held every three months, it is a different thing to do it twice a week (laughs) [...]"

- *Home environment*

Home environment and the relationship between caregivers and children in the environment they live in are also factors capable of influencing childhood obesity in a unique way. Aspects associated with the rhythm of life, such as lack of time, can contribute to unhealthy lifestyles; screen time not only leads to increasingly sedentary habits, but it also affects individuals' mental health[32] (A9).

Guia Alimentar para a População Brasileira (2014) (Food Guide for the Brazilian Population) presents the main obstacles to healthy eating, such as information, supply, cost, cooking skills, time and advertising, as well as ways to overcome them.[33] With respect to home environment, the interviewed health professionals reported that lack of information/instruction, lack of cooking skills and excessive supply of ultra-processed food products are factors hindering the adoption of adequate and healthy diets (A5). Furthermore, from health professionals' perspective, easy access to and availability of unhealthy food in users' homes is perceived as relevant aspect influencing childhood obesity in the home environment (A4).

A9: "[...] fitting it into family time, you know, the family should have the time to make it available to... to accompany the child in this activity type, you know, most of them will not be able to do it alone, so I think that is the biggest difficulty [...]"

A5: "[...] The technology is there, everything is very easy, people are too lazy to take a pan and to make healthier food; so, it is easier to eat processed and ultra-processed food products. It is easier to let the child play games in a cell phone or computer and eat a package of cookies [...]."

A4: "[...] I think there is this issue of... the difficulty due to parental fatigue, there is this issue of having access to these treats; it happened even before the pandemic, and ... the pandemic got their anxiety even worse [...]"

FINAL CONSIDERATIONS

The current study presented some potentials and weaknesses of childhood obesity-management processes, from the perspective of PHC professionals in Betim County, to encourage decision-making about implementing a childhood obesity treatment. Categories and subcategories observed in participants' statements have shown procedural weaknesses, such as work and external demand; structural weaknesses, such as lack of material and infrastructure at BHUs to manage childhood obesity; and organizational weaknesses, such as deficiency in referring obese children to appropriate treatment, as well as in providing multidisciplinary and integrated care, or even personal care, to individuals in the family context, lack of awareness of the obesity issue and low adherence to treatment.

These weaknesses have indicated the points to be observed, treated and taken into consideration at the time to develop activities for children with obesity. Although some categories had potentials, strong weaknesses were also observed, except for schools, which were described as place holding a large number of children and having the potential to work with the investigated population. This aspect can help minimizing the low adherence to treatment mentioned by PHC professionals, as well as providing greater contact with health-related topics, as well as with childhood obesity prevention and treatment.

Finally, the current study highlights easy access to health professionals through online and low-cost techniques as positive point. However, the study also presented some limitations; among them, one finds impossibility to collect nonverbal data and low interaction among participants.

REFERENCES

1. Brasil. Ministério da Saúde. Instrutivo para o cuidado da criança e do adolescente com sobrepeso e obesidade no âmbito da Atenção Primária à Saúde. Brasília: Ministério da Saúde; Vol 1; 2022.

2. Brasil. Sistema de Vigilância Alimentar e Nutricional [Internet]. Sistema de Vigilância Alimentar e Nutricional - SISVAN; 2023 [acesso em 17 jul 2023]. Disponível em: https://sisaps.saude.gov.br/sisvan/relatoriopublico/index

3. Desiderata. Obesidade Infantil em Foco. Panorama da Obesidad em Crianças e Adolescentes. [Internet]. Desiderata Trabalho Coletivo Saúde em Foco; 2023 [acesso em 17 jul 2023]. Disponível em: https://panorama.obesidadeinfantil.org.br/

4. Brasil. Ministério da Saúde. Atlas da Obesidade Infantil no Brasil [Internet]. 2019. 13 p [acesso em 17 jul 2023]. Disponível em: https://aps.saude.gov.br/biblioteca/visualizar/MTQ0OA==

5. Gurnani M, Birken C, Hamilton J. Childhood Obesity: Causes, Consequences, and Management. Pediatr Clin North Am. agosto de 2015;62(4):821–40.

6. Instituto Brasileiro de Geografia e Estatística, Censo 2010 [Internet]. 2010 [acesso em 21 jun 2022]. Disponível em: https://censo2010.ibge.gov.br/noticias-censo?busca=1&id=3&idnoticia=2194&view=noticia

7. Prefeitura Municipal de Betim. Secretaria Municipal de Saúde. Plano Municipal de Saúde de Betim 2018-2021. Betim: Prefeitura Municipal de Betim; 2018.

8. Trad LAB. Grupos focais: conceitos, procedimentos e reflexões baseadas em experiências com o uso da técnica em pesquisas de saúde. Physis Rev Saúde Coletiva [Internet]. 2009 [acesso em 1º de nov 2022];19(3):777–96. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-73312009000300013&lng=pt&tlng=pt

9. Salvador PTC de O, Alves KYA, Rodrigues CCFM, Oliveira LV e. Estratégias de coleta de dados online nas pesquisas qualitativas da área da saúde: scoping review. Rev Gaúcha Enferm [Internet]. 12 de junho de 2020 [acesso em 1º nov 2022];41. Disponível em: http://www.scielo.br/j/rgenf/a/ZTDgnm7Y8f8KhKr6jbCKddK/abstract/?lang=pt

10. Swinburn BA, Kraak VI, Allender S, Atkins VJ, Baker PI, Bogard JR, et al. The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. Lancet Lond Engl. 23 de fevereiro de 2019;393(10173):791–846.

11. Almeida R. Roteiro para o emprego de grupos focais [Internet]. 2016 [acesso em 21 jun 2022];42–59 p. Disponível em: https://bibliotecavirtual.cebrap.org.br/arquivos/2016_E-BOOK%20Sesc-Cebrap_%20Metodos%20e%20tecnicas%20em%20CS%20-%20Bloco%20Qualitativo.pdf

12. Bardin L. Análise de conteúdo. Almedina; 2016. 280 p.

13. Minayo M, Deslandes S, Gomes R. Pesquisa social : teoria, método e criatividade. 26º ed. Petrópolis: Editora Vozes; 2007. 135 p.

14. Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics. março de 1977 [acesso em 1º nov 2022];33(1):159–74. Disponível em https://pubmed.ncbi.nlm.nih.gov/843571/

15. Drozdz D, Alvarez-Pitti J, Wójcik M, Borghi C, Gabbianelli R, Mazur A, et al. Obesity and Cardiometabolic Risk Factors: From Childhood to Adulthood. Nutrients [Internet]. novembro de 2021 [acesso em 29 jan 2024];13(11):4176. Disponível em: https://www.mdpi.com/2072-6643/13/11/4176

16. Krist AH, DeVoe JE, Cheng A, Ehrlich T, Jones SM. Redesigning Primary Care to Address the COVID-19 Pandemic in the Midst of the Pandemic. Ann Fam Med [Internet]. 1º de julho de 2020 [acesso em 29 jan 2024];18(4):349–54. Disponível em: https://www.annfammed.org/content/18/4/349

17. Mandelbaum J, Harrison SE. Perceived challenges to implementing childhood obesity prevention strategies in pediatric primary care. SSM - Qual Res Health [Internet]. 1º de dezembro de 2022 [citado 29 de janeiro de 2024];2:100185. Disponível em: https://www.sciencedirect.com/science/article/pii/S2667321522001470

18. Dhaliwal J, Perez AJ, Holt NL, Gokiert R, Chanoine JP, Morrison KM, et al. Why do parents discontinue health services for managing paediatric obesity? A multi-centre, qualitative study. Obes Res Clin Pract [Internet]. 1º de maio de 2017 [acesso em 29 jan 2024];11(3):335–43. Disponível em: https://www.sciencedirect.com/science/article/pii/S1871403X16303970

19. Ahmed U, Mahmood MS, Parsons M, O'callaghan H, Pawlik O, Chaudhary S, et al. A Systematic Review Looking at the Current Best Practices as well as Primary Care Practitioner's Views on the Diagnosis and Treatment of Childhood Obesity. Cureus. janeiro de 2023;15(1):e34346. https://doi.org/10.7759/cureus.34346.

20. Schalkwijk AAH, Nijpels G, Bot SDM, Elders PJM. Health care providers' perceived barriers to and need for the implementation of a national integrated health care standard on childhood obesity in the Netherlands - a mixed methods approach. BMC Health Serv Res. 8 de março de 2016;16:83. https://doi.org/10.1186/s12913-016-1324-7

21. Turner KM, Salisbury C, Shield JPH. Parents' views and experiences of childhood obesity management in primary care: a qualitative study. Fam Pract. agosto de 2012;29(4):476–81. https://doi.org/10.1093/fampra/cmr111

22. Jesus JGL de, Campos CMS, Scagliusi FB, Burlandy L, Bógus CM. O processo de trabalho na Estratégia Saúde da Família voltado às pessoas com sobrepeso e obesidade em São Paulo. Saúde Em Debate [Internet]. 21 de fevereiro de 2022 [acesso em 2 maio 2023];46:175–87. Disponível em: http://www.scielo.br/j/sdeb/a/jtpV6nn5cRxdks6t7x5pxtg/

23. Canfell OJ, Littlewood R, Wright ORL, Walker JL. "We'd be really motivated to do something about it": A qualitative study of parent and clinician attitudes towards predicting childhood obesity in practice. Health Promot J Aust Off J Aust Assoc Health Promot Prof. abril de 2023;34(2):398–409. https://doi.org/10.1002/hpja.611

24. Cleveland LP, Grummon AH, Konieczynski E, Mancini S, Rao A, Simon D, et al. Obesity prevention across the US: A review of state-level policies from 2009 to 2019. Obes Sci Pract [Internet]. 2023 [acesso em 29 jan 2024];9(2):95–102. Disponível em: https://onlinelibrary.wiley.com/doi/abs/10.1002/osp4.621

25. FAO. Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. September 2017 [Internet]. Rome, Italy: FAO; 2018 [acesso em 1º nov 2022]. 150 p. Disponível em: https://www.fao.org/documents/card/en/c/I7846E/

26. CDC. Center for Disease Control and Prevention. National Center for Environmental Health. 2013.

27. Glanz K, Sallis JF, Saelens BE, Frank LD. Healthy nutrition environments: concepts and measures. Am J Health Promot AJHP. 2005;19(5):330–3, ii. https://doi.org/10.4278/0890-1171-19.5.330

28. Matozinhos FP, Gomes CS, Mendes LL, Pessoa MC, Padez CMP, das Graças Pena G, et al. Association between the perceived environment and overweight in adults and elderly: a cross-sectional study. Nutrire [Internet]. 2016 [acesso em 25 jul 2022];41(1):18. Disponível em: http://nutrirejournal.biomedcentral.com/articles/10.1186/s41110-016-0019-529.

29. Passos CMD, Maia EG, Levy RB, Martins APB, Claro RM. Association between the price of ultra-processed foods and obesity in Brazil. Nutr Metab Cardiovasc Dis NMCD. 12 de abril de 2020;30(4):589–98. https://doi.org/10.1016/j.numecd.2019.12.011.

30. Jongeneel-Grimen B, Droomers M, van Oers HAM, Stronks K, Kunst AE. The relationship between physical activity and the living environment: a multi-level analyses focusing on changes over time in environmental factors. Health Place. março de 2014;26:149–60. https://doi.org/10.1016/j.healthplace.2013.12.003. Epub 2014 Jan 4.

31. Viegas APB, Carmo RF, Luz ZMP da. Fatores que influenciam o acesso aos serviços de saúde na visão de profissionais e usuários de uma unidade básica de referência. Saúde E Soc [Internet]. março de 2015 [acesso em 2 maio 2023];24:100–12. Disponível em: http://www.scielo.br/j/sausoc/a/J9LSP5w9SXvH5K8W6YFTLfC/abstract/?lang=pt

32. Barnett TA, Kelly AS, Young DR, Perry CK, Pratt CA, Edwards NM, et al. Sedentary Behaviors in Today's Youth: Approaches to the Prevention and Management of Childhood Obesity: A Scientific Statement From the American Heart Association. Circulation. 11 de setembro de 2018;138(11):e142–59. https://doi.org/10.1161/CIR.0000000000000591

33. Brasil. Ministério da Saúde, Secretaria de Atenção Primária à Saúde, Departamento de Promoção da Saúde. Guia de Atividade Física para a População Brasileira [recurso eletrônico] [Internet]. Brasília - DF: Ministerio da Saúde; 2021. 54 p. [acesso em 2 maio 2023]. Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/guia_atividade_fisica_populacao_brasileira.pdf

Contributors

MZ Jardim has contributed to data collection, analysis and interpretation, as well as to manuscript writing. Mendonça RD has participated in manuscript writing, structuring and reviewing. Guimarães LMF has contributed to data collection and interpretation, as well as to manuscript conception, writing and reviewing. Sanches LD participated in data interpretation, as well as in manuscript conception, writing and reviewing. Rocha LL and Oliveira EP participated in manuscript writing and reviewing. Mendes LL participated in study conception and design, in data interpretation and structuring, as well as in final manuscript reviewing.

Conflict of Interest: The authors declare no conflict of interest.

Received: November 07, 2023
Accepted: February 19, 2024

SUPPLEMENTARY MATERIAL

Chart 1. Script used to guide the Focus Group.

Focus Group-Guiding Script
Introduction: After getting everyone's consent, the initial "ice breaker" question was asked: Participants were asked to introduce themselves by saying their name, as well as to talk about their favorite food during childhood and what it represents to them when they eat it, nowadays.
1. What is the profile of the children monitored by you? [socioeconomic and demographic profiles, main comorbidities]
2. What are the changes observed in the scenario of children monitored by you, overtime? [changes in children's nutritional status and eating habits]
3. How has childhood obesity affected your practice? [organization of agendas, clinical procedures]
4. What types of actions do you carry out with this population? [individual and/or group activities, multidisciplinary care]
5. How would you describe these actions? [description of actions, perception about effectiveness and efficiency]
6. What are the potentials and weaknesses of actions carried out with this population? [obstacles to and factors enabling the implementation of actions]
7. How are these activities and results monitored? [information systematization and patients' monitoring]
8. Do you have time available in your schedule to work with this population? [understanding (un)availability and its causes]
9. With respect to the team, what are the challenges and potentials to work with children? [multidisciplinary work perspective]
10. What do you suggest to work with this public, based on your practice? [suggestions]

Chart 2. Categories, subcategories and number of times they appear as potentials and/or weaknesses, from participants' perspective.

Category/subcategory's name	Weakness N. of times	Potential
Childhood obesity consequences	1	0
Pandemic repercussions	1	0
Healthcare services		
Children adherence to the service	1	0
Working processes	30	9
Impact on childhood obesity treatment		
Educational actions	0	1
Teamwork	0	1
Raising parents/caregivers' awareness	1	0
School: health promotion space	3	9
Childhood obesity: context	1	0
Environment		
Financial access to food	4	0
Features of physical activity spaces	4	0
Home environment	16	0

Chart 3. Transcripts' caption.

(-)	Transcriber's comments
[ ]	Excerpt not clearly understood
Ahãm, uhum	Interjection of affirmation, agreement
Ãhn	Interjection of doubt, misunderstanding, or thinking
Hã	Interjection expressing that the interlocutor is waiting for the other person to keep on talking
Tsi-tsi	Interjection expressing negation
TEXT IN ALL CAPS	Word or expression spoken with emphasis
Hi-fen	Syllabically spoken word