

# Perceptions of childcare staff for preventing overweight in Mexican preschool children: A SWOT analysis

Doris Verónica Ortega-Altamirano, EdD,<sup>(1)</sup> Guadalupe Rodríguez-Oliveros, MBA, PhD,<sup>(2)</sup>  
Marco Aurelio González-Unzaga, MD, MSc,<sup>(3)</sup> Hortensia Reyes-Morales MD, Dr Sc.<sup>(4)</sup>

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## Abstract

**Objective.** To identify strengths, weaknesses, opportunities, and threats (SWOT) perceived by childcare staff for preventing childhood overweight. **Materials and methods.** Qualitative study using an interpretative phenomenological approach; 18 in-depth, semi-structured interviews and 12 focus groups with 89 key informants working in six Mexican public childcare centers (CCC) were conducted. Through Content and SWOT analyses, experts further ranked fifty-nine recurrent perceptions regarding healthy feeding and physical activity (PA), using the Delphi method. **Results.** Strengths: Acknowledgement of the CCC's responsibility in fostering healthy feeding, availability of organizational regulations, and access to PA infrastructure/indoor activities. Weaknesses: Disregard of preschool overweight as a health problem, nutritional misperceptions, and perceived risk of child injuries while conducting PA. Opportunities: Willingness to reduce children's access to junk foods, and parental active play with children during weekends. Threats: Limited family nutritional education, and restricted parental time/economic constraints/access to safe public spaces for PA. **Conclusion.** The identified SWOT must be considered when developing obesity-prevention interventions targeted at CCC.

**Keywords:** preschool; overweight; child care; day care; healthy diet; exercise

## Resumen

**Objetivo.** Identificar fortalezas, debilidades, oportunidades y amenazas (FODA) percibidas por personal de guarderías, para prevenir sobrepeso en preescolares. **Material y métodos.** Estudio cualitativo con enfoque fenomenológico interpretativo en seis guarderías públicas de la Ciudad de México. Se realizaron 18 entrevistas semiestructuradas a profundidad y 12 grupos focales con 89 directivos y trabajadores. Mediante análisis de contenido y FODA se identificaron 59 percepciones sobre alimentación y actividad física (AF), jerarquizadas por expertos mediante el método Delphi. **Resultados.** Fortalezas: Reconocimiento del potencial de guarderías en promover alimentación saludable, disponibilidad de reglamentos y acceso a infraestructura/práctica de AF en interiores. Debilidades: No se considera el sobrepeso infantil como un problema de salud, baja alfabetización nutricional y percepción de riesgo de lesiones al practicar AF. Oportunidades: Voluntad de limitar acceso a alimentos chatarra y estimular a padres e hijos a realizar juegos activos en fines de semana. Amenazas: Limitada orientación alimentaria y restricciones temporales/económicas/de acceso a espacios seguros para AF. **Conclusión.** Las FODA identificadas deben considerarse en las intervenciones para prevenir el sobrepeso en guarderías.

**Palabras clave:** preescolar; sobrepeso; cuidado del niño; centro de atención diurna; dieta saludable; ejercicio

- (1) Centro de Investigación en Sistemas de Salud, Instituto Nacional de Salud Pública. Cuernavaca, México.
- (2) Centro de Investigación en Salud Poblacional, Instituto Nacional de Salud Pública. Cuernavaca, México.
- (3) Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo. México.
- (4) Centro de Información para Decisiones en Salud Pública, Instituto Nacional de Salud Pública. Cuernavaca, México.

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Corresponding author: Hortensia Reyes-Morales. National Institute of Public Health.  
Av. Universidad 655, col. Santa María Ahuacatitlán. 62100 Cuernavaca, Morelos, México.  
E-mail: hortensia.reyes@insp.mx

In recent decades, changes in the patterns of childcare have been remarkable due to the progressive incorporation of women into the paid labor market outside of the home, including mothers with young children.<sup>1</sup> These social changes have resulted in an increased demand for childcare centers (CCC) worldwide. In 2014, the Organization for Economic Cooperation and Development reported that in incorporated countries, 35% of children <3 years of age, on average, attended a CCC.<sup>2</sup> This value varies by country from <10 to >60%, reflecting differences in family, institutional, and cultural structures among the countries that are relevant for child development and health.<sup>3</sup> In Mexico, the number of children attending public CCC is increasing each year. In 2015, >190 000 preschool children of working mothers were enrolled in public CCC that are run by the largest public health care system in Mexico, which provides health and social care to approximately 45% of the national population.<sup>4</sup>

Child overweight represents a burden to the individual, society, and health services, evidencing the need for conducting opportune preventive interventions, including those targeted to CCC. In developed countries, approximately 12% of children <5 years old are overweight, whereas in developing countries, 6.1% of preschool children, on average, have this condition.<sup>5</sup> Environmental and personal factors are relevant to prevent child overweight by promoting healthy feeding and physical activity (PA), in preschool children. Some studies have documented that CCC caregivers can be aware and concerned about child overweight, showing positive attitudes and practices for promoting healthy feeding and active play.<sup>6,7</sup> In contrast, other studies have shown that CCC caregivers may discourage healthy behaviors and overlook opportunities for promoting PA.<sup>8,9</sup>

Aside from previous studies, there is limited empirical evidence about the perceptions of CCC staff regarding their personal and organizational capacity for preventing child overweight. Therefore, this study aims to identify significant strengths, weaknesses, opportunities, and threats (SWOT) that are relevant to foster healthy feeding and PA, derived from the perceptions of five types of staff working at Mexican public CCC. This study will provide evidence for designing CCC interventions for preventing overweight in preschool children of working mothers.

## Materials and methods

### Study design and sampling

A cross-sectional qualitative study was conducted based on an interpretative phenomenological approach<sup>10</sup> to

explore the CCC staff's perceptions, as derived from their daily experiences with and perspectives on two main components: child feeding and PA in the social context of a CCC. This study was conducted in Mexico City from October 2010 to February 2012. A total of six public CCC located in four different regions of the city were purposefully selected from the 51 CCC that are run by the largest public health care system in Mexico,<sup>4</sup> based on strategic inclusion criteria:<sup>11</sup> having at least 40 registered preschool children, and being the first CCC in accepting voluntary participation in each of the study regions. These facilities provide childcare services to working mothers of children aged from 43 days old to 5 years of age. Children receive two to three hot meals during the 8- to 10-h period that they spend at the facility. All CCC have similar physical infrastructure and organizational regulations.<sup>4</sup>

The director, teacher, and dietitian from each CCC were invited to participate as key informants, and a purposive sample, composed of caregivers and kitchen staff was selected. The inclusion criteria were CCC workers in the contractual categories of interest, voluntary participation, and theoretical saturation; there were no exclusion criteria. To recruit the study participants, an introductory meeting was conducted in each CCC. The researchers informed the staff of the aims of the study, the data collection procedures, and the ethical considerations.

### Data collection

Focus groups and semi-structured in-depth interviews were conducted at each facility. These techniques were selected based on the wealth and depth of information that can be obtained.<sup>12</sup> No repeated interviews were performed with the directors, dietitians, and teachers. The focus groups were independently conducted with the CCC caregivers and kitchen staff.

A semi-structured interview guide was developed for the interviews and the focus groups, based on the literature and the previous experiences of the researchers in the study setting. The main inquiry topics were child feeding and PA, specific topics were: 1) Caregiving routines inside and outside of the facility and their potential impact on preventing child overweight, 2) Self-perception of capacity, skills, and accountability to foster healthy environments, 3) Parental involvement with the CCC staff and communication strategies with parents and relatives, 4) Views and expectations about the CCC's organizational regulations, 5) The CCC's physical environment, and 6) Proposals to promote healthy behaviors. The questions were intended to be suggestive and not prescriptive; the participants were

encouraged to address the emerging topics anytime during the sessions. The interview guide was pilot tested on a local CCC and some questions were adjusted for content and reworded to include local terminology.

Two researchers experienced in qualitative data collection conducted the sessions face-to-face, in Spanish, during working hours at the workplace, in a private room at the director's office or in a classroom, and neither the CCC director nor other institutional representatives were present. The researchers took field notes during the sessions which were audio recorded and were later transcribed *verbatim*. The interviews lasted 50 min, the focus groups lasted 93 min, on average, and six participants attended each focus group, on average. Before initiating these sessions, the participants were asked to answer a socioeconomic questionnaire that was comprised of eight questions.

### Data analysis

A content analysis was conducted in which the researchers approached the discourse of the participants with an initial understanding that came from their prior knowledge and personal experience.<sup>13</sup> Initially, two researchers verified the quality of the transcripts by comparing the audio recording with the texts and their field notes. A codebook was independently developed by these researchers following an analytical process of a circular structure of understanding,<sup>13</sup> looking for theoretical connections, new insights, and unit meanings within and across the transcripts. The main themes were grouped into 11 categories and the identified sub-themes were coded to integrate a coding tree. To enhance data quality, an inter-coder exercise was performed obtaining 92% of agreement. Subsequently, the transcripts were coded by two researchers using the Ethnograph v.5 software, and emerging themes were added into the coding tree.

The perceptions on child feeding and PA were registered in five conceptual matrices, one for each type of participant. Two researchers identified the recurrent perceptions (those mentioned by at least two of the five types of participants) and researchers conducted SWOT analysis by categorizing these perceptions accordingly.<sup>14</sup> The strengths and opportunities included the perceptions that may have a positive influence on child feeding and PA behaviors, while the weaknesses and threats included those that may have a negative influence on these behaviors. The interpretation of the results was performed in Spanish and was later translated into English. A report with the meanings inherent

to the participants' experience was developed, and its compliance with the "Consolidated criteria for reporting qualitative research" was verified to enhance the quality and transparency of the study.<sup>15</sup>

To identify the key SWOTs that are relevant for the design of interventions to prevent child overweight in CCC, an expert consultation was carried out using the modified Delphi method.<sup>16</sup> A group of nine experts on the prevention of child overweight from different disciplines (medicine, nutrition, psychology, and PA) independently ranked the identified perceptions about child feeding and PA, using a decimal scale from 0-1 point.

### Ethical considerations

Written informed consent was obtained from the participants to conduct and audio record the interviews and focus groups. The research protocol was approved by both the Research Review Board at the public health institution where the study was carried out (2007-785-049) and the Research and Ethics Review Board of the National Institute of Public Health of Mexico (CE 832, Reg. 719).

## Results

A total of 89 participants took part in the study; we conducted 12 focus groups with 39 caregivers and 32 kitchen staff, as well as 18 semi-structured in-depth interviews with six directors, six teachers, and six dietitians.

### Characteristics of participants

The majority (81%) of the participants in the study were women; 19% were men and they corresponded to the kitchen staff. The age range of participants was 20 to 62 years old. The educational level of the caregivers and kitchen staff was 6 to 9 years whereas the directors, teachers, and dietitians had 12 or more years of education. Half of the participants had more than 10 years of labor seniority.

### Perceptions of the CCC Staff

A total of 90 perceptions expressed by the five types of participants were identified. Of these, 59 recurrent perceptions (33 referred to child feeding and 26 to child PA) were classified into 18 strengths, 15 weaknesses, 11 opportunities, and 15 threats. Tables I to IV show the results of the Delphi analysis performed by the experts by weighing the CCC staff perceptions.

**Table I**  
**STAFF PERCEPTIONS OF CHILD FEEDING. MEXICO CITY, 2011**

| <i>Internal environment of the childcare center: Strengths and Weaknesses</i>   |                  |  |                  |
|---|------------------|--|------------------|
| <i>Strengths</i>  | <i>Total I.0</i> | <i>Weaknesses</i>  | <i>Total I.0</i> |
| The <sup>a</sup> CCC has a positive impact on the formation of healthy feeding behaviors and provides food and beverages to the children at specific times. <sup>b</sup> S  | 0.14             | The CCC staff does not relate preschool overeating behaviors with the potential development of overweight and obesity. S   | 0.20             |
| The establishment of hygiene and healthy feeding behaviors is part of the agenda of the CCC, and regulations on these topics are indicated in the CCC's organizational manuals. <sup>c</sup> D, <sup>d</sup> DI, <sup>e</sup> T | 0.12             | Sweetened beverages are considered adequate by the CCC staff because they are well accepted by the children. S   | 0.15             |
| The amount of food and beverages consumed by the children is related to their physical health. S  | 0.12             | Syrup-sweetened water is provided to the children by the CCC staff because the children do not accept simple water, so it would be wasted. S                             | 0.11             |
| The menu served at the CCC is displayed at the front-desk, allowing daily communication with parents and other relatives on the food and beverages offered in the facility. S   | 0.10             | The provision of fried foods, breaded dishes, and toppings made with creamy sauces and cheese, are considered adequate because they are well accepted by the children. S | 0.10             |
| The use of foods (i.e., pasta soup, fruit, vegetables, beans, and lentils) as a didactic material is encouraged through the CCC's educational manuals. D, DI, T, <sup>f</sup> C   | 0.10             | CCC regulations allow the children to receive additional food portions if the children request them. DI, K, C  | 0.10             |
| Activities of children (i.e., eating, resting, socialization, and hygiene) at the CCC are systematic in time and space. D, T  | 0.10             | Children prioritize a food's flavor over its nutritional value. S  | 0.09             |
| Children are encouraged to consume the food and beverages provided at the CCC and, overtime, they tend to accept them. S  | 0.09             | The staff considers it adequate to use canned fruit if there is no available fresh fruit at the CCC. DI, K   | 0.09             |
| The CCC's staff cares about providing hygienic meals and safe foods (without bones or seeds and non-allergenic foods). D, DI, <sup>g</sup> K, C   | 0.08             | The staff suggested varying the CCC's menu by including energy-dense foods. K, C   | 0.08             |
| There is a willingness by the CCC staff to accept changes to the menu. S  | 0.08             | Staff struggle with engaging and communicating with parents about the importance of establishing appropriate feeding behaviors at an early age. T, C                     | 0.08             |
| There is confidence that the CCC's menus are designed by experts in terms of food portions, presentation, and preparation. D, DI, T   | 0.07             |  |                  |

<sup>a</sup>CCC, childcare center; <sup>b</sup>S, total staff; <sup>c</sup>D, director; <sup>d</sup>DI, dietitian; <sup>e</sup>T, teacher; <sup>f</sup>C, caregiver; <sup>g</sup>K, kitchen staff

## Child feeding perceptions

Table I shows the child feeding perceptions of the internal environment. The most important strength was the recognition by all types of participants about the responsibility and potential impact of CCC in fostering children's healthy eating behaviors. Directors and teachers noted that the institutional child feeding regulations provide information on the managerial line and on their responsibilities and caregiving routines.

The main weakness was the lack of recognition that fostering healthy feeding behaviors from preschool age is relevant for preventing overweight. Some participants mentioned that sweetened beverages (i.e., juices and fruit-flavored sweetened water), are "suitable for children due to their acceptability and potential rejection to

plain water". The caregivers indicated that sugary foods (i.e., peaches in syrup, sugary cookies, and cereal with marshmallows), are offered at the facility and did not mention the potential consequences on child health from the overconsumption of sugary foods. To increase the variety of the CCC menus, the caregivers and kitchen staff proposed adding pancakes, vegetable cream soup, eggs with bacon, *enchiladas* and fried *tacos* with beans and cheese (Mexican dishes prepared with corn dole).

Table II shows the child feeding perceptions of the external environment. The opportunities relate to the staff's perceptions that parents are receptive to accepting guidance on the type of foods they provide to children. However, some participants reported that some parents cannot offer to their children a variety of foods, due to the poor conditions under they live.

**Table II**  
**STAFF PERCEPTIONS OF CHILD FEEDING. MEXICO CITY, 2011**

| <i>External environment of the childcare center: Opportunities and Threats</i>  |                  |   |                  |
|---|------------------|---|------------------|
| <i>Opportunities</i>  | <i>Total I.0</i> | <i>Threats</i>  | <i>Total I.0</i> |
| The <sup>a</sup> CCC represents an opportunity to provide guidance and discuss the importance of offering diverse foods to preschool children at home. <sup>b</sup> D, <sup>c</sup> T                   | 0.21             | Television advertisements for sweets and the family environment (i.e., grandparents offer sweetened beverages to children) have negative influences on the child's feeding behaviors. D, T, C | 0.17             |
| Parents can provide a balanced diet to their children during the weekends if they offer healthy foods that are not provided at the CCC: fish, seafood, and fruits with seeds. D, <sup>d</sup> DI        | 0.20             | During their arrival and departure times from the CCC, the children have access to junk foods and sweetened beverages in the stores and stalls located near the facility. D, DI, T, C         | 0.16             |
| The CCC's caregivers recommend that parents foster healthy feeding behaviors in their children by offering foods off the CCC menu and not just providing what the children want (i.e., junk food). D, T | 0.18             | Parents allow their children to consume sweetened beverages on weekdays in the afternoon and during weekends. D, DI, T  | 0.14             |
| It is feasible for the parents to reinforce the CCC's feeding practices, particularly its feeding schedules. D, T   | 0.15             | Parents are used to giving junk food to children as treats, rewards, or compensation for the time that they are left in the CCC. D, T, C  | 0.14             |
| It is proposed to open an additional communication channel between the CCC's staff and parents by enclosing written information about healthy feeding in the child's backpack. D, T, <sup>e</sup> C     | 0.14             | The parents of overweight children do not have an adequate knowledge of food to offer healthy meals or do not have enough time to prepare them. D, DI, T                                      | 0.13             |
| It is feasible to ask parents to teach their children how to chew and swallow meat, as some young children do not consume this food at the CCC. D, DI, T  | 0.12             | Parents allow their children to consume snacks on weekdays in the afternoon and during weekends. <sup>f</sup> S   | 0.10             |
|   |                  | Parents bring cakes and sweets to the CCC for birthdays and special holidays. S   | 0.10             |
|   |                  | The children of families without sufficient financial resources are used to eating mainly what they receive at the CCC. D, DI, T  | 0.06             |

<sup>a</sup>CCC, childcare center; <sup>b</sup>D, director; <sup>c</sup>T, teacher; <sup>d</sup>DI, dietitian; <sup>e</sup>C, caregiver; <sup>f</sup>S, total staff

Finally, as a threat, most of the participants reported that the family environment can have a negative influence on the formation of healthy feeding behaviors in children:

"[... For a parent, I think it is easy to buy a pizza or a hamburger, and the children are not offered the foods that we provide in the CCC. During the weekends, parents encourage children to eat junk foods, and children obviously choose these foods." (Focus group-Caregivers-A).

### Perceptions of physical activity

The willingness of the staff to receive training, accept changes in the current recreational routines involving PA, and the availability of adequate infrastructure and equipment for PA, were important strengths (table III).

One of the main weaknesses was the lack of awareness that a sedentary lifestyle is related to young child overweight. Among other weaknesses, the caregivers reported not feeling confident enough or having insuf-

ficient knowledge to establish PA routines. Most participants indicated that "when children engage in PAs, they are at risk of getting injuries, generating complaints from parents." Some caregivers reported that in such cases, they could be disciplined.

"[... We do not have clear knowledge of how far we can motivate the child [to do PA]. We fear that something is going to occur to the child and, obviously, the responsibility is mine." (Focus group -Caregivers-B).

Regarding the external environment (table IV), among the main opportunities about PA, it is believed that "parents value practicing PA with their children during weekends." Directors, caregivers, and teachers, noted that children with supportive parents and relatives are the most active/agile children.

The most important threat is that parents lack the time to engage in PAs with their children during the evenings and weekends.



**Table III**  
**STAFF PERCEPTIONS OF CHILDREN'S PHYSICAL ACTIVITY, MEXICO CITY, 2011**

| <i>Internal environment of the childcare center: Strengths and Weaknesses</i>   |                  |  |                  |
|---|------------------|--|------------------|
| <i>Strengths</i>  | <i>Total I.0</i> | <i>Weaknesses</i>  | <i>Total I.0</i> |
| The <sup>a</sup> CCC have favorable physical conditions for children to be physically active: yards, gardens, and multipurpose rooms; some have a fully equipped gym. <sup>b</sup> D, <sup>c</sup> T        | 0.15             | The staff does not feel confident or have sufficient knowledge for establishing physical activity behaviors in preschool children. D, T  | 0.20             |
| The staff is willing to accept changes to the agenda of recreational activities to increase the range of physical activities with children: dancing, rolling, crawling, and jumping. <sup>d</sup> S         | 0.15             | The staff relates sedentary behaviors to children's illness or physical disability, but not with overweight and obesity in preschool children. C   | 0.17             |
| The staff would like to receive training from physical education experts regarding safe and appropriate activities for children. S  | 0.14             | Strategies to encourage physical activity behaviors in children are not fully explained in the organizational manuals. D, T  | 0.17             |
| The staff expressed that children have the capacity to participate in recreational activities that involve physical activity: singing, playing, and dancing with music videos. S                            | 0.13             | Children may get cut or dirty or may get their clothes wet with their sweat, causing complaints from parents. Caregivers and teachers may receive administrative sanctions for parental complaints. T, C       | 0.17             |
| The staff is interested in knowing what type of physical activity is appropriate for each age group of children. S  | 0.12             | Several recreational activities that are carried out in the CCC demand a low level of physical activity. D, T  | 0.15             |
| Dancing with videos is one of the favorite activities of the children. T, <sup>e</sup> C  | 0.11             | There are spaces available at the CCC for children to perform physical activities, but these spaces need to be remodeled to prevent children from falling, scraping themselves, and getting wet or dirty. T, C | 0.14             |
| Parents participate with their children in recreational events that promote physical activity (i.e., football, racing of tricycles, mini-Olympics) when attending a day-long monthly visit to the CCC. D, T | 0.11             |  |                  |
| Running during recess, riding a tricycle, and playing ball with hoops and sticks are activities where children expend more energy at the CCC. S   | 0.09             |  |                  |

<sup>a</sup>CCC, childcare center; <sup>b</sup>D, director; <sup>c</sup>T, teacher; <sup>d</sup>S, total staff; <sup>e</sup>C, caregiver

**Table IV**  
**STAFF PERCEPTIONS OF CHILDREN'S PHYSICAL ACTIVITY. MEXICO CITY, 2011**

| <i>External environment of the childcare center: Opportunities and Threats</i>  |                  |   |                  |
|---|------------------|---|------------------|
| <i>Opportunities</i>  | <i>Total I.0</i> | <i>Threats</i>  | <i>Total I.0</i> |
| It is feasible to involve parents in performing physical activities with their children during evenings and on weekends. <sup>a</sup> D, <sup>b</sup> T             | 0.29             | Lack of time by the parents on weekdays and sometimes on weekends is a limiting factor for children to engage in physical activity. S   | 0.20             |
| The staff recognized the need for a specialist at the <sup>c</sup> CCC to lead physical activities. <sup>d</sup> S  | 0.19             | During weekends, children spend a disproportionate amount of time engaged in sedentary activities, such as watching TV and movies and playing video games. S                    | 0.17             |
| Children that are physically active at home during the weekdays and weekends are more agile and active than their sedentary peers. T, <sup>e</sup> C                | 0.19             | Extended commuting times with public transportation or in private vehicles ( $\geq 2$ h) is a limiting factor for children to perform physical activity in the afternoons. D, T | 0.16             |
| Some parents practice physical activity with their children mainly on weekends (i.e., play a sport or a game in the park or elsewhere and dance using videos). T, C | 0.18             | Lack of safety in the streets and other public spaces, such as parks and playgrounds, is a limiting factor for physical activity. S   | 0.14             |
| Some children have access to parks or sport centers near their homes. S   | 0.15             | Living in small apartments, as occurs with the majority of children, is a limitation for performing physical activity at home. S  | 0.12             |
|   |                  | Only a few parents can afford the cost of a professional trainer to teach their children swimming, football, martial arts, or ballet. S   | 0.12             |
|   |                  | Children of single parents are less likely to be physically active and go to parks, where they can run, swim, or ride a tricycle. S   | 0.09             |

<sup>a</sup>D, director; <sup>b</sup>T, teacher; <sup>c</sup>CCC, childcare center; <sup>d</sup>S, total staff; <sup>e</sup>C, caregiver

"[...] There are many parents who work on Saturdays and Sundays and in many cases, children watch TV [...] when parents want to change some behavior in children, the children do not listen to them." (Focus group -Caregivers-C).

Directors and teachers noted as limiting factor for performing PA outside the CCC that several children must travel up to two hours using public transportation to arrive home.

## Discussion

This study identified the significant perceptions of CCC staff regarding healthy feeding and PA, relevant for preventing preschool child overweight and for expanding current knowledge about caregiving routines, the physical environment, and organizational regulations, in Mexican public CCC.

In regards of the healthy feeding component, the recognition of the responsibility and potential impact of CCC in fostering child healthy feeding for preventing child overweight, is a key strength for capacity building in the CCC staff. Studies conducted with health providers and teachers showed that health personnel needs appropriate training for having skills to participate effectively in weight management programs.<sup>6,7</sup>

The availability of child feeding organizational manuals was identified as a key strength. According to Tolbert and Hall,<sup>17</sup> the explicit division of responsibilities, the understanding of how work should be done, and the description of interpersonal coordination, may foster accountability of the staff, strengthening organizational performance. In contrast, some authors have pointed out that highly structured organizations may limit the flexibility for decision-making.<sup>17,18</sup> Limited flexibility may determine staff capacity to consider individual feeding needs of children within the local context and eventually, turning out a strength into a weakness.

A key weakness identified in this study is the lack of awareness of the potential consequences of childhood unhealthy feeding. This perception that was shared by several participants and particularly by the CCC caregivers, might be detrimental for conducting preventive care actions at the facility as shown by Moore and colleagues.<sup>9</sup> In addition, the beliefs of the staff that sweetened beverages and several energy-dense dishes are suitable for preschool children also emerged as a relevant weakness in this study. Misperceptions of caregivers regarding unhealthy feeding practices are consistent with previous reports.<sup>19,20</sup> Overcoming this situation is particularly relevant in countries with a high prevalence

of overweight and obesity such as Mexico,<sup>21</sup> where the overconsumption of unhealthy foods by children have been consistently documented.<sup>22</sup> Continuing training to caregivers should be implemented as a priority within the institutional obesity prevention programs.

The opportunities identified in our study clarify the importance of parental engagement to the staff in fostering healthy feeding behaviors in children. Cooperation and communication between parents and caregivers have been related to young children's acquisition of social, motor, and adaptive skills that are relevant for healthy feeding.<sup>23</sup> Furthermore, encouraging partnerships between caregivers and parents might help reduce the exposure to energy-dense foods and to low-nutrient foods, common in the Mexican and the Latin-American family diet,<sup>22,24</sup> which also is influenced by mass media exposure to non-healthy food.<sup>25</sup> This approach enables caregivers at the CCC to be aware of the cultural influences shaping family food-related beliefs, practices, and behaviors.<sup>20</sup>

The child feeding issues discussed above reveal the need for ongoing nutritional training of both the staff and families that is aimed at improving their "nutritional literacy," awareness about the consequences of childhood overweight, skills for developing effective health communication strategies, and caring capacity.<sup>26</sup> Improving nutritional literacy might also encourage healthy individual feeding behaviors by the staff and parents.<sup>27</sup> The latter is relevant to children's role modeling, as the observational learning of significant others may build up or discourage desirable feeding beliefs and behaviors in young children.<sup>28,29</sup>

In regards of the PA component, several environmental factors of the CCC, such as access to adequate PA infrastructure, activity-friendly didactic material, and the encouragement of both indoor and outdoor recreational activities by teachers and caregivers, were identified as key strengths. Consistently, some authors have found that the suitability of the PA space, the teacher's encouragement, and the time spent in indoor play, are predictors of moderate to vigorous PA in the 3- to 5-year-old children who are attending CCC.<sup>30,31</sup>

Another key strength relates to the willingness of caregivers to receive training for planning and performing PA with children. This could help overcome one of the identified key weaknesses, which is concerned with their lack of confidence in promoting PA,<sup>7</sup> probably worsened by caregivers' fear regarding parents' perception of unsafety PA activities at CCC. Other authors have explored the relationship between parental perception of school safety and children's physical activity without conclusive evidence.<sup>32</sup> Further research will be necessary in this topic.

To foster caregivers' capacity for leading PA at the CCC, staff PA training programs must be supported by organizational initiatives that encourage active behaviors in children.<sup>6,7,17</sup>

Staff perceptions about the role of families to foster active lifestyles in children consistently emerged as an opportunity in this study. However, the lack of time by the parents for engaging in PA and the reduced likelihood of children of single parents in performing PA outdoors, were identified as key weakness. Effective interventions have documented the importance of involving families in supporting the CCC's PA initiatives.<sup>26,33</sup> As noted by Pocock and colleagues,<sup>34</sup> health promotion strategies are more effective if they are directed at the wider family, in view of the inter-generational influences on parental health beliefs and knowledge. Involving parents in interactive education and in-hand experiences strategies for promoting PA has been recommended.<sup>3,35</sup>

The potential limitations of our study relate with the generalizability of the results, as the study was held in a particular setting. Nonetheless, our approach allowed an in-depth exploration of both environmental and personal factors that prevent child overweight, which is relevant to other similar settings. Another limitation relates to the participant's sensitivity about discussing issues regarding their work environment; however, a number of them did discuss compelling issues, as confidentiality was assured and separate focus groups were conducted based on participant type. A strength of this study is the inclusion of diverse types of stakeholders allowing us to provide in-depth insights on the providers' perspectives, misperceptions, and personal experiences.

Additional studies using mixed-methods and having a multidisciplinary perspective are necessary to further delve into the CCC staff's perceptions and practices for preventing child overweight. Considering the increased use of non-parental childcare and the growing prevalence of childhood obesity worldwide, public policy and culturally appropriate interventions that ensure the quality of institutional childcare are needed, while building on the strengths/ opportunities and overcoming the weaknesses/ threats that were identified in this study. Finally, it must be acknowledged that additional determinants of health should be addressed through an ecological and behavior-changing approach to tackling the global burden of childhood obesity.

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