

Mexican mothers' perceptions of their child's body weight

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What is known about this topic

- Obesity and being overweight constitute a global public health problem.
- Quantitative studies report that the majority of mothers of children who are OW–OB do not perceive the weight of their child and tend to underestimate it.
- Mothers who recognise their children's weight as a health problem have a greater willingness to implement lifestyle changes in their children.

What this paper adds

- It offers results regarding the perceptions of mothers concerning the weight status of their children by BMI categories (underweight, normal weight, overweight and obese) and gender.
- From these findings, three typologies concerning the perceptions of the body weight of children were constructed: overestimating (OVR), underestimating (UND) and appropriate perception (AP).

Abstract

Currently, Mexico holds one of the top rankings in childhood obesity worldwide. This present qualitative study aims to explore and describe mothers' perceptions concerning the body weight of their children and, based on these findings, be able to arrive at a typology. Research included 91 semi-structured interviews administered to mothers of children who were underweight (UW), normal weight (NW), overweight (OW) or obese (OB). The data were collected between June 2011 and December 2013. The information was analysed with MAXQDA qualitative software. It was found that overestimated perception in UW children is observed in mothers who fear gaining weight. Mothers of NW children tend to gauge the weight of their children close to that which is normal. OW children are appropriately perceived by their mothers; however, these mothers are not concerned by this situation because for them, it is something temporary that will disappear as the child grows. The majority of boys who were OB were underestimated in their weight; those who were appropriately perceived showed class II or III obesity. Mothers typically perceived OW and OB girls with greater precision. The mothers who perceived obesity in their sons or daughters felt responsible, which motivated them to change their children's habits and behaviours. Therefore, health professionals should communicate and help these mothers recognise OW and OB status in their children. Furthermore, the importance of prevention should be stressed when a child is OW, and they should be informed of the high health risks that accompany obesity.

Keywords: children, mothers, obesity, weight perception

Introduction

Childhood obesity (OB) is a public health problem due to the high costs that stem from its treatment and its repercussions in adult life. With regard to this condition, Mexico holds one of the top rankings worldwide. The national prevalence of being overweight (OW) and OB in school-aged children from 5 to 11 years old is 34.4%, 32% in girls and 36.9% in boys (Gutiérrez *et al.* 2012).

Treating weight gain in children requires various strategies in which their parents participate, particularly mothers who are considered to be the main care providers (Lopes *et al.* 2012). Various studies (Baughcum *et al.* 2000, Evans *et al.* 2005, Akerman *et al.* 2007, Grimmett *et al.* 2008, Gualdi-Russo *et al.* 2008, Rietmeijer-Mentink *et al.* 2013, Duncan *et al.* 2015) conducted using a quantitative method to address maternal perceptions regarding the body weight of their children report that there is a high percentage of parents who do not accurately perceive the weight of their children; they show low levels of concern associated with the excess

accumulation of fat. These studies also affirm that when the mother does not accurately perceive the body weight of her children, she hinders treatments for reducing OW and OB (Díaz 2000, Maynard *et al.* 2003, Reifsnider *et al.* 2006, Bracho & Ramos 2007, Hackie & Bowles 2007, Manios *et al.* 2009, Flores-Peña *et al.* 2014).

However, it has been reported that when the mother recognises the excess weight in her children and is aware of the consequences to their health, this is an important step in the fight against obesity because these mothers have a greater likelihood of receiving advice and taking action to control the weight of their children (Lara-García *et al.* 2011, Guevara-Cruz *et al.* 2012, Warschburger & Kröller 2012, Eli *et al.* 2014).

Symbolic interaction suggests that people create shared meanings through interactions among themselves and their context or the phenomena established in their environment; these meanings become their realities (Walker *et al.* 2009) and are transformed through a dynamic, interpretive process. According to this theoretical perspective, mothers' perceptions of the weight of their sons and daughters constitute a means by which we are able to approach understanding their concepts, practices and visions of reality.

Accordingly, an eating habit is defined as the dietary habits acquired through family and the social or ethnic group to which the individual belongs, meaning also the exchange of values, meanings and affective bonds related to food and body image, including the significance of what an ideal weight is (Contreras & Gracia 2005).

However, according to the literature, most of the investigations concerning this topic have been conducted using quantitative methods. Therefore, little is known about the beliefs and factors that influence maternal perceptions of children's weight, especially from a qualitative perspective. Furthermore, in Mexico, published studies that address maternal perceptions in children who, from the medical nutritional perspective, are found to be underweight (UW), normal weight (NW), OW or OB are not found.

A study was conducted to explore and describe the perceptions of mothers concerning the body weight of their children and, moreover, be able to come closer to a typology.

Methods

Design and sample

To become familiar with maternal perceptions concerning the weight of children, a qualitative study

was designed. Data were obtained through 91 semi-structured interviews administered between June 2011 and December 2013, using purposive sampling, which Izcara (2014) defines it as one that is selected based on the knowledge of a population and the purpose of the study. The subjects are selected because of some characteristic. Prior to the beginning of the study, a semi-structured interview guide was designed, and women with UW, NW, OW and OB children between 7 and 11 years of age and registered and attending a public primary school in the metropolitan area of Monterrey, Nuevo Leon, Mexico, were contacted. To obtain the weight category of the children, a body mass index (BMI) was calculated according to the procedures established by the Centers for Disease Control and Prevention (CDC 2010). Size and weight measurements taken from the children were previously authorised by their parents.

Participants were contacted using the snowball technique in which an informant provides the reference of another with information that is potentially useful for the objectives of the study (Taylor & Bogdan 1996). A semi-structured interview was administered to each participant, either in her home or at the school. The interview was based on a guide that contained subjects, possessed a continuity of topics and suggested questions; it presented a starting point with regard to the sequence and form of the questions (Álvarez-Gayou 2003). Furthermore, the interview lasted 80–120 minutes.

To become familiar with the mothers' perceptions, a chart with seven figures that contained images of children in the age range of 6–9 and 10–13 years old was used as a reference. Each participant was shown a paper with seven body images of boys if they were mothers of a boy and seven body images of girls if they were mothers of a girl. They were asked to choose a figure that, according to them, most resembled the physique of their child, according to their perceptions (Eckstein *et al.* 2006).

A total of 91 mothers were interviewed and categorised as follows: seven mothers of children who were UW (3 boys and 4 girls), 35 mothers of children who were NW (17 boys and 18 girls), 14 mothers of children who were OW (8 boys and 6 girls) and 35 mothers of children who were OB (24 boys and 11 girls). The number of participants was decided according to the principle of theoretical saturation.

Data analysis

The interviews were audio-recorded; each participant signed an informed consent form in which the

purposes of the study were outlined, and the participants were informed that pseudonyms would be used when presenting the results of the investigation (the number of the interview, the age of the participant, 'NA' if their child was a girl or 'NO' if their child was a boy, and the weight class of the child according to the CDC). Afterwards, the analysis was conducted based on the method proposed by Creswell (2009). In the first step, the data were prepared for the analysis, and the information was promptly read. Afterwards, the coding process was performed manually and with MAXQDA qualitative software, manufactured for the Dr. Kuckartz in Germany (Castro 2005). This coding process assisted in performing an analysis of the texts, organising the interviews, creating categories and codes, and linking them together more quickly. Theoretical triangulation technique was used to demonstrate the validity of the study (Hernández *et al.* 2014).

Afterwards, data matrices were produced from the information found in the interviews. Of the areas investigated, the following are reported: (i) the maternal perception of the child; (ii) body weight perception and its link with gender; and (iii) the nutritional practices of the family. In this study, principles regarding the autonomy, self-determination and confidentiality of the information were addressed and

also evaluated by an ethics committee from the Autonomous University of Nuevo Leon.

Findings

The ages of the women who were interviewed ranged from 23 to 51 years old. Of the 91 participants, the majority were married, worked as homemakers and possessed an education level that was predominantly that of secondary school (24 participants); 22 participants had earned college degrees (Table 1).

Perceptions of the mothers with underweight children

Maternal perceptions were classified in relation to the nutritional state of their children (UW, NW, OW and OB) (Table 2). The findings were as follows: of the seven mothers interviewed, five appropriately perceived their children as being UW (two girls and three boys). All were married and worked as homemakers, and the majority finished secondary school. They contended that their children were physically seen as very thin and that their nutritional status must be genetic. They thought that if the children continued to be UW in the future, then it would cause health problems:

Table 1 The demographic characteristics of study sample (*n* = 91)

| Characteristics | Underweight (<i>n</i> = 7) | | Normal weight (<i>n</i> = 35) | | Overweight (<i>n</i> = 14) | | Obese (<i>n</i> = 35) | | Total (<i>n</i> = 91) | |
|-----------------------------|--------------------------------|------|-----------------------------------|------|--------------------------------|------|---------------------------|------|------------------------|------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Age | | | | | | | | | | |
| 20–24 | 0 | 0.0 | 2 | 5.7 | 0 | 0.0 | 1 | 2.8 | 3 | 3.2 |
| 25–34 | 4 | 57.1 | 10 | 28.5 | 0 | 0.0 | 0 | 0.0 | 14 | 15.3 |
| 35–44 | 3 | 42.8 | 18 | 51.4 | 12 | 85.7 | 29 | 82.8 | 62 | 68.1 |
| 45–51 | 0 | 0.0 | 5 | 14.2 | 2 | 14.2 | 5 | 14.2 | 12 | 13.1 |
| Marital status | | | | | | | | | | |
| Married | 7 | 100 | 31 | 88.5 | 14 | 100 | 26 | 74.2 | 78 | 85.7 |
| Cohabiting | 0 | 0.0 | 2 | 5.7 | 0 | 0.0 | 2 | 5.7 | 4 | 4.3 |
| Separated | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.8 | 1 | 1.0 |
| Divorced | 0 | 0.0 | 2 | 5.7 | 0 | 0.0 | 5 | 14.2 | 7 | 7.6 |
| Single mother | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.8 | 1 | 1.0 |
| Mother's educational status | | | | | | | | | | |
| Primary complete | 0 | 0.0 | 1 | 2.8 | 0 | 0.0 | 1 | 2.8 | 2 | 2.1 |
| Secondary | 5 | 71.4 | 5 | 14.2 | 4 | 28.5 | 10 | 28.5 | 24 | 26.3 |
| Technician | 1 | 14.2 | 8 | 22.8 | 2 | 14.2 | 7 | 20 | 18 | 19.7 |
| High school | 0 | 0.0 | 11 | 31.4 | 3 | 21.4 | 6 | 17.1 | 20 | 21.9 |
| College graduate | 1 | 14.2 | 7 | 20 | 4 | 28.5 | 10 | 28.5 | 22 | 24.1 |
| Postgraduate degree | 0 | 0.0 | 3 | 8.5 | 1 | 7.1 | 1 | 2.8 | 5 | 5.4 |
| Mother's occupation | | | | | | | | | | |
| Homemakers | 5 | 71.4 | 18 | 51.4 | 6 | 42.8 | 20 | 57.1 | 49 | 53.8 |
| Remunerated job | 2 | 28.5 | 17 | 48.5 | 8 | 57.1 | 15 | 42.8 | 42 | 46.1 |

Table 2 Maternal perceptions by body weight of the child

| Maternal perceptions | Overestimation | | | Underestimation | | | Appropriate perception | | | Total |
|----------------------|----------------|----------------|------|-----------------|----------------|------|------------------------|----------------|------|-------|
| | Boys <i>n</i> | Girls <i>n</i> | % | Boys <i>n</i> | Girls <i>n</i> | % | Boys <i>n</i> | Girls <i>n</i> | % | |
| Underweight | 0 | 2 | 18.1 | 0 | 0 | 0.0 | 2 | 3 | 10.2 | 7 |
| Normal weight | 6 | 3 | 81.8 | 3 | 9 | 38.7 | 8 | 6 | 28.5 | 35 |
| Overweight | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 8 | 6 | 28.5 | 14 |
| Obese | 0 | 0 | 0.0 | 16 | 3 | 61.2 | 8 | 8 | 32.6 | 35 |
| Total | 6 | 5 | 100 | 19 | 12 | 100 | 26 | 23 | 100 | 91 |

He [her son] looks like he's anaemic ... I say, 'When he gets sick 1 day, what defences is he going to have?' I say, 'He's underweight, and he doesn't want to eat, his father is also really thin...'. (E18-NO-UW)

On the other hand, two of the women interviewed who finished secondary school and who had paid employment did not perceive their children to be UW and thought that they were OW. It is worth noting that the participants showed concern for their physical appearance, went on diets or took medication to lose weight, and this concern was passed on to their daughters:

My daughter watches what she eats, she really does! She doesn't eat meat, doesn't eat fatty food, she won't eat anything like that because she doesn't want to look fat! (E15-NA-UW)

Perceptions of the mothers with normal weight children

Of the 35 mothers of NW children, 14 had an appropriate perception of the weight of their children (8 boys and 6 girls) and associated it with ideal health. '[Her son] seems healthy to me, neither fat nor thin' (E16-NO-NW). It was found that all of the women interviewed were married, eight were homemakers and six had paid employment.

In contrast, the mothers of six boys and of three girls did not perceive their children to be of NW and thought that they were OW because of their physical appearance and how they ate. The women interviewed were between 24 and 41 years old, married, had technical degrees or had finished high school, and the majority had paid employment:

Well, I'm hard on my daughter because I say that she's like that from what she eats, or rather, perhaps she eats because of her nerves ... my husband tells me, 'You're sick in the head because she's not fat'. Fine, myself I'd like to see her be a little thinner...; it seems to me that she's a bit plump, but perhaps I say that because I'm traumatised over plump girls! Because I am... (E9-NA-NW)

However, 12 mothers (nine girls and three boys) underestimated the weight of their children. The majority of these mothers studied at the university level, had a partner and half of them relied on paid employment. However, in their discussions, the women interviewed, despite having chosen a figure that represented being UW, believed that the graphic they had chosen represented an ideal weight, indicating that their children had always had a thin build, ate healthily and exercised:

My daughter has good eating habits and, well, she has always had a thin build. (E32-NA-NW)

Perceptions of the mothers with overweight children

A total of 14 mothers were interviewed who had children who were OW (eight boys and six girls). Their ages ranged between 37 and 50 years old, they were married, eight had paid employment and their education level was predominately that of secondary school (4) and university degree (4). All of the women interviewed perceived their children to be OW:

Actually, he's not that fat, but you can see his tummy. (E31-NO-OW)

The mothers emphasised that, in comparison to past years, the weight gain of their children was obvious: 'I see that he is gaining weight, now I see his body, his stomach...'. (E3-NO-OW); furthermore, the weight gain was attributed to poor nutrition and a sedentary lifestyle.

Although the mothers perceived their boys as OW, they did not think that this condition caused any problems or that it could be a health risk because they referred to a future 'growth spurt' that would keep their sons from being 'a bit chubby'. The common belief among the mothers was that when a boy reaches adolescence, he grows a few centimetres, and the fat and excess body weight disappear. Further-

more, this belief was based on family histories that they had observed with their older children:

I see him [her son] as 'a bit chubby', but I think that he is going to start developing, and from the experience that I have had with my other children, I've seen them gain weight and later go through a growth spurt ... I think that my son is 'a little fat', but I believe that he is going to grow out of it. (E11-NO-OW)

By contrast, the mothers of girls who were OW expressed concern for the weight of their daughters. However, the concern for the weight resided in physical appearance because the women interviewed shared the belief that slenderness in women is important:

I'm worried because my daughter has gained a few kilos ... my girl is approaching obesity, and what I say to my husband is, 'Look at her, she's already gaining weight', and he tells me, 'Yes, she's a bit chubby', not like others, but yes, because appearance is important, if you are really fat, you are going to look bad! (E1-NA-OW)

Perceptions of the mothers with obese children

In this group, 35 mothers were interviewed with children who are OB (24 boys and 11 girls). The mothers of eight girls correctly perceived that their daughters were OB. These mothers were between the ages of 36 and 41 years old, the majority were married, finished secondary school and were homemakers:

The fattest image, because she looks fat, she looks like she has a bulging stomach, and that is what my daughter looks like. (E19-NA-OB)

The women interviewed stressed that they noticed that their daughters were OB, in the way their bodies were shaped and in their clothing sizes, which were much larger than what girls of their age were wearing:

She really is over the top now ... I'm struggling with the skirt in her school uniform because she wears a size 18, the pants that she wears now are a woman's size, she wears a size 5 ... (E12-NA-OB)

However, the weight of three OB girls was underestimated. Their mothers, 39, 40, and 43 years old, with university degrees, mostly married, and with paid employment, believed that their daughters were OW, although in their discussions, they indicated that their weight gain was physically obvious:

I see that my daughter is getting thicker, and I see that she is growing up to be fatter and fatter, she has little fat rolls. ... (E68-NA-OB)

In the 24 boys who were OB, 16 of their mothers perceived that they were OW. These interviewed women were between the ages of 34 and 51 years old; the majority were married homemakers and had an educational level that was predominately secondary school and university. What stood out is that these mothers perceived their children in a positive manner. They saw them as happy, playful children with big appetites:

He is the fifth image, he's a bit chubby, but not too fat, he still moves around a lot and likes to walk, he's still active. (E2-NO-OB)

Referring to the obesity of their children, the mothers used synonyms with positive connotations instead of 'obese' or 'fat'. For example, they used the following expressions: 'he's gaining a little weight', 'he's robust', 'a bit chubby', 'he's got excess weight' and 'he's filled out but not fat'.

In contrast, only eight of the 24 mothers of boys who were OB correctly perceived them as such, and it is important to note that the similarity among these boys is that all of them were shown to be in obesity categories II or III:

He's a lot chubbier than the figures, he weights too much. (E70-NO-OB)

In addition, the mothers were concerned by their children's weight; they had become inactive and were made fun of by their classmates as a result. The similarities among the women interviewed were that the majority studied up to secondary school, were married and had paid employment:

I'm worried about him, he's really chubby, and they say things to him at school, he has low self-esteem because he doesn't want to wear shorts or tight shirts because they show his chest, and his classmates say he has a woman's chest and that he's really fat. (E83-NO-OB)

It is important to note that in the discussions, the mothers held their children responsible for the weight gain and thus declared that they are children who have 'a very sedentary lifestyle' or 'are very lazy' and disclose that they do not have any control over the physical activities in which the children participate. Performing any type of exercise is up to the children themselves.

The mothers with sons interviewed noted that when they attempted to change the boys' eating habits, they were confronted with various obstacles, including disobedience, rebellion, anger and crying:

When I tell him that he has to exercise, he doesn't want to or will only do it a couple of times, but later he cries, and I leave him alone. (E2-NO-OB)

The interviewed mothers with sons who had excess weight underestimated the boys' obesity and the risks they faced, and they did not consider it to be an illness; they only recognised it as a risk factor for illnesses such as diabetes, which they considered to be a problem. The mothers' discussions showed that the failure to notice obesity in their children was due to the feeling of guilt that they experienced, given that they should accept that they are responsible for their children's health. In this sense, the women interviewed discussed how they would feel if their children were diagnosed with obesity:

As a mother, I would feel bad because children these days rely on the education that their parents give them; so, as a mother I have failed in her nutrition and in her eating habits. What I would do is perhaps put her in some exercise classes and start to reduce the fat. ... (E21-NA-NW)

The women interviewed indicated that if a health professional confirmed that their children were OB, then they would implement methods for losing weight and maintaining a NW.

Furthermore, from the findings described above, a typology was constructed regarding the perceptions of the children's body weight, with three types being identified: overestimating (OVR), underestimating (UND), and appropriate perception (AP) (Box 1). In OVR, an influential concern for body weight and the physical appearance of the women and of their sons and daughters stands out. They are mothers who

Box 1 Typology regarding the perceptions of the body weight of the child

Overestimation 11 (12%)

- Concern for their own body weight and physical appearance in addition to that of their sons and daughters.
- Have a family history of type 2 diabetes.
- Have experienced diabetes complications in themselves or another family member.
- Think that obesity is a problem for their girls.

Underestimation 31 (34%)

- Compare their sons and daughters to other children their age.
- Justify weight gain in their sons.
- Hold their children responsible for their condition.
- Do not implement methods for counteracting the weight situation of their sons and daughters.
- Obesity is not a problem, but diabetes is.
- The weight of their sons does not worry them.

Appropriate perception 49 (53.8%)

- Aware of the problems that are involved in the weight situation of their children.
- Appropriate perception is attributed to knowledge regarding obesity.
- It is believed that obesity is a problem for girls.

have had close experiences with type 2 diabetes and its complications in their own bodies and in their loved ones. However, they consider obesity to be a worse problem for girls than for boys due to feminine beauty standards.

Unlike OVR, in UND, it appears that obesity is not considered to be a health problem provided that the children do not have diabetes. For this typology, there is no concern for the weight of the son or the daughter. Regarding actions, no measures are taken to address the weight situation, and the mothers tend to hold the children responsible for their condition. There is a tendency to justify the weight gain and make comparisons to other children of their age.

In AP, people's knowledge of obesity and its health consequences stands out. However, as in OVR, this matter is mainly considered to be a problem for girls and women.

Discussion

The results of this study show that the majority of the women interviewed who were homemakers and married correctly perceived the weight of their children. However, the mothers who overrated or underestimated the weight of their children typically have paid employment. These results differ from those found by Flores-Peña *et al.* (2011), who state that the mother's occupation does not alter the perception of the body weight of her children.

In this study, it is found that the education level of the mother did not influence the appropriate perception of the children's body weight. This result coincides with the findings reported by other investigations (Carnell *et al.* 2005, Chaparro *et al.* 2011) that state that perception was not associated with the mother's educational level. However, it is noteworthy that in this study, the mothers with master's degrees had an appropriate perception of the body weight of their children and that the mothers, in addition to their children, were found to be of NW.

An important finding in this study concerns gender, considering that it is independent of the socio-economic characteristics of the mothers and the BMI of the children. The body weight of the majority of the girls was correctly perceived, whereas the boys were underestimated in this respect. Similar findings indicate that parents recognise their daughters to be OW more often than they do their sons (Jeffery *et al.* 2005, Warschburger & Kröller 2012).

However, with regard to maternal perceptions of the nutritional status of their children, it is found that the underestimated perception in boys who are UW is found in mothers who have a fear of weight gain

and that this fear relates to what they feel and believe concerning the weight of their children. It is also found that when the mothers frequently diet or are worried about their weight, their daughters worry about their own weight and that this worry affects the girls' eating habits (Silva *et al.* 2013).

Notably, the majority of the mothers of children who are of NW do not correctly perceive this effect, which is consistent with studies that indicate that mothers do not appropriately perceive the situation and tend to underestimate the weight of their children (Maynard *et al.* 2003, Lopes *et al.* 2012, Cabrera *et al.* 2013). However, mothers who overestimated their NW children express concern for weight gain in their children due to their genetic predisposition to diabetes.

Various studies (Ward 2008, Manios *et al.* 2009, Chaparro *et al.* 2011) show that the majority of mothers who do not notice their children to be OW–OB underestimate the weight. Unlike those studies, in this investigation, we have only focused on the children who were OW; all of the women interviewed appropriately perceived the weight of their children. However, the beliefs that the mothers had regarding being OW greatly influenced their behaviour, given that in the discussions, they noted not being concerned about the situation and were indifferent because they believed that the 'bit of fat' would disappear after the 'growth spurt'. Moreover, these mothers showed an inability to say 'no' or had difficulties establishing limits with regard to food and believed that denying their children food would be starving them (Jaffe & Worobey 2006).

This study found that the mothers noticed OB in the female gender with great precision, considering it to be an aesthetic problem, and that losing weight is centred on physical appearance, not health. These results are similar to those in a study conducted in Costa Rica (Núñez 2007). Furthermore, the mothers who recognised their daughters' OB typically experienced feelings of guilt and, in turn, felt motivated to make changes in their nutritional practices. When the mothers recognised obesity in their sons, they had a strong inclination to reverse the situation and positively influence it, promoting better dietary education and encouraging a regular exercise routine (Lopes *et al.* 2012, Warschburger & Kröller 2012).

Concerning the perception of the mothers with sons who were OB, it was found that the majority underestimated the weight of their children; these findings are similar to those of earlier studies that showed that the mothers did not correctly perceive the OB of their son or daughter but instead underestimated it (Baughcum et al. 2000, Maynard et al. 2003, Carnell

et al. 2005, Evans et al. 2005, Eckstein et al. 2006, Rietmeijer-Mentink et al. 2013). Nevertheless, the mothers believed that the obesity of their child was not an illness but that diabetes was. Therefore, provided that the mother was not aware of the health problems that her child was at risk for, she did not do anything to reverse the situation, despite knowing that the majority of these children would continue being OB throughout their adult lives (Flores-Peña et al. 2014).

In this investigation, as in other studies (Núñez 2007, Eli *et al.* 2014), when the mothers referred to the obesity of their children, they used terms or expressions with positive connotations, such as 'he's robust', 'a bit chubby' and 'he's filled out but not fat'. It is important to note that the mothers perceived and were concerned by the obesity of their sons if it was in either category II or category III, if the sons became inactive or if the sons were being made fun of by their classmates. This coincided with a study conducted by Jain *et al.* (2001), who noted that it is more likely that the mother appropriately perceived the weight of her child when he or she was slower than other children in his or her age group while participating in physical activities or when he or she was very OW.

The failure of mothers to adequately perceive the weight of their children may be due to a failure to admit that he or she is OB (Zonana-Nacach & Conde-Gaxiola 2010). According to the findings of this study, for mothers, the acceptance that her son is OB creates feelings of guilt, and they believe that they have failed as mothers. This result is rational, given that Flores-Peña *et al.* (2011) indicate that having a healthy son is an indicator of a woman's success as a mother.

The findings obtained show that the inaction of mothers in reversing the matter of their children's weight is associated with not noticing the weight of the child, although for them, obesity is not a health problem, and the lack of control in the face of the rebellion, disobedience, crying and anger of the child when healthy lifestyle methods are implemented. In this regard, Rodríguez-Ventura *et al.* (2014) note that parents reported that their children normally became angry when they forbade their children from eating certain foods or when they insisted that their children exercise.

In conclusion, the findings in this study contribute to those of previous studies, giving relevance to proper maternal perception concerning the weight of children and highlighting the importance of considering mothers' beliefs concerning obesity because the results show that when a mother does not realise that her child's being OW or OB is a health problem, she

believes that the interventions aimed at OB are not relevant to her family.

This study has limitations, for example, the population of this study only included middle-class mothers; therefore, the results are not generalisable to different social classes.

Implications for practice

Our findings suggest that to raise awareness of the consequences of obesity and the best way to eat, it is necessary to emphasise that obesity is not only an aesthetic problem but also an illness. Moreover, it is suggested that a health professional should inform the mother about the body weight of her child because the women interviewed noted in their discussions that if a health professional told them that their child was OB, although it would lead to guilt and they would consider it to be a failure, they also believed it would be an opportunity to implement changes in their child's weight control. It is believed to be relevant to involve the children in the changes, not to hold them responsible or to impose anything on them, given that doing so may have the opposite effect. What is important is ensuring that the child wants to change and is ready to do so.

Conflicts of interest

The authors have no conflicts of interest to declare.

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