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Mothers’ perceptions of their children’s weight: opportunity for health promotion in Kuwait

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Abstract

**Background:** Mothers’ perceptions of their children’s weight remain mostly unknown in oil-rich countries of the Middle East.

**Aims:** To compare maternal perceptions of their children’s weight with actual body weight.

**Methods:** We used the Kuwait nutritional surveillance data for 5 consecutive years (2015-2019) (N = 5119), which were collected through face-to-face interviews with mothers of children aged 2-5 years attending vaccination centres.

**Results:** Of the 5119 mothers in the study, 163 (3.18%) and 332 (6.48%) had obese or overweight children, respectively. Among 4624 mothers who had normal weight children, 1350 (29.20%) perceived their children’s weight as below normal. Seventy-nine (48.47%) and 16 (9.82%) mothers of children with obesity thought their children had normal weight or were underweight, respectively.

**Conclusion:** Mothers in Kuwait often underestimate the weight of their children, including those children who have normal weight. This highlights the importance of addressing maternal misperceptions during visits to the primary healthcare centre.

Keywords: mothers, children, perception, body weight, overweight, obesity, Kuwait

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Introduction

Childhood obesity is a major public health problem with well-documented short- and long-term adverse health consequences (1–3). It is estimated that > 40 million children aged < 5 years are overweight or obese (4). Habitual food consumption and physical activity are the key modifiable factors that mitigate the risk of obesity, and are developed during early childhood (5). Unlike schoolchildren who are capable of making their own lifestyle choices, such as which foods they consume and their level of physical activity, mothers shape these habits completely in children aged < 5 years. This highlights the potential of modifying maternal perceptions of children’s weight in this age group to prevent obesity at an early age. However, studies that have attempted to link maternal perceptions of children’s weight to subsequent weight gain have shown controversial findings (6–9). This could be because most of those studies were conducted on schoolchildren, which is the age group over which parents have little control of their children’s diet or physical activity.

Little is known about maternal perceptions of children’s weight in oil-rich countries in the Middle East, such as Kuwait, although childhood obesity is a major public health problem (10,11). In this study, we assessed the perceptions of children’s weight status among mothers of children aged 2 to < 5 years and compared maternal perceptions with actual objectively measured body weight using data from the Kuwait Nutritional Surveillance System (KNSS).

Methods

KNSS data are collected by trained collectors who are employed on a long-term basis for this purpose, independently from the delivery of healthcare services (11,12). KNSS recruits children aged 2 to < 5 years from primary healthcare centres during vaccination and from kindergartens. However, for logistic reasons, we only conducted face-to-face interviews with mothers who attended healthcare centres for vaccination of their children. Every mother was invited to participate (2% refused) and provided written informed consent before the interview was initiated. To assess maternal perceptions of their children’s weight status, we asked mothers whether they thought their children’s weight was normal, below normal, or above normal.

The child’s weight was measured digitally to the nearest 100 g, and their height was measured to the nearest 0.1 cm by trained data collectors in a standardized manner. Body mass index (BMI) was calculated by dividing weight in kilograms by squared height in metres. BMI-for-age 2 scores were calculated using STATA zanthro package release 14 [StataCorp., Cary, NC,
United States of America (USA)]. Obesity was defined as BMI-for-age z score ≥ 3.0 SD and overweight as BMI-for-age z score ≥ 2.0 to < 3.0 SD, using the World Health Organization growth reference median (13). The χ² test was used to investigate any sex difference in maternal perceptions of children's weight status. We did not collect data on maternal socioeconomic status or on factors associated with maternal perception. Data collectors for KNSS did not have access to children's or mothers' medical records; therefore, it was not possible to link the data to clinical notes written by nurses or clinicians. Although KNSS is a public health activity, all data collection procedures were approved by the Ethics Committee at the Kuwaiti Ministry of Health (approval No. 98:262/2015).

**Results**

During the study period (2015–2019), 5166 children were recruited and 51.57% were male. The mean (SD) age was 3.14 (0.84) years. The analysis comprised 5119 children (48 records were excluded: 21 with biologically implausible BMI, and 27 with missing maternal perceptions of children’s weight status). The prevalence of overweight/obesity was 9.66%.

![Figure 1](image)

**Discussion**

The role of parents in preventing childhood obesity is recognized by several organizations, including the American Academy of Pediatrics (14), and interventions that aim to reduce childhood obesity are deemed to be successful when they involve parents (15,16). However, the involvement of parents in preventing childhood obesity requires that they are aware of the weight status of their children (17–19). Mothers shape habitual food consumption and physical activity of children aged < 5 years, which highlights the potential of modifying maternal perceptions of children’s weight status in this age group. This study documented maternal perceptions of weight status of children aged 2 to < 5 years and linked them to actual body weight. Using a large nationally representative sample, we demonstrated that almost one-third of mothers with normal-weight children perceived their children to be underweight, while most mothers with overweight or obese children thought their children were normal weight or underweight.

In our study, 29% of mothers with normal-weight children thought their children were underweight, which is higher than reported in high-income countries, such as Greece 16% (20), Netherlands 4% (6,21), and USA 1.3% (22). The majority of mothers of overweight/obese children perceived their children to be normal weight or underweight. This is consistent with a previous study of overweight children (average age 4.6 years) in Kuwait, where most mothers were unable to correctly identify their children as overweight (23). Many mothers of overweight or obese children perceived their children to be normal weight in several other countries (6,20–22,24). A systematic review of studies worldwide found that almost half of parents underestimated their children's overweight or obesity status but only 14% underestimated normal weight (17). Several explanations have been suggested for the high percentage of parents underestimating the weight status of their overweight or obese children. First, media reports regarding childhood obesity usually show images of children with severe obesity, which may distort parental understanding of how overweight children may
look (17,25). Second, parents may refuse to label their children as overweight or obese because this may feel stigmatizing in some settings (17,26). Third, qualitative research has shown that parents may genuinely feel that their children cannot be overweight or obese if they are physically active, have no obvious health issues, and are not mocked for their size (17,27).

Maternal perceptions of children's weight status have been studied before (6,17,20,22,23); however, the emphasis has been on correcting misperceptions of mothers of overweight or obese children. Most children aged < 5 years have normal weight and correcting maternal misperceptions in this particular group would have the potential to reduce the risk of childhood obesity. Compared with Peru, Greece, USA (6,20,22), and globally (17), we found a higher proportion of mothers of normal-weight children who perceived their children's weight to be below normal. These findings are essential to inform initiatives that combat childhood obesity in oil-rich countries in the Middle East, such as Kuwait, where childhood obesity has become a major health problem (10,11).

It is reported that mothers perceive the weight status of boys and girls differently (28) and this difference in perception increases with children's age (7,22). Mothers are more likely to underestimate the weight status of their sons than daughters (20,22). We found no significant sex difference in the maternal perceptions of children's body weight in Kuwait. This could be because we exclusively included children aged 2 to < 5 years, while most other studies included children older than 5 years.

Our study has several strengths, including large sample size, and objectively measured height and weight of children in a standardized manner by a trained team. Vaccination is compulsory, and the coverage is high in Kuwait, which makes our sample nationally representative. However, because of the lack of data on socioeconomic and other factors, we were unable to investigate factors associated with maternal perception of their children's weight status.

In conclusion, maternal perception of children's weight status affects parenting behaviour that aims to reduce children's weight (29). We found that 29% of mothers of normal-weight children perceived their children to be underweight, and most mothers of overweight or obese children perceived their children to be normal weight or underweight. This highlights the importance of correcting maternal misperceptions of children's weight, including normal weight children, to combat childhood obesity. Every primary healthcare encounter, including for vaccination, is an opportunity to reassure mothers of normal-weight children about their children's weight.

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Short research communication

References


