**Prevalence of overweight and childhood obesity in Feira de Santana-BA: family detection x clinical diagnosis**

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Abstract

**Objective:** to determine the prevalence of overweight and obesity in children attending public and private schools in the urban area of Feira de Santana-BA; to evaluate both the perception of excessive weight gain by guardians and the prevalence of treatment of those children.

**Method:** cross-sectional study with 699 children, whose age ranged from 5 to 9 years old, attending public and private schools of Feira de Santana-BA in 2001. Overweight was defined as body mass index (BMI) > 85th percentile and obesity as BMI > 95th percentile both for age and gender. The level of perception of children’s excessive weight gain by guardians was evaluated by means of individual interviews.

**Results:** total prevalence rates were 9.3% for overweight and 4.4% for obesity, without statistically significant difference among age and gender. White ethnic group was related only to overweight. Prevalence for overweight and obesity was, respectively, 6.5% and 2.7% for public schools and 13.4% and 7.0% for private ones. Guardians suspected that 11.7% of the children presented excessive weight gain. Only 11.1% of them were submitted to treatment. A percentage of 22.2% of these treatments were performed by specialized professionals.

**Conclusions:** the prevalence of overweight and obesity was high and similar to some studies in Brazil; even though excessive weight gain can be recognized by children’s guardians, they are not aware of the necessity of treatment.


Introduction

Obesity is probably the oldest known metabolic alteration, having been described in a monograph dating from the XVII century. The medical weekly *The Lancet*, in an editorial in 1926, called attention to the reduced life expectancy of obese individuals. It is a chronic disturbance which is in expansion, with growing prevalence among all age groups, both in developed and developing countries. It is an epidemic, considered to be the largest Public Health problem in the United States. During the last three decades, the number of overweight children in that country almost doubled, and the same thing has been happening in countries in which diseases resulting from want are significant Public Health problems.
In Brazil, the panorama of increasing prevalence is no different. In the National Demographic and Health Census (PNDS- Pesquisa Nacional sobre Demografia e Saúde) performed in 1996, a prevalence of 4.9% was found and national inquiries performed in the 70s, 80s and 90s reveal an increase from 3.6% to 7.6% among females aged between 4 and 5. In São Paulo, a 2.5% obesity prevalence was recorded among children under 10 years from the less privileged classes and 10.6% among the more privileged group. In a study performed at a middle/upper class school in the Northeast of Brazil, prevalencies of 26.2% overweight and 8.5% obese were revealed among children and adolescents. Diamond, claims that child obesity in America is a silent epidemic since clinical recognition of the risks of infirmity on the part of clinical doctors is unsatisfactory and because there are difficulties in quantifying and treating it effectively and no programs to prevent it.

The current study took as its objective the determination of the prevalence of overweight and obesity in a sample of children at state and private schools in the urban zone of Feira de Santana-BA, the evaluation of the level of perception among parents and guardians in relation to excessive weight gain in children and the identification of the prevalence of treatment among these children.

Methods

This was an observational, epidemiological, cross-sectional study in which the prevalence of overweight and obesity in children was evaluated and, simultaneously, the prevalence of parents and guardians who suspected their children of being of excessive weight. The study was performed at private and public schools in the urban zone of Feira de Santana-BA, selected randomly and proportionally from the data supplied by the competent authorities (Municipal Education Department - Secretaria Municipal de Educação and Regional Directorate for Education and Culture - Diretoria Regional de Educação e Cultura), thereby guaranteeing heterogeneous characteristics. The sample was made up of children in the 5 to 9 age group, classified by year, registered with one of the authorities listed above during the 2001 academic year. In order to calculate sample size, the formula proposed by Daniel for infinite populations was used. This formula take into account the estimated prevalence of the event to be studied, the size of the population, the confidence level and the desired precision in relation to the estimated prevalence. Based on data from literature, the prevalence of obesity was estimated at 10%. The confidence level was 1.96, which corresponds to a confidence interval at 95%. The precision adopted in relation to estimated prevalence was 3%. As sampling was performed by cluster, design effect was set at 1.5, which resulted in a minimum n of 576 students. In order that proportionality be preserved this n was divided between students registered at public and private schools, giving totals of 384 and 192 students, respectively. In the event, 699 children were analyzed, selected from 28 schools, 10 public and 18 private. The number of schools was set at 28 as a result of the capacity of the study team and corresponds to 10% of the total number of schools in the region. Participants were selected by systematic sampling techniques, from a list in which students were listed by grade and, within each grade, alphabetically. Whenever there was a refusal to participate or when the student selected was outside of the age group chosen for study, the next student was called, thus guaranteeing the random nature of the sample.

The study was carried out in accordance with the instructions contained in Resolution 196/96 of the National Health Counsel of the Health Ministry (Conselho Nacional de Saúde do Ministério da Saúde) and in the Ibero-latin-american Declaration on Ethics and Genetics (Declaração Ibero-latino-americana sobre Ética e Genética) and was approved by the Ethics Committee at the Fundação Osvaldo Cruz.

In accordance with WHO recommendations overweight and obesity were defined as BMI greater than or equal to the 85th and 95th percentiles for age and sex, respectively, adopting the cut-offs obtained from the study promoted by the WHO International Task Force On Obesity.

Anthropometric measurements were performed in triplicate by a team made up of an endocrinologist, nutritionist and 16 undergraduate students from the Nursing and Obstetrics course at the Universidade Estadual de Feira de Santana - UEFS.

Evaluation of the perceptions of those responsible for the children in relation to the presence of excess weight (overweight and obesity) and the prevalence of referrals for treatment, was made by means of individual interviews conducted by the same team of, previously trained, professionals using simple and uniform vocabulary. When the informant was not a parent, children were only included if their interviewees were older than 15 and were in constant contact with them.

The ethnic group to which the children belonged was defined by the same team, according to previously established criteria. There were 3 groups: white, mixed race and black.

All calculations were performed with the assistance of SPSS (Statistical Package for Social Sciences), version 10.0.

Results

Six hundred and ninety-nine students were assessed, of whom 59.4% (415) and 40.6% (284) attended public and private schools, respectively. The average age of the sample was ± 7.1 ± 1.3 years, 52% (366) of the children were female and 48% (333) male. Ethnic groups divided into 43.8% mixed race, 35.0% white and 21.2% black.
Suspicion of excess weight was defined by means of the replies to the questionnaire. Eighty point three percent of the interviews were with parents. The great majority (95.0%) of the informants resided in the same home as the child and all of them fulfilled the minimum criteria to be considered capable of responding to the questions.

The total observed prevalencies of overweight and obesity were 9.3% and 4.4%, respectively, with no statistically significant differences between sexes (p = 0.38) and age group (p = 0.53), while the white ethnic group was significantly associated with increased overweight prevalence ($\chi^2 = 9.8; gl = 4; p = 0.04$). When public and private schools were analyzed separately, of a total of 284 students at private school 13.4% (38) presented overweight and 7.0% (20) obesity, while of the 382 state school students, a diagnosis of overweight and obesity was made in 6.5% (27) and 2.7% (11) of students respectively. This difference was statistically significant ($\chi^2 = 18.3; gl = 2; p = 0.00001$). This was more clearly observable when the children were analyzed divided into only two groups, i.e. normal weight and altered weight ($\chi^2 = 20.0; gl = 2; p = 0.00001$).

Excess weight was recognized by responsible adults in 11.7% (82) of cases, of these 82 children 11.0% (9/82) received treatment. Of the nine children referred for therapy, treatment was by a specialized team in 22.2% of cases.

The parents’ or guardians’ perceptions of excessive weight among their children corresponded to the diagnosis made by the professionals in the study team in 47.5% of cases, which shows statistical significance ($p < 0.00001$).

Discussion

The prevalence of these disturbances present highly differentiated values across the many different studies that have been performed. There is however a common characteristic, which is progressive increase.1-3,5,6,9 The diversity of data is most probably a result of the multifactorial etiology of overweight and obesity in addition to the lack of uniformity of methodology in defining these pathologies in children, which makes comparison of data from the literature subject to interpretative errors. Historical, spatial, demographic socio-cultural and economic characteristics of the municipality of Feira de Santana can be found which explain possible divergences in terms of prevalence. It has high levels of rural exodus and significant urbanization without, however, had proportional socio-economic growth, which favors the development of excess weight. The data obtained confirms the need to distinguish between the multiple realities that make up the many different “Brazilis”. Brazil is a country in which, in a single territory and speaking a single language, populations exist with highly differentiated dynamics,12 and so when dealing with conditions which are influenced by environment the differences between prevalencies are justified.

When the public and private schools were analyzed separately, greater obesity prevalence was observed among children attending private schools. Calculation of the odds ratio revealed that there was a two and a half times stronger association between studying at a private school and developing one of these altered weight conditions. This, despite representing an independent predictive association also comes loaded with the whole constellation of socio-economic variables related to being registered at this type of school. The influence of environmental factors in determining overweight and obesity is well documented,13 and this fact is once more confirmed by our results.

As childhood obesity is a pathology that is recognized as generating consequences over both the short and long term9,13,14 and is also a significant predictor of adult obesity,9,14-18 prevention during the early stages of life and also early diagnosis and effective treatment are fundamental to improving prognosis.6 The data collected during interview related to the suspicion of excess weight are subjective and subject to distortions since they depend upon the interviewees’ perception and acceptance of excess weight.

This data deserves attention, since published reports confirm, as does the current study, that despite difficulties in finding ideal diagnostic criteria to define childhood obesity, there is a strong correlation between “believing” and “being”.9,13 Nevertheless it is worrying that once this disturbance is suspected measures are not being taken in order to confirm the diagnosis and initiate treatment. This lack of referral could be influenced by: a lack of parental understanding of the severity of this pathology; the presence of cultural factors driven by the traditional paradigm that childhood health and happiness are proportional to weight; negligence within the family relationship caused by the fact that both parents are working which reduces the time available for adequate care; fear and denial of the disease; a lack of stimulation from pediatricians towards maintaining the child’s weight closer to that considered ideal; the lack of health service infrastructure to care for this condition.

The defining characteristics of the Latin-American epidemiological transition are reduced mortality rates due to infectious diseases and increased life expectancy. This favors an increase in the prevalence of chronic-degenerative diseases, which present high levels of morbidity and mortality and increase health care costs.19 It therefore becomes necessary to develop measures with the objective of reducing the prevalence of these complaints by means of controlling their risk factors, such as obesity. For preventative conduct to be adopted it is necessary that those directly responsible for young children, those working at schools, health professionals and, in particular, pediatricians (the health professionals with the greatest contact with parents) comprehend more fully all aspects of this pathology and its complications. If this is not recognized there will be a progressive increase in the prevalence of overweight and obesity among the child population with a consequent increase in prevalence of this pathology and of its
complications among the adult population, to the extent that intervention policies aimed at the adult population, despite being interesting and necessary, will not be sufficient to effectively control the problem.

We conclude that the observed prevalence of overweight and obesity were similar to some descriptions of Brazilian populations and that despite parents and guardians being capable of recognizing excessive weight they are not aware of the real necessity that it be treated.

References

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