INTRODUCTION

The investigation of the nutritional condition of children and adolescents has been discussed in Brazil since the beginning of the 20th century; social policies have been implemented in order to monitor and provide the recovery of the individuals’ nutritional conditions as well as in order to fight against hunger-related issues.

Considering that an improvement of the financial situation of a family may lead to better nutritional conditions for their children, the Brazilian government has successfully implemented income transfer programmes, such as the “BolsaFamília” programme (BFP).

The BFP is a direct income transfer programme created in 2003 aimed at reducing poverty and inequalities and fighting against hunger in poor families (with monthly income per capita between R$ 60.01 and R$ 120.00) and in extremely poor families (with monthly income per capita of up to R$ 60.00). In order to achieve that, three aspects are discussed: the immediate aid to reduce poverty by the direct income transfer; the reinforcement of basic social rights concerning Health and Education; the coordination of complementary programmes, in order for the families to be able to overcome the vulnerability and poverty condition.

According to Cacciamali, Tatei and Batista, the BFP is the biggest income transfer programme in Brazil, destined to families with little financial resources; it includes actions to monitor, recovery and control the nutritional conditions of children under five years old, according to sociodemographic and anthropometric indicators.

Methods: A cross-sectional and retrospective study was carried out using the medical records of 284 children under the age of five, from which socio-demographic, weight and height data were collected. In order to diagnose children’s nutritional condition, the indicators weight/age, height/age and weight/height were used, from the cutoffpoint z-score, recommended by the WHO Global Database on Child Growth and Malnutrition. Descriptive statistics and the Chi-square test were used to analyse data, assessing the association of indicators, gender and age.

Results: 8.8% of the children have deficits concerning height/age and 4.2% have deficits concerning weight/age; 8.1% and 7.4% are overweight concerning weight/age and weight/height; 4.6% of the children under 2 years old have higher weight than the expected for their age and also for their height, and 7.8% of the children have low height for their age.

The prevalence of weight deficit and excess in children observed in this study were similar to those found in other regions of Brazil.

Conclusion: The maintenance of the nutritional surveillance system is extremely important in order to detect risk groups and help plan effective measures to prevent and correct nutritional problems.

Keywords: children’s health, anthropometry, nutrition programmes and policies, nutritional assessment.
to care for the health and nutritional condition of pregnant women and their children, ensuring children between the ages of 7 and 15 are enrolled at school and attend 85% of the classes, taking part in nutritional education programmes (p. 275).

Therefore, it is expected that the beneficiary is able to exercise their citizenship and behave as an economic agents, providing for themselves and their families, being part of a wider context of relationships, through which the effects of their poverty can be diminished. This programme has as premise the fulfilment of some requirements by the benefited families, such as the update of the vaccination schedule and the monthly follow up on the growth of children under 7 years old, as well as school attendance for children and adolescents between the ages of 6 and 17. The objective is to increase the level of social rights that are effectively respected by inducing the supply and demand of health services, education and social assistance, breaking, therefore, the cycle of the continuous reproduction of poverty.

Concerning the prevalence of anthropometric deficits, data obtained in the latest National Research of Demography and Health of Children and Women (“Pesquisa Nacional de Demografia e Saúde da Criança e da Mulher” – PNDS) from 2006 showed that amongst children under five years old, 7% had height deficit, 2% had weight deficit concerning height and 1.7% had weight deficit. Studies aiming at evaluating the nutritional condition of the children who are benefited from income transfer programmes are extremely important due to the high investment of the government in social programmes, emphasising the BFP and the high expectations of the population in the improvement of life conditions and health, possibly made viable through these benefits.

Furthermore, in 1999, the National Policy of Food and Nutrition (“Política Nacional de Alimentação e Nutrição” – PNAN) which “means the commitment of the Health Ministry with the duty of healthy eating habits and prevention and control of nutritional problems related to food and nutrition uncertainty”, aiming at ensuring the right to food and health (p. 813). According to these authors, the PNAN has the following directives: encouragement of intersectoral actions, aimed at the universal access to food; assurance of the quality of the food, as well as related services; monitoring of the nutritional condition; promotion of healthy eating habits and lifestyles; prevention and control of the nutritional disturbances and diseases related to eating habits and nutrition; promotion of the development of investigation lines; and the development and enabling of human resources (p. 813).

Considering the mentioned aspects, the objective of the present study was to evaluate the nutritional condition of children under five years old whose families are benefited from the “Bolsa-família” programme, in the town of Piratininga, São Paulo.

MATERIAL AND METHODS

A transversal study of all the 283 children who are under five years old, living in the town of Piratininga, and whose families are benefited from the “Bolsa-família” Programme (BFP), was carried out.

According to data from the Brazilian Institute of Geography and Statistics (“Instituto Brasileiro de Geografia e Estatística” – IBGE), the town in question has an area of 402 km² and an estimated population of 10,584 in habitants. Also according to IBGE, in 2010 the town had three health centre assisting the population through SUS – “Sistema Único de Saúde” (Brazilian Health care System).

The percentage of children is 14.4%, being 13% under seven years old. The child mortality rate, considering children under 1 year old, is 14.11, the life expectancy is of 72.1 years, and the literacy rate is 90.35%. The Gini index, which shows that the inequality level in the income distribution is 0.44; and the Human Development Index (HDI) is 0.797. In order to obtain the necessary data (age, gender, and current weight and height), the Health Department of the town provided a permit and, with the aid of a trained nurse, the data were collected and entered in a previously elaborated form, during the periodic visit to the Health Centre of each child who takes part in the BFP. The project has been approved by the Committee of Ethics in Research of the University Sagrado Coração (prot. No. 123).

The birth date on the child’s identification card was checked. The weight was obtained using scales that were revised and calibrated by the National Institute of Metrology (“Instituto Nacional de Metrologia” – INMETRO) – the governmental organization responsible for the maintenance. The height was measured with an anthropometer, tape measure and triangles. The children were weighed and measured with no shoes on, with nothing on their heads and wearing little clothing.

In order to categorize the children regarding indicators of weight/age, weight/height and height/age, cutoff points by z-score were used, as recommended by the WHO Global Database on Child Growth and Malnutrition. The cutoff points for weight concerning age for children are: < z-score - 3 (very low weight), > z-score -2 and < z-score + 2 (correct weight) and ≥ z-score - 2 (high weight). In order to analyse the height concerning age, the points are: < z-score -2 (low height) and ≥ z-score - 2 (correct height). The points related to weight concerning height are: < z-score - 2 (low weight), ≥ z-score - 2 and z-score + 2 (correct weight) and ≥ z-score + 2 (high weight).

The indicators were calculated using the software WHO Anthro, developed by the WHO to help monitor the growth and development of individuals and populations of children up to five years old. The collected data were entered in the software SPSS (version 16.0). The indicators of the nutritional condition were described by their absolute and relative frequencies and listed in tables. The Chi-square (χ²) test was used in order
to check the association between indicators of the nutritional condition and the age group (under two years old and between two and five years old).12

RESULTS

The social-demographic characteristics of the children showed that 50.5% were boys and 75.9% were under two years old.

It was observed that 4.2% of the children had deficits in the indicator weight/age and 8.8% had deficits in the indicator height/age, while 8.1% and 7.4% showed weight excess in the relation weight/age and weight/height, respectively (Table 1).

On Table 2, it can be observed that 4.6% of the children under 2 years old showed high weight concerning the age and height, while 7.8% showed low height concerning the age. The Chi-square test for the indicators Weight/Age and Weight/Height showed statistical significance, suggesting there is an association between these indicators and the age group.

Table 1: Distribution of the absolute and relative frequencies of the indicators of the nutritional condition of children who are benefited by the “BolsaFamília” Programme (Piratininga 2010)

<table>
<thead>
<tr>
<th>Indicators of the nutritional condition</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight concerning age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low weight for the age</td>
<td>12</td>
<td>4.2</td>
</tr>
<tr>
<td>Correct weight or eutrophic</td>
<td>248</td>
<td>87.6</td>
</tr>
<tr>
<td>High weight for the age</td>
<td>23</td>
<td>8.1</td>
</tr>
<tr>
<td>Height concerning age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low height for the age</td>
<td>25</td>
<td>8.8</td>
</tr>
<tr>
<td>Correct height for the age</td>
<td>258</td>
<td>91.2</td>
</tr>
<tr>
<td>Weight concerning the height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low weight for the height</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Correct weight or eutrophic</td>
<td>259</td>
<td>91.2</td>
</tr>
<tr>
<td>High weight for the height</td>
<td>21</td>
<td>7.4</td>
</tr>
</tbody>
</table>

The anthropometric characteristics of the studied group revealed that 4.2% and 8.8% of the children present deficits in the indicators weight/age and height/age, respectively. Results from the National Research of Demography and Health of Children and Women (“Pesquisa Nacional de Demografia e Saúde da Criança e da Mulher” – PNDS), carried out in 2006, showed that, amongst the children under five

DISCUSSION

The present study had the objective of checking the nutritional condition of children under the age of five who take part in the “BolsaFamília” programme in the town of Piratininga, SP, being important to highlight that the cutoff points for each gender were considered in order to classify the nutritional condition.

Table 2: Distribution of the absolute and relative frequencies of the indicators of the nutritional condition of children who are benefited by the “BolsaFamília” Programme concerning age group and respective statistic test (Piratininga 2010)

<table>
<thead>
<tr>
<th>Indicators of nutritional conditions</th>
<th>&lt; 25 months</th>
<th>≥ 25 months</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight concerning age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low weight for the age</td>
<td>9</td>
<td>3.2</td>
<td>3</td>
</tr>
<tr>
<td>Correct weight or eutrophic</td>
<td>191</td>
<td>67.5</td>
<td>57</td>
</tr>
<tr>
<td>High weight for the age</td>
<td>13</td>
<td>4.6</td>
<td>10</td>
</tr>
<tr>
<td>Height concerning age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low height for the age</td>
<td>22</td>
<td>7.8</td>
<td>3</td>
</tr>
<tr>
<td>Correct height for the age</td>
<td>191</td>
<td>67.5</td>
<td>67</td>
</tr>
<tr>
<td>Weight concerning the height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low weight for the height</td>
<td>2</td>
<td>0.7</td>
<td>1</td>
</tr>
<tr>
<td>Correct weight or eutrophic</td>
<td>198</td>
<td>70.0</td>
<td>61</td>
</tr>
<tr>
<td>High weight for the height</td>
<td>13</td>
<td>4.6</td>
<td>8</td>
</tr>
</tbody>
</table>

* Statistically significant
years old, 7% had height deficits, 2% had weight deficits concerning height and 1.7% had weight deficits concerning age. In Rio de Janeiro, it was observed that 15% of the children had deficits in the indicator weight/age and 9.1% had deficits in the indicator height/age.

Tuma et al. observed that 2.2% of the children had deficits in weight/age and 4.8% in height/age. Saldiva et al. observed a 4.3% deficit in the indicator weight/age and a 9.9% deficit in the indicator height/age, and Silva et al. observed deficit of 1.5% in the indicator weight/age and of 4.4% in the indicator height/age.

According to the follow up registered by the System of Food and Nutritional Surveillance ("Sistema de Vigilância Alimentar e Nutricional" – SISVAN) until June 2008, amongst the children under five who are benefited from the BFP in all the state of Minas Gerais, 5.6% had low weight for their age (between the percentiles of 0.1 and 3), 6.7% had low height for their age and 12.5% had low height for their age.

It was observed that 8.1% and 7.4% of the children from Piratininga had weight excess in the indicators weight/age and weight/height. Such results are compatible with the ones found by Tuma et al. (6.9% and 6.1%) and Oliveira et al. (4.0% and 5.6%).

When the indicators are analysed concerning age groups, it is observed that 4.6% of the children who are under 2 years old had high weight concerning their age and high weight concerning their height, and 7.8% of the children had low height concerning their age. Aguiar observed that 10.9% of the children were over the expected weight, Verly Junior observed that 6.35% showed excess weight and Silva and Nunes observed that the overweight and obesity prevailed, respectively, in 14.8% and 9.1% of the females and in 16.1% and 11.9% in males.

In a national study carried out in Sobral, it was observed that 5.7% of the children who benefit from the programme showed deficit in weight and 12.8% showed deficit in height. A similar research published by the Health Ministry found 10.7% children with low weight for their age, 2.2% with low weight for their height and 15.1% with deficit in height. Monteiro et al. observed that percentage of low weight concerning age and height were 2.0% and 1.0%, respectively, and only the percentage of low height (6.3%) was higher than expected.

Concerning the children who had weight excess, one of the hypothesis to explain it may be in the context of the transition in eating habits experienced in the country, when there is an increase in the availability of industrialized foods, rich in calories and fat, and reduction in the intake of fruit and vegetables, followed by the increase of overweight and anaemia, reflecting incorrect eating habits.

The results showed that the increase in the families’ income through the BFP does not necessarily reflect an improvement in the nutritional condition of the benefited people. The concomitance of weight excess and malnutrition can be observed especially in the developing countries of Latin America. During the nutritional transition, overweight is highlighted as a national problem, while malnutrition is still a problem in some regions, especially the less developed ones, which points out to a close relationship between nutritional aggravation and development and income amongst the populations.

Similar data were found by Figueroa Pedraza, Queiroz and Menezes who highlighted the importance of income transfer programmes, such as the BFP, in order to ensure food and family safety, since what they found in the study they carried out was that the socio-economical condition is a determining factor for family safety.

However, a specific project to promote health is necessary, with strategies that integrate “actions in health and the understanding of the necessity of adopting a wider perspective of caring concerning the socio-political context people are in, as well as the local cultural peculiarities” (p. 53). Jaime et al. agree with that assessment and highlight that the governmental policies reflect that idea and there is legislation for such project to encourage healthy eating habits and care for nutrition.

Concerning healthy eating habits, the PNAN proposes the use of guides on eating habits, which would focus on each age group of the population, in addition to courses for people who want to become health professionals to act in Basic Assistance, considering the importance of their work regarding the early stages of a child’s life, once the eating habits that are acquired in childhood reflect in other phases of the individual’s life.

Trevisani, Burlandy and Jaimes, analysing the conditionals related to the BFP, point out the importance of the nutrition field. However, they highlight that however the conditionals include basic actions in health, the technical documents from the Brazilian Government do not bring a deep discussion on how the health services can reorganize the working processes in order to ensure full attention to these families, therefore contributing to their effective inclusion in the SUS (p. 469).

Teixeira et al. identified that 80% of the teams from the analysed regions (north, northeast, central-east, south and southeast) carry out “educational actions related to eating habits and nutrition, favouring healthier choices by the individuals and groups” (p. 64). Nevertheless, the authors point out a serious problem in the development of policies regarding income transfer – lack of information on the effectiveness of these interventions.

The lack of evaluation of the measures taken in relation to the BFP hinder the understanding of the effectiveness of the actions and their reorganization, i.e., the problems exist, as evidenced by the results mentioned above, but where do they occur, in which phase of the process?

Jaime et al. analysed the difficulties and challenges concerning an efficient work regarding actions related to food and nutrition in Basic Assistance, amongst which, the ensured periodic
evaluation of the nutrition condition of the populations.

Despite the fact that the BFP aims at improving life conditions, it depends on the "efficiency of the conditionals in order to prevent poverty from passing from one generation to another, i.e., the positive effect of the programme in the long term depends on the offer of better quality services concerning education and health" (p. 289). Jaime et al. report that the creation of Centres of Support to Family Health, as well as the work of nutritionists in the teams, may help in the accomplishment of this task.

Finally, Martins et al. systematically analysed studies aimed at evaluating the impact of income transfer programmes on eating habits and nutrition of the people who benefit from them. They found studies that indicate a positive association between receiving the benefits and the improvement in the families’ diets. However, they highlight that these programmes were implemented before the planned evaluation phase and use impact indicators, but not indicators of the process (offer, use and coverage)” (p. 1169), being possible for these studies to present evaluation problems. According to the authors, analysing the process may help in the identification of flaws in the programmes, indicating possible needs to change the way they are carried out.

Many of the mentioned authors reinforce the importance of the BFP for the income distribution and the minimization of the inequality consequences it causes. Never the less, they high light the importance of the quality of these services. Therefore, what was mentioned above is the only possible way to improve the life quality of the people who benefit from the programme, not only increasing their income or the amount of food they can afford, but also increasing their awareness about being responsible for the actions that can potentially lead to a healthy life.

CONCLUSION

In the studied sample, it was observed that the children had deficits in the indicators weight/age and height/age with concomitant weight excess. This scenario points out to the need of maintenance of a system of nutritional surveillance capable of detecting risk groups and helping in the creation of efficient measures to prevent and correct nutritional problems.

Therefore, the follow up performed by the professionals from Basic Assistance on the people who benefit from the "BolsaFamília" Programme represents a great effort to eradicate the fragility and poverty situation, including actions concerning education for children and their families, aiming at the prevention and correction of nutritional problems.

Such interventions may promote communication in the health system, allowing professionals to understand the social and cultural variables of the assisted population in a way that the proposed actions may be effective. There is a need of surpass the health assistance model that is only concerned about biological risk, proposing community action strategies that unite the health aspect tososocial and educational ones.

Therefore, what was mentioned above is the only possible way to improve the life quality of the people who benefit from the programme, not only increasing their income or the amount of food they can afford, but also increasing their awareness about being responsible for the actions that can potentially lead to a healthy life.

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Justification for publishing the article: Nutritional condition of children who are benefited from the “bolsa família” programme. The article allows and enriches the discussion, which is still scarce in the country, on the interference of the “bolsa família” programme in the eating habits and nutrition of children under the age of five. It contributes with data that allow the government to effectively create programmes aimed at improving the food intake patterns and the children’s nutritional condition.

Resumo

Introdução: os programas de transferência direta de renda, como o Bolsa Família têm a importante função de possibilitar que aspectos da vida cotidiana recebam o cuidado e importância necessários para a melhoria da qualidade de vida. Um deles diz respeito à alimentação e nutrição saudável. Objetivo: o objetivo foi avaliar o estado nutricional em menores de cinco anos, cujas famílias são beneficiadas pelo programa “Bolsa-família” de uma cidade da região noroeste do estado de São Paulo. Método: para tal, foi realizado um estudo retrospectivo e transversal com os prontuários de 284 crianças menores de cinco anos de idade, dos quais foram coletados dados sócio-demográficos, de peso e altura. Para o diagnóstico nutricional das crianças foram utilizados os indicadores Peso/Idade, Estatura/Idade e Peso/Estatura, a partir do ponto de corte por escarez, recomendado pela WHO Global Database on Child Growth and Malnutrition. Para a análise dos dados foram utilizados os recursos da estatística descritiva e o teste de Qui-quadrado para verificar associação entre os indicadores, o sexo e a faixa etária. Resultados: do total de crianças, 8,8% apresentam déficits no indicador estatura/idade e 4,2% no peso/idade; 8,1% e 7,4% excesso de peso na relação peso/idade e peso/estatura; 4,6% das crianças menores de 2 anos apresentaram peso elevado para idade e peso elevado para a estatura e 7,8% dessas crianças apresentaram baixa estatura para idade. A prevalência de déficit e excesso de peso população infantil observada neste trabalho foi semelhante às encontradas em outras regiões do Brasil. Conclusão: é necessário a manutenção do sistema de vigilância nutricional capaz de detectar os grupos de risco e auxiliar na formulação de medidas eficientes para prevenção e correção dos problemas nutricionais.

Palavras-chave: saúde da criança, antropometria, bolsa família, avaliação nutricional.