NUTRITIONAL PROFILE OF PRESCHOOL CHILDREN PARTICIPATING IN PROGRAM *MAIS EDUCAÇÃO* IN THE CITY OF GOIÂNIA, GO, BRAZIL

PERFIL NUTRICIONAL DE PRÉ-ESCOLARES DO PROGRAMA *MAIS EDUCAÇÃO* NA CIDADE DE GOIÂNIA, GO

Luana Carla Andrade Souza[1], Veronica de Lima Santos[1], Rodrigo Ansaloni de Oliveira[2], Keila Cristina Félis[3], Carla Chiste Tomazoli Santos[4], Iel Marciano de Moraes Filho[5]

Cite as:
Souza LCA, Santos VL, Oliveira RA, Félis KC, Moraes-Filho IM. Nutritional profile of preschool children participating in program *Mais Educação* in the city of Goiânia, GO, Brazil. Rev. Cient. Sena Aires. 2019; 8(1): 36-48.

RESUMO

O objetivo do estudo foi avaliar o perfil nutricional de alunos de uma escola participante do programa *Mais Educação* na cidade de Goiânia, GO. Trata-se de uma pesquisa exploratória, com abordagem quantitativa. A amostra do estudo foi composta por 154 crianças do período pré-escolar. Observou-se que 42% de crianças estão dentro do índice de normalidade e 33% se encontram em situação nutricional abaixo do peso, seguidas de 13% das crianças com obesidade grau III, 7% com sobrepeso, 3% com obesidade grau II e 2% com obesidade grau I. Os resultados indicam um despreparo por parte dos atores governamentais e da gestão escolar em relação à qualidade do conteúdo nutricional fornecido aos estudantes – uma realidade que está diretamente ligada ao crescimento e ao desenvolvimento fisiológico e mental das crianças assistidas na instituição de ensino.
Descritores: Serviços de saúde escolar; Políticas públicas de saúde; Pré-Escola; Transtornos da nutrição infantil; Obesidade pediátrica.

ABSTRACT

This study assesses the nutritional profile of preschool children at a full-time school participating in program *Mais Educação* in the city of Goiânia, state of Goiás, Brazil. This research uses an exploratory and quantitative approach with a sample of 154 preschool children. 42% of the children were found to be within normal child BMI levels and 33% were underweight, followed by 13% of children with grade III obesity, 7% with overweight, 3% with grade II obesity, and 2% with grade I obesity. The results point to unpreparedness among governmental officials and school managers in relation to the quality of nutritional contents provided to the students – a reality with direct linkages to the growth and physiological and mental development of the children attending this teaching institution.
Descriptors: School health services; Public health policies; Preschool; Child nutrition disorders; Pediatric obesity.

REVISA

[1] Nursing Student at Faculdade de Ciência e Educação Sena Aires. Goiás, Brazil.

[2] Physical Educator. MSc in Environmental Sciences and Health from Unicerrado. Goiás, Brazil.

[3] Nurse. MSc in Environmental Sciences and Health from Unicerrado. Goiás, Brazil.

[4] Physiotherapist. MSc in Physiotherapy. Faculdade de Ciência e Educação Sena Aires. Goiás, Brazil.

[5] Nurse. MSc in Environmental Sciences and Health. Faculdade de Ciência e Educação Sena Aires. Goiás, Brazil.

Recebido: 17/06/2018
Aprovado: 15/08/2018

ORIGINAL

INTRODUCTION

Schools are the overarching structures of human development. As such, they are settings of shared responsibility for actions that promote health as one of their fundamental roles in terms of encouraging wholesome values, habits and lifestyles.[1]

Adequate nutrition is a pertinent topic for public health policies, and it is recommendable that food and nutrition education be fostered by strategies that promote good habits, so food education can be seen as an instrument for the attainment of healthy lifestyles.[2]

Brazilian Law on Guidelines and Foundations for National Education (LDB, in the Brazilian acronym) identifies preschool as the most important and comprehensive stage of development up to the age of six years old in terms of physical, psychological, intellectual and social aspects, and also in terms of children's belongingness to their families and to the society.

Food and nutrition emerge in this context as relevant elements in the education process, as well as the encouragement to healthy food consumption. Healthy food habits may be practiced by schools to promote an educational environment conducive to the construction of healthy lifestyles and prevention of many diseases characterized by morbidity and mortality.[1]

Adequate nutrition is an important aspect of personal development, and it must be addressed by the distinct sectors of the population. Adequate food and nutrition habits are extremely important and are recommended since early childhood.[1,3]

Each child's family is his or her first nucleus of social integration. Child nutrition is strongly influenced by children's families, but social settings such as nurseries, clubs, schools and the media environment exert an even stronger impact and become intensely active for children.[1]

As a pedagogical activity established by Interministerial Ordinance 17/2007 and regulated by Decree 7,083/10, Brazilian program *Mais Educação* ['More Education'] offers food and nutrition education, and health promotion via the National School Nutrition Program (PNAE) and the National Education Development Fund (FNDE). According to data from the Ministry of Education, Program *Mais Educação* initially assisted 1,380 schools in 55 municipalities of the 26 Brazilian states and the Federal District. In 2010, it was expanded to assist 10 thousand schools, which are now benefiting from it under a full participation regime.[4]

In the state of Goiás, 300 municipal schools and 327 state schools are currently served by the program. According to data from the Ministry of Education, a total of 150 state and municipal schools are benefitting from it in the city of Goiânia, with the support of the National School Nutrition Program (PNAE).[4] In the state of Goiás, the meals program ensures up to three meals per day for all students attending full-time school. The amounts transferred to schools are R$1.20 (approximately USD0.29 in September 2018) for each lunch meal and R$0.88 (approximately USD0.21) for each morning or afternoon snack.[5]

Students sometimes present conditions such as excess weight, obesity or malnutrition. Such conditions are diagnosed by calculating their Body Mass Index (BMI), which takes into consideration the weight and height of children. Child BMI calculations associate height variables for children from six months to 18 years old, which are directly linked to their development and growth.[6]

To calculate the BMI, the following formula must be used: BMI = weight (in kilograms) ÷ height^2 (in meters). Despite the fact that body mass for adults is calculated in the same way, the results are interpreted differently in the case of children.[7]

Malnutrition and obesity levels among children are found by calculating their BMI and following a pre-established age/gender table provided by public health authorities.[7] Percentiles are ascribed to BMI groups as follows: below percentile 10 = underweight, that is, undernourished; percentiles 15 to 85 = normal weight; and above percentile 95 = obesity .[7]

By assessing the nutritional profile of school-age children at the full-time preschool participating in program *Mais Educação* in Goiânia, this article reflects on children's obesity and malnutrition following on the influence of the school setting for children's food habits.

METHOD

This is an exploratory and evaluative research with a quantitative approach with a sample of 154 preschool students. Sampling criteria included enrollment in the school's full-time program and the signing of a consent form. The collected data included anthropometric measurements and gender data, in addition to children's classification as undernourished or overweight, with different degrees of obesity according to BMI measurements.

The collected data was fed into a databank using Microsoft Excel 2018, and was then consolidated via descriptive statistics techniques (absolute and relative frequency) and using Pearson's chi-squared test (p). Research findings were then discussed based on the current literature on the theme. The authors of this research followed Resolution CNS 466/12 and its additional norms to ensure that no participant was submitted to data-collection without receiving the necessary information and without signing a Free and Elucidated Consent Declaration.

RESULTS AND DISCUSSION

Public health policies for adequate nutrition at schools

Educators are important influencers in a child's process of selecting his or her food options, and they can develop activities to promote healthy habits by applying adequate pedagogical techniques and concepts to foster healthy food choices.[1]

As a means to prevent negative consequences caused by precarious and inadequate food, since 1990, the National Food and Nutrition Policy (PNAN) has implemented a number of official Brazilian programs to promote healthy food and nutrition habits

as an acquired citizen.[2]

In 2014, the National Education Development Fund (FNDE) established fund transfers to program *Mais Educação*, via a technical note of the Ministry of Education. These transfers encompass all full-time schools and other schools benefitting from program *Mais Educação*.[8] The National School Nutrition Program establishes that a total of three daily meals must be served during a 7-hour schedule at full-time schools, and also for students served by program *Mais Educação*. On their turn, schools must participate in the School Census in order to be eligible for these funds.

The PNAE recommends a daily intake level according to reference values established by the Food and Agriculture Organization of the United Nations: 1,500 Kcal for children from 6 to 10 years old , and also in agreement with the Ministry of Health's *Nutrition Therapy Guidebook for Specialized Hospital Care*, which recommends an average daily intake of 550 to 1,700 Kcal to meet the needs of children of 0-6 years old.[9,10]

According to data from the Ministry of Health, the readjustment of prices in school meal transfers is carried out in conformity with the PNAE.[11] Thus, the sum per student increased from R$0.30 to R$0.36 for each meal.

One of the key guidelines of the National Food and Nutrition Policy is: Promoting Adequate and Health Nutrition. Its goal is to support the Brazilian states and municipalities in their efforts to implement adequate food practices with a focus on human development, with life quality and citizenship, as a research of the Ministry of Education has affirmed (2018).

The concern of healthy food programs and of the National Guidelines is to prevent diseases linked to inadequate food and nutrition, since unhealthy food habits contribute to the prevalence of malnutrition, excess weight, obesity and non-communicable chronic diseases. Adequate consumption is characterized by the ability to meet the physiological needs of consumers.[12] Conversely, poor eating habits lead to social realities such as hunger, malnutrition, obesity and high morbidity and mortality levels.[9]

Adequate nutrition is crucially important for food education, especially at school settings, since adequate eating is essential for the absorption of key nutrients and for maintaining a healthy lifestyle. Adequate nutrition may also contribute to strengthen well-being, positivity and attention, in addition to physical, mental and social wellness

Obesity can be understood in reference to a large quantity of adipose tissue resulting from factors such as inadequate habits, "genetic propensity, ethnic background, psychological aspects and economic conditions". However, 95% of all cases of obesity result from external conditions, such as food habits and the lack of physical activities, whereas only 5% of all cases result from genetic factors, as shown by Figure 1 below, in agreement with the studies.[13]

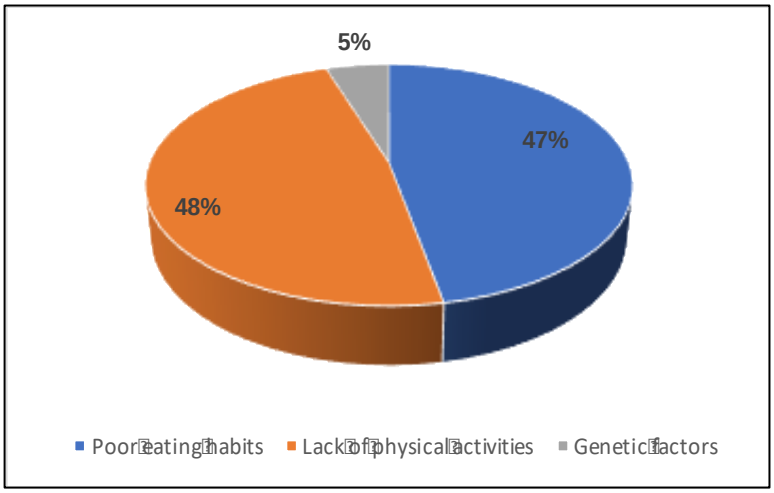

Figure 1- Factors related to child obesity, 2018

As a disease, obesity is closely linked to childhood as a factor that increases morbidity and mortality among children, favoring chronic problems such as glucose intolerance, high cholesterol and cardiovascular diseases.[14]

Child obesity involves biological and physiological changes. Therefore, its treatment must be made with the help of health professionals, including adequate interventions and a balanced diet.[9]

Contrary to obesity, poor nutrition also produces physiological changes that lead to child malnutrition. Thus, malnutrition leads to several problems in childhood and is the cause of one third of all child deaths in the world. The current estimates point to over 170 million children affected by malnutrition worldwide.[15]

In Brazil, malnutrition leads to a number of severe health conditions among children, in particular, growth difficulties. Severe cases occur mostly in the north and northeast of the country. Many studies have been carried out on child malnutrition with sample groups from different age groups, especially children below five years old. Therefore, new researches involving school-age-children are a current necessity in Brazil.

The concern with malnutrition among school students has been focused only on short stature, but this is not a decisive factor for diagnosing eating disorders. Teachers and other school professionals must expand their outlook and direct it to individual singularities, on the one hand, and collective health, on the other.[15]

Hunger is the main consequence of malnutrition in terms of damage to children's health, leading to physical, mental, and developmental issues that include intellectual disabilities and deficiencies of growth, calcification and vital functions.[16]

According to studies carried out at the National School of Public Health, malnutrition – differently from excess weight and obesity – caused approximately 36,000 deaths in Brazil between 1980 and 1997. This datum, however, does not refer to the number of death cases among children, and one must count on updated studies on malnutrition among children.[17]

A current highlight among the Brazilian components of public policies for children and adolescents is the establishment of multidisciplinary teams including nurses, pedagogues,

nutritionists and other professionals.[18]

The role of nursing professionals in the reduction of child morbidity and mortality due to malnutrition and obesity

At the school-setting, nurses are leading agents in the efforts to prevent diseases. They also play a key role in the elimination of addictive behaviors and reestablishing healthy habits by assessing children's growth and development. And they act to establish good hygiene habits and systems, to shape children's habits in order to control infectious and contagious diseases, and to establish alternative healthcare options, with a priority for services in case of accidents, while avoiding life-threatening situations.[19,20]

Nurses assist children during their growth and development stages, and their activities are therefore part of the primary health care actions available to the population as a model of services.[21]

The current routine growth and development assessment consists of a nurse appointment (*"child CD"* visit) in which nurses examine the nutritional state, record of vaccines, social and psychic conditions, therapeutic needs and eventual referrals for children between 0 and 10 years old. These routine visits are regulated by Resolutions 159/1993 and 358/2009 of the Federal Nursing Council (COFEN), which establish obligatory nursing appointments under the Systematization of Nursing Assistance for all levels according to Decree 94,406/870 of the Regional Nursing Council of the state of Goiás.[22]

Child development consists in the appropriation of new functions by the human body and its maturing, in addition to an individual's ability to proceed along the fetal, neonatal, infant, child and puberty stages, in addition to some reproductive and other developmental factors.[23]

The assessment of child growth and development, in this context, is not only based on isolated anthropometric data. Nurses also consider other factors based on children's visits history.[21,24]

Data on human measurements and dimensions are assessed according to standardized criteria, based on the occurrences and cases of nutritional disorders during childhood or adolescence. These conditions contribute to the development of actions and to reducing morbidity and mortality among children.[25]

Several studies have found high levels of malnutrition and obesity among children and adolescents. In this regard, anthropometry studies obtain and update data on personal measurements (weight and stature; stature by age; weight by age; and BMI by age, among others), according to the nutritional state of the population and to the health data from public databanks, thus identifying nutrition transitions and the current prevalence of excess weight as a result of lifestyle changes and dietary trends in the population.[25]

CD appointments must be interspersed between nurses and doctors, with home visits and educational groups.[22] Therefore, both nursing professionals and physicians can assist children in a comprehensive way and avoid negative consequences of nutritional disorders by immediately adopting measures to tackle them.

Nutritional profile of students attending the full-time school in the city of Goiânia, GO

The school where this research was carried out is a full-time school managed by the government of the state of Goiás and benefitted by program *Mais Educação*, located in the central region of the city of Goiânia. This school currently has 38 employees, 150 students attending the early years from 1st to 5th grade, and 132 students attending the final years, i.e. from 6th to 9th grades. These 282 students include six students with special needs and 130 full-time students.[26]

The school' structure includes basic sanitation with restrooms inside its physical facilities, a kitchen, computer lab, sports court, principal's office and teachers' room. Its equipment includes a DVD player, overhead projector and TV sets, broadband internet access and 25 computers for exclusive use by the students.[26] This research' sample includes 154 preschool children.

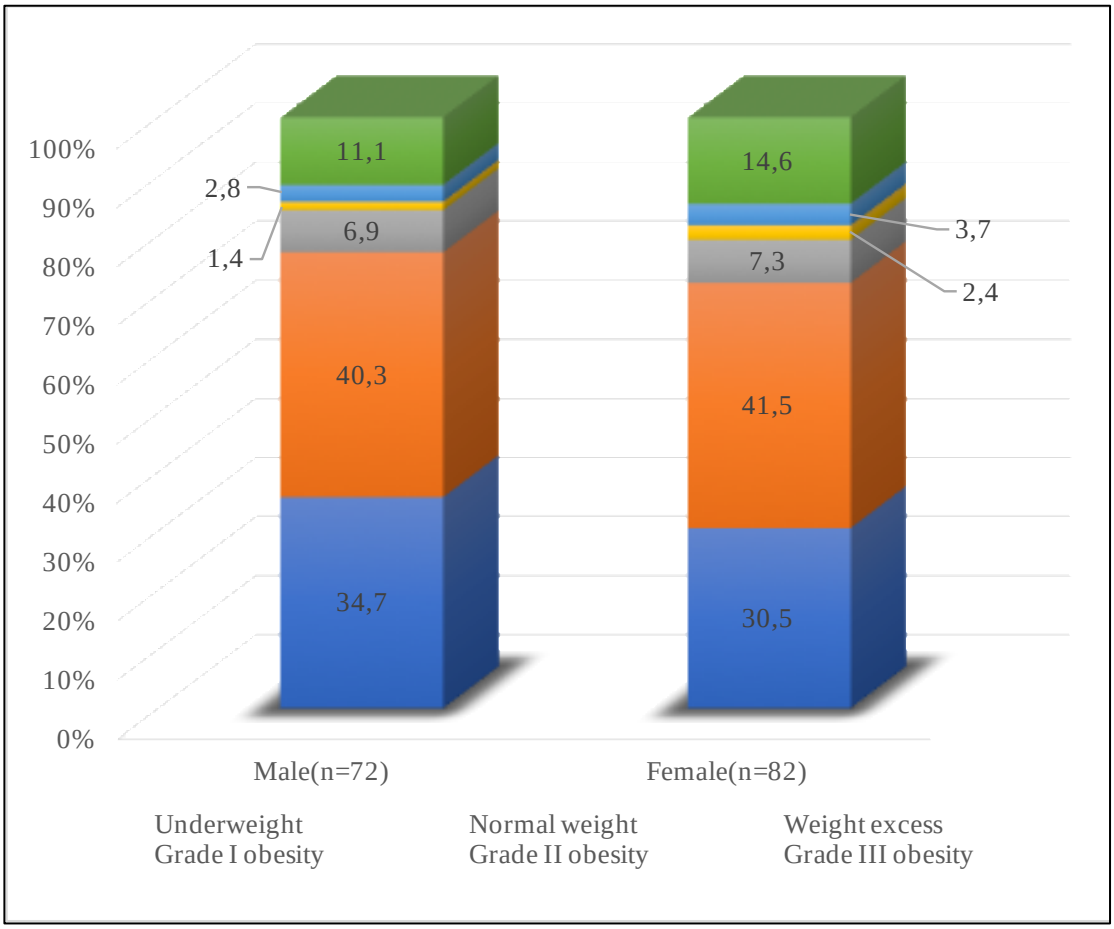

Figure 2- BMI results in terms of weight / height ratio for sample group of children at a state school in the central region of Goiânia, GO, Brazil

From a total of 72 male children and 82 female children in the sample, 40.3% of males and 41.5% of females had normal child BMI levels, whereas 34.7% of males and 30.5% of females were below regular weight – a reality closely linked to malnutrition. These significant data point to deficiencies in terms of child nutrition, and indicate that schools should receive and

provide better diet options on a daily basis, with centralized, optimized and healthy food with its adequate nutrients, in order to reduce malnutrition levels.

Numerous studies have shown that children tend to choose their food at home, and that most of the times, they prefer industrial food with low levels of healthy nutrients. For approximately 60% of the children with the habit of consuming food with high sugar levels, the school environment could promote adjustments towards foods that are more appropriate for their age, such as milk, yogurt, vitamins A and E, and calcium.[27]

The school setting is opportune for the promotion of healthy nutrition and can lead to positive public health impacts that benefit the entire school community with its students, teachers, employees, parents and professionals involved in the meals, such as cooks and suppliers. It is, therefore, a privileged environment for actions that foster healthy habits, especially in terms of raising awareness, while encouraging values such as autonomy, rights and duties, new healthy habits and life quality.[28]

Malnutrition is considered a disease and can lead to irrecoverable harm in children's development, in addition to concentration and memory damage, weight loss, psychomotor retardation, learning difficulties and even aggressive and negative behaviors, among other problems. Such conditions may also lead to a reduction of children's immunity, increasing their vulnerability to infectious and contagious diseases[16]. As an essential tool, nutrition education for children is strengthened by the active participation of school managers and professionals, to prioritize not only the availability of food, but also nutritional quality, while offering meals based on each region with a view to a better acceptance by students and the development of improved habits. Such improvements are possible when school management becomes participative and considers the needs of the students.[29-31]

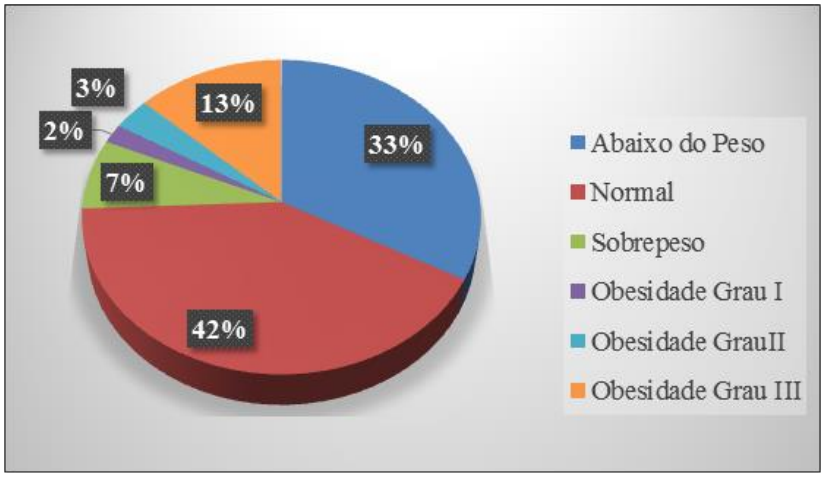

Figure 3- Percentages from the sample population of students at a full-time state school in Goiânia, GO, Brazil

Regarding obesity levels, this study identified grade III obesity in 11.1 of male and 14.6 of female children, with 6.9% (males) and 7.3 (females). It also found grade II obesity in 2.8

(males) and 3.7 females); and finally, it found grade I obesity in 1.4 (males) and 2.4 (females).

The current scenario of obesity characterizes it as a non-communicable chronic disease with a myriad of complications. Such situation needs to be questioned via initiatives aimed at the population at large. It is essential to count on early diagnoses in order to enable efficacious treatment forms and prevent the disease.[32]

Part of the Brazilian population has experienced a nutrition transition that led to a decrease in malnutrition levels and an increase in obesity, in contrast with previous decades.[33] In countries experiencing a state of disorder, nutritional difficulties may emerge, leading mainly to child nutrition and compromising performance at schools along the child growth and development-process.[34,35]

Although the findings of this research show that 42% of all children in the sample group remained within normal levels, we highlight that 33% of all children were found to be underweight, followed by 13% with grade III obesity, 7% with overweight, 3% with grade II obesity and 2% with grade I obesity.

These results point to a state of unpreparedness among governmental managers and school employees in relation to school management and to the quality of students' nutrition – a factor directly linked to growth and to the physiological and mental development of the enrolled children. Promoting health at schools is extremely valuable, since it is linked to some educational activities, particularly the encouragement of healthy food habits, which can lead to impressive concrete prospects in terms of health. Their effects for the development of children and of all persons are positive when people can eat healthily. On the other hand, poor eating habits are closely linked to hunger, malnutrition, obesity, morbidity and mortality .[9]

An important factor uncovered by this study is that the funds allocated to this full-time state school located in Goiânia, GO, are linked to the current situation of malnutrition experienced by many of its children. The issue is even more far-reaching than it could seem, considering the current demand to be met by those who are responsible for transferring child education funds.

The National Food Nutrition Program (PNAE), nonetheless, must play the role of providing school meals and promoting food education activities for basic education students. Its funds are transferred in ten monthly installments (from February to November) to provide food for 200 school days, in accordance with the number of enrolled students, and the specific sum is defined according to each teaching modality. This study's results raise some concerns as to the possibility that the transferred sums are not meeting the needs so that children can be adequately nourished, exemplified by the finding of a high malnutrition level in the studied preschool group. This finding points to the need for a reevaluation under the PNAE-framework in order to reduce malnutrition and obesity levels in the state of Goiás.

FINAL REMARKS

The preschool students who participated in this study attend a full-time school and still have high malnutrition levels. This finding indicates an unfortunate reality, since – as many articles have showed – well-nourished children and adolescents are capable of learning more and attaining higher performance levels in their activities.

Art. 208 of the 1988 Federal Constitution establishes that all Brazilians must have access to adequate and healthy nutrition. But a huge task still lies ahead, considering the low sums transferred by the government to schools per school day and per student.[36]

Malnutrition is known to be one of the most long-standing public health problems. Such situation raises several concerns, considering that it weakens body defense and enables the emergence and worsening of infections, leading on its turn to decreased appetite and an exacerbation of malnutrition itself. Thus, it produces negative impacts on people's lives, while compromising both physical and mental performance, along with muscular strength, motor skills and productivity during a person's physical activities.

Bearing such picture in mind, nursing professionals play a key role in malnutrition prevention and control, since they are responsible for assessing children's growth and development amidst their many other tasks. For this reason, among others, nursing professionals are considered the central health agents at the school setting: they not only help promote a culture of adequate nutritional habits, but they also help prevent child mortality and morbidity.

Obesity is also a reason for concern, since it is also – and still – found among children. It is a task of health and education professionals, and of the children's parents, to teach them more about the best eating habits.

New studies on the impact of malnutrition and obesity on education and on children's growth are a current necessity. Their results will enable to propose actions that promote health and food education via a rearrangement of the national policies related to child education and development.

REFERENCES

1-Accioly E. A escola como promotora da alimentação saudável. Rev. Ensaio. Ciência em Tela, V.nº2, Rio de Janeiro; 2009.
2- Ramos FP, Santos LA, Costa AB. Educação alimentar e nutricional em escolares: uma revisão de literatura. Cad. Saúde Pública, Rio de Janeiro, pág. 2147-2161, 2013.
3-Carvalho KIF, Alves MIS, Vidal JMA. Ações Educativas de Incentivo ao Consumo de Peixe por Escolares da Rede Municipal de Serra Talhada-PE. XIII JORNADA DE ENSINO, PESQUISA E EXTENSÃO – JEPEX 2013 – UFRPE: Recife, December 9-13.
4-BRASIL, Escola Básica e Secundária Tomás de Borba. Programa de Educação e Higiene Alimentar; 2018. Available at: <http://www.ebstomasborba.pt/images/docOrientadores/HigieneA

limentar_2015_2018.pdf>. Acesso em: 17 Apr 2018.
5-FNDE (Fundo Nacional de Alimentação Escolar). Programa Nacional de Alimentação Escolar. Available at: <http://www.fnde.gov.br/programas/pnae.> Access on: 20 Apr 2018.
6- Fisberg M, Machado R, Possa G. Obesidade Infantil – Rede Nacional Primeira Infantil – RNPI, Fortaleza/CE;2015.
Zanin T. Como Calcular o IMC da Criança e do Adolescente. Tua saúde. Available at: <www.tuasaude.com/como-calcular-imc-infantil>. Access on: 13 Apr 2018.
7- Pinheiro P. Como Calcular o IMC – Índice de Massa Corporal. MD. Saúde, 2017. Available at: < https://www.mdsaude.com/2014/10/imc-indice-de-massa-corporal.html>. Access on: 13 Apr 2018.
8- BRASIL, Ministério da Educação. Fundo Nacional entidades executoras participantes do Programa Mais Educação, exercício 2014. Desenvolvimento da Educação – FNDE. Repasse Financeiro do Programa Nacional de Alimentação Escolar.
9- Basílio AL. Alimentação Escolar é parte do processo de aprendizagem. Centro de Referências em Educação Integral. Available at: <http://www.educacaointegral.org.br/reportagens/alimentacao-escolar-e-parte-do-processo-de-aprendizagem/ >.Access on: 12 Apr 2018.
10- BRASIL, Ministério da Saúde. Manual de Terapia Nutricional Na Atenção Especializada Hospitalar No Âmbito do Sistema Único de Saúde – SUS. Brasília-DF; 2016.
11- BRASIL, Ministério da Educação. Saiba Mais – Programa Mais Educação. Available at: < http://portal.mec.gov.br/expansao-da-rede-federal/195-secretaria112877938/seb-educacao-basica-2007048997/16689-saiba-mais-programa-mais-educacao>. Access on: 20 Apr 2018.
12- Rodrigues JP, Pereira ES, Moura MR e Colaboradores. Estado Nutricional e os Efeitos da Educação em Saúde com Pré-escolares: revisão integrativa de literatura. Portuguese, Rev Enferm UFPI. 2016; 5(2): 53-59.
13- Paula R, Alberto F, Lamboglia GF, Silva MBL, Tereza V, Monteiro S, Moreira M, Priscilla A, Pinheiro NP, Helena M, Silva B, Antonio C. Prevalência de Sobrepeso e obesidade em escolares da rede pública e particular da cidade de Fortaleza. In: Revista Brasileira em Promoção da Saúde; 2018.
14- Oliveira LFL, Costa CRB. Educação física escolar e a obesidade infantil. Revista Científica Multidisciplinar Núcleo Do Conhecimento.2016; 10(1): 87-101.
15-Pedraza DF, Silva FA, Melo NLS, Et al. Estado nutricional e hábitos alimentares de escolares de Campina Grande, Paraíba, Brasil. Ciências & Saúde Coletiva, Campina Grande, PB. 2017. p.469 – 477.
16-Mendes LV. As consequências da desnutrição no desenvolvimento físico e mental infantil. Fundação Telefônica.Brasil, 2 de dez 2016. Available at: <http://fundacaotelefonica.org.br/promenino/trabalhoinfantil/colunistas/asconsequencias-dadesnutricao-no-desenvolvimento-fisico-e-mental-infantil/> . Access on: 21 Apr 2018.
17- Otero UB, et al. Prevalência de óbitos por desnutrição em idosos, Região Sudeste, 1980-1997. Revista de Saúde Pública, São

Paulo, [S.l].2002; 36(2): 141-48.
18-Silva JKS, Beserra LCM, Moura IRD, Et al. O Programa Saúde na Escola e a Atuação do Enfermeiro no Contexto da Atenção Primária. II Congresso Brasileiro de Ciências e Saúde – CONFRACIS. Campina Grande/PB, 2017.
19- Rashe AS, Santos MSS. Relato de Experiência. Enfermagem escolar e sua especialização: uma nova ou antiga atividade. Rev. bras. enferm. vol.66 no.4 Brasília July/Aug. 2013.
20- Sousa E, Guerreiro M. O papel do enfermeiro na obesidade infantil. EFDeportes.com, Revista Digital. Buenos Aires, ano 19, nº 199, 2014.
21-Ooliveira VC, Cadette MMM. Anotações do enfermeiro no acompanhamento do crescimento e desenvolvimento infantil. Acta paul. enferm. vol.22 no.3, ISSN 1982-0194, São Paulo/SP, 2009.
22- Corengo.org.br. 2014. Protocolo de Enfermagem na Atenção Primária à Saúde no Estado de Goiás. [online] Available at: <http://www.corengo.org.br/wpcontent/uploads/2015/02/Protocolo-de-Enfermagem-2015.pdf > .Access on: 11 Aug 2018.
23-Vinicius M. Crescimento e Desenvolvimento. Enfermagem Esquematizada. Available at: <http://www.enfermagemesquematizada.com.br/crescimento-e-desenvolvimento/ >. Access on: 1 May 2018.
24-Mesquita AL, Souza VAB, Moraes-Filho IM, Santos TN, Santos OP. Atribuições de enfermeiros na orientação de lactantes acerca do aleitamento materno. Rev. Cient. Sena Aires. 2016; 5(2): 158-70.
25-Bergamaschi D, Adami FS. Perfil Antropométrico de Crianças e Adolescentes. Rev. Ciênc. Saúde.2015; 17(1): 53-60.
26-QEDU. Dados sociodemográficos e estruturais da escola pesquisada. Disponível em: <http://www.qedu.org.br/escola/243257-colegio-estadual-jose-honorato/censo-escolar?year=2017&dependence=0&localization=0&education_stage=0&item= > Access on 11 May 2018.
27- Linardakis, M, Sarri, K, Pateraki, MS, Sbokos, M, Kafatos, A. O consumo de bebidas com adição de açúcar entre crianças do jardim de infância de Creta: efeitos sobre o estado nutricional e risco de obesidade . BMC Public Health; 2008.
28- BRASIL. Ministério da Saúde. Portaria Interministerial Nº 1.010, de 8 de Maio de 2006. Institui as diretrizes para a Promoção da Alimentação Saudável nas Escolas de educação infantil, fundamental e nível médio das redes públicas e privadas, em âmbito nacional. Brasília: MS, 2006.
Available at: <https://www.fnde.gov.br/fndelegis/action/UrlPublicasAction.php?acao=getAtoPublico&sgl_tipo=PIM&num_ato=00001010&seq_ato=000&vlr_ano=2006&sgl_orgao=MEC/MS >. Access on: 2 Jan 2018.
29- Oliveira MC, Vassimon HS, Programa Nacional de Alimentação Escolar e suas aceitações pelos alunos: uma revisão sistemática. Investigação 2012; 12(1):4-10.
30- Fernandes AGS, Fonceca ABC, Silva AA. Alimentação escolar como espaço para educação em saúde: percepção das merendeiras do município do Rio de Janeiro, Brasil. Cien Saúde Colet 2014;19(1):39-48.
31- Costa LDS, Pessoni LML, Moraes-Filho IM, Santos CCT, Queiroz HA, Araujo LM. Importância e necessidade de formas de

organização e gestão escolar. 2018; 7(3): 214-27.
32- World Health Organization. Growth reference data for children aged under 5 years. WHO reference, 2007.
33- Ferreira, H.S. SCM. Luciano, SCM . Prevalência de extremos antropométricos em crianças do estado de Alagoas. Rev Saúde Pública.2010; 44(2):377-80.
34- Strufaldi, M W L.; Puccini, R F.; Pedroso, G C.; Silva, HMK.; Silva, NN. Prevalência de desnutrição em crianças residentes no município de Embu, São Paulo, Brasil, 1996-1997. Cad. Saúde Pública 2003;19(2):421-428.
35- Fanhani, K K. Bennemann, RM. Estado nutricional de escolares da rede municipal de ensino de Maringá, Estado do Paraná, Brasil. Acta Scientiarum 2011;33(1): 77-82.
36- BRASIL. Constituição (1988). Constituição da República Federativa do Brasil. Brasília, DF: Senado Federal: Centro Gráfico, 1988. p. 292 .