



ORIGINAL ARTICLE

## Poor diet quality among Brazilian adolescents with HIV/AIDS<sup>☆</sup>



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### KEYWORDS

Adolescent;  
Food consumption;  
Healthy eating index;  
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### Abstract

**Objective:** This study aimed to assess diet quality among adolescents with HIV/AIDS.

**Method:** A cross-sectional study was conducted involving patients with HIV/AIDS treated in a referral hospital in Sao Paulo, Brazil. Eighty-eight adolescents (10-19 years of age) participated in the study. Information on disease history and use of medication were obtained from medical records. The participants responded to two 24-hour diet recalls. Diet quality was assessed by means of the Healthy Eating Index-2005 (HEI-2005) adapted to the Brazilian population. Pearson's correlation coefficients were calculated. Mean HEI-2005 scores were compared according to the independent variables using either the Student's *t*-test or the Mann-Whitney test.

**Results:** The mean HEI-2005 score was 51.90 (SE = 0.90). The components with the lowest means were whole grains and sodium. Components with highest means were total grains and oils. No correlations were found between the independent variables and HEI score. Adolescents living in foster homes had higher means for total fruit and lower means for meat and beans in comparison to adolescents living with their families. Girls had higher means for milk and lower means for calories from solid fats, alcoholic beverages, and added sugars in comparison to boys.

**Conclusions:** Adolescents with HIV/AIDS exhibited a similar eating pattern to that of adolescents in the general population: high consumption of added sugar, saturated fat, and sodium, and insufficient ingestion of whole grains and fruits. Special attention should be paid to the diet of adolescents with HIV/AIDS, who are at greater risk of developing cardiovascular and other chronic diseases.

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**PALAVRAS-CHAVE**

Adolescente;  
Consumo alimentar;  
Índice de qualidade  
da dieta;  
HIV/AIDS

**Baixa qualidade de dieta entre adolescentes brasileiros com HIV/AIDS****Resumo**

**Objetivo:** Avaliar a qualidade da dieta de adolescentes com HIV/Aids.

**Método:** Estudo transversal envolvendo pacientes com HIV/Aids atendidos em um hospital de referência em São Paulo. Participaram do estudo 88 adolescentes (10-19 anos). Informações sobre história clínica e uso de medicamentos foram obtidas dos prontuários médicos. Os participantes responderam a dois recordatórios de 24 horas. A qualidade da dieta foi avaliada pelo índice de qualidade da dieta revisado (IQD-R) adaptado para a população brasileira. Coeficientes de correlação de Pearson foram calculados. As médias do escore do IQD-R foram comparadas de acordo com as variáveis independentes, usando o teste-t de Student ou teste Mann-Whitney.

**Resultados:** A média do IQD-R foi 51,90 (EP = 0,90). Os componentes de menores médias foram: cereais integrais e sódio. Os componentes de maiores médias foram cereais totais e óleos. Não foram encontradas correlações entre as variáveis independentes e o IQD-R. Adolescentes vivendo em casas de apoio tiveram médias maiores para frutas totais e menores para carnes e feijão em comparação aos adolescentes vivendo com suas famílias. As meninas apresentaram médias mais altas para leite e menores médias para calorias provenientes de gorduras sólidas, bebidas alcoólicas e açúcares adicionados, em comparação aos meninos.

**Conclusões:** Os adolescentes com HIV/Aids apresentaram padrão alimentar semelhante àquele da população geral: alto consumo de açúcar, gordura saturada e sódio e ingestão insuficiente de cereais integrais e frutas. Atenção especial deve ser dada à dieta de adolescentes com HIV/Aids, pois eles estão sob maior risco de desenvolver doenças cardiovasculares e outras doenças crônicas.

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**Introduction**

The introduction of the highly active antiretroviral therapy (HAART) in the treatment of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) has changed the course of the disease, dramatically improving survival. However, since HAART introduction, long-term side effects, some of them closely related to nutrition, such as lipid profile abnormalities, have also been described.<sup>1</sup>

Studies involving children and adolescents report important prevalence rates of metabolic disturbances. Dos Reis et al. found a high prevalence rate of lipid abnormalities among Brazilian children and adolescents: 81.4% had low HDL-cholesterol and 35.5% had increased triglyceride levels.<sup>2</sup>

Diet also plays an important role in the immune system of HIV/AIDS patients, because sufficient amounts of macro- and micronutrients are essential for its normal functioning.<sup>3</sup>

Despite of its importance, only a few studies have been conducted to assess the diet of children and adolescents with HIV/AIDS. The few existing studies reported inadequate diets. A study conducted in the USA evaluated the diet of children with HIV between 1995 and 2004 and found an excessive intake of energy, protein, and sugar, as well as insufficient fiber intake.<sup>4</sup> Likewise, Werner et al.<sup>5</sup> found excessive energy intake in the diets of Brazilian children with HIV/AIDS aged 2 to 16 years. Hence, the assessment of diet quality is an important aspect in monitoring and evaluating both treatment and clinical conditions in this population.

The aim of the present study was to assess the diet quality of adolescents with HIV/AIDS and determine associated factors.

**Methods**

A cross-sectional study nested in a cohort study of patients with HIV/AIDS was carried out at the Instituto da Criança (ICr), which is a pediatric referral hospital in Sao Paulo, Brazil. All 124 patients aged 10 to 19 years old in follow-up at this institute were considered eligible. Three patients were excluded due to illnesses that affect food intake. All eligible patients with medical appointments scheduled between April and September of 2010 were invited by their physicians to participate in the study. However, eight had not attended any scheduled appointment in the previous six months, ten were not reached by telephone, and ten missed the scheduled appointment. Thus, 90 adolescents (74.4%) were initially evaluated. One adolescent was excluded for having an energy intake below the first percentile and one was excluded for having an energy intake above the 99th percentile.<sup>6</sup> Thus, the final study population was made up of 88 adolescents (71.0%).

Information on disease history and medication use was obtained from medical records. Diseases were defined based on the criteria of the Brazilian Ministry of Health.<sup>7</sup> Parents/legal guardians signed an informed consent and answered a questionnaire on socioeconomic aspects.

Weight, height, and waist circumference were measured twice by a trained dietitian. Z-scores for height-for-age

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