



ORIGINAL ARTICLE

Age at introduction of ultra-processed food among preschool children attending day-care centers^{☆,☆☆}

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KEYWORDS

Preschool child;
Overweight;
Obesity;
Supplementary feeding;
Industrialized foods;
Child nutrition

Abstract

Objective: To identify the age of introduction of ultra-processed food and its associated factors among preschool children.

Methods: Cross-sectional study carried out from March to June 2014 with 359 preschool children aged 17 to 63 months attending day-care centers. Time until ultra-processed food introduction (outcome variable) was described by the Kaplan–Meier analysis, and the log-rank test was used to compare the survival functions of independent variables. Factors associated with ultra-processed food introduction were investigated using the multivariate Cox proportional hazards model. The results were shown as hazard ratios with their respective 95% confidence intervals. **Results:** The median time until ultra-processed food introduction was six months. Between the 3rd and 6th months, there is a significant increase in the probability of introducing ultra-processed food in the children's diet; and while the probability in the 3rd month varies from 0.15 to 0.25, at six months the variation ranges from 0.6 to 1.0. The final Cox proportional hazards model showed that unplanned pregnancy (1.32 [1.05–1.65]), absence of prenatal care (2.50 [1.02–6.16]), and income >2 minimum wages (1, 50 [1.09–2.06]) were independent risk factors for the introduction of ultra-processed food.

Conclusion: Up to the 6th month of life, approximately 75% of preschool children had received one or more ultra-processed food in their diet. In addition, it was observed that the poorest families, as well as unfavorable prenatal factors, were associated with early introduction of ultra-processed food.

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PALAVRAS-CHAVE

Pré-escolar;
Sobrepeso;
Obesidade;
Alimentação
complementar;
Alimentos
industrializados;
Nutrição da criança

Idade de introdução de alimentos ultraprocessados entre pré-escolares frequentadores de Centros de Educação Infantil

Resumo

Objetivo: Identificar a idade e os fatores associados com a introdução de alimentos ultraprocessados (AUP) na alimentação de pré-escolares.

Métodos: Estudo transversal realizado entre março e julho/2014 com 359 pré-escolares de 17 a 63 meses de idade matriculados em Centros de Educação Infantil. O tempo até a introdução dos AUP (variável de desfecho) foi descrito por meio do estimador de Kaplan-Meiere o teste *log-rank* utilizado para comparar as funções de sobrevivência das variáveis independentes. Por fim, analisou-se os fatores associados a introdução de AUP por meio de modelo múltiplo de riscos proporcionais de Cox. Os resultados foram apresentados como *hazard ratios* com seus respectivos intervalos de confiança de 95% (HR [IC95%]).

Resultados: A mediana de introdução de AUP foi de 6 meses. Entre o 3° e o 6° mês houve um incremento importante na probabilidade de introduzir AUP na alimentação das crianças; enquanto a probabilidade no 3° mês varia entre 0,15 e 0,25, no 6° mês a variação ocorre de 0,6 e 1,0. No modelo final de riscos proporcionais de Cox, identificamos que gravidez não desejada (1,32 [1,05–1,65]), não realização do pré-natal (2,50 [1,02–6,16]) e renda ≥ 2 salários mínimos (1,50 [1,09–2,06]) se apresentaram como riscos independentes para a introdução de AUP.

Conclusão: Identificamos que até o 6° mês de vida aproximadamente 75% dos pré-escolares já haviam recebido um ou mais AUP em sua alimentação. Além disso, observamos que as famílias mais pobres bem como fatores pré-natais desfavoráveis se associaram com a introdução precoce de AUP.

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Introduction

The first 1000 days of life, from conception to two years of age, are a fundamental period for an infant's full growth and development. It is recognized that exclusive breastfeeding (EBF) until the sixth month of life and the appropriate and timely introduction of foods¹ contribute to health promotion, as well as physical and mental potentials, bringing benefits that are perpetuated not only in the short-term, but also in adult life.²

An inadequate diet from early childhood is among the modifiable risk factors for nutritional disorders, with worldwide repercussions in the context of public health: overweight, obesity, associated chronic diseases,^{3,4} and specific nutritional deficiencies,⁵ among which iron-deficient anemia, whose overall prevalence is 47.4% among preschoolers.⁵ In Brazil, 7.8% of preschool children have excess weight, and the annual percentage increase (1989–2006) is higher in the Northeast region (20.6%) than in the other macro-regions.⁶

This scenario is substantially derived from the lifestyle change process in contemporary society that have led to changes in the dietary pattern, characterized by the significant increase in the consumption of ultra-processed foods (UPF), which due to their formulation and presentation tend to be consumed in excess and to replace traditional foods.^{4,7}

These foods have high energy density, high levels of free sugars, saturated and trans fats, sodium, and low supply of vitamins and minerals, contributing to the increase in overweight and its comorbidities.^{3,4} Furthermore, they are characterized by their extensive industrial processing

(de-characterizing the food of origin) and inclusion of food additives.⁷ Thus, several researchers have tried to understand the factors that contribute to the early and continued consumption of UPF in different socioeconomic scenarios,^{8–11} aiming to subsidize strategies to curb the trend of uncontrolled UPF consumption.

Thus, the objective of this study was to identify the age and factors associated with the time of introduction of UPF in the diet of preschool children attending day-care centers (DCCs) in Maceió, state of Alagoas, Brazil.

Methods**Study design**

A cross-sectional study entitled "Nutritional status of children in public day-care centers and dietary and nutrition actions in basic health care: an intersectoral approach", conducted in the seventh sanitary district of Maceió, AL, Brazil, which is characterized by having the highest socioeconomic vulnerability of the municipality.

The study was carried out between March and July 2014 and included the DCCs ($n=5$) of the seventh district. All children enrolled in DCC ($n=366$) who did not have physical/motor or intellectual disabilities were considered eligible for the study. Of these, only two were not enrolled, due to refusal by the parents/guardians to authorize participation in the research, as well as five children whose parents/guardians did not attend the interview, comprising a total of 359 children of both genders, aged 17–63 months.

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