

Characteristics of the lunch box of pre-school children and nutritional knowledge of the carer: A pilot study in Lima, Peru, 2016

Características de la lonchera del preescolar y conocimiento nutricional del cuidador: un estudio piloto en Lima, Perú, 2016

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Mr. Editor:

Overweight and obesity in preschool children are a growing Public Health problem. In Peru, in the year 2015, 6.5% of children under 5 years old who went to health facilities at the national level were overweight, and 1.5% were obese¹. The possible causes are food modernization with higher production and consumption of processed foods, which are rich in simple sugars and saturated fats², and also inadequate knowledge of the person in charge of preparing the preschool lunchbox³. Here we report the findings of a pilot study of the characteristics of a common lunchbox from a sample of preschoolers in Lima, Peru, and the level of nutritional knowledge of their caregivers.

During May 2016, we interviewed 30 caregivers (parents, mothers or others) of 30 preschool children (under 6 years old) selected by convenience from a

private school in Lima. We evaluated the caloric composition of macronutrients and food groups in the lunch boxes using the direct weight method and tables (Peruvian food composition table, composition table of industrialized foods and Food Composition Table of Central America). We measured the knowledge of caregivers about preschool nutrition by adapting a questionnaire from a previous study⁴. Then, we compared the characteristics between the high and low knowledge groups (divided by the median score) using Wilcoxon and Fisher's exact tests. Results are shown in table 1.

The Low Level Knowledge group included industrialized foods in greater proportion, and had higher carbohydrate content. A longitudinal study in Mexico in 2010 found that 53.6% of the products contained in preschool's lunchboxes were industrialized products, although this study did not evaluate the level of knowledge⁵. Although the indicators that we compared are not the same, both scenarios demonstrate the poor nutritional quality of the lunchboxes in different realities. In addition, the lunchboxes of the Low Level of Knowledge group did not include any vegetables, and had fewer fruits compared to the High Level of Knowledge group, although the difference was not statistically significant. This finding may be due to a shift or substitution of products by the caregiver, probably explained by the levels of nutritional knowledge and/or the ease of disposition and non-preparation inherent in industrialized products.

In conclusion, our pilot study showed that the nutritional quality of preschool's lunchboxes is different according to the caregiver's knowledge. Greater presence of industrialized foods, higher carbohydrate content, and less presence of fruits and vegetables are more frequent when their knowledge is low. We can not conclude that knowledge is the main determinant of this difference, and it is possible that other factors (economy, time, ease, etc.) also influence this difference. Future studies on lunchboxes in preschoolers should include anthropometric measurements, more comprehensive assessments of the caregiver and also

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Table 1. Characteristics of lunchboxes and caregivers according to their level of nutritional knowledge (n = 30)

	Low Level of Knowledge (n = 13)	High Level of Knowledge (n = 17)	p value
<i>Caregivers characteristics</i>			
Caregiver's age ^a	31 (30-40)	32 (28-35)	0.438
Feminine Caregivers ^b	7 (53.9)	10 (58.8)	0.999
Higher education degree ^b	8 (61.5)	8 (47.1)	0.484
Number of children ^a	2 (1-2)	1 (1-2)	0.854
<i>Lunchboxes characteristics</i>			
Energy (kcal) ^a	307 (245-414)	300 (194-335)	0.516
Proteins (g) ^a	7 (5-10)	8 (5-12)	0.999
Lipids (g) ^a	4 (3-10)	7 (4-14)	0.325
Carbohydrates (g) ^a	61 (48-73)	44 (30-70)	0.028
Fruits ^b	8 (61.5)	13 (76.5)	0.443
Vegetables ^b	0 (0.0)	2 (11.8)	0.492
Industrialized ^b	12 (92.3)	10 (58.8)	0.092
Dairy products ^b	5 (38.5)	5 (29.4)	0.705
Meats ^b	4 (30.8)	6 (35.3)	0.999

^aMedian (interquartile range). ^bNumber (column percentage).

they be executed longitudinally in an epidemiological surveillance way. Such results would better target messages to target populations in campaigns that promote healthy lunchboxes.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Data confidentiality: The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

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Conflicts of Interest

Authors state that any conflict of interest exists regards the present study.

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