

Study protocol

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Prevalence of metabolic syndrome in scholars from Bucaramanga, Colombia: a population-based study

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Published: 21 April 2009

Received: 11 March 2009

BMC Pediatrics 2009, **9**:28 doi:10.1186/1471-2431-9-28

Accepted: 21 April 2009

This article is available from: <http://www.biomedcentral.com/1471-2431/9/28>

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Abstract

Background: Obesity and metabolic syndrome are strongly associated with type 2 diabetes mellitus and cardiovascular diseases, thus the increasing trend in their prevalence among children and adolescents from developing countries requires a further understanding of their epidemiology and determinants.

Methods and design: A cross-sectional study was designed to determine the prevalence of metabolic syndrome among 6–10 year-old children from Bucaramanga, Colombia. A two-stage random-cluster (neighborhoods, houses) sampling process was performed based on local city maps and local statistics. The study involves a domiciliary survey; including a comprehensive socio-demographic, nutritional and physical activity characterization of the children that participated in the study, followed by a complete clinical examination; including blood pressure, anthropometry, lipid profile determination, fasting glucose and insulin levels. The prevalence of metabolic syndrome will be determined using definitions and specific percentile cut-off points for this population. Finally, the association between components of metabolic syndrome and higher degrees of insulin resistance will be analyzed through a multivariable logistic regression model. This study protocol was designed in compliance with the Helsinki declaration and approved by the local ethics board. Consent was obtained from the children and their parents/guardians.

Discussion: A complete description of the environmental and non-environmental factors underlying the burden of metabolic syndrome in children from a developing country like Colombia will provide policy makers, health care providers and educators from similar settings with an opportunity to guide primary and secondary preventive initiatives at both individual and community levels. Moreover, this description may give an insight into the pathophysiological mechanisms mediating the development of cardio-metabolic diseases early in life.