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RESEARCH ARTICLE

A nationwide study on the prevalence of functional gastrointestinal disorders in school-children

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KEYWORDS

Functional
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Latin America

Abstract

Introduction: Functional gastrointestinal disorders (FGIDs) are highly prevalent worldwide and are thought to result from the interplay of multiple factors that can vary from region to region. Nationwide studies can help understand the regional epidemiology and the pathogenesis of FGIDs. The objectives of this study were to determine the prevalence of FGIDs in school-children of Colombia and assess associated factors.

Methods: A cross-sectional study was carried out at twelve private and public schools in ten cities distributed through the four main geographic regions of Colombia. School-children completed a validated questionnaire to assess functional gastrointestinal disorders according to Rome III criteria. Demographic information and past medical and family history was obtained from the parents.

Results: A total of 4394/5062 (86.8%) children participated in the study, with ages ranging from 8-18 years (mean = 11.9, SD = 2.3). The percentage of children with at least one FGID was 23.7%. Disorders of defecation were the most common category FGID (11.7%) followed by abdominal pain related- functional gastrointestinal disorders (10.4%). Children have increased odds of FGIDs if they have separated parents (OR 1.22, P=0.007), attend private school (OR 1.54, P<0.001), or have nausea (OR 3.16, P<0.001).

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PALABRAS CLAVE

Desórdenes
gastrointestinales
funcionales;
Dolor abdominal;
Estreñimiento;
Pediatria;
Latinoamérica

Conclusions: This large epidemiological study of pediatric FGIDs is the first to evaluate a broad cross-section of children throughout a nation in the Americas. High prevalence of FGIDs and identified associations with their likelihood are relevant when providing medical care and when planning public health efforts.

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Prevalencia de desórdenes gastrointestinales funcionales en niños. Un estudio a nivel nacional

Resumen

Introducción: Los desórdenes gastrointestinales funcionales (DGF) son altamente prevalentes a nivel mundial. Se postula que estos desórdenes resultan del interjuego de múltiples factores que pueden variar regionalmente. Estudios a nivel nacional pueden ayudar a comprender la epidemiología regional y la patogénesis de los DGFs. Los objetivos del estudio fueron determinar la prevalencia de DGFs en escolares en Colombia y establecer los factores asociados.

Métodos: Estudio de corte transversal realizado en 12 escuelas privadas y públicas en 10 ciudades de las cuatro regiones principales de Colombia. Niños de edad escolar completaron un cuestionario validado para diagnosticar DGFs de acuerdo con los criterios de Roma III. Información demográfica e historia personal y familiar fue obtenida de los padres.

Resultados: Un total de 4394/5062 (86.8%) niños participaron en el estudio, rango de edad 8-18 años (promedio = 11.9, desviación Estándar (DE) = 2.3). El 23.7% de los niños tuvieron al menos un DGF. Los desórdenes de la defecación fueron los más frecuentes (11.7%), seguidos por desórdenes funcionales de dolor (10.4%). Niños cuyos padres estaban separados (razón de momios (RM) 1.22, $p=0.007$), cursaban en escuela privada (RM 1.54, $p<0.001$) o reportaban náuseas (RM 3.16, $p<0.001$) tuvieron mayor riesgo de DGFs.

Conclusiones: Este estudio de DGFs es el primero en evaluar un grupo numeroso de niños en diferentes regiones de un país americano. La alta prevalencia de DGFs y la identificación de asociaciones que aumentan el riesgo de desarrollar estos desórdenes son hallazgos relevantes para proveer cuidados médicos y planear estrategias de salud pública.

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1. Introduction

Thirty-eight percent of school-children report abdominal pain weekly,¹ but only 2-4% of children who report abdominal pain seek medical consultation.^{1,2} Despite this, abdominal pain is the most common cause of consultation to the pediatric gastroenterologist. Out of all children (> 4 years) who consulted pediatric gastroenterology in a tertiary care center in the US, 52% of them consulted for an abdominal pain associated-functional gastrointestinal disorder (AP-FGID).³ The cost of care of children with AP-FGIDs is substantial. In the Netherlands, the costs of care for a child with AP-FGIDs exceeds €2500.⁴ The overall cost of care for AP-FGIDs in the US grew by 300% in a 12 year period⁵ and evaluation of a single child for an AP-FGIDs in the US is estimated > \$6000.⁶ The cost of a single consultation for abdominal pain in Uruguay accounted for 3.8% of the per capita health care spending of one year.⁷ Although, the economic impact of AP-FGIDs has not been studied in most countries, based on the high worldwide prevalence of FGIDs it is likely to be a global economic problem.

The magnitude of the problem calls for preventative measures and plans of care adapted to local needs. However, in order to establish what the local needs are, it is imperative to first obtain reliable data on the local epidemiology. Due to the low ratio of consultation for abdominal pain, studies performed at the doctor's office are prone to selection bias. Thus, only community studies provide the information needed. Conducting epidemiological studies in private and public schools allows obtaining data from children with different socio-economic statuses. There have been several school studies investigating the prevalence of FGIDs, however none of them were conducted in private and public schools in multiple cities throughout different regions of one country.

In addition to establishing the regional epidemiology, nationwide studies provide a unique opportunity to achieve a better understanding of the pathogenesis of FGIDs that is currently elusive. This information is key to establish prevention strategies and effective treatments. The most accepted model to explain FGIDs propose that these disorders result from the interaction of the child's genetic

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