



Document details

1 of 1

[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)Archivos Latinoamericanos de Nutricion [Open Access](#)

Volume 656, Issue 3, September 2016, Pages 230-238

Differences in nutritional status , physical activity , and fruit and vegetable consumption in urban and rural school-going adolescents in Paute , Ecuador (Article)

Flor-Garrido, P., Romo, M.L., Abril-Ulloa, V.

Facultad de Ciencias Médicas, Universidad de Cuenca, Campus Paraíso, Cuenca, Ecuador. Dirección de Investigación, Universidad de Cuenca, Ciudadela Universitaria, Cuenca, Ecuador

Abstract

[View references \(21\)](#)

Ecuador is undergoing a nutrition transition where overweight/obesity coexist with undernutrition. The objective of this study was to determine nutritional status , physical activity , fruit and vegetables consumption frequency among school-going adolescents in the canton of Paute and further explore if these variables were differential by urban vs. rural residence. We conducted a cross-sectional study using a random sample of students aged 12 to 19 years from the only two public secondary schools in the canton Paute . We determined nutritional status according to the World Health Organization criteria. Demographics, physical activity habits, fruit and vegetable consumption frequency were determined by questionnaires. Of the total of 314 students, 44.9% lived in urban area and 55.1% in rural area. The prevalence of overweight/obesity was significantly higher among students with urban vs. rural residence (28.4% vs. 17.9%; P=.03). The prevalence of stunting was significantly higher among students with rural vs. urban residence (31.8% vs. 16.3%; P=.002). There were no significant differences detected between groups in the frequency of consumption of fruits and vegetables. Urban residence was associated with a greater mean number of minutes of outdoor recreation after school (76.0 minutes vs. 57.1 minutes; P=.02), greater weekly hours of planned physical activity (2.0 hours vs. 1.6 hours; P=.007), and greater daily screen time in front of a television or computer (3.2 hours vs. 2.5 hours; P<.001). Interventions to prevent or reduce overweight/obesity in Paute and other similar areas with students from both urban and rural areas should consider place of residence in their design.

SciVal Topic Prominence ⓘ

Topic: Childhood Obesity | Overweight | School Child

Prominence percentile: 66.539



Author keywords

[Adolescent](#) [Ecuador](#) [Obesity](#) [Overweight](#) [Rural population](#) [Urban population](#)

Indexed keywords

EMTREE medical terms:

[adolescent](#) [child](#) [comparative study](#) [cross-sectional study](#) [Ecuador](#) [exercise](#)
[feeding behavior](#) [female](#) [fruit](#) [human](#) [male](#) [nutrition](#) [nutritional status](#)
[obesity](#) [prevalence](#) [rural population](#) [socioeconomics](#) [urban population](#)
[vegetable](#) [young adult](#)

MeSH:

[Adolescent](#) [Child](#) [Cross-Sectional Studies](#) [Ecuador](#) [Exercise](#) [Feeding Behavior](#)
[Female](#) [Fruit](#) [Humans](#) [Male](#) [Nutrition Surveys](#) [Nutritional Status](#) [Obesity](#)
[Prevalence](#) [Rural Population](#) [Socioeconomic Factors](#) [Urban Population](#) [Vegetables](#)
[Young Adult](#)[Metrics](#) ⓘ [View all metrics >](#)

PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)

Related documents

Results from ecuador's 2018 report card on physical activity for children and youth

Andrade, S. , Ochoa-Avilés, A. , Freire, W. (2018) *Journal of Physical Activity and Health*

Nutrition and physical activity transitions in the Ecuadorian Andes: Differences among urban and rural-dwelling women

Melby, C.L. , Orozco, F. , Ochoa, D. (2017) *American Journal of Human Biology*

Childhood obesity in low- and middle-income countries

Poskitt, E.M.E. (2014) *Paediatrics and International Child Health*

View all related documents based on references

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)

References (21)

[View in search results format >](#) [All](#) [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Freire, W.B., Silva-Jaramillo, K.M., Ramirez-Luzuriaga, M.J., Belmont, P., Waters, W.F.
The double burden of undernutrition and excess body weight in Ecuador ([Open Access](#))
(2014) *American Journal of Clinical Nutrition*, 100 (6), pp. 1636S-1643S. Cited 56 times.
<http://ajcn.nutrition.org/content/100/6/1636S.full.pdf+html>
doi: 10.3945/ajcn.114.083766
[View at Publisher](#)
-
- 2 Freire, W.B., Ramírez-Luzuriaga, M.J., Belmont, P., Silva-Jaramillo, K., Romero, N.
(2014) *Tomo 1: Encuesta Nacional de Salud y Nutrición de la Población Ecuatoriana de Cero a 59 Años*. Cited 58 times.
ENSANUT-ECU 2012. Ministerio de Salud Pública/Instituto Nacional de Estadísticas y Censos. Primera Edición. Quito, Ecuador; Accessed May 24, 2016
<http://www.salud.gob.ec/encuesta-nacional-de-salud-y-nutricion-ensanut>
-
- 3 Da Veiga, G.V., Da Cunha, A.S., Sichieri, R.
Trends in overweight among adolescents living in the poorest and richest regions of Brazil
(2004) *American Journal of Public Health*, 94 (9), pp. 1544-1548. Cited 95 times.
<http://ajph.aphapublications.org/loi/ajph>
doi: 10.2105/AJPH.94.9.1544
[View at Publisher](#)
-
- 4 Ochoa-Avilés, A., Andrade, S., Huynh, T., Verstraeten, R., Lachat, C., Rojas, R., Donoso, S., (...), Kolsteren, P.
Prevalence and socioeconomic differences of risk factors of cardiovascular disease in Ecuadorian adolescents
(2012) *Pediatric Obesity*, 7 (4), pp. 274-283. Cited 23 times.
doi: 10.1111/j.2047-6310.2012.00061.x
[View at Publisher](#)
-
- 5 Lim, S.S., Vos, T., Flaxman, A.D., Danaei, G., Shibuya, K., Adair-Rohani, H., Amann, M., (...), Ezzati, M.
A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010
(2012) *The Lancet*, 380 (9859), pp. 2224-2260. Cited 6694 times.
<http://www.journals.elsevier.com/the-lancet/>
doi: 10.1016/S0140-6736(12)61766-8
[View at Publisher](#)
-
- 6 World Health Organization
WHO Child Growth Standards SAS Igrowth Package. Cited 4 times.
Accessed May 24, 2016
http://www.who.int/childgrowth/software/readme_sas.pdf?ua=1

7 Cole, T.J., Lobstein, T.

Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity

(2012) *Pediatric Obesity*, 7 (4), pp. 284-294. Cited 1187 times.

[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)2047-6310/issues](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)2047-6310/issues)

doi: 10.1111/j.2047-6310.2012.00064.x

[View at Publisher](#)

8 Fernández, J.R., Redden, D.T., Pietrobelli, A., Allison, D.B.

Waist circumference percentiles in nationally representative samples of African-American, European-American, and Mexican-American children and adolescents

(2004) *Journal of Pediatrics*, 145 (4), pp. 439-444. Cited 943 times.

doi: 10.1016/j.jpeds.2004.06.044

[View at Publisher](#)

9 Abril, V., Manuel-Y-Keenoy, B., Solà, R., García, J.L., Nessier, C., Rojas, R., Donoso, S., (...), Arija, V.

Prevalence of overweight and obesity among 6- to 9-year-old schoolchildren in cuenca, ecuador: Relationship with physical activity, poverty, and eating habits
[\(Open Access\)](#)

(2013) *Food and Nutrition Bulletin*, 34 (4), pp. 388-400. Cited 14 times.

<http://nsinf.publisher.ingentaconnect.com/content/nsinf/fnb/2013/00000034/00000004/art00018>

doi: 10.1177/156482651303400404

[View at Publisher](#)

10 World Health Organization

Promoting Fruit and Vegetable Consumption Around the World. Cited 75 times.

Accessed May 24, 2016

<http://www.who.int/dietphysicalactivity/fruit/en>

11 Botti, A.B., Pérez-Cueto, F.J.A., Monllor, P.A.V., Kolsteren, P.W.

International BMI-for-age references underestimate thinness and overestimate overweight and obesity in Bolivian adolescents

(2010) *Nutricion Hospitalaria*, 25 (3), pp. 428-436. Cited 23 times.

<http://www.nutricionhospitalaria.com/mostrarfile.asp?ID=4364>

doi: 10.3305/nh.2010.25.3.4364

[View at Publisher](#)

12 Raj, M., Sundaram, K.R., Paul, M., Sudhakar, A., Kumar, R.K.

Dynamics of growth and weight transitions in a pediatric cohort from India
[\(Open Access\)](#)

(2009) *Nutrition Journal*, 8 (1), art. no. 55. Cited 12 times.

doi: 10.1186/1475-2891-8-55

[View at Publisher](#)

13 Omigbodun, O.O., Adediran, K.I., Akinyemi, J.O., Omigbodun, A.O., Adedokun, B.O., Esan, O.

Gender and rural-urban differences in the nutritional status of in-school adolescents in south-western Nigeria

(2010) *Journal of Biosocial Science*, 42 (5), pp. 653-676. Cited 23 times.

doi: 10.1017/S0021932010000234

[View at Publisher](#)

- 14 Gupta, N., Goel, K., Shah, P., Misra, A.
Childhood obesity in developing countries: Epidemiology, determinants, and prevention ([Open Access](#))
(2012) *Endocrine Reviews*, 33 (1), pp. 48-70. Cited 330 times.
<http://edrv.endojournals.org/content/33/1/48.full.pdf>
doi: 10.1210/er.2010-0028
[View at Publisher](#)
-
- 15 Andrade, S., Ochoa-Avilés, A., Lachat, C., Escobar, P., Verstraeten, R., Van Camp, J., Donoso, S., (...), Kolsteren, P.
Physical fitness among urban and rural Ecuadorian adolescents and its association with blood lipids: A cross sectional study ([Open Access](#))
(2014) *BMC Pediatrics*, 14 (1), art. no. 106. Cited 19 times.
<http://www.biomedcentral.com/1471-2431/14/106>
doi: 10.1186/1471-2431-14-106
[View at Publisher](#)
-
- 16 Verstraeten, R., Lachat, C., Ochoa-Avilés, A., Hagströmer, M., Huybrechts, I., Andrade, S., Donoso, S., (...), Kolsteren, P.
Predictors of validity and reliability of a physical activity record in adolescents ([Open Access](#))
(2013) *BMC Public Health*, 13 (1), art. no. 1109. Cited 6 times.
doi: 10.1186/1471-2458-13-1109
[View at Publisher](#)
-
- 17 Lachat, C.K., Verstraeten, R., Khanh, L.N.B., Hagströmer, M., Khan, N.C., Van, N.D.A., Dung, N.Q., (...), Kolsteren, P.W.
Validity of two physical activity questionnaires (IPAQ and PAQA) for Vietnamese adolescents in rural and urban areas ([Open Access](#))
(2008) *International Journal of Behavioral Nutrition and Physical Activity*, 5, art. no. 37. Cited 51 times.
doi: 10.1186/1479-5868-5-37
[View at Publisher](#)
-
- 18 Drewnowski, A., Darmon, N., Briend, A.
Replacing fats and sweets with vegetables and fruits - A question of cost
(2004) *American Journal of Public Health*, 94 (9), pp. 1555-1559. Cited 231 times.
<http://ajph.aphapublications.org/loi/ajph>
doi: 10.2105/AJPH.94.9.1555
[View at Publisher](#)
-
- 19 Ball, K., Lamb, K.E., Costa, C., Cutumisu, N., Ellaway, A., Kamphuis, C.B.M., Mentz, G., (...), Zenk, S.N.
Neighbourhood socioeconomic disadvantage and fruit and vegetable consumption: A seven countries comparison ([Open Access](#))
(2015) *International Journal of Behavioral Nutrition and Physical Activity*, 12 (1), art. no. 68. Cited 29 times.
<http://www.jibnpa.org/home/>
doi: 10.1186/s12966-015-0229-x
[View at Publisher](#)
-
- 20 Lock, K., Pomerleau, J., Causer, L., Altmann, D.R., McKee, M.
The global burden of disease attributable to low consumption of fruit and vegetables: Implications for the global strategy on diet
(2005) *Bulletin of the World Health Organization*, 83 (2), pp. 100-108. Cited 454 times.
[View at Publisher](#)

Awareness of the Fruits and Veggies-More Matters campaign, knowledge of the fruit and vegetable recommendation, and fruit and vegetable intake of adults in the 2007 Food Attitudes and Behaviors (FAB) Survey

(2012) *Appetite*, 59 (1), pp. 155-160. Cited 28 times.
doi: 10.1016/j.appet.2012.04.010

[View at Publisher](#)

© Copyright 2016 Elsevier B.V., All rights reserved.

1 of 1

[^ Top of page](#)

About Scopus

[What is Scopus](#)

[Content coverage](#)

[Scopus blog](#)

[Scopus API](#)

[Privacy matters](#)

Language

[日本語に切り替える](#)

[切换到简体中文](#)

[切換到繁體中文](#)

[Русский язык](#)

Customer Service

[Help](#)

[Contact us](#)

ELSEVIER

[Terms and conditions](#) ↗ [Privacy policy](#) ↗

Copyright © Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.

 RELX