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Mortalidad atribuible al consumo de bebidas azucaradas en México: actualización

Dr. Tonatiuh Barrientos Gutiérrez
Centro de Investigación en Salud Poblacional

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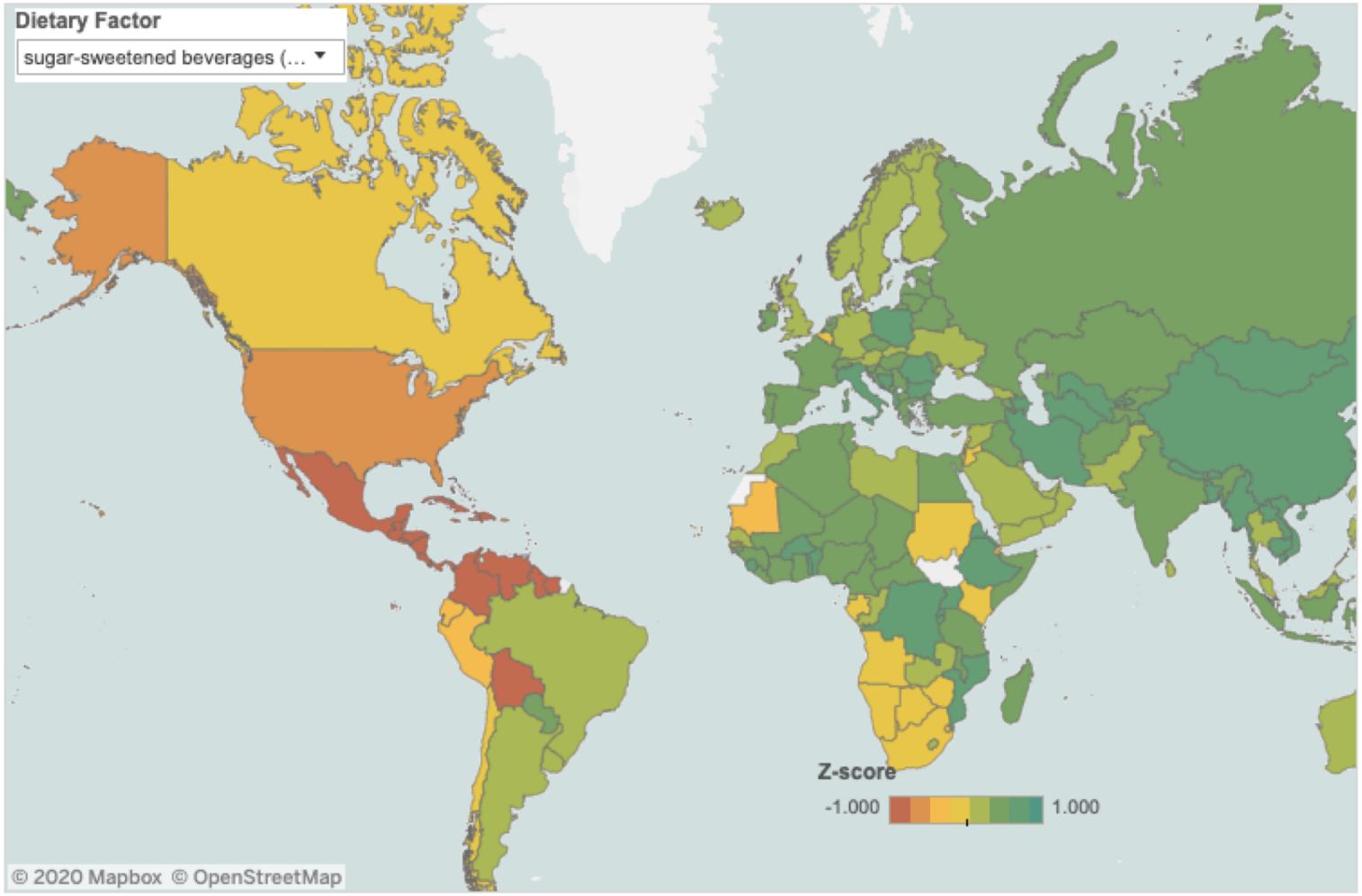
El consumo de bebidas en México



México entre los principales consumidores de bebidas azucaradas a nivel mundial

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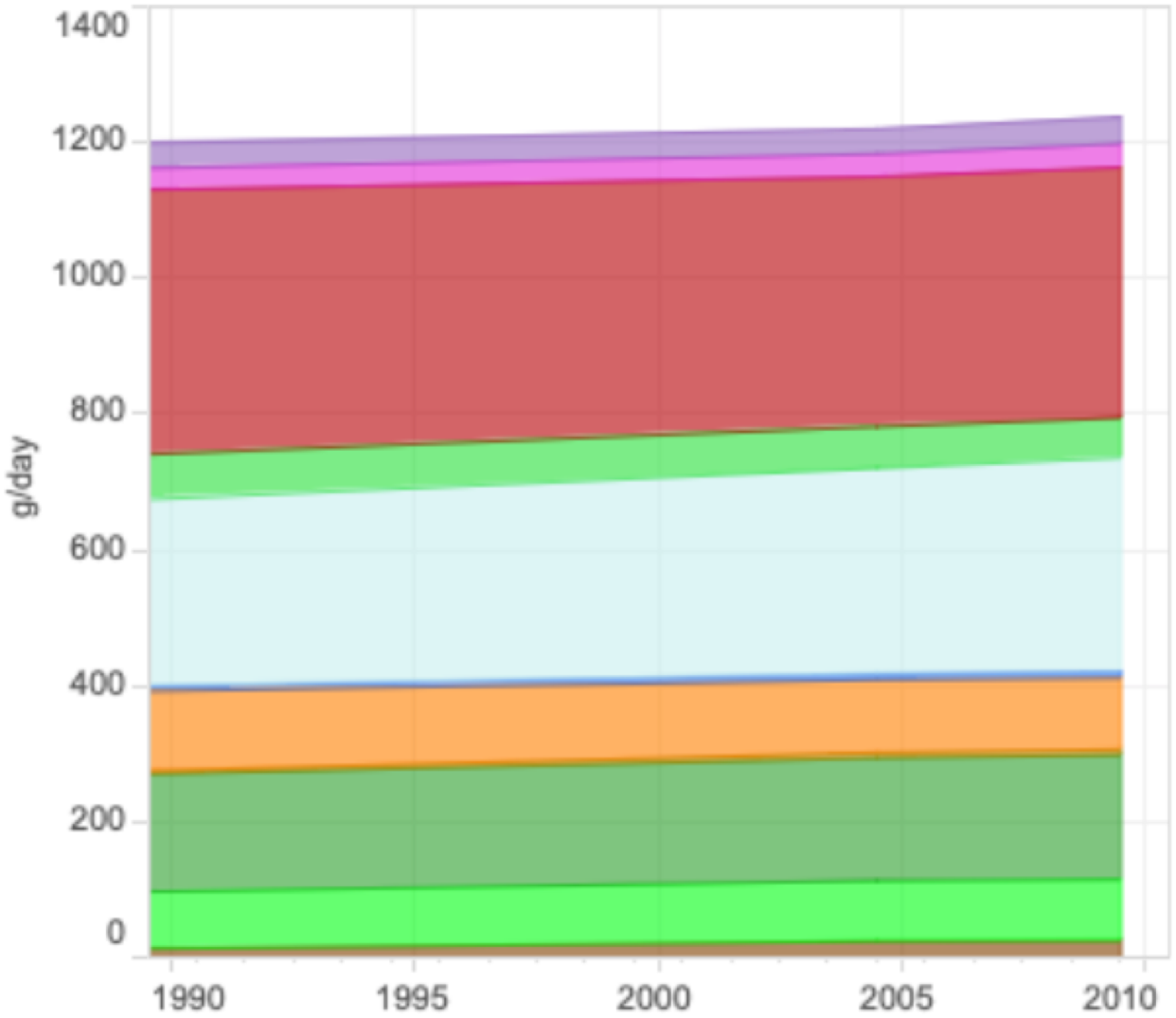
https://www.globaldietarydatabase.org/our-data/data-visualizations/dietary-data-country

¿Cuánto representa respecto de otros grupos?



Las bebidas ocupan un gran espacio entre las cosas que consumimos (g/día)

70% de los azúcares añadidos

10% de las calorías totales en la dieta en México provienen de bebidas azucaradas

Pero 26% de las calorías que consumimos no son básicas, **40% son de bebidas***

*Aburto, T. Discretionary Foods Have a High Contribution and Fruit, Vegetables, and Legumes Have a Low Contribution to the Total Energy Intake of the Mexican Population The Journal of Nutrition, Volume 146, Issue 9, September 2016, Pages 1881S–1887S, https://academic.oup.com/jn/article/146/9/1881S/4584715

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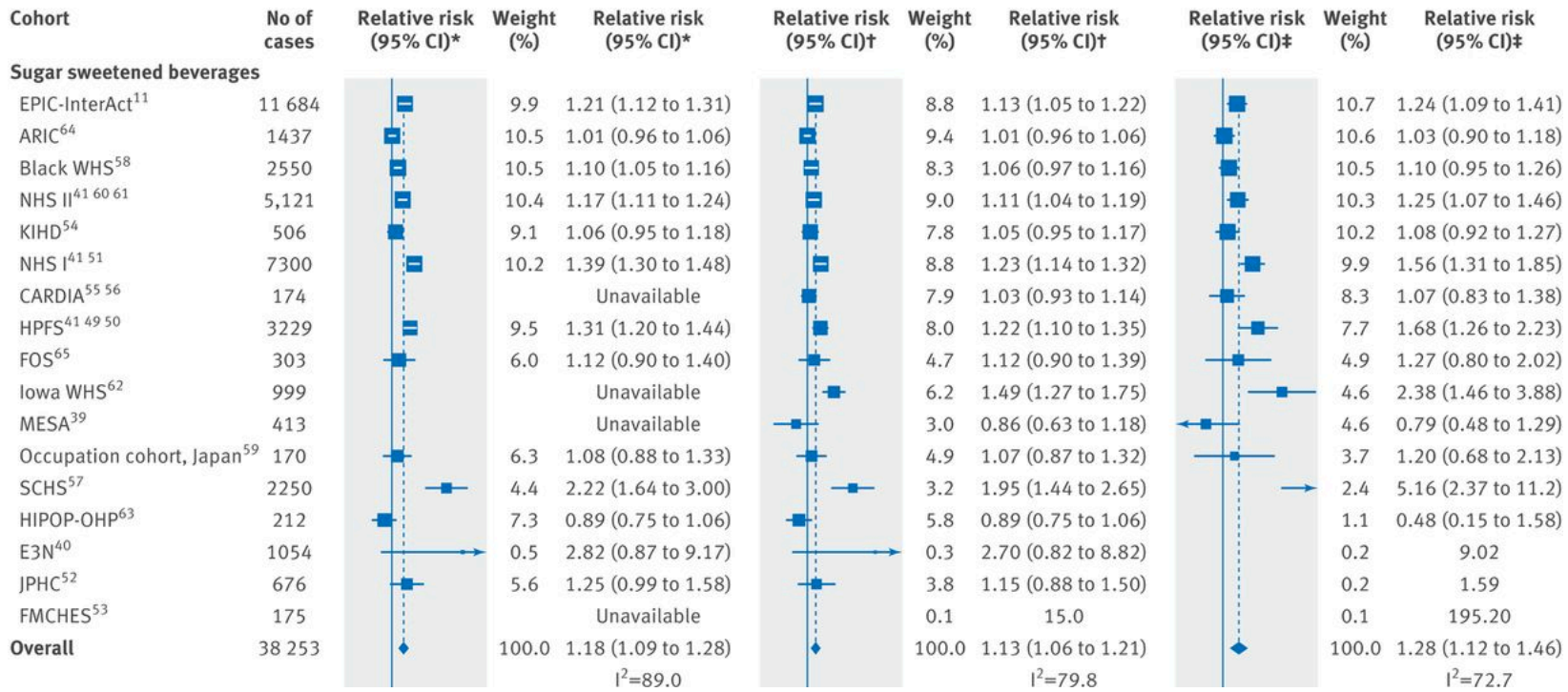
https://www.globaldietarydatabase.org/our-data/data-visualizations/dietary-data-country

Bebidas azucaradas, enfermedad y muerte



Cohort	No of cases	Relative risk (95% CI)*	Weight (%)	Relative risk (95% CI)*	Relative risk (95% CI)†	Weight (%)	Relative risk (95% CI)†	Relative risk (95% CI)‡	Weight (%)	Relative risk (95% CI)‡
Sugar sweetened beverages										
EPIC-InterAct[11]	11 684		9.9	1.21 (1.12 to 1.31)		8.8	1.13 (1.05 to 1.22)		10.7	1.24 (1.09 to 1.41)
ARIC[64]	1437		10.5	1.01 (0.96 to 1.06)		9.4	1.01 (0.96 to 1.06)		10.6	1.03 (0.90 to 1.18)
Black WHS[58]	2550		10.5	1.10 (1.05 to 1.16)		8.3	1.06 (0.97 to 1.16)		10.5	1.10 (0.95 to 1.26)
NHS II[41 60 61]	5,121		10.4	1.17 (1.11 to 1.24)		9.0	1.11 (1.04 to 1.19)		10.3	1.25 (1.07 to 1.46)
KIHD[54]	506		9.1	1.06 (0.95 to 1.18)		7.8	1.05 (0.95 to 1.17)		10.2	1.08 (0.92 to 1.27)
NHS I[41 51]	7300		10.2	1.39 (1.30 to 1.48)		8.8	1.23 (1.14 to 1.32)		9.9	1.56 (1.31 to 1.85)
CARDIA[55 56]	174			Unavailable		7.9	1.03 (0.93 to 1.14)		8.3	1.07 (0.83 to 1.38)
HPFS[41 49 50]	3229		9.5	1.31 (1.20 to 1.44)		8.0	1.22 (1.10 to 1.35)		7.7	1.68 (1.26 to 2.23)
FOS[65]	303		6.0	1.12 (0.90 to 1.40)		4.7	1.12 (0.90 to 1.39)		4.9	1.27 (0.80 to 2.02)
Iowa WHS[62]	999			Unavailable		6.2	1.49 (1.27 to 1.75)		4.6	2.38 (1.46 to 3.88)
MESA[39]	413			Unavailable		3.0	0.86 (0.63 to 1.18)		4.6	0.79 (0.48 to 1.29)
Occupation cohort, Japan[59]	170		6.3	1.08 (0.88 to 1.33)		4.9	1.07 (0.87 to 1.32)		3.7	1.20 (0.68 to 2.13)
SCHS[57]	2250		4.4	2.22 (1.64 to 3.00)		3.2	1.95 (1.44 to 2.65)		2.4	5.16 (2.37 to 11.2)
HIPOP-OHP[63]	212		7.3	0.89 (0.75 to 1.06)		5.8	0.89 (0.75 to 1.06)		1.1	0.48 (0.15 to 1.58)
E3N[40]	1054		0.5	2.82 (0.87 to 9.17)		0.3	2.70 (0.82 to 8.82)		0.2	9.02
JPHC[52]	676		5.6	1.25 (0.99 to 1.58)		3.8	1.15 (0.88 to 1.50)		0.2	1.59
FMCHES[53]	175			Unavailable		0.1	15.0		0.1	195.20
Overall	38 253		100.0	1.18 (1.09 to 1.28)		100.0	1.13 (1.06 to 1.21)		100.0	1.28 (1.12 to 1.46)
				I^2=89.0			I^2=79.8			I^2=72.7

Amplia evidencia de asociación con el desarrollo de obesidad, diabetes y enfermedad cardiovascular

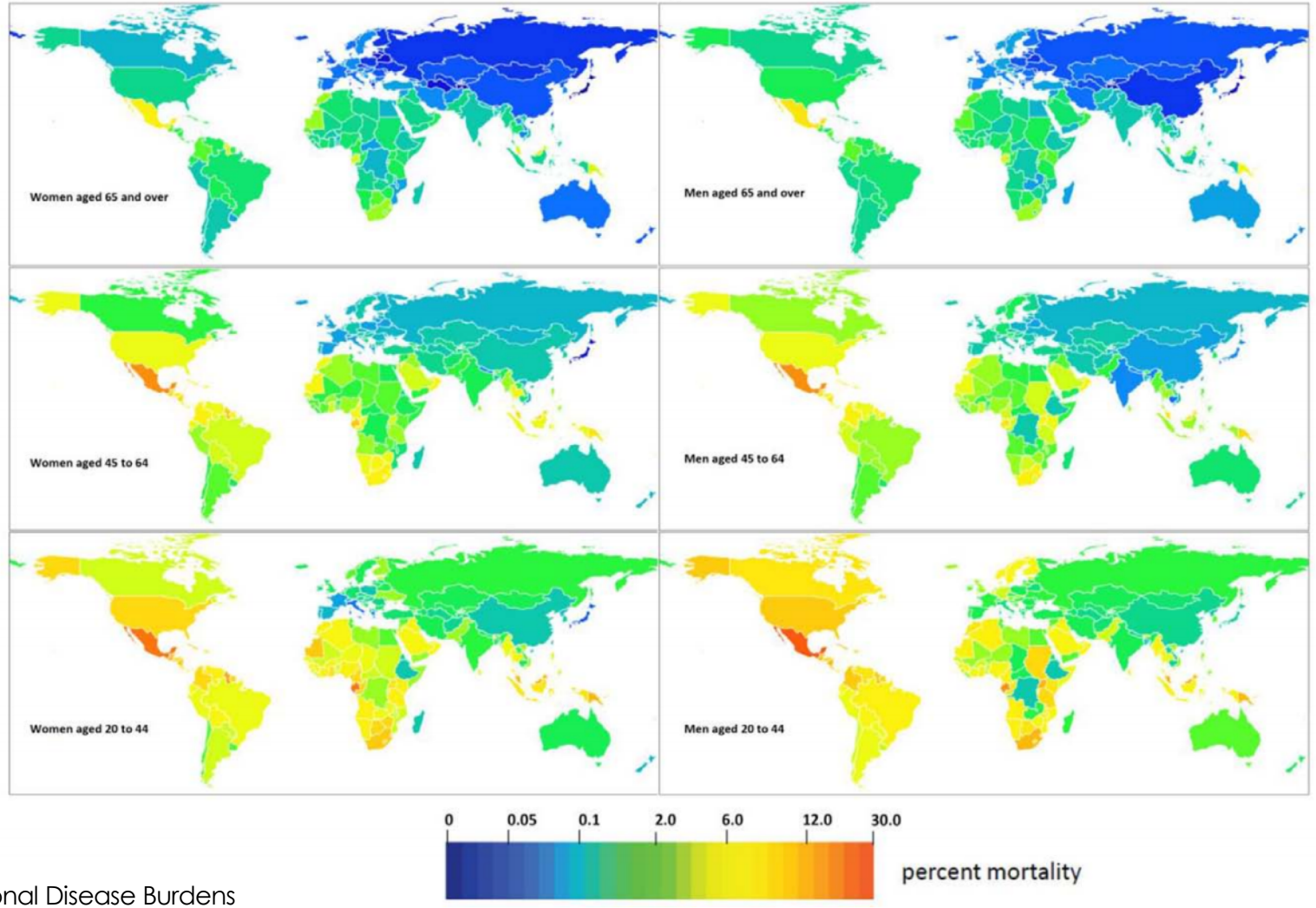
Obesidad → cáncer

Imamura, F. Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction. BMJ 351(8):h3576 ·

Mortalidad atribuible a bebidas azucaradas (2010)

12%

Muertes por diabetes, hipertensión y cáncer asociado a obesidad en México



Gitanjali M. Singh. Circulation. Estimated Global, Regional, and National Disease Burdens Related to Sugar-Sweetened Beverage Consumption in 2010, Volume: 132, Issue: 8, Pages: 639-666, DOI: (10.1161/CIRCULATIONAHA.114.010636)

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ARTICLE

Epidemiology and Population Health

Mortality attributable to sugar sweetened beverages consumption in Mexico: an update

Ariela Braverman-Bronstein[1] · Dalia Camacho-García-Formentí[1] · Rodrigo Zepeda-Tello[1] · Frederick Cudhea[2] · Gitanjali M. Singh[2] · Dariush Mozaffarian[2] · Tonatiuh Barrientos-Gutierrez[1]

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Abstract

Background In 2010, sugar sweetened beverages (SSBs) were estimated to cause 12% of all diabetes, cardiovascular disease (CVD) and obesity-related cancer deaths in Mexico. Using new risk estimates for SSBs consumption, we aimed to update the fraction of Mexican mortality attributable to SSBs, and provide subnational estimates by region, age, and sex.

Methods We used an established comparative risk assessment framework. All-cause mortality estimates were calculated from a recent pooled cohort analysis. Age- and sex-specific relative risks for SSBs-disease relationships were obtained from updated meta-analyses. Demographics and nationally representative estimates of SSBs intake were derived from the National Health and Nutrition Survey 2012; and mortality rates, from the National Institute of Statistics and Geography. Attributable mortality was calculated by estimating the population attributable fraction of each disease, with uncertainty in data inputs propagated through Monte Carlo probabilistic sensitivity analyses.

Results In Mexican adults 20 years and older, 6.9% (95%UI: 5.4–8.5) of all cause-mortality was attributable to SSBs, representing 40,842 excess deaths/year (95%UI: 31,950–50,138). Furthermore, 19% of diabetes, CVD and obesity-related cancer mortality was attributable to SSBs (95%UI: 11.0–26.5), representing 37,000 excess deaths/year (95%UI 21,240–51,045). Of these, 35.6% were diabetes-related (95%UI 16.4–52.0). Proportional burden was highest in the South (22.8%), followed by the Center (18.0%) and North (17.4%). Men aged 45–64-years in the Center region had highest proportional mortality (37.2%), followed by 20–44-year-old men living in the South (35.7%) and both men and women aged 20–44 living in the Center (34.4%).

Conclusions Utilizing current evidence linking SSBs to cardiometabolic disease and obesity-related cancers, earlier estimates of Mexican mortality attributable to SSBs could have been underestimated. Mexico urgently needs stronger policies to reduce SSBs consumption and reduce these burdens.

Introduction

Sugar sweetened beverages (SSBs) represent a major source of rapidly digestable, high volume added sugars in many countries and globally [1, 2]. Long-term observational cohorts and randomized controlled trials, indicate that SSBs intake independently contributes to weight gain and obesity [1, 3]. In addition, experimental evidence and cohort studies suggest that SSBs intake could play an important role in type-2 diabetes and cardiovascular disease, not only through weight gain, but also through changes in insulin resistance and visceral fat [4–6]. Cardiometabolic diseases and obesity-related cancers are leading causes of death worldwide, having a higher contribution in middle- and high-income countries [7]. With increasing policy attention to address risks of SSBs [8],

Supplementary information The online version of this article (https://doi.org/10.1038/s41366-019-0506-x) contains supplementary material, which is available to authorized users.

✉ Tonatiuh Barrientos-Gutierrez
tbarrientos@insp.mx

[1] Center for Population Health Research, National Institute of Public Health, Mexico, Av. Universidad 655, 62100 Cuernavaca, Mexico

[2] Gerarld J. and Dorothy R. Friedman School of Nutrition Science and Policy, Tufts University, 150 Harrison Ave, Boston, MA 02111, USA

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Tufts UNIVERSITY | GERALD J. AND DOROTHY R. Friedman School of Nutrition Science and Policy

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Objetivo

- Estimar la mortalidad atribuible al consumo de bebidas azucaradas en México
  - Datos poblacionales con mayor granularidad (sexo, edad, región)
  - Mejorar el proceso de estimación para captar mejor la distribución del consumo de bebidas en México
  - Actualizar a los últimos estudios sobre riesgo de bebidas azucaradas

Singh GM, Micha R, Khatibzadeh S, Lim S, Ezzati M, Mozaf- farian D, et al. Estimated global, regional, and national disease burdens related to sugar-sweetened beverage consumption in 2010. Circulation. 2015;132:639–66.

¿Qué datos usamos?

- Consumo de bebidas azucaradas
  - Encuesta Nacional de Salud y Nutrición 2012
  - Bebidas industrializadas: refrescos, "jugos", aguas saborizadas
  - No incluye bebidas hechas en casa o restaurante (10.5% de bebidas azucaradas)

- Muertes por diabetes, enfermedad cardiovascular, cáncer asociado a obesidad y muertes totales
  - Instituto Nacional de Estadística y Geografía (INEGI). Utilizando los datos de certificados de defunción del año 2015.

- Características sociodemográficas
  - Consejo Nacional de la Población, estimadores poblacionales 2010-2050.

- Riesgos relativos del consumo del bebidas azucaradas y la causa de mortalidad de interés
  - Amplia evidencia vincula el consumo con el desarrollo de enfermedades
  - Meta-análisis: resumen la mejor evidencia internacional

¿Cuánto riesgo implica consumir de forma habitual una lata de 235 ml?

6% mortalidad general

39% diabetes

17% infarto

7% a 59% cáncer vía obesidad

Malik VS. Long-term consumption of sugar-sweetened and arti- ficially sweetened beverages and risk of mortality in US adults. Circulation. 2019;139:2113–25; Imamura F. Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction. Brit Med J. 2015;351:h3576; Xi B, Sugar-sweetened beverages and risk of hypertension and CVD: a dose-response meta-analysis. Br J Nutr. 2015;113: 709–17. Singh GM. The age-specific quantitative effects of meta- bolic risk factors on cardiovascular diseases and diabetes: a pooled analysis. PLoS ONE 2013;8:e65174; Renehan AG. Body-mass index and incidence of cancer: a systematic review and meta-analysis of prospective observational studies. Lancet. 2008;371:569–78.

¿Cómo estimamos la fracción de muertes atribuibles al consumo de bebidas azucaradas?
(explicación poco ortodoxa)

$$PAF = 1 - \frac{1}{\sum_{i=1}^{n} w_i RR(X_i; \theta_k)},$$

Combina el consumo de bebidas en México con el riesgo que implican:

- 1) Una persona consume 235 ml al día, experimenta 39% mayor riesgo de desarrollar diabetes que una persona que consume 0
- 2) ¿Cuántas personas consumen 235 ml/día en México? ¿Cuántas 2, 3… 10?
- 4) Vamos "sumando" el riesgo por el número de personas que consumen
- 5) ¿Cuánto riesgo podríamos prevenir si las personas no consumieran bebidas? **(fracción atribuible)**
- 6) Multiplicamos la fracción atribuible por el número de muertes observadas

¿Qué encontramos?

- 40,842 muertes al año asociadas a bebidas azucaradas
  - 6.9% de las muertes totales en personas de 20 años y más

- 37,000 muertes por año por cardiometabólicas
  - 19% de las muertes por diabetes, enfermedad cardiovascular y cáncer asociado a obesidad
  - La mayoría asociadas a diabetes (36%)

- La región sur, los hombres y las personas jóvenes son las más afectadas

¿Qué implican nuestros hallazgos?

- Podríamos prevenir un **gran** numero de muertes disminuyendo el consumo de bebidas azucaradas

- ¿7% de la mortalidad general?
  - Las bebidas azucaradas podrían ser la principal causa del **tsunami cardio-metabólico** que vivimos en México

- Es **urgente la implementación de políticas públicas** que disminuyan el consumo de bebidas azucaradas.

Gracias

tbarrientos@insp.mx