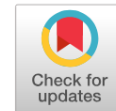


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ARTÍCULO DE INVESTIGACIÓN – INFORMACIÓN SUPLEMENTARIA

Healthy vs. Unhealthy Snacks: Impact on Obesity Risk Among Mexican Adolescents. Results from a cross-sectional study.

➤ **Snacks saludables Vs snacks no saludables: impacto en el riesgo de obesidad entre adolescentes mexicanos. Resultados de un estudio transversal.**

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Supplementary Material 1. Snacks and Beverage Frequency Questionnaire

Beverage Frequency Questionnaire

Instructions

Complete the following questionnaire box describing how often you consume the indicated drink, the approximate amount, and its characteristics. An example of a standard portion is shown as a tool for estimating the amount.

Table SM1. Beverage Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
1. Natural water	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 can = 330ml</i> <i>1 plastic bottle = 500ml</i>	1.-Regular 2.- Bottled
2. Fresh fruit water	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 can = 330ml</i> <i>1 plastic bottle = 500ml</i>	1.- Handcrafted fruit 2.- Bottled
3. Fruit juice	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 can = 330ml</i> <i>(para ejemplo V8)</i> <i>1 plastic bottle = 330ml</i> <i>1 caja = 200ml</i> <i>1 glass bottle = 200ml (para ejemplo _ Loza)</i>	1.- Natural juice 2.- Boing bottled juice 3.- Bottled valley juice
4. Sport drinks (gatorade, powerade)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 can = 330ml</i> <i>1 plastic bottle = 500ml</i> <i>bebida AA = 330ml</i>	1.-Regular 2.- Light
5. Energetic drinks (monsters, redbull)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml	<i>1 small can = 330ml</i> <i>1 can grande = 500ml</i>	1.- Regular 2.- Light

	Everyday	750 ml or more		
6. Refreshing drinks (cola, Limonade o Ice tea)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 can = 330ml</i> <i>1 plastic bottle = 500ml</i> <i>1 glass bottle = 200ml</i>	1.- Coca-cola 2.- Fuze tea iced tea

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Table SM1. Beverage Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
7. Coffee or tea	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 cup = 125ml</i> <i>1 cup = 225ml</i> <i>1 cup vending machine = 60ml</i>	1.- Black 2.- With sugar 3.- With milk 4.- With milk and sugar 5.- With sweetener
8. Milk substitutes (for example soy drinks, rice drinks or oat drinks)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 cup = 125ml</i> <i>1 cup = 225ml</i> <i>Soja drink = 250ml</i>	1.- Regular 2.- Light 3.- Sugar reduced 4.- Reduced fat 5. Semi-skimmed 6.- Skimmed
9. Sweetened milk drinks (for example chocolate milk)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 cup = 125ml</i> <i>1 cup = 225ml</i> <i>1 small box = 200ml</i>	1.- Regular 2.- Light
10. Milk	Never or almost never 1-3 days per month Once a week	149 ml or less 150-299ml 300-449ml	<i>1 glass = 150ml</i> <i>1 cup = 125ml</i> <i>1 cup = 225ml</i>	1.- Regular 2.- Light 3.- Reduced sugar

	2-4 days per week 5-6 days per week Everyday	450-599ml 600-749ml 750 ml or more	<i>1 bottle = 500ml</i>	4.-Reduced fat 5.- Semi-skimmed 6.- Skimming
11. Bear	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 bottle /1 glass = 250 o 330ml</i> <i>1 can = 330 de 500ml</i>	1.- Regular beer 2.- Without alcohol 3.- Light
12. Cocktails (for example mojito, Bacardi Breezer or cocktails with fruit or juice)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 bottle Ready to drink cocktail = 275ml</i> <i>1 largo vaso = 220ml</i>	1.- Cocktail con bebida endulzada 2.- Cocktail sin bebida endulzada
13. Drinkable yogurt	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149 ml or less 150-299ml 300-449ml 450-599ml 600-749ml 750 ml or more	<i>1 glass = 150ml</i> <i>1 cup = 125ml</i> <i>1 cup = 225ml</i> <i>1 bottle = 500ml</i>	1.-Regular 2.-Ligh 3.-Sugar reduced 4.-Fat reduced 5.Semi-skimmed 6.- Skimmed

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Snacks Frequency Questionnaire

Instructions

Answer the following questionnaire about solid snacks, including the frequency with which you consume them, the quantity, and the type or characteristics of snacks. Additionally, a set of standard servings is shown that can be used to determine the amount of consumption. Remember that a snack is defined as any meal consumed between or after the three main meals (breakfast, lunch, and dinner). Food consumed 30 minutes after a main meal is still considered part of the meal, not a snack.

Table SM1.2. Snacks Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
14. Chocolate and bonbons	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	9g or less 10-24g 25-39g 40-54g 55-69g 70g or more	<i>1 individually wrapped bar = 47g</i> <i>1 bar of a large tablet (200g) = 25g</i> <i>1 bouchee = 25g</i> <i>1 praliné = 15g</i>	1.-Carlos V 2.-Bubulubu 3.-Bocadin
15. Soft candy	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	24g or less 25-49g 50-74g 75-99g 100-124g 125 g or more	<i>1 large candy bar = 50g</i> <i>1 half bar = 25g</i> <i>1 mini chocolate bar = 20g</i>	1.- Snicker 2.-Milki way
16. Hard candy	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	9g or less 10-34g 35-59g 60-84g 85-109g 110 g or more	<i>1 bolsa small de M&M's = 45g</i> <i>gummy bear = 4g</i>	1.- Sweet gums 2.- Chocolates M&M 3.-Duvalin 4.-Winis 5.-Bocadin 6.-Halls 7.- Pelón pelo rico 8.- Tamborin
17. Dry cookies (Bran fruit bar)	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	24g or less 25-49g 50-74g 75-99g 100-124g 125 g or more	<i>1 large candy bar = 50g</i> <i>1 half bar = 25g</i> <i>1 mini chocolate bar = 20g</i>	
18. Bimbo donuts	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	1 Paquete (2 piezas) 1 pieza ½ pieza		1.- Regular 2.- Espolvoreadas

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Table SM1.2. Snacks Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
19. Bimbo mantecadas	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	1 Paquete (2 piezas) 1 pieza ½ pieza		1.- Traditional 2.- With nuts 3.- With raisins
20. Emperor cookies	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	1 Paquete (8 piezas) 7 piezas 6 piezas 5 piezas 4 piezas 3 piezas 2 piezas 1 pieza ½ pieza		1.- Chocolate 2.- Piruetas 3.- Combined
21. Prince cookies	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	14g or less 15-49g 50-84g 85-119g 120-154g 155 g or more	<i>1 prince cookie = 22g</i> <i>A bite = 7g</i> <i>1 bar = 23g</i>	1.- Prince cookies
22. Cremax cookies	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	1 paquete (8 piezas) 7 piezas 6 piezas 5 piezas 4 piezas 3 piezas 2 piezas 1 pieza ½ pieza		1.- Chocolate 2.- Vainilla 3.- Combined
23. Choquis cookies	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	1 paquete (8 piezas) 7 piezas 6 piezas 5 piezas 4 piezas 3 piezas 2 piezas 1 pieza ½ pieza		1.-Chocolate

24. Cakes	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	74g or less 75-149g 150-224g 225-299g 300-374g 375 g or more	<i>1 piece of cake = 130 g</i> <i>1 slice of cake = 30g</i> <i>1 pancake = 70g</i>	1.- Cake 2.- Cheescake 3.- Fruit cake
25. Ice cream	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	54 ml or less 55-89ml 90-124ml 125-159ml 160-194ml 195 ml or more	<i>1 ball = 60ml</i> <i>1 ice = 60ml</i> <i>1 double bottle = 110ml</i> <i>1 cornetto = 120ml</i>	1.- Nestle 2.- Holanda 3.- Artisanal

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Table SM1.2. Snacks Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
26. Frozen popsicles	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	54 ml or less 55-89ml 90-124ml 125-159ml 160-194ml 195 ml or more	<i>1 piece = 105ml</i> <i>1 mini piece = 60ml</i>	1.- Fresh fruit water 2.- Of milk
27. Nuts	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	14g or less 15-24g 25-34g 35-44g 45-54g 55g or more	<i>1 dried apricot = 8g</i> <i>1 dried fig = 20g</i> <i>1 raisins fist = 20g</i>	1.- Raisins 2.- Dátiles, Figs, Prune, Dried fruit combined
28. Fruit	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	99g or less 100-199g 200-299g 300-399g 400-499g 500g or more	<i>1 medium size tangerine = 90g</i> <i>1 medium size pear = 170g</i> <i>1 medium size apple = 155g</i> <i>1 medium size banna = 200g</i> <i>1 medium size grapes = 125g</i>	

29. Raw vegetables	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	39g or less 40-79g 80-119g 120-159g 160-199g 200g or more	<i>1 bag of chopped fruit or vegetables = 250 gr</i>	1.- Jícama 2.- Cucumber 3.- Beet and carrot 4.- Mix of jicama, cucumber, beet and carrot
30. Nuts and seeds	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	14g or less 15-29g 30-44g 45-59g 60-74g 75g or more	<i>1 almond fist = 25g 1 salted peanut fist = 30g</i>	1.- Nuts 2.- Almonds 3.- Sunflower seeds
31. Sweet sandiwch	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	39g or less 40-79g 80-119g 120 g or more	<i>1 small slice of bread = 20g slice of regular bread = 27g</i>	1.- Jam 2.- Nutella 3.- Ice cream
32. Salty sandwich	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	74g or less 75-149g 150-224g 225-299g 300-374g 375 g or more	<i>1 pieza = 50g ½ pieza= 25 gr</i>	1.- Chicken 2.- Ham 3.- Marinated meat 4.- Pork leg
33. Salami or cheese cubes	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	19g or less 20-39g 40-59g 60g or more	<i>1 sausage = 8g 1 cheese cube = 5g 1 Cheese triangle spread = 20g</i>	

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Table SM1.2. Snacks Frequency Questionnaire

	How often do you consume the following drinks?	How much do you consume per day on average?	Examples of standard portions	What type or characteristics does the drink you usually consume have?
34. Chips	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	44g or less 45-69g 70-94g 95-119g 120-144g 145 g or more	<i>1 small bag of chips = 45g 1 medium bag of chips = 150g 1 large bag of chips = 225g</i>	1.- Doritos 2.- Sabritas 3.- Rancheritos 4.- Fritos 5.- Churrumais

35. Cold meat, rolls, pizza, cheese rolls	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	99g or less 100-149g 150-199g 200-249g 250-299g 300g or more	<i>1 sausage roll = 150g</i> <i>1 ham and cheese roll = 130g</i> <i>1 hot dog = 125g</i> <i>1 pizza baguette = 150g</i>
36. French fries	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149g or less 150-199g 200-249g 250-299g 300-349g 350g or more	<i>1 average portion of french fries in house or cafeteria = 225g</i> <i>Half portion of fries in McDonald's = 127g</i>
37. Burgers	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149g or less 150-199g 200-249g 250-299g 300-349g 350g or more	<i>1 Big Mac/ Gigante = 200g</i> <i>1 burger = 110g</i> <i>1 cheese burger = 120g</i>
38. Quesadillas	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149g or less 150-199g 200-249g 250-299g 300-349g 350g or more	<i>1 complete = 275g</i>
39. Tacos	Never or almost never 1-3 days per month Once a week 2-4 days per week 5-6 days per week Everyday	149g or less 150-199g 200-249g 250-299g 300-349g 350g or more	<i>1 order of 3 tacos</i> <i>2 tacos</i> <i>1 taco</i>

Adapted from: De Cock, N., Van Camp, J., Kolsteren, P., Lachat, C., Huybregts, L., Maes, L., ... & Van Lippevelde, W. (2017). Development and validation of a quantitative snack and beverage food frequency questionnaire for adolescents. *Journal of human nutrition and dietetics*, 30(2), 141-150

Supplementary Material 2. Snacks and Beverage Frequency Questionnaire

Snacks intake assessment and classification

Due to the heterogeneity of the snack definition in literature, for this study, the definition of a school snack used was: “any food or beverage that was eaten after 30 minutes of a main mealtime (i.e., breakfast, lunch, meal or dinner) that does not replace any of them”¹⁻³. After establishing this concept, a literature review was performed to explore Snack and Beverage Consumption Frequency Questionnaires (SBFQ) internationally and within Mexico’s context. No validated SBFQ was identified for assessing snack and beverage intake, specifically in Mexico, but, De Cock’s validated SBFQ⁴ was used for designing the SBFQ used in the present study. Nevertheless, validated general Food Consumption Frequency Questionnaires (FFQ) for Mexico were used to adapt to snacks and beverages consumed in Mexico⁵⁻⁷. The school food store was also visited and explored to identify the available snacks and beverages. The complete questionnaire used for this study is shown in Supplementary Material 1. To minimize errors, a trained nutritionist applied the questionnaire using food replicas, food portion images, measuring cups, and scoops.

According to the current Mexican dietary recommendations, snacks and beverages were classified as healthy and unhealthy⁸⁻¹¹. This classification is shown in Table SM2. Minimally processed foods and beverages, such as natural water, fruits, and vegetables, were considered healthy snacks. Meanwhile, ultra-processed foods, such as soft drinks, packaged juices, cookies, chips, and sugary dairy were included in the unhealthy snack classification¹¹. Information on money spent (in Mexican pesos) on snacks was also recorded.

Average intake in grams per day was calculated by multiplying or dividing the reported frequency of consumption by the portion reported over 30 days per month. Regarding the frequency of consumption, “never” was considered as 0 times; “1 to 3 times a month” (2 times average) was considered as 2 times a month; “once a week” was considered as 4 times per month; “2 to 4 times per week” (3 times average) was considered as 12 times per month; “5 to 6 times per week” (5.5 average) was considered as 22 times per month; “once a day” was considered as 30 times per week; “2 to 3 times per day” (2.5 times average) was considered as 75 times per month; “4 to 6 times per day” (5 times average) was considered as 150 times per month; “more than 6 times per day” was considered as 180 times per month.

The reported consumption portions were converted to grams using the Mexican Equivalent System¹². For dried fruits, one piece was considered as 8 g; an average package was 80 g. One cup of chopped fruit was calculated based on the average of the most consumed fruits (mango, apple, melon, papaya, pineapple, and watermelon), which was 184 g. For vegetables, the average weight of the most consumed vegetables was 117 g (cucumber, *jicama* (*Pachyrhizus erosus*), and carrots). For nuts, the average of pecan nuts, almonds, sunflower and pumpkin seeds was considered, which was 5.75 g. The weight of one *quesadilla* was 75 g.

One portion of chocolates was considered 15 g, and for chocolate nuggets it was 57 g. For candy such as gummies, an average weight of 115 g was considered (gummies, M&M's®, Winis®, Halls®). Candies such as Pelon Pelo Rico® and Duvalin® were considered as 22.5 g. A donut (Bimbo®) was considered 26.25 g. A package of four shortbreads (Bimbo®) was considered as 125 g. A package of Principe® cookies with 8 pieces was considered as 84 g. A package of Cremax® cookies (sugar wafers) with 14 pieces was considered 171 g. A package of Chokis® cookies with 8 pieces were considered 76 g. A slice of cake was considered 28 g. Ice cream was considered 105 g. A bag of chips was considered 160 g, and one chip was considered 5 g for cases where only a few pieces were reported. A cereal bar was 58 g. A sorbet (water-based ice cream) was considered to be 70.8 g. A sweet sandwich was considered 69 g. A savory sandwich (ham, mayonnaise, and cheese) was considered 151 g. Based on the monthly consumption of each snack daily intake was calculated based on the following formula:

$$\text{Monthly consumption (days)} \times \text{Grams of consumption per occasion (g)} / 30 \quad (1)$$

Table SM2.1 Snacks classification

Snack group	Snack	Characteristics / Examples
Healthy		
Water	Natural water	Water with no additives
Fruits and vegetables	Fresh fruit	Watermelon, mango, papaya, pineapple
	Vegetables	Cucumber, Jicama, Carrots, Celery
Nuts and Dry fruit	Nuts	Pecan nuts, almonds, peanuts
	Dried fruits	Raisins, dates, prunes
Quesadillas	Quesadillas	Corn or wheat tortilla with cheese
Unhealthy		
Sugary drinks	Fresh fruit water with sugar	Water with flowers or fruits sweetened with sugar
	Tea and coffee with sugar	Tea and coffee sweetened with sugar
	Sweetened milk	Milkshakes, milk with chocolate
	Vegetable substitute milk	Soy milk, almonds milk, oats milk
	Sugary yogurt	Yogurt sweetened with sugar
	Juices	Processed and packed fruit juices
	Sport drinks	Drinks with minerals
	Energy drinks	Stimulant drinks with caffeine
	Carbonated drinks	Soft drinks with sugar
	Refreshing drinks	Lemonade, iced tea
	Beer	Alcoholic drink
Sweets and Chocolates	Chocolates	Carlos V®, Turin®, Hershey®, among others
	Filled chocolate	Snickers®, Milkyway®, among others
	Candies	Sweet gums, M&M®, Winis®, Halls®, among others

	Candies	Pelón pelo rico®, Tamborín®, Duvalin®, among others
	Ice lolly	Milk or water-based ice lolly
	Ice cream	Nestle®, Holland, artisanal
	Cereal bars	Bran fruit
	Sweet sandwich	White bread with jam, honey, syrup
	Salad sandwich	White bread with ham, cheese, meats
Sweet bread	Donuts	Packed Bimbo® donuts
	Shortbreads	Packed Bimbo® shortbreads
	Cookies	Principe®
	Cookies	Cremax®
	Cookies	Chokis®
	Pastry	Cake, pie, tart
Chips	Chips	Sabritas®, Doritos®, Rancheritos®, among others)

Table SM2.2 Snacks classification with cut-off points for dichotomization

Snack	Daily recommendation	As snack	Source
Fruits and vegetables	400 g / day	At least 1 portion (80 g)	13–15
Nuts and dry fruits	30 g / day	At least 1/2 portion (15 g)	10,14
Quesadilla	30 g / day	At least 1/2 portion (15 g)	12
Water	According to age, weight and acitivity	At least 1500 ml/day*	14,16
Sugar	3 portions	Maxium 1 portion	10,15
Soft drinks	No intake	Maxium 92 ml	12
Sweets and chocolates	No intake	Maximum 15 g	12
Sweet bread	No intake	Maximum 25 g	12
Chips	No intake	Maximum 18 g	12

* Water intake was reported for the entire day, as students answered this item considering their total daily consumption.

Supplementary Material 3. Body composition and nutritional status cut-off points ***Anthropometric and body composition evaluation and classification***

To assess weight and body fat levels, participants were nutritionally evaluated using specialized bioelectric impedance equipment (Omron® HBF 514c) in the pediatric mode. Height was assessed using a stadiometer Seca® 213. Based on weight and height, Body Mass Index (BMI) was calculated by dividing weight in kilograms by height in square meters. BMI interpretation was done using the World Health Organization (WHO) percentiles according to age for children and adolescents¹⁷. Although overweight and obesity are defined internationally by values above the 85th and 95th percentiles, respectively^{18,19}, for Mexico's context, it has been suggested to consider obesity from BMI above the 85th percentile, as being considered as a high-risk population²⁰. This classification was used in this study. Table SM3, in supplementary material 3, shows the cut-off points used for classification.

Body fat levels were classified according to the body fat reference curves for Mexican children and adolescents of Costa-Urrutia et al.²¹. Percentiles over 85 were considered excess adiposity both in girls and boys. Table SM3 shows the cut-off points used for classification. Additionally, waist and hip circumference was evaluated using a Lufkin® metal tape. Waist circumference was measured at the minimum circumference between the iliac crest and the rib cage. Hip circumference was recorded at the maximum circumference over the buttocks²².

Waist circumference was classified as adequate or excessive, according to sex: a value ≥ 94 cm was considered excessive in boys and ≥ 80 cm in girls²³. Waist-to-hip ratio was calculated by dividing waist circumference by hip circumference. The cut-off point for classifying waist-to-hip ratio was 0.7, considering valued above as excessive and below as adequate²⁴. Waist-height Ratio was also calculated by dividing waist circumference by height. The cut-off point for both boys and girls was 0.5²⁰. Table SM3 shows the classifications used for this study. All measures were performed by a certified nutritionist following the established methodology by Suverza and Haua²⁵. All participants were asked to wear light clothes, remove shoes and all metal jewelry before the assessment, and drink 2–4 glasses of water within 2 hours of the appointment²⁶.

Table SM3.1 Body composition and nutritional status cut-off points

Indicator	Boys	Girls	Reference
Body Mass Index for Age (Z Score)			
Severe thinness	< -3 SD		
Thinness	< -2 SD		
Normal weight	≥ -2 SD and ≤ +1 SD		27
Overweight	> +1 SD		
Obesity	> +2 SD		
Body fat percentage*			
Low	< 5th	< 5th	
Adequate	5 – 85th	5 – 85th	21
High	> 85th	> 85th	
Waist circumference (cm)			
Adequate	< 94	< 80	23,24
High	≥ 94	≥ 80	
Waist-Hips Ratio			
Low risk	< 0.7	< 0.7	24
High risk	≥ 0.7	≥ 0.7	
Waist-Height Ratio			
Low risk	< 0.5	< 0.5	20
High risk	≥ 0.5	≥ 0.5	

SD = Standard deviation; *percentiles.

Table SM3.2 Sociodemographic and nutritional characteristics of the population

	n	%	p value
	397	100	
Body fat percentage			
Low	4	1.01	
Normal	198	49.87	0.000*
Overweight	70	17.63	
Obese	125	31.49	
Waist circumference			
Adequate	306	77.08	0.000*
High	91	22.92	
Waist-Hips Ratio			
Adequate	20	5.04	0.000*
High	377	94.96	
Waist-Height Ratio			
Adequate	283	71.28	0.000*
High	114	28.72	

Note: *p-value obtained from Chi-squared test.

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