Cardiovascular Health in a National Sample of Venezuelan Subjects Assessed According to the AHA Score

The EVESCAM

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ABSTRACT

Background: Cardiovascular health status of the Venezuelan population has not been evaluated. The American Heart Association recommends the Cardiovascular Health Score (CHS) to assess cardiovascular health.

Objectives: This study sought to determine the prevalence of CHS categories in a nationally representative sample of Venezuelan adults.

Methods: EVESCAM (Venezuelan Study of Cardio-Metabolic Health) was a national population-based, cross-sectional, randomized cluster sampling study performed from July 1, 2014 to January 31, 2017, which assessed 3,454 adults, age ≥20 years, with a response rate of 77.3%. The American Heart Association's CHS evaluates 4 behaviors (smoking, body mass index, physical activity, and diet) and 3 risk factors (total cholesterol, blood pressure, and blood glucose), assigning 1 point to those meting an ideal behavior or factor or 0 points if are not. Subjects were categorized as having ideal (5 to 7 points), intermediate (3 to 4), or poor (<3) cardiovascular health. Weighted prevalence by age, sex, and regions are presented.

Results: A total of 2,992 participants completed the data. Mean age and CHS were 41.4 ± 15.8 years and 4.3 ± 1.1 points, respectively. The prevalence of ideal CHS was 37.9% (95% confidence interval: 35.0 to 40.7); two-thirds presented with intermediate to poor CHS. Ideal CHS was most prevalent in women, in the youngest participants, and in those with higher education degree and living in a rural area. The prevalence of 7 components was 0.13%. Subjects evaluated since mid-2016 had a higher prevalence of ideal CHS (≈47%) than those evaluated before it (≈32%) ($p < 0.001$).

Conclusions: A high prevalence of ideal CHS was observed in Venezuelan adults compared with other reports; however, a large proportion remain with high risk for cardiovascular disease.

Cardiovascular disease (CVD) is the second leading cause of disability-adjusted life years in Venezuela; violence is the leading cause [1]. The risk factors driving most disability-adjusted life years are high body mass index (BMI) (first), hypertension (third), hyperglycemia (fourth), dietary risk (fifth), tobacco use (seventh), and high cholesterol (ninth) [1]; all of them—including physical inactivity, which is not in the first 10 drivers—are the health behaviors and factors the American Heart Association (AHA) recommends be measured to assess cardiovascular health status [2]. AHA—Cardiovascular Health Score (CHS) assigns 1 point if subjects meet an ideal behavior or factor and 0 points if they do not. In a multiethnic community-based prospective cohort of 2,981 participants (54% Caribbean Hispanic, 25% black, and 21% white), followed for 11 years, a strong gradient relationship was observed between the adjusted hazard ratios (HR) for CVD and the CHS: HR 0.73, 0.61, 0.49, and 0.41 for those having 2, 3, 4, and 5 to 6 ideal CHS, respectively [3].

Population cardiovascular health status using the AHA-CHS has been recently evaluated in Latin America. The prevalence of ideal cardiovascular health (CHS = 5 to 7 points) was 12.7% in 3,058 adults ages ≥35 years, who were randomly selected from 4 Peruvian settings [4], and 7.8% in 13,356 Brazilian adults ages 35 to 74 years [5]. In a sample of 5,458 subjects, ages 35 to 75 years from 4 cities in Argentina, Chile, and Uruguay, only 0.1% met the 7 criteria to define ideal cardiovascular health [6].

Venezuela is currently immersed in a severe sociopolitical crisis that started in 2014 and progressed in time [7],

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TABLE 1. Categorization of the behaviors and factors included in the CHS

Variable	Category	Criteria
Body mass index, kg/m^2	Ideal	<25
	Intermediate	25–29.9
	Poor	≥30
Dietary habits	Ideal	A healthy dietary score was calculated with the following components: ≥2 daily servings of fruits, ≥2 daily servings of vegetables, ≥2 daily servings of whole grains, ≥2 weekly servings of fish, and <5 weekly servings of added sugar in sugar-sweetened beverages
	Intermediate	
	Poor	
Physical activity (short-IPAQ)	Ideal (very active)	Vigorous-intensity activity on at least 3 days, achieving a minimum of at least 1,500 METs-min/week or 7 or more days of any combination of walking and moderate-intensity or vigorous-intensity activities achieving a minimum of at least 3,000 METs-min/week
	Intermediate (moderately active)	Three or more days of vigorous activity of at least 20 min/day or 5 or more days of moderate-intensity activity or walking of at least 30 min/day or 5 or more days of any combination of walking and moderate-intensity or vigorous-intensity activities achieving a minimum of at least 600 METs-min/week
	Poor (inactive)	Those who do not reach any previous criteria
Smoking habit	Ideal	Never smoker
	Intermediate	Former smoker, more than 12 months
	Poor	Current smoker, in the last 12 months
Blood pressure, mm Hg	Ideal	Systolic BP <120 and diastolic BP <80, untreated
	Intermediate	Systolic BP 120–139 or diastolic BP 80 to 89 or treated to goal
	Poor	Systolic BP ≥140 or diastolic BP ≥90
Blood glucose, mg/dl	Ideal	<100 untreated plus no history of diabetes
	Intermediate	100–125 or treated to goal
	Poor	≥126
Total cholesterol, mg/dl	Ideal	<200, untreated
	Intermediate	200–239 or treated to goal
	Poor	≥240

BP, blood pressure; CHS, Cardiovascular Health Score; IPAQ, International Physical Activity Questionnaire; METs, metabolic equivalents.

this situation prompted a complex scenario that modified population habits, including those related to traditional risk factors, such as a lack of processed foods and deficit of means of transport, which change eating patterns and increase nonprogrammed walks. The cardiovascular health status of Venezuelan adults is largely unknown, especially in the midst of this scenario. EVESCAM (Venezuelan Study of Cardio-Metabolic Health) sought to determine the prevalence of cardiometabolic risk factors and behaviors from a nationally representative sample. The aim of this paper is to present the prevalence of cardiovascular health status using the EVESCAM database according to the AHA-CHS, and then categorize findings by social determinants. We hypothesize that the prevalence of ideal cardiovascular health will be higher than that observed in previous reports in the region. This knowledge is required to determine the size of the problem and to establish appropriate policies to reduce health burdens related to CVD in Venezuela.

METHODS

Design

The study design, sampling, and implementation were described previously [8,9]. In brief, EVESCAM was a population-based, observational, cross-sectional, and cluster sampling study that was designed to evaluate

cardiometabolic risk factors and behaviors among subjects ≥20 years of age in Venezuela from July 1, 2014 to January 31, 2017.

Population

A multistage stratified sampling method was used to select a representative sample of the general population of Venezuela. Initially, 23 cities from the 8 regions—1 to 4 cities per region—were chosen. Each selected city was stratified by municipalities. Two municipalities in each city, then 2 parishes in each municipality, and finally 2 locations in each parish were randomly selected. Mappings and censuses of each location delimited the streets or blocks and selected the households to visit. Inclusion criteria were that all the subjects ≥20 years of age lived in the selected house for >6 months. Exclusion criteria were current pregnancy, inability to stand or communicate, or refusal to participate in the study by not signing the informed consent. Selected participants were invited to attend a local evaluation center (usually a neighbor health care center) to complete interviews, physical examinations, and laboratory tests.

The first aim of EVESCAM was to detect the prevalence of diabetes, the lowest prevalent condition reported in Venezuela (7.7%) [10], and with an SD of 1.55% and a confidence level of 95%, the minimal estimated number of subjects to be evaluated was 2,940. Considering a minimal expected response rate of 70%, the final sample size was 4,200, representing the proportions of the country in terms of age, sex, and regions. In total, 4,454 were recruited (86.3% urban and 13.7% rural) and 3,420 were evaluated, with a response rate of 77.3%.

The study protocol was designed in compliance with the Helsinki declaration and was approved by the National Bioethics Committee. Consent from all participants was obtained and filed. The present report is presented according to the recommendations of Strengthening the Reporting of Observational Studies in Epidemiology statement [11].

Clinical and biochemical measures

Data were collected by trained and certified health personnel. A customized questionnaire was used to obtain information on demographics and cardiovascular risk factors and behaviors. Dietary habits were measured using a nonvalidated food frequency questionnaire. Physical activity was determined using the International Physical Activity Questionnaire short version [12]. To assess the socioeconomic status (SES), a validated questionnaire for the Venezuelan population was based on 4 variables (source of income, profession of householder, educational level, and housing conditions) [13]. Weight was measured with the lightest possible clothes, without shoes, using a calibrated scale (Tanita UM-081; Tanita, Nibancho, Japan). Height was measured using a portable stadiometer (Seca 206; Seca GmbH & Co., Hamburg, Germany). BMI was calculated (kg/m^2). Blood pressure was measured twice using a validated oscillometric sphygmomanometer (Omron HEM-705C Pint, Omron Healthcare Co., Kyoto, Japan), with a 5-min interval between the initial and after-rest measurements; both measurements were taken in the right arm, which was supported at heart level, while in a sitting position [14]. The mean of 2 measurements was used.

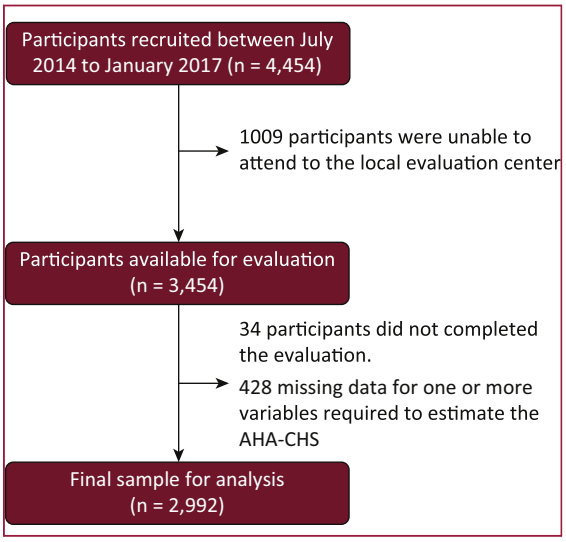

FIGURE 1. Final sample for analysis to estimate the American Heart Association (AHA) Cardiovascular Health Score (CHS).

Blood specimens were collected according to a standardized protocol after at least 8-h of fasting. Samples were centrifuged, frozen, and shipped to the central laboratory to be stored at −40° until analyses were performed.

Definition of variables

The AHA-CHS evaluates 4 behaviors (smoking, BMI, physical activity, and diet) and 3 risk factors (total cholesterol, blood pressure, and blood glucose), assigning 1 point to those meeting each ideal, 0.5 points to intermediate behavior and factors, and 0 points to poor behavior and factors. Each variable was categorized as ideal, intermediate, and poor (Table 1). Population was categorized in 4 SES levels: I to II, high; III, medium; IV, low; V, extreme poverty.Statistical analysis.

All calculations were performed using SPSS software version 20 (IBM Corp., Armonk, New York). Data were weighted to address any imbalance in the distribution of sociodemographic factors in the sample compared with the Venezuelan population and to overcome observations missing at random. Sampling weights were created using standardized population weights for sex in combination with a second set of weights based on the region-age distribution in Venezuela. Population distributions were obtained from the Venezuelan 2011 census. Continuous variables were presented as mean ± SD, and their

TABLE 2. Clinic and demographic characteristics of the population

	Men	Women	Total	p Value
N	1,405	1,587	2,992	
Age, yrs	42.6 ± 16.5	40.6 ± 15.1	41.4 ± 15.8	0.006
Weight, kg	77.3 ± 17.7	67.4 ± 16.3	72.0 ± 17.7	<0.001
Height, m	1.70 ± 0.07	1.58 ± 0.06	1.63 ± 0.09	<0.001
Body mass index, kg/m^2	26.5 ± 5.4	26.9 ± 6.1	26.7 ± 5.8	0.066
Systolic BP, mm Hg	130.2 ± 19.7	123.0 ± 21.3	126.4 ± 20.8	<0.001
Diastolic BP, mm Hg	75.6 ± 11.8	74.8 ± 11.4	75.2 ± 11.6	0.064
Physical activity, METs	1,998 ± 5,349	1,318 ± 3,421	1,584 ± 4,304	<0.001
Blood glucose, mg/dl	105.3 ± 32.8	99.3 ± 26.3	102.1 ± 29.4	<0.001
Total cholesterol, mg/dl	153.8 ± 38.8	157.4 ± 40.3	155.7 ± 39.6	0.012
Socioeconomic status				0.060
I—II—High	323 (23.1)	323 (20.6)	646 (21.8)	
	(20.9—25.3)	(18.6—25.2)	(20.3—23.2)	
III—Medium	429 (30.6)	479 (30.6)	908 (30.6)	
	(28.1—33.0)	(28.3—32.8)	(28.9—32.2)	
IV—Low	560 (40.0)	687 (43.9)	1,247 (42.0)	
	(37.4—45.2)	(41.4—46.3)	(40.2—43.7)	
V—Extreme poverty	89 (6.4)	77 (4.9)	166 (5.6)	
	(5.1—7.6)	(3.8—5.9)	(4.7—6.4)	
Education level				0.029
Basic	256 (18.3)	293 (18.5)	549 (18.4)	
	(16.2—20.3)	(16.5—20.4)	(17.0—19.7)	
High school	616 (44.0)	623 (39.4)	1,239 (41.6)	
	(41.4—46.6)	(37.0—41.8)	(39.8—43.3)	
University	529 (37.8)	664 (42.0)	1,193 (40.0)	
	(35.3—40.3)	(39.5—44.4)	(38.2—41.7)	
Location				0.013
Rural	231 (16.8)	317 (20.0)	548 (18.3)	
	(14.8—18.7)	(18.0—21.9)	(16.9—19.6)	
Urban	1,174 (83.6)	1,270 (80.0)	2,444 (81.2)	
	(81.6—85.5)	(78.0—81.9)	(79.8—82.6)	

Values are mean ± SD or n (%) (95% confidence interval), unless otherwise indicated. Proportions differences were determined using chi-square test.
Abbreviations as in Table 1.

differences were assessed using Student's *t*-test, except for metabolic equivalents that were presented as median and interquartile range and their differences were assessed using the Mann-Whitney *U* test. Qualitative variables were presented as number, percentages, and 95% confidence intervals (CIs), and their differences were assessed using the chi-square test. The level of statistical significance was $p < 0.05$.

RESULTS

Subjects' characteristics

Out of 3,445 participants who completed all stages of data collection, 34 did not completed the evaluation, and 428 were missing data on 1 or more variables needed to estimate the AHA-CHS. The final sample comprised 2,992 participants (Figure 1).

Men had higher age, weight, height, systolic blood pressure, physical activity, and fasting blood glucose than women; instead, women had higher total cholesterol and education level than men (Table 2).

Prevalence of CHS

We found that 37.9% (95% CI: 35.0 to 40.7) of the population presented an ideal CHS (5 to 7 points) and two-thirds as intermediate or poor CHS (Table 3). Ideal CHS was most prevalent in women than in men ($p < 0.001$) and decreased with age ($p < 0.001$). Subjects with basic education degree and living in an urban area presented lower ideal CHS than those with higher education degree and living in a rural area ($p < 0.001$). When urban versus rural populations were compared adjusted for age and sex no difference was found (Figure 2). SES was not associated with the CHS ($p = 0.507$).

Only 4 subjects (0.13%) had the 7 criteria and nearly one-half (1,435) ranged from 4 to 5 points (Figure 3). The mean CHS was 4.3 ± 1.1 points and was higher in women than in men (4.4 ± 1.0 and 4.2 ± 1.0 points, respectively; $p < 0.001$).

The prevalence of ideal CHS varied according to the period of data collection. Subjects evaluated since mid-2016, a moment when the sociopolitical crisis increased markedly, had higher prevalence of ideal CHS (≈47%) than those previously evaluated (≈32%) ($p < 0.001$) (Figure 4).

Among CHS components, the most ideal prevalent conditions were lower total cholesterol (81.1%; 95% CI: 78.6 to 81.5) and never smokers (68.6%; 95% CI: 66.9 to 70.2), and the lowest ideal prevalent conditions were ideal dietary habits (2.5%; 95% CI: 1.9 to 3.0) and lower blood pressure (38.1%; 95% CI: 36.3 to 39.8) (Table 4).

DISCUSSION

In Venezuela, 37.9% of adults had an ideal cardiovascular health, defined as an AHA-CHS of 5 to 7 points, which was surprisingly high. Two-thirds were exposed to a high risk for CVD. Favorable CHS was less prevalent in men, older ages, and urban inhabitants, mainly based on poor dietary habits, sedentary lifestyle, and high BMI. After adjusted by

TABLE 3. Cardiovascular Health Status by the CHS

CHS Category	Ideal (5–7 Points)	Intermediate (3–4 Points)	Poor (1–2 Points)	p Value
Total	1,135 (37.9) (35.0–40.7)	1,593 (53.2) (50.7–55.6)	264 (8.8) (5.3–12.2)	
Sex				<0.001
Men	479 (34.1) (31.3–36.8)	775 (55.2) (52.7–57.6)	151 (10.7) (6.9–14.4)	
Women	656 (41.3) (38.4–44.1)	818 (51.5) (49.0–53.9)	113 (7.1) (4.0–10.2)	
Age, yrs				<0.001
20–44	897 (48.9) (45.9–51.8)	869 (47.4) (44.8–49.8)	69 (3.8) (1.4–6.1)	
45–69	211 (21.7) (19.3–24.1)	602 (60.2) (57.8–62.6)	158 (16.3) (11.8–20.7)	
≥70	26 (14.0) (11.9–16.0)	123 (66.1) (63.7–68.4)	37 (19.9) (15.0–24.7)	
Socioeconomic status				0.507
I–II–High	254 (39.3) (36.4–42.1)	327 (50.6) (48.1–53.0)	65 (10.1) (6.4–13.7)	
III–Medium	331 (36.5) (33.7–39.3)	505 (55.6) (51.1–58.0)	72 (7.9) (4.6–11.1)	
IV–Low	473 (37.9) (35.0–40.7)	664 (53.2) (50.7–55.6)	110 (8.8) (5.3–12.2)	
V–Extreme poverty	67 (40.4) (37.5–43.2)	83 (50.0) (47.5–52.4)	16 (9.6) (6.0–13.1)	
Education level				<0.001
Basic	145 (26.4) (23.8–28.9)	337 (61.3) (58.9–63.6)	68 (12.4) (8.4–16.3)	
High school	498 (40.2) (37.3–43.0)	640 (51.7) (49.2–54.1)	101 (8.2) (4.8–11.5)	
University	489 (41.0) (38.1–43.8)	610 (51.1) (48.6–53.5)	95 (8.0) (4.7–11.2)	
Location				<0.001
Rural	247 (45.1) (42.2–47.9)	274 (50.0) (47.5–52.4)	27 (4.9) (2.3–7.5)	
Urban	888 (36.3) (33.5–39.1)	1,319 (54.0) (51.5–56.4)	237 (9.7) (6.1–13.2)	

Values are n (%) (95% confidence interval). Proportions differences were determined using chi-square test.
CHS, Cardiovascular Health Score.

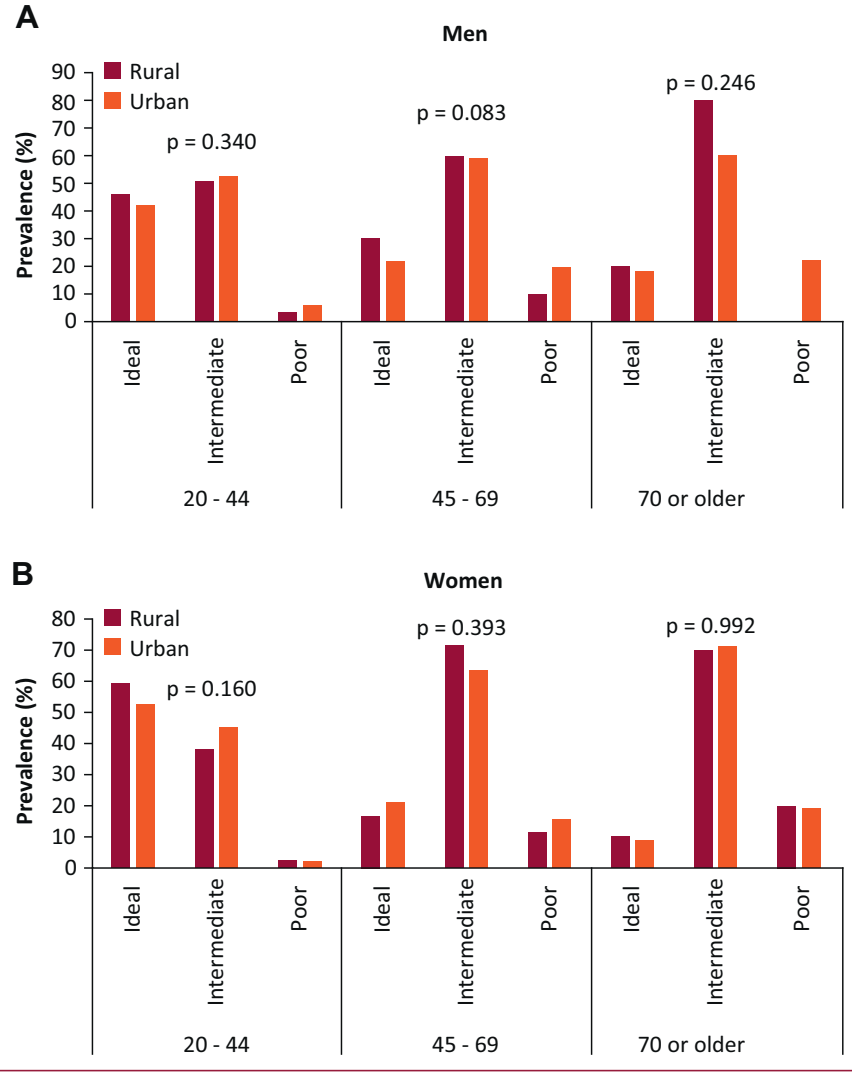

FIGURE 2. Prevalence of Cardiovascular Health Score categories urban versus rural by age and sex. Differences between prevalences were determined using chi-square test.

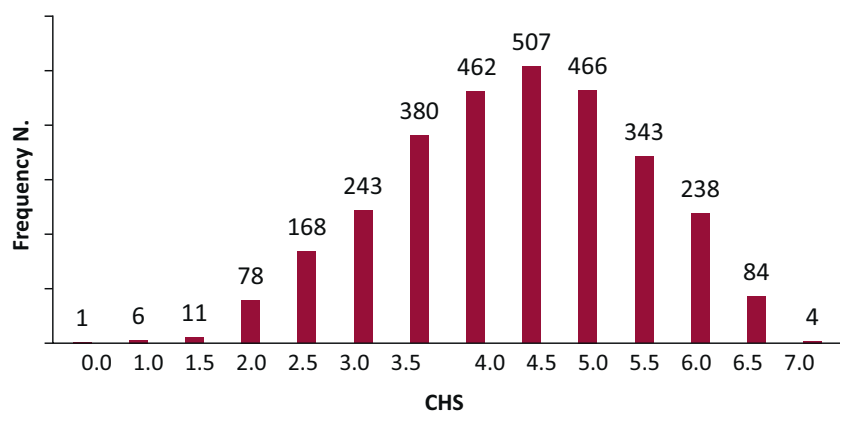

FIGURE 3. Frequency of Cardiovascular Health Score points.

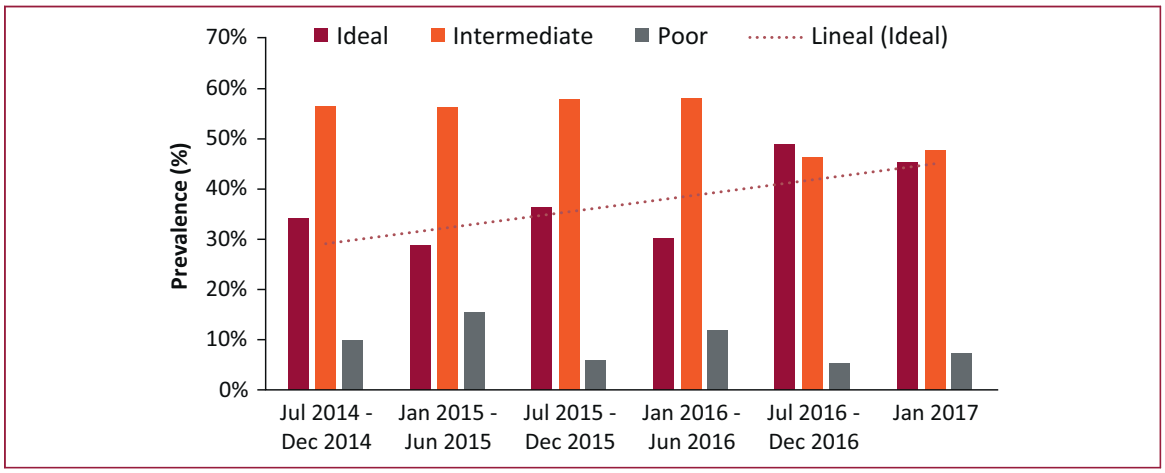

FIGURE 4. Prevalence of Cardiovascular Health Score categories according to the period of evaluation. Differences between prevalences were determined using chi-square test ($p < 0.001$).

age and sex, the difference between rural and urban populations disappeared. SES did not influence the CHS, but the moment of data collection did it; subjects who participated at the final semester showed better cardiovascular health.

The prevalence of ideal CHS in this report was 3-fold of that observed in Peru (12.7%) [4] and 4-fold of that observed in Brazil (7.8%) [5], using the same criteria. A relevant difference was that the Peruvian and Brazilian studies included subjects who were 35 years or older, excluding the youngest participants who had a higher prevalence of ideal CHS; this limits the comparability among studies. However, when prevalences are compared by age groups, those for participants 65 years or older were similar (Venezuelans:, 14.0%; 95% CI: 11.9 to 16.0; and Peruvians: 12.1%; 95% CI: 10 to 14.6 [4]). The proportion of subjects that met the 7 criteria (0.1%) was similar to those observed in Peru (0%) [4]; Brazil (<0.1%) [5]; and Argentina, Chile, and Uruguay (0.1%) [6]. Comparing our results with reports in other regions: In the Czech Republic, in 2,160 subjects, ages 25 to 64 years, 19.0% had criteria for ideal CVH (5 to 7 points) [15]—nearly one-half of that observed in our report. In Pennsylvania, among 1,933 participants, ages 45 to 75 years, from the Heart SCORE (Heart Strategies Concentrating on Risk Evaluation) study, only 5.3% had ≥5 criteria [16]. In both studies, similarly to the Latin American reports, only 0.1% of the participants achieved the 7 criteria.

The impact of the Venezuelan crisis over the population's cardiovascular health is unknown. This crisis is characterized by a severe annual inflation rate (1 million percent) [17], shortage of foods and medicines, violence, migration, transportation deficits, and an abundance of maternal mortality and previously controlled communicable diseases [18]. This toxic environment adversely affects daily lifestyles among Venezuelans. The subjects evaluated in the second semester of 2016 and in January 2017 presented with a higher prevalence of ideal CHS than those evaluated previously. The social drivers of this difference are unclear, but it can be hypothesized that when the social crisis worsens, individuals are compelled to change their eating patterns by consuming more natural local products (e.g., whole grains, bananas, yucca) and less of the relatively expensive products (e.g., red meat, oil, margarines, sugar-sweetened beverages) that are in short supply. Additionally, the level of physical activity is increased (because of, e.g., transportation problems, power outages), weight is reduced, and tobacco use is decreased, all due to rising costs. Currently, a prospective analysis of EVESCAM participants is being studied to better understand this complex chronic disease model.

Despite the high prevalence of ideal CHS in other studies, two-thirds of adults remain exposed to a high risk for CVD. Local strategies to reverse this situation have been evaluated. A 2-year version of the Diabetes Prevention Program in 140 Venezuelan subjects with prediabetes and increased weight found improved CHS using intensive lifestyle intervention, compared with standard intervention (2.0 vs. 0.8 points; $p < 0.001$) [19]. At the end of the study, 4.3% of intensive lifestyle intervention subjects and 47.1% of standard intervention remained in poor to intermediate CHS ($p < 0.01$) [19]. The broad implementation of this strategy to primary health care centers stills needs to be evaluated in the Venezuelan model of cardiovascular health.

This study has some important limitations and strengths. The cross-sectional design only permits the determination of associations and not causal relationships among variables. The social crisis and its effect on the cardiovascular health and stress responses were not measured. However, the national representativeness of the sample and the weighted analysis allow for generalization of the results to the entire Venezuelan population.

TABLE 4. Prevalence of the components of the CHS

Behaviors and Factors by Sex	Men 1,405	Women 1,587	Total 2,992	p Value
Body mass index, kg/m^2				
Ideal	570 (40.6) (38.0–43.1)	667 (42.1) (39.6–44.5)	1,237 (41.4) (39.6–43.1)	0.001
Intermediate	526 (37.4) (34.8–39.9)	498 (31.4) (29.1–33.6)	1,024 (34.2) (32.5–35.9)	
Poor	309 (22.0) (19.8–24.1)	421 (26.5) (24.3–28.6)	730 (24.4) (22.8–25.9)	
Dietary habits				
Ideal	29 (2.1) (1.3–2.8)	45 (2.8) (1.9–3.6)	74 (2.5) (1.9–3.0)	0.135
Intermediate	676 (48.1) (45.4–50.7)	715 (45.1) (42.6–47.5)	1,391 (46.5) (44.7–48.2)	
Poor	701 (49.9) (47.2–52.5)	827 (52.1) (49.6–54.5)	1,528 (51.1) (49.3–52.8)	
Physical activity (short-IPAQ)				
Ideal	636 (45.3) (42.7–47.9)	491 (30.9) (28.6–33.1)	1,127 (37.7) (35.9–39.4)	<0.001
Intermediate	347 (24.7) (22.4–26.9)	458 (28.9) (26.6–31.3)	805 (26.9) (25.3–28.4)	
Poor	422 (30.0) (27.6–32.4)	638 (40.2) (37.7–42.6)	1,060 (35.4) (33.6–37.1)	
Smoking habit				
Ideal	776 (55.2) (52.6–57.8)	1,277 (80.5) (78.5–82.5)	2,053 (68.6) (66.9–70.2)	<0.001
Intermediate	384 (27.3) (24.9–29.6)	200 (12.6) (10.9–14.2)	584 (19.5) (18.0–20.9)	
Poor	245 (17.4) (15.4–19.3)	109 (6.9) (5.6–8.1)	354 (11.8) (10.6–12.9)	
Blood pressure, mm Hg				
Ideal	394 (28.0) (25.6–30.3)	747 (47.1) (44.6–49.5)	1,141 (38.1) (36.3–39.8)	<0.001
Intermediate	657 (46.7) (44.0–49.3)	532 (33.5) (31.1–35.8)	1,189 (39.7) (37.9–41.5)	
Poor	355 (25.2) (22.7–27.4)	307 (19.4) (17.4–21.3)	662 (22.1) (20.6–23.5)	
Blood glucose, mg/dl				
Ideal	699 (49.7) (47.0–52.3)	978 (61.6) (59.2–63.9)	1,677 (56.0) (54.2–57.7)	<0.001
Intermediate	576 (41.0) (38.4–43.5)	531 (33.5) (31.1–35.8)	1,107 (37.0) (35.2–38.7)	
Poor	131 (9.3) (7.7–10.8)	78 (4.9) (3.8–5.9)	209 (7.0) (6.0–7.9)	
Total cholesterol, mg/dl				
Ideal	1,155 (82.1) (80.1–84.1)	1,241 (78.2) (76.1–80.2)	2,396 (80.1) (78.6–81.5)	0.026
Intermediate	215 (15.3) (13.4–17.2)	296 (18.7) (16.7–20.6)	511 (17.1) (15.7–18.4)	
Poor	36 (2.6) (1.7–3.4)	50 (3.2) (2.3–4.0)	86 (2.9) (2.3–3.5)	

Values are n (%), (95% confidence interval). Proportions differences were determined using the chi-square test.
Abbreviations as in Table 1.

CONCLUSIONS

The prevalence of ideal cardiovascular health in Venezuela was high compared with reports from other populations. However, a large proportion of adults still remain with elevated risk for CVD. Higher CVD risks correspond to older, male sex, and lower academic degree. The complex effects of the current sociopolitical crisis needs to be addressed in future research.

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