

63 As detailed below, there are three component parts, called “Steps”, of the survey
64 instrument, *i.e.* behavioral, physical and biochemical measurements. (1) Apart from questions
65 for basic demographic information, a structured questionnaire was used to assess four
66 common behavioral risk factors of NCDs by face-to-face interviews. Participants were asked
67 about personal dietary habits, particularly fruit and vegetable intakes, as well as tobacco use,
68 alcohol consumption and physical activity in their daily lives. (2) The second Step consisted
69 of measurements of height, weight, waist and hip circumferences, and resting blood pressure.
70 The anthropometric measurements were taken in light indoor clothing, and without shoes or
71 other heavy accessories. Blood pressure in the sitting position was measured three times in the
72 upper arm, using an electronic sphygmomanometer (Omron HEM-7200). Three
73 measurements of blood pressure were taken for each participant in the survey, and the
74 arithmetic mean of the second and third readings were used. (3) Biochemical blood tests were
75 performed in the morning after roughly 10 to 12 hours of fasting. Fresh capillary whole blood
76 samples were drawn from the fingertip, followed by biochemical tests on portable devices,
77 namely ACCU-CHEK Performa system (Roche Diagnostics, North America) for fasting
78 blood glucose and Accutrend Plus system (Roche Diagnostics, North America) for blood
79 levels of total cholesterol and triglycerides.

80 Data were entered by using the EpiData software and categorized into different groups for
81 the analysis based on well-defined criteria. Body mass index (BMI) is defined as the weight in

82 kilograms divided by the square of the height in meters. As the current WHO classification,
83 cutoff points of 18.5, 25 and 30 kg/m² were used to define underweight, normal weight,
84 overweight and obesity. Hypertension was defined as having a systolic blood pressure ≥ 140
85 mmHg, a diastolic blood pressure ≥ 90 mmHg, or currently being on antihypertensive
86 medication. People with systolic blood pressure ≥ 160 mmHg or diastolic blood pressure ≥ 100
87 mmHg were grouped as stage 2 hypertension, by applying the criteria of the Seventh Report
88 of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High
89 Blood Pressure (JNC 7).⁵ According to the recommendations by the WHO and American
90 Diabetes Association (ADA), values of fasting blood glucose ≥ 126 mg/dL or those on diabetic
91 treatment were categorized as diabetic. Two values for the upper limit of normal fasting blood
92 glucose were used: 110 mg/dL by the WHO or 100 mg/dL by the ADA criteria.^{6,7} The levels
93 of blood lipids were classified as follows: normal (< 150 mg/dL), borderline-high (150-199
94 mg/dL) and high (≥ 200 mg/dL) for triglycerides, and desirable (< 200 mg/dL), borderline-high
95 (200-239 mg/dL) and high (≥ 240 mg/dL) for total cholesterol.⁸ We conducted all data
96 analyses using the statistical software, IBM SPSS Statistics for Windows, Version 22.0 (IBM
97 Corp, Armonk, NY, USA).

98 The survey proposal was reviewed and approved by the WHO and Institutional Review
99 Board of the Ministry of Health, Republic of Palau prior to implementation. Written informed
100 consent was obtained from all of the participants after adequate explanations of the objectives

101 and procedures of the project. This study is part of a joint research project between Palau and
102 Japan, which was also approved by the Bioethics Review Committee of Nagoya University
103 School of Medicine.

104

105 **RESULTS**

106 Valid data of 2,184 individuals were selected for the analyses in this study, excluding those
107 who were not within the target age range of 25-64 years, who did not give a clear answer of
108 sex, and women who were pregnant at the moment of the survey. About 75% of the subjects
109 were Palauans and 19% were Filipinos, the main foreign population in the country. Table 1
110 shows the characteristics of participants by gender and age group, and Table 2 shows that by
111 ethnic background.

112 A quarter of male participants were current cigarette smokers, but female smokers were
113 less than 10%. Betel nut and tobacco chewing was a common practice among Palauans, as
114 58% of men and 69% of women had the habit. In the total participants, 60% of men and 58%
115 of women reported current use of any kind of tobacco products, including smoking and
116 chewing. Infrequent fruit intake, namely one day or less per week, occurred in 44% of men
117 and 32% of women. As for infrequent vegetable intake (≤ 1 day/week), it was observed in 15%
118 and 9% of men and women, respectively.

119 Most of Palauan males (84%) and females (86%) were overweight or obese ($BMI \geq 25$)

120 kg/m²), with the mean BMI being 30.8 kg/m² and 31.3 kg/m² in males and females,
121 respectively. Filipino residents also had a high prevalence of overweight or obesity, *i.e.* 52%
122 in males and 40% in females, and the mean BMI was 25.4 kg/m² in males and 24.5 kg/m² in
123 females. As for percentage of obesity alone (BMI \geq 30 kg/m²), it is much higher among
124 Palauan residents (51% in males and 55% in females) than that among Filipinos (9% in males
125 and 10% in females).

126 Approximately 8% of males and 14% of females among the total adult subjects reported
127 that they had taken antihypertensive medication during the past two weeks. Including those
128 who were on medication, more than half of Palauan males (60%) and females (54%) were
129 considered hypertensive, followed by 46% of males and 34% of females in the Filipino
130 population. Moreover, 20% of the total participants were stage 2 hypertensive (\geq 160/100
131 mmHg).

132 About one out of five participants in this survey were regarded as diabetic. The prevalence
133 is higher in the older age group, *e.g.* 29% of males and 35% of females were diabetic among
134 the oldest age group of 55-64 years.

135 Borderline-high or high levels of triglycerides were found in 48% of men and 41% of
136 women in the total subjects, whereas borderline-high or high levels of total cholesterol
137 including those on medication were observed among 16% of men and 20% of women.

138

139 **DISCUSSION**

140 This is the first comprehensive population based survey on risk factors of NCDs among adults
141 in Palau, which included physical and biochemical measurements. The results revealed a high
142 percentage on each of the major risk factors, especially tobacco use, overweight or obesity,
143 hypertension, and raised blood glucose.

144 Findings of this survey confirmed that cigarette smoking was more prevalent among men
145 than women in Palau (25% vs. 10%; $P < 0.001$). The prevalence was almost the same as that
146 reported in the Palau Community Health Assessment,³ a national household survey in 2003,
147 indicating that smoking rate of adults had hovered during the past decade in this country.
148 Compared with the other Pacific island countries, the prevalence of smoking in Palau was not
149 high.⁹ For instance, it was much lower than the findings from a previous survey carried out in
150 the adjacent Micronesian country, Federated States of Micronesia (FSM), in which 42% of
151 men and 32% of women were reported as current smokers.¹⁰

152 However, cigarette smoking solely can hardly illustrate the fact of tobacco use in Palau.
153 Chewing betel nut with tobacco, smokeless tobacco, is a broadly acceptable practice within
154 all sectors of the population in Palau.¹¹ According to the results, Palauan adults, especially
155 women, had an extremely high proportion of betel nut and tobacco chewing, which was not
156 commonly observed in other ethnic groups living in this country. Although the neighboring
157 country, FSM, has the same tradition of betel nut chewing, the percentage of smokeless

158 tobacco users was significantly lower in comparison to Palau, namely 22% in men and 3% in
159 women. As regards the gender difference in betel nut and tobacco chewing, Cambodia is the
160 other country in the WHO Western Pacific Region which reported women had a significantly
161 higher prevalence than men.¹² Three reasons for the use of chewing tobacco and betel nut
162 among Cambodian women were suggested in a previous study: (1) as an addictive stimulant,
163 (2) as part of a female rite of passage into adulthood and reproductive age, and (3) as a
164 remedy to relieve pregnancy-related symptoms.¹³ However, the reasons for the high
165 prevalence of chewing betel nut with tobacco among Palauan women are still not clear.
166 Further studies might be designed to gain insight into the social context. Based on the findings
167 in this survey, the Palauan government may have to develop gender- and ethnic-specific
168 tobacco control measures for the population.

169 Obesity is a common major challenge of public health in the Pacific region. More than half
170 of adult population in each of the Pacific island countries are observed to be overweight or
171 obese ($\text{BMI} \geq 25 \text{ kg/m}^2$), with the exception of Papua New Guinea.¹⁴ Likewise, about three in
172 four participants were considered as overweight or obesity in this survey. With regard to the
173 difference by ethnic background, more than half of Palauan adults were obese ($\text{BMI} \geq 30$
174 kg/m^2), whereas the proportions of obesity in both Filipino men and women were less than
175 10%. Most of the Filipinos living in Palau are migrant workers engaged in physical labors and
176 having lower income levels than Palauans. (see Table 2). Considering the socio-economic

177 background, lower prevalence of obesity among Filipinos than among Palauans might be
178 attributable to the differences in dietary habits, physical activities, working conditions, etc. In
179 comparison with the data reported from the Palau Health Survey in 1991, the mean BMI of
180 adults aged 35-64 years had increased from roughly 27.6 to 29.6 kg/m² for men and 29.6 to
181 30.1 kg/m² for women over the past two decades.¹⁵ Dietary patterns and lifestyle changes with
182 the economic growth in Palau might explain the increased BMI. Subsequent analyses or
183 further studies are required to investigate the factors contributing to overweight or obesity in
184 the population.

185 This survey revealed an alarmingly high prevalence of hypertension in Palau, of which
186 more than half of the adults had a raised blood pressure, particularly among ethnic Palauans.
187 Even the youngest age group (25-34 years) demonstrated a high percentage of hypertension
188 (36% in men and 25% in women). However, the proportion of participants who were on
189 antihypertensive medication was relatively low (8% in men and 14% in women). As
190 hypertension rarely causes symptoms in the early stages, those who have undiagnosed
191 hypertension or ignore self-management of blood pressure should be targeted first in NCD
192 control policies.¹⁶ Among published data of WHO STEPS surveys for Pacific island countries
193 and territories, Palau has the highest prevalence of hypertension in both sexes (55% in men
194 and 49% in women), even though the prevalence of obesity is not noticeably high compared
195 to the others.¹⁷ Factors might contribute to this result, such as salt intakes, need to be

196 investigated further.

197 Palau was the only country in Oceania which did not have any available data concerning
198 the population prevalence of raised blood glucose prior to the present survey,¹⁴ despite the fact
199 that Pacific island countries have some of the highest rates of diabetes in the world.^{1,2} This
200 survey showed that more than 20% of the participants had diabetic level hyperglycemia, and
201 more than 60% of the participants had ADA-defined impaired fasting glycemia (IFG) or
202 diabetes (≥ 100 mg/dL). It is known that diabetes, if untreated for years, causes serious
203 complications such as diabetic retinopathy, nephropathy, and neuropathy, as well as ischemic
204 cardiac diseases. Urgent actions are needed to screen and control blood glucose of the
205 population in Palau.

206 Although the evidence of health impacts of the given risk factors has been identified
207 around the world, a limited number of those studies were conducted in the Pacific Islands. As
208 of today, most of the countries and territories in the Pacific region have accessible data of the
209 key NCD risk factors for their population, such as those from the WHO STEPS surveys. All
210 of these data could be potentially used for further studies to investigate local characteristics of
211 NCDs for the islanders. In addition, comparisons across the island countries have also become
212 possible, because of the standardized methodology used for the data collection.

213 There are some limitations in the present survey that merit discussion. We could not obtain
214 valid variables on fruit and vegetable intakes by servings, standard amounts of alcohol

215 consumption, and quantity of physical activity due to inappropriate methods of the interviews.
216 Regarding blood tests, capillary whole blood samples were applied to the dry chemistry
217 method. Although the device has been calibrated for plasma automatically, the results might
218 not correspond to those done by venous plasma samples at the laboratory, the standard method
219 for measuring and reporting glucose concentrations in blood. Accordingly, the criteria of
220 appropriate cutoffs might be different from those we adopted in this article.

221 In conclusion, this survey has provided useful baseline epidemiological data on the major
222 NCD risk factors, with very high prevalence on both behavioral and biological risk factors.
223 On the basis of this survey, policymakers could develop more effective and efficient NCD
224 prevention or control strategies for the public.

225

226 **ACKNOWLEDGMENTS**

227 The authors wish to thank staff members of the Bureau of Public Health, Ministry of Health,
228 Republic of Palau for the data collection. Appreciation is also given to the Regional Office for
229 the Western Pacific, WHO for the full financial and technical support during the survey. The
230 content is solely the responsibility of the authors and does not necessarily represent the
231 official views of the Palauan Government or the WHO. This paper is part of a joint research
232 project between Palau and Japan, supported by the Health and Labour Sciences Research
233 Grants for Research on Global Health Issues (H24-chikyukibo-ippan-004) to A.A. from the

234 Ministry of Health, Labour and Welfare, Government of Japan.

235 Conflicts of interest: None declared.

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Table 1 Characteristics of participants aged 25-64 years in Palau NCD STEPS survey, 2011-2013 (valid %)

Age group of years	Male					Female				
	25-34	35-44	45-54	55-64	Total	25-34	35-44	45-54	55-64	Total
Number	193	295	318	240	1046	188	312	379	259	1138
Educational attainment										
primary or lower	18.5	15.4	19.9	16.8	17.7	11.8	12.8	13.4	20.2	14.5
secondary	40.7	45.1	38.3	41.2	41.3	31.0	41.0	42.2	34.2	38.2
college or higher	40.7	39.6	41.8	42.0	41.0	57.2	46.2	44.4	45.5	47.3
number of missing	4	2	2	2	10	1	0	5	2	8
Marital status										
single	53.9	22.1	16.7	8.8	23.3	43.5	19.9	10.6	7.4	17.9
married/cohabiting	44.5	71.4	72.2	76.9	68.0	51.1	69.6	69.6	62.1	64.8
divorced/separated	1.6	6.1	8.8	8.0	6.5	4.3	7.8	10.3	10.5	8.7
widowed	0.0	0.3	2.2	6.3	2.2	1.1	2.6	9.5	19.9	8.6
number of missing	2	1	1	2	6	2	6	1	3	12
Annual household income (USD)										
<5000	35.5	24.1	22.3	26.5	26.2	31.6	27.3	26.3	27.0	27.6
5000-9999	34.3	36.0	35.7	29.6	34.1	28.3	25.4	23.1	19.5	23.7
10000-14999	7.2	14.9	15.9	16.1	14.1	18.4	15.4	18.3	19.1	17.7
15000-19999	8.4	7.7	7.1	7.6	7.6	9.9	8.5	8.9	8.8	8.9
≥20000	14.5	17.2	19.1	20.2	18.0	11.8	23.5	23.4	25.6	22.1
number of missing	27	34	35	17	113	36	52	41	44	173
Smoking										
non-smoker	41.5	47.5	43.1	41.3	43.6	60.1	63.1	60.9	62.2	61.7
ex-smoker	26.4	29.5	34.0	36.7	31.9	28.7	28.5	29.8	27.4	28.7
current smoker	32.1	23.1	23.0	22.1	24.5	11.2	8.3	9.2	10.4	9.6
Betel nut and tobacco chewing										
non-chewer	55.4	50.2	57.9	64.2	56.7	42.0	42.6	46.7	52.9	46.2
current chewer	44.6	49.8	42.1	35.8	43.3	58.0	57.4	53.3	47.1	53.8
Tobacco product use										
non-user	35.8	34.6	41.8	48.3	40.2	36.7	38.8	42.2	49.0	41.9
current user	64.2	65.4	58.2	51.7	59.8	63.3	61.2	57.8	51.0	58.1
Alcohol drinking										
non-drinker	19.7	17.3	23.6	24.6	21.3	31.9	35.3	35.9	45.6	37.3
ex-drinker	25.9	30.2	31.1	31.3	29.9	35.6	41.3	40.1	40.9	39.9
current drinker	54.4	52.5	45.3	44.2	48.8	32.4	23.4	24.0	13.5	22.8
Fruit intake (day/week)										
0-1	41.6	46.2	43.4	42.9	43.7	41.0	36.2	31.6	23.0	32.4
2-4	42.6	32.4	38.6	38.3	37.5	41.0	39.7	40.2	45.1	41.3
≥5	15.8	21.4	18.0	18.8	18.7	18.0	24.0	28.2	31.9	26.2
number of missing	3	5	7	0	15	5	0	3	2	10
Vegetable intake (day/week)										

0-1	9.9	12.6	15.7	20.2	14.8	10.8	8.7	8.8	8.1	8.9
2-4	39.1	42.5	44.1	42.9	42.4	37.6	36.5	37.9	36.4	37.2
≥5	51.0	44.9	40.3	37.0	42.8	51.6	54.8	53.3	55.4	53.9
number of missing	1	1	5	2	9	2	0	2	1	5
Body mass index (kg/m2)										
<18.5	0.5	1.1	0.3	1.7	0.9	3.8	1.0	0.8	1.6	1.5
18.5-24.9	34.6	24.0	22.2	16.7	23.7	33.2	25.6	19.4	15.7	22.6
25-29.9	32.4	32.9	35.9	38.9	35.1	24.5	27.5	32.6	35.9	30.6
≥30	32.4	42.0	41.6	42.7	40.3	38.6	45.9	47.2	46.8	45.3
number of missing	5	12	3	1	21	4	7	8	11	30
Systolic blood pressure (mmHg)										
<120	16.2	11.5	8.5	5.8	10.2	53.7	29.1	18.6	5.8	24.4
120-129	29.8	23.1	20.6	8.8	20.2	22.3	28.5	15.9	10.5	19.2
130-139	23.6	28.5	19.3	17.5	22.3	11.2	20.4	18.0	17.9	17.5
140-159	27.2	26.1	30.1	38.3	30.3	9.6	16.2	27.9	30.7	22.3
≥160	3.1	10.8	21.5	29.6	17.0	3.2	5.8	19.6	35.0	16.6
number of missing	2	0	2	0	4	0	3	2	2	7
Diastolic blood pressure (mmHg)										
<80	49.2	27.5	25.9	25.4	30.5	52.1	40.8	32.1	31.9	37.8
80-84	16.8	18.0	13.6	17.1	16.2	13.3	16.8	14.1	21.0	16.3
85-89	11.5	14.6	17.7	18.8	15.9	13.3	14.6	18.6	15.2	15.8
90-99	14.7	28.1	26.3	26.3	24.7	17.6	21.4	21.2	19.1	20.2
≥100	7.9	11.9	16.5	12.5	12.7	3.7	6.5	14.1	12.8	10.0
number of missing	2	0	2	0	4	0	3	2	2	7
Hypertension										
≥140/90 mmHg	35.1	48.8	56.3	70.4	53.6	23.4	33.3	52.0	67.3	45.6
≥140/90 mmHg or on medication	35.6	49.5	57.9	73.3	55.0	24.5	36.2	56.0	69.6	48.5
≥160/100 mmHg	9.9	14.9	25.0	32.9	21.2	5.9	8.7	22.0	37.4	19.2
Fasting glucose (mg/dL)										
<100	50.6	39.4	30.7	28.5	36.2	64.5	46.2	35.9	28.1	41.7
100-109	29.5	26.7	26.4	22.4	26.1	18.7	23.9	25.2	22.8	23.2
110-125	9.6	16.7	20.0	20.1	17.2	9.6	14.4	19.0	16.7	15.7
≥126	10.2	17.1	22.9	29.0	20.4	7.2	15.5	19.9	32.5	19.5
(≥126 mg/dL or on medication)	10.2	17.5	23.9	29.4	21.0	7.2	15.5	20.9	34.6	20.3
number of missing	27	44	38	26	135	22	48	53	31	154
Triglycerides (mg/dL)										
<100	34.4	22.7	22.8	19.3	24.1	37.9	33.6	24.7	23.3	29.0
100-149	24.4	29.8	26.5	29.0	27.6	28.6	32.0	29.9	27.9	29.8
150-199	15.6	16.4	22.4	18.8	18.7	11.8	16.6	16.7	20.5	16.7
≥200	25.6	31.1	28.4	32.9	29.7	21.7	17.8	28.7	28.3	24.5
number of missing	33	57	50	33	173	27	53	55	40	175
Total cholesterol (mg/dL)										

<160	55.2	51.4	44.1	38.8	46.9	63.4	55.8	33.1	37.0	45.1
160-189	29.4	29.7	34.9	36.4	32.9	25.0	30.6	33.4	24.7	29.3
190-199	5.5	5.6	6.6	6.5	6.1	2.4	6.0	10.8	8.8	7.7
200-239	9.2	12.4	12.1	16.4	12.7	8.5	6.4	16.9	22.9	14.1
≥240	0.6	0.8	2.2	1.9	1.4	0.6	1.1	5.7	6.6	3.8
(≥200 mg/dL or on medication)	9.8	13.7	17.6	22.0	16.1	9.8	8.3	24.7	34.8	20.1
number of missing	30	46	46	26	148	24	47	47	32	150

USD indicates United States dollar

Table 2 Characteristics of participants by ethnic background (valid %)

	Male			Female		
	Palauan	Filipino	Others	Palauan	Filipino	Others
Number	751	200	93	875	206	56
Age group of years						
25-34	13.8	25.5	40.9	14.7	23.8	17.9
35-44	26.1	33.0	33.3	26.9	31.6	21.4
45-54	32.6	28.0	18.3	32.9	32.0	44.6
55-64	27.4	13.5	7.5	25.5	12.6	16.1
Educational attainment						
primary or lower	19.0	10.7	22.0	15.3	10.3	18.2
secondary	42.0	42.9	31.9	37.9	42.6	27.3
college or higher	39.0	46.4	46.2	46.8	47.1	54.5
Marital status						
single	20.5	28.1	35.9	16.3	26.3	10.9
married/cohabiting	68.7	67.8	62.0	65.4	58.5	78.2
divorced/separated	8.2	3.0	1.1	8.8	8.8	7.3
widowed	2.7	1.0	1.1	9.5	6.3	3.6
Annual household income (USD)						
<5000	17.3	51.4	44.0	19.4	62.1	22.7
5000-9999	34.0	37.3	28.0	24.8	19.2	25.0
10000-14999	18.8	2.2	2.7	19.8	10.4	13.6
15000-19999	9.1	4.3	2.7	10.7	2.2	6.8
≥20000	20.9	4.9	22.7	25.3	6.0	31.8
Smoking						
non-smoker	41.5	48.0	49.5	56.0	84.0	69.6
ex-smoker	37.2	18.0	20.4	34.1	9.2	16.1
current smoker	21.3	34.0	30.1	9.9	6.8	14.3
Betel nut and tobacco chewing						
non-chewer	42.3	97.5	84.9	31.4	98.5	83.9
current chewer	57.7	2.5	15.1	68.6	1.5	16.1
Tobacco product use						
non-user	31.4	64.0	59.1	28.1	91.7	73.2
current user	68.6	36.0	40.9	71.9	8.3	26.8
Alcohol drinking						
non-drinker	19.7	21.0	35.5	32.5	57.3	37.5
ex-drinker	30.8	32.5	17.2	43.0	31.6	23.2
current drinker	49.5	46.5	47.3	24.6	11.2	39.3
Fruit intake (day/week)						
0-1	48.2	31.8	33.0	35.7	22.3	19.6
2-4	35.4	43.9	41.8	40.1	47.1	37.5
≥5	16.4	24.2	25.3	24.2	30.6	42.9

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Vegetable intake (day/week)							
0-1	17.5	8.0	7.6	10.4	2.9	7.3	
2-4	44.1	42.2	29.3	40.3	30.1	14.5	
≥5	38.4	49.7	63.0	49.3	67.0	78.2	
Body mass index (kg/m ²)							
<18.5	0.5	1.0	3.4	0.9	4.0	1.8	
18.5-24.9	15.4	47.0	41.6	13.0	56.1	50.0	
25-29.9	33.2	42.9	34.8	31.4	30.3	19.6	
≥30	51.0	9.1	20.2	54.6	9.6	28.6	
Systolic blood pressure (mmHg)							
<120	8.9	13.5	13.2	21.3	31.1	48.2	
120-129	17.9	24.0	30.8	18.8	19.9	23.2	
130-139	21.2	23.0	28.6	17.2	21.4	7.1	
140-159	32.4	25.0	25.3	24.8	15.5	8.9	
≥160	19.5	14.5	2.2	18.0	12.1	12.5	
Diastolic blood pressure (mmHg)							
<80	27.1	39.0	40.7	33.8	50.0	55.4	
80-84	15.4	14.5	26.4	17.1	13.1	14.3	
85-89	16.6	15.0	13.2	16.1	16.0	10.7	
90-99	27.4	19.5	13.2	21.9	15.0	12.5	
≥100	13.6	12.0	6.6	11.2	5.8	7.1	
Hypertension							
≥140/90 mmHg	58.5	44.5	33.0	50.6	31.6	21.4	
≥140/90 mmHg or on medication	59.9	45.5	35.2	53.5	34.0	25.0	
≥160/100 mmHg	23.6	19.0	6.6	21.2	12.6	12.5	
Fasting glucose (mg/dL)							
<100	34.6	35.7	52.8	41.5	42.6	40.8	
100-109	24.4	33.9	23.6	20.9	29.0	34.7	
110-125	17.5	15.2	19.4	15.6	16.9	12.2	
≥126	23.5	15.2	4.2	22.0	11.5	12.2	
(≥126 mg/dL or on medication)	24.0	16.4	4.2	22.9	12.0	12.2	
Triglycerides (mg/dL)							
<100	23.0	26.1	29.2	26.2	37.4	42.0	
100-149	28.0	26.1	27.8	29.7	29.3	32.0	
150-199	19.5	16.1	16.7	18.7	11.5	6.0	
≥200	29.5	31.7	26.4	25.5	21.8	20.0	
Total cholesterol (mg/dL)							
<160	48.9	41.2	42.3	47.1	38.0	41.2	
160-189	32.1	37.1	29.6	28.2	32.1	35.3	
190-199	6.4	5.3	5.6	6.5	13.6	3.9	
200-239	11.0	15.9	21.1	14.6	12.0	13.7	
≥240	1.7	0.6	1.4	3.6	4.3	5.9	

(≥ 200 mg/dL or on medication)	14.9	17.6	23.9	20.7	17.4	21.6
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USD indicates United States dollar

