

# PALAU

## Adult Hybrid/Community Health Assessment Survey



**2023**

# ENDORSEMENT



## Ministry of Health & Human Services

P.O. Box 6027 Koror, Republic of Palau 96940

Phone: (680) 488-2552/3 Fax: (680) 488-1211

E-mail: [administration@palahealth.org](mailto:administration@palahealth.org) Website: [www.palahealth.org](http://www.palahealth.org)

### MHHS HYBRID SURVEY/CHA REPORT FOREWORD

Alii and greetings from the Ministry of Health and Human Services (MHHS). As we continue to navigate the post-COVID pandemic era, the process of recovery, renewal, and reconstitution of daily life in Palau depends on the strength and resilience of its people. And while we achieved notable success with our pandemic response, the challenge remains in achieving similar success in addressing pre-existing health and social issues including the burden of chronic diseases and mental health in Palau.

As an integral component of public health surveillance, community sourced and based data and information are critical for all our health planning and policymaking efforts. As such, MHHS is pleased to present this 2023 Palau Hybrid Survey/ Community Health Assessment Report on non-communicable disease and mental health. In today's fast-paced and dynamic world, understanding of the complex interplay between components of health and the environment is paramount. The findings presented in this comprehensive report are not merely statistics; they represent a crucial milestone in our collective understanding of the health landscape and the challenges faced by our adult population.

The survey results provide a panoramic view of the prevalence, risk factors, and patterns associated with non-communicable diseases, encompassing conditions such as cardiovascular diseases, diabetes, and cancer. Additionally, the inclusion of mental health and community assessments adds a crucial dimension to our understanding of the overall well-being of our community.

The insights gleaned from this survey are not confined to mere data points; they are a call to action. They will serve as a compass to guide policymakers, healthcare professionals, and community leaders in formulating targeted interventions and evidence-based strategies that address the unique needs of our diverse population. By identifying prevalent health issues and understanding the social determinants that contribute to them, we are better equipped to tailor strategies and implement initiatives that address the root causes to improve health outcomes.

I extend my gratitude to the dedicated team of healthcare professionals, community partners, and volunteers who collaborated to bring this survey to completion. Their commitment to advancing our understanding of non-communicable diseases and mental health is commendable and reinforces our collective mission to foster a healthier and more resilient society.

May this report serve as a catalyst for collaboration, innovation, and a renewed commitment to prioritizing and enhancing the health of our communities. Together, let us embark on a journey for a healthier future that we shall strive to build together.

Gaafar J. Uherbelau

Minister of Health and Human Services

# Table of Contents

---

Summary	4
Summary Dashboard: Palau vs. US	5
Summary Dashboard: Palau 2016 vs. 2023	6
Introduction	7-8
Survey Methodology	9-10
Sample Summary	11
Demographics	12-13
General Health	14
Access to Care: Annual Exam	15
Access to Care: Health Insurance	16
Access to Care: Basic Needs	17
Access to Care: No Care	18
Oral Health	19-20
Community Wellbeing	21
COVID-19	22
Overweight/Obesity	23
Hypertension	24-25
Diabetes/Pre-Diabetes	26-28
Total Cholesterol	29
LDL Cholesterol	30
HDL Cholesterol	31
Triglycerides	32
Cigarette Smoking	33
E-cigarette Use	34
Smokeless Tobacco Use	35
Betel Nut Chewing	36-37
Any Tobacco Use	38
Secondhand Smoke	39
Alcohol Use and Binge Drinking	40-41
Marijuana Use	42
Other Substance Use	43
Perceptions of Substance Use Risk	44
Disapproval of Substance Use	45
Mental Health: Depression	46
Mental Health: Anxiety	47
Mental Health: Suicide	48
Fruit and Vegetable Consumption	49
Fruit Consumption	50

<b>Vegetable Consumption</b>	<b>51</b>
<b>Processed Meat Consumption</b>	<b>52</b>
<b>Sugar Sweetened Beverage Consumption</b>	<b>53</b>
<b>Salt Intake</b>	<b>54</b>
<b>Physical Activity</b>	<b>55-56</b>
<b>Sedentary Behavior</b>	<b>57</b>
<b>Colon Cancer Screening: Colonoscopy</b>	<b>58</b>
<b>Colon Cancer Screening: Blood Stool Test</b>	<b>59</b>
<b>Colon Cancer Screening: Any Colon Cancer Screening</b>	<b>60</b>
<b>Female Cancer Screening: Mammogram</b>	<b>61</b>
<b>Female Cancer Screening: Clinical Breast Exam</b>	<b>62</b>
<b>Female Cancer Screening: Pap Smear</b>	<b>63</b>
<b>Important Notes</b>	<b>64</b>
<b>Discussion and Recommendations</b>	<b>65-66</b>
<b>Acknowledgements</b>	<b>67</b>
<b>References</b>	<b>68</b>

# Summary

---

The aim of this report is to assess the current prevalence of non-communicable diseases (NCDs), substance use, mental health, and selected risk factors in Palau. We hope this report enables Palau to better understand its burden of disease, health disparities, monitor trends, and determine who is at greatest risk for poor health in order to improve health and health equity through the development of targeted evidence-based interventions.



Non-Communicable Diseases (NCDs) such as heart disease, cancer, and diabetes are global issues that result in high burdens of disability and premature death. Additionally, substance use and poor mental health can also greatly contribute to disability and premature death throughout the world. NCDs and poor mental health are highly linked to a number of key risk factors, such as cigarette smoking, tobacco chewing, excessive alcohol consumption, unhealthy diet, lack of physical activity, and overweight/obesity. Over the past few decades there have been drastic changes in lifestyle in the Republic of Palau, a small independent nation in the northwestern region of the Pacific Ocean. Palau has shifted from mostly subsistence living and reliance on locally produced crops and fish to a more Western lifestyle of sedentary occupation and more reliance on imported foods, as well as the introduction of many illicit substances. This lifestyle shift has resulted in higher burdens of certain risk factors, NCDs, substance use, and poor mental health.

Palau undertook its second Hybrid Survey from April – August 2023 in combination with the Palau Community Health Assessment (CHA). Therefore, this version is referred to as the Hybrid/CHA Survey. A total of 1,931 individuals aged 18 years or older participated in the survey. Respondents answered questions about their alcohol and tobacco use, other substance use, mental health, dietary habits, physical activity, health access, oral health, health conditions, community well-being, COVID-19, and cancer screening. Additionally, height, weight, Hemoglobin A1c, total cholesterol, HDL cholesterol, triglycerides, and blood pressure were measured.

# Palau vs. USA

Here are Palau's 2023 Hybrid/CHA Survey prevalence data compared to U.S. prevalence data using the most comparable sources available. Almost all selected indicators had a higher prevalence in Palau compared to the US. E-cigarette use prevalence is lower in Palau compared to the US. Alcohol use in the past 30 days is lower in Palau compared to the US, though the binge drinking prevalence is higher in Palau. The overweight/obesity prevalence is similar in both locations, though the prevalence of diabetes and hypertension in Palau is higher than the US. Due to lack of raw data from US sources, statistical analysis could not be performed.

	Palau %	US %	Comparison
<b>Current tobacco use (past 30 days)</b>			
Cigarette smoking	20.8	14.0	↑
E-cigarette use	1.7	7.7	↓
<b>Current alcohol use (past 30 days)</b>			
Alcohol use (any)	35.6	53.6	↓
Binge drinking (5+ drinks per day)	28.0	17.0	↑
<b>Nutrition</b>			
Consuming fruit <1 time per day	69.4	40.8 <sup>1</sup>	↑
Consuming vegetables <1 time per day	45.4	19.7 <sup>1</sup>	↑
<b>Health and healthcare</b>			
Fair or poor health (self-reported)	47.3	17.0	↑
<u>No</u> medical checkup in the past year	43.0	23.2	↑
<b>Oral health</b>			
<u>No</u> dental visit within past year	62.7	34.2	↑
Extracted permanent teeth due to decay/disease	64.6	40.3	↑
<b>Chronic conditions</b>			
Overweight/obesity	75.6	73.1 <sup>2</sup>	○
Diabetes (self-reported + undiagnosed)**	30.5	14.3 <sup>3</sup>	↑
Hypertension (self-reported + undiagnosed)**	47.7	31.7 <sup>4</sup>	↑
High Cholesterol**	2.4	11.3 <sup>5</sup>	↑
<b>Cancer screening</b>			
<u>No</u> Pap smear in the past 3 years (women 21-65 yo)	34.6	22.3 <sup>6</sup>	↑
<u>No</u> mammogram in the past 2 years (women 50-74 yo)	63.7	21.7 <sup>6</sup>	↑
Source for US comparison: BRFSS 2022 unless noted with <sup>1</sup> BRFSS 2021, <sup>2</sup> NHANES 2017-2018 (adults 20+), <sup>3</sup> CDC National Diabetes Report 2022 (includes diagnosed and undiagnosed diabetes) <sup>4</sup> NHANES 2017-2018 (adults 18+; includes diagnosed and undiagnosed hypertension), <sup>5</sup> NHANES 2013-2018 (adults 20+), <sup>6</sup> BRFSS 2020; **Diabetes prevalence is estimated based on either a self-report of diabetes for which the patient is taking medication and/or an A1c of ≥6.5% during the survey; Hypertension prevalence is estimated based on either a self-report of hypertension for which the patient is taking medication and/or a measured average blood pressure (of 2 readings) of ≥140/90. High cholesterol is based on a measurement of total cholesterol of ≥240mg/dL.			

# Surveillance in Palau: 2016 vs. 2023

The table below compares the 2016 Palau Hybrid Survey results to the 2023 Palau Hybrid Survey. Chi-square analysis ( $p < 0.05$  considered statistically significant) was used for comparisons with red indicating a worsening trend, green indicating an improving trend, and yellow indicating no significant change.

	2016%	2023%	Comparison
<b>Current tobacco use</b>			
Cigarette smoking in the past 30 days	20.4	20.8	○
Chewing betel nut with tobacco in the past 30 days	44.4	41.2	↓
E-cigarette use	1.6	1.7	○
<b>Current alcohol use</b>			
Alcohol use in the past 30 days	41.1	35.6	↓
Binge drinking in the past 30 days	27.3	28.0	○
<b>Nutrition</b>			
<5 servings of fruits and vegetables per day	90.1	92.2	○
2+ sugar-sweetened beverages per day	43.2	37.3	↓
<b>Health and Healthcare</b>			
Self-reported fair or poor health	46.7	47.8	○
Medical check-up in the past year	51.9	57.0	↑
<b>Oral Health</b>			
Dental visit within the past year	40.5	37.3	↓
Any permanent teeth extracted due to decay/disease	65.7	64.6	○
<b>Cancer Screening</b>			
Up-to-date Pap (women 21-65) <sup>1</sup>	60.3	65.4	○
Up-to-date Mammogram (women 50-74) <sup>2</sup>	29.7	36.6	↑
<b>Chronic conditions</b>			
Overweight/obesity <sup>3</sup>	72.5	75.6	↑
Diabetes <sup>4</sup>	22.2	30.5	↑
Hypertension <sup>5</sup>	32.9	47.7	↑
High cholesterol (240mg/dL or higher)	4.9	2.4	↓

<sup>1</sup>up-to-date is a Pap within the past 3 years per USPTF guidelines

<sup>2</sup>up-to-date mammogram is a mammogram within the past 2 years per USPTF guidelines

<sup>3</sup>Overweight/obesity determined as a BMI  $\geq 25$  based on measured height and weight

<sup>4</sup>2016: diabetes was determined by a self-report of medicated diabetes and/or fasting blood glucose of  $\geq 126$ mg/dL; 2023: diabetes was determined by a self-report of medicated diabetes and/or an A1c of  $\geq 6.5\%$

<sup>5</sup>Hypertension was determined by a self-report of medicated hypertension and/or an average blood pressure reading (out of 3 readings) of  $\geq 140/90$

# Introduction

---

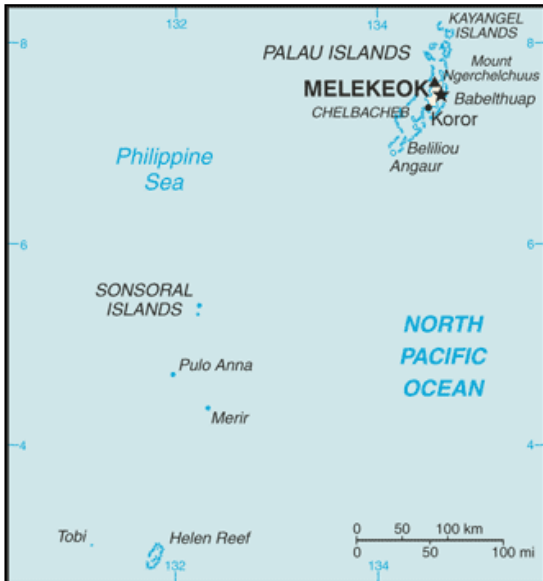
Non-communicable diseases (NCDs) are the leading causes of morbidity and mortality for adults in the United States Affiliated Pacific Islands (USAPIs) (American Samoa, Guam, Commonwealth of the Northern Mariana Islands [CNMI], Federated States of Micronesia [FSM], Republic of Palau, and Republic of Marshall Islands [RMI]).



In 2010, the Pacific Island Health Officers Association (PIHOA) declared a regional health emergency due to the epidemic of NCDs in the USAPIs [1]. The NCDs of concern in the USAPIs include diabetes, heart disease, stroke, cancer, and chronic obstructive pulmonary disease [2]. The social determinants of health demonstrate that there is a complex system of factors that are linked to NCDs which include demographic, social, technological, cultural, environmental, biological, economic, and political factors [3]. However, the five leading risk factors attributable to NCDs globally include unhealthy diets (insufficient consumption of fruit and vegetables, excessive consumption of salt, high fat, and high sugar foods), insufficient physical activity, excessive consumption of alcohol, obesity, and tobacco use [2]. In the Pacific Islands, betel nut (which is carcinogenic to humans) chewing with or without tobacco is also identified as a significant health problem [4].

The Pacific, including the Micronesia region, is known to have some of the highest rates of suicide in the world, and these suicides are highly associated with substance use and mental health disorders [5,6]. In Palau, the average annual suicide rate from 2003-2012 was 21.7 per 100,000, which is about twice the global suicide rate [7]. Very little data have been collected in Palau regarding the risk factors for suicide, including substance use and mental health.

NCDs and substance use/mental health surveillance in Palau have historically been inconsistent and inadequate. Due to the need for surveillance of these two critical health concerns, the Republic of Palau Ministry of Health Non-Communicable Disease Unit and Behavioral Health/Prevention Unit combined efforts to develop a novel, integrated adult population-based survey that was first conducted in 2016. This Hybrid Survey was designed to simultaneously assess the Substance Abuse Mental Health Services Administration's (SAMHSA), National Outcome Measures (NOMs), as well as the Centers for Disease Control and Prevention's (CDC), and the World Health Organization's (WHO) NCDs and NCD risk factor indicators.



Palau is comprised of more than 340 individual islands in six island groups forming an archipelago in the far southwestern corner of the North Pacific Ocean. The nation consists of high volcanic islands, raised limestone islands, barrier reefs, and classic atolls extending nearly 700 miles on the northeast to southwest axis. The islands of Palau have a total landmass of 188 square miles.

The Republic of Palau is a self-governing republic that is affiliated with the US under a Compact of Free Association, which became effective on October 1, 1994. While there are over 340 islands that make up the nation of Palau, only ten are permanently inhabited. The main island group comprises fourteen of the total sixteen Palauan states. Koror, the prior capital of Palau totaling 7.1<sup>2</sup> miles is where the majority of Palau's population resides. The capitol was recently relocated to the State of Melekeok on the large, rural island of Babeldaob. The State of Kayangel, an atoll north of Palau's largest island of Babeldaob, is accessible only by boat (approximately 2 hours by speed boat). The islands of Peleliu and Angaur (also accessible by speed boat), are located south of Babeldaob. A small group of islands 200-380 miles southwest of the main islands of Palau make up the States of Sonsorol and Hatohobei. There is no air service to these islands, but they are serviced sporadically by ship.

The population of Palau is 17,614 (2020 Census). The majority of the population has always resided in the state of Koror, Palau's most urban area. In 2020, 64% of the population resided in Koror, with the second highest populated state being that of Airai (14%), located just north of Koror. Airai can be considered the "suburb" of Koror, whereas the remaining sparsely populated states are quite rural. As of 2020, 71% of the population is native Palauan, with the second largest group being Asian at 26%.

# Survey Methodology

The Palau Hybrid/CHA Survey aimed to assess the prevalence of selected NCDs, risk factors, community wellbeing, and substance use/mental health indicators according to CDC, PIHOA, SAMHSA, and WHO surveillance frameworks.



## Objectives

1. Inform the local community of Palau and support partners on NCDs, risk factors, substance use, and mental health prevalence
2. Use these data to prioritize and tailor prevention programs developed and supported by the Republic of Palau Ministry of Health and Human Services
3. Support further research on risk and protective factors of NCDs and substance use/mental health in Palau
4. Use these data to monitor progress and trends to reduce morbidity and mortality in Palau

## Target group

Participants eligible for the Palau Hybrid Survey included all Palau residents aged 18 and older who were able to comprehend either English or Palauan language and provide consent.

## Data collection

Data collection began on April 25, 2023 and ended on August 28, 2023. A total of 1,931 respondents completed the survey and measurements. All interviews and measurements were performed by trained surveyors hired by the Palau Ministry of Health and Human Services.



### Sample size determination



The original sample included 2,400 households. 'Household' sample size was determined based on the adult population sizes of all states in Palau based on the 2020 Census.

### Sampling procedures



Stage 1: Households were identified at random according to geographical stratification conducted on two levels: Island and State.

Stage 2: One individual was selected at random from each household using the KISH table method.

### Data collection



Surveys were translated and available in Palauan and English. Data were collected by trained surveyors using face-to-face questionnaires and anthropometric and other physical and biochemical measurements. Quality control of completed questionnaires was ensured at different stages during the questionnaire-processing phase.

### Data entry



All data were collected electronically using a tablet. Tablets were uploaded on a weekly basis at the Ministry of Health and Human Services.

A data dictionary was created to explain the indicators and data codes.

### Data cleaning



Descriptive statistics were produced for all variables. Values that did not match the data codes defined in the data dictionary were verified against the original questionnaire and rectified. Outliers were also checked, validated, and rectified.

### Data analysis



Descriptive data analysis was conducted. Chi-squared analysis was used to analyze differences by:

- **age group** (18-24 years old, 25-34 yo, 35-44 yo, 45-65 yo, 65+ yo)
- **gender** (male, female)
- **ethnicity** (Palauan, Filipino, Other)
- **education** (high school education or less, more than high school education)
- **location** (Koror, Babeldaob, Outlying States)

Due to the representativeness of these data, large sample size, and ability to analyze locally, these data were not weighted.

# Sample Summary

---

The sample collected was similar to population estimates based on the 2020 Census, though the sample had a higher proportion of older age groups, most likely due to higher rates of refusals among younger age groups.

	<u>Survey sample</u>	<u>2020 Census data (18 and older)</u>
	n=1,931	n=13,576
<b>Gender</b>		
Male	1,019 (52.8%)	7,394 (54.5%)
Female	912 (47.2%)	6,182 (45.5%)
<b>Age group</b>		
18-24 years	105 (5.4%)	1,281 (9.4%)
25-34 years	268 (13.9%)	2,696 (19.9%)
35-44 years	320 (16.6%)	2,801 (20.6%)
45-54 years	442 (22.9%)	2,822 (20.8%)
55-64 years	469 (24.3%)	2,305 (17.0%)
65+ years	327 (16.9%)	1,671 (12.3%)
<b>Location</b>		
Koror	1,225 (63.4%)	8,841 (65.1%)
Babeldaob	625 (32.4%)	4,194 (30.9%)
Outlying States*	81 (4.2%)	541 (4.0%)

\*Outlying states include Angaur, Kayangel, Peleliu, Sonsorol, and Hatothobei

# Demographics

---

<b><u>State</u></b>	<b><u>N</u></b>	<b><u>%</u></b>
Aimeliik	41	2.1%
Airai	276	14.3%
Angaur	12	0.6%
Hatohobei	1	0.1%
Kayangel	6	0.3%
Koror	1225	63.4%
Melekeok	43	2.2%
Ngaraard	48	2.5%
Ngarchelong	49	2.5%
Ngardmau	25	1.3%
Ngatpang	31	1.6%
Ngechesar	31	1.6%
Ngeremlengui	42	2.2%
Ngiwal	39	2.0%
Peleliu	60	3.1%
Sonsorol	2	0.1%
<b><u>Sex</u></b>		
Male	1019	52.8%
Female	912	47.2%
<b><u>Gender Identity</u></b>		
Male	1008	52.2%
Female	917	47.5%
Transgender	5	0.3%
None of these	1	0.1%
<b><u>Sexual Orientation</u></b>		
Gay or lesbian	20	1.0%
Straight	1881	97.8%
Bisexual	15	0.8%
Something else	7	0.4%
<b><u>Age</u></b>		
18-24	105	5.4%
25-34	268	13.9%
35-44	320	16.6%
45-54	442	22.9%
55-64	469	24.3%
65+	327	16.9%

**Marital Status\***

Single, never married	536	27.8%
Married or domestic partnership	1064	55.1%
Widowed	185	9.6%
Divorced	93	4.8%
Separated	52	2.7%

**Ethnicity\***

Palauan	1373	71.2%
Filipino	359	18.6%
Bangladeshi	80	4.1%
Chinese	32	1.7%
Japanese	18	0.9%
Taiwanese	11	0.6%
Other	56	2.9%

**Education**

Less than high school	266	13.8%
High school completed	877	45.5%
Associate's degree completed	459	23.8%
Bachelor's degree completed	232	12.0%
Graduate or professional degree completed	95	4.9%

**Employment**

Employed for wages	1194	61.9%
Employed not for wages	12	0.6%
Self-employed	90	4.7%
Out of work, looking	61	3.2%
Out of work, not looking	90	4.7%
Homemaker	69	3.6%
Retired	369	19.1%

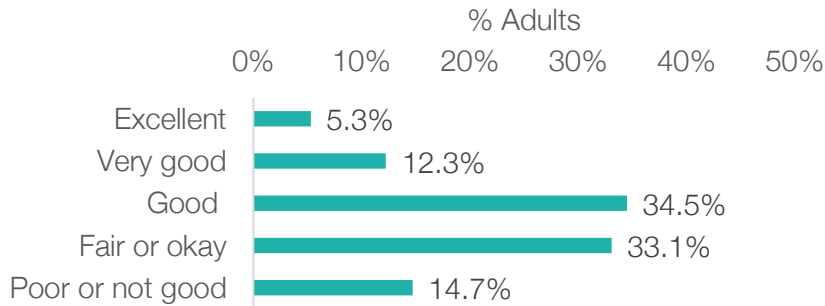
**Income\***

<\$10,000	799	58.6%
\$10,000-\$19,999	591	43.4%
\$20,000-\$29,999	201	14.7%
\$30,000-\$39,999	100	7.3%
\$40,000 or greater	114	8.4%

\*1 missing data on marital status, 2 missing data on ethnicity, 8 missing data on sexual orientation, 2 missing data on education, 3 missing data on employment, 126 missing data on income

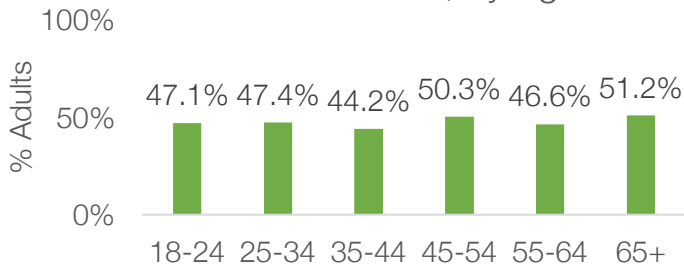
# General Health

Self-reported health status among adults in Palau, 2023

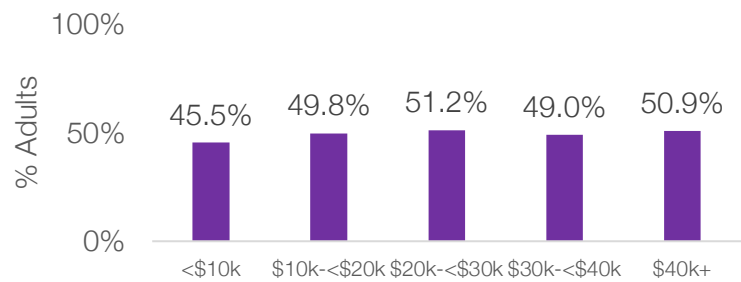


**Almost half of adults (47.8%; 95% CI: 45.5%-50.0%) in Palau self-reported their health as fair or poor. Fair or poor health was significantly higher among women, Palauans, and those residing in Babeldaob.**

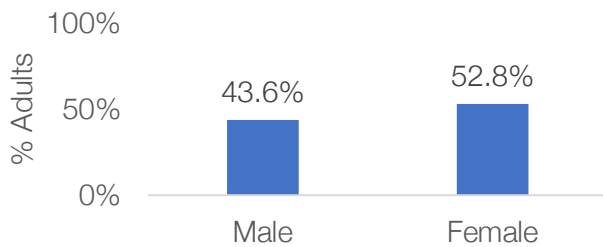
Fair/Poor Health, by Age



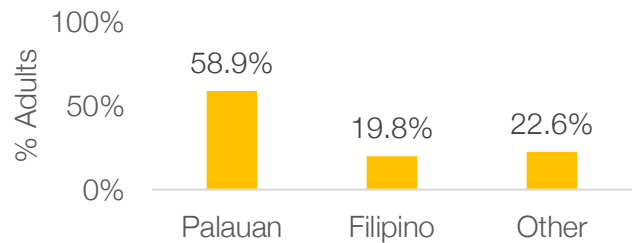
Fair/Poor Health, by Income



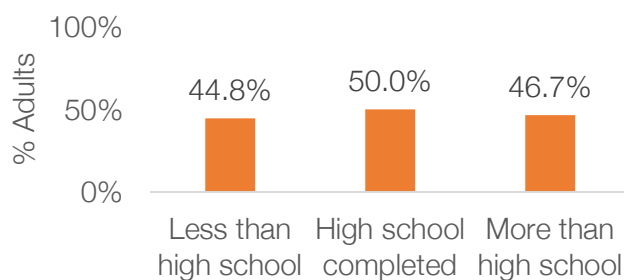
Fair/Poor Health, by Gender



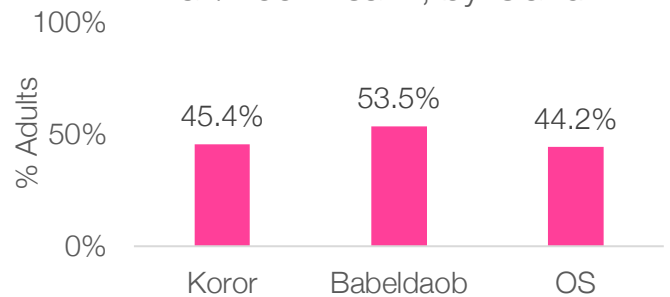
Fair/Poor Health, by Ethnicity



Fair/Poor Health, by Education

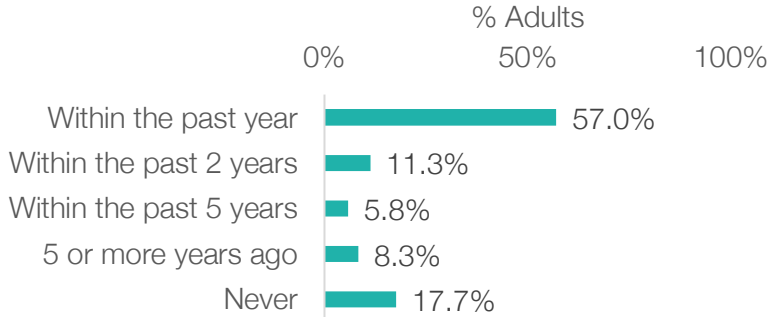


Fair/Poor Health, by Island



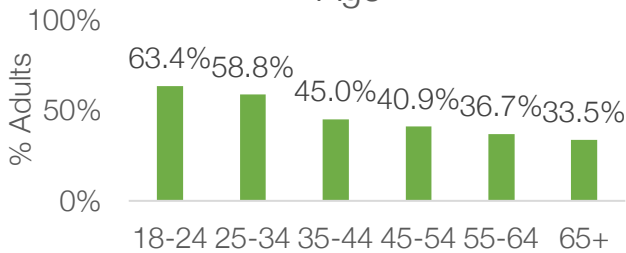
# Access to Care: Annual Exam

Last annual exam among adults in Palau, 2023

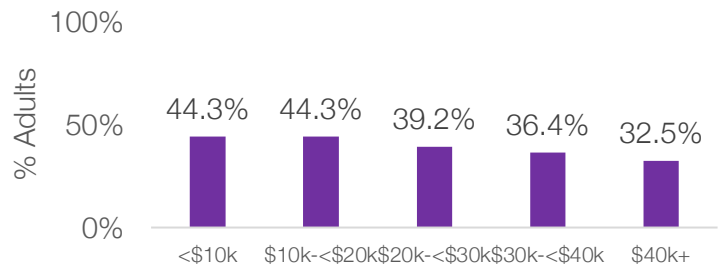


**About 3 out of 5 adults (57.0%; 95%CI: 54.8%-59.3%) in Palau had an annual exam in the past year. 17.7% have never had an annual exam. Younger adults, Palauans, and those with a high school education or less were significantly more likely to not have had an annual exam in the past year.**

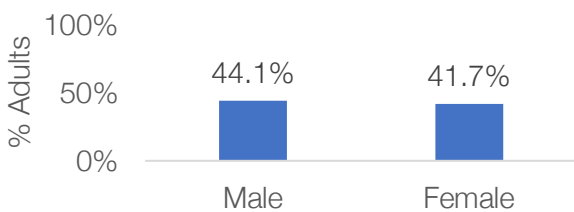
NO annual Exam past year, by Age



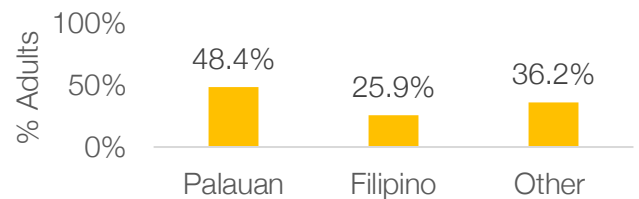
NO annual exam, by Income



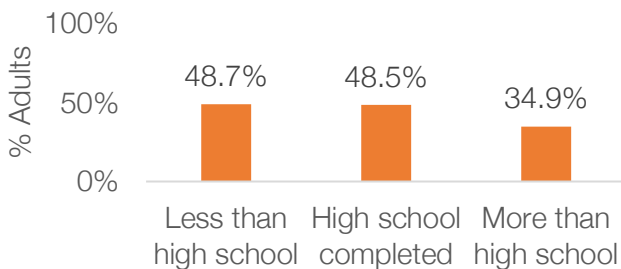
NO annual exam, by Gender



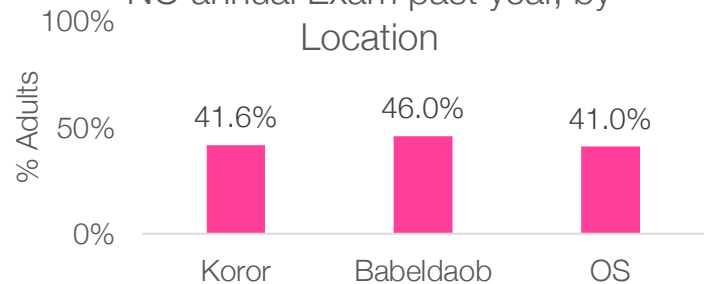
NO annual exam, by Ethnicity



NO annual exam, by Education

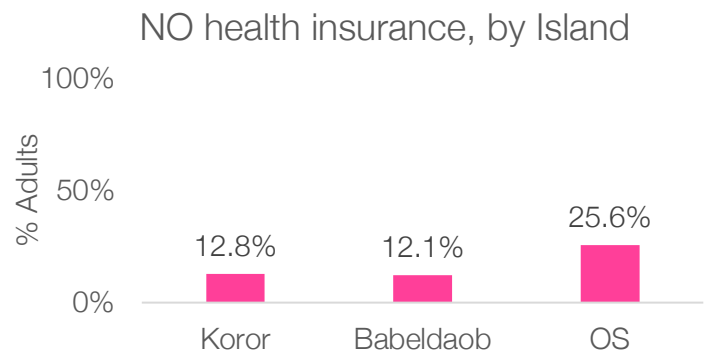
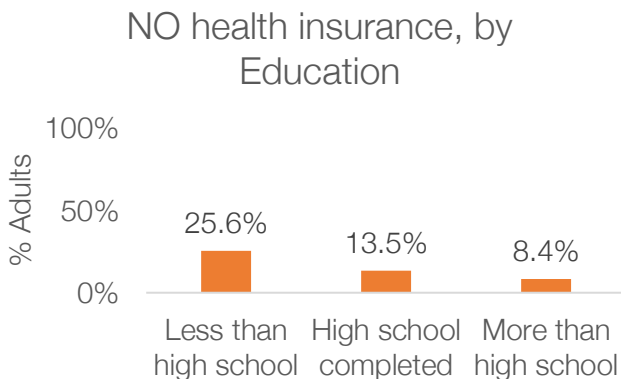
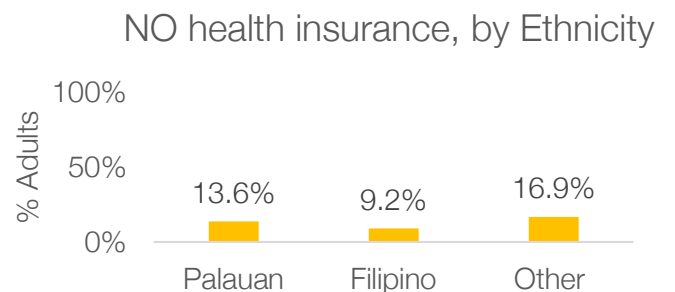
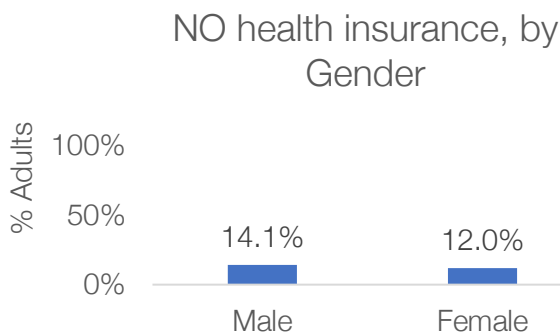
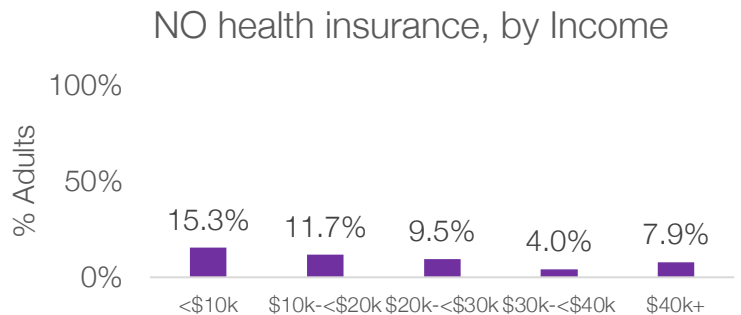
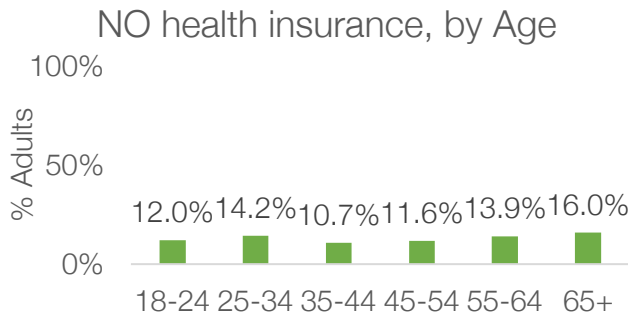


NO annual Exam past year, by Location



# Access to Care: Health Insurance

Most adults (86.9%; 95% CI: 85.3%-88.4%) in Palau reported having health insurance. Being uninsured was significantly higher among those with lower household incomes, Palauans and “other” ethnicities, those with lower education levels, and those residing in outlying states.

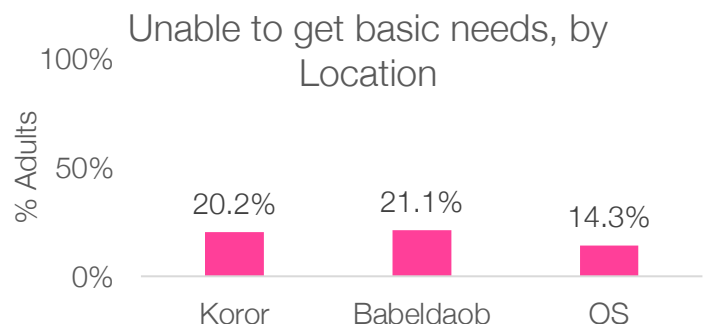
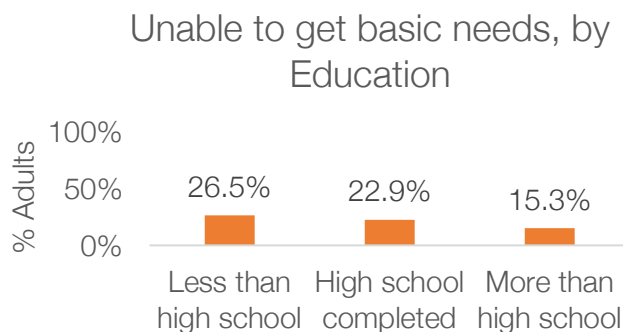
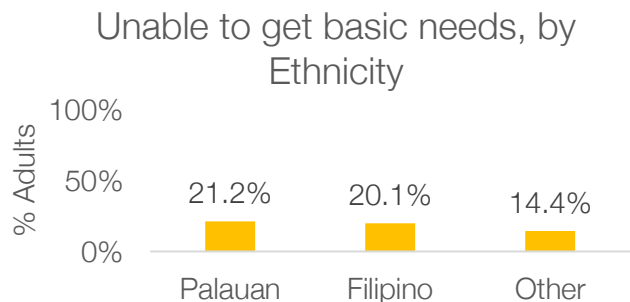
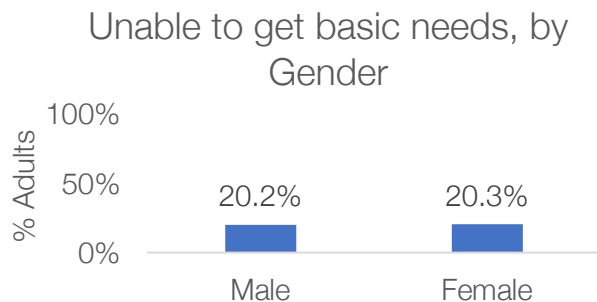
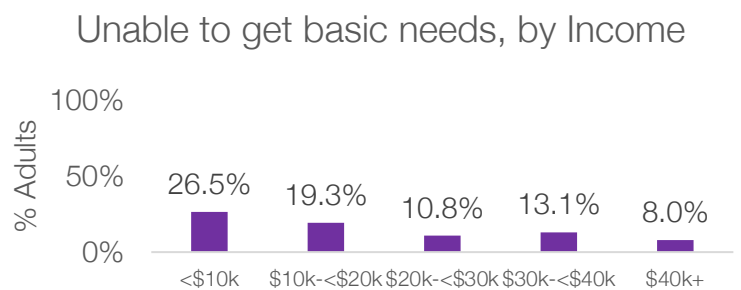
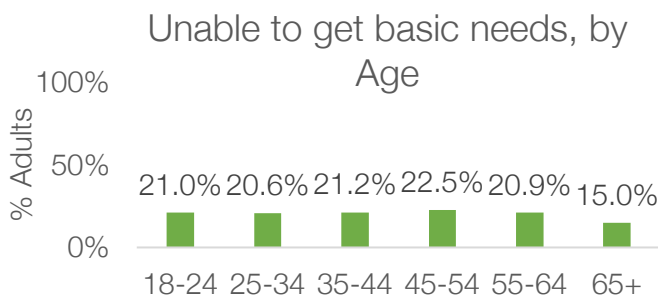


# Access to Care: Basic Needs

In the past year, 20.3% (95%CI: 18.5%-22.2%) of adults or their family members that live with them were unable to get one or more basic need (listed below) when they really needed them.

In the past year, have you or any family members you live with been unable to get any of the following when it was really needed?	
Food	9.8%
Utilities	13.5%
Clothing	4.9%
Childcare	5.7%
Medicine or any healthcare	7.9%
Eldercare	3.4%
Education	4.1%

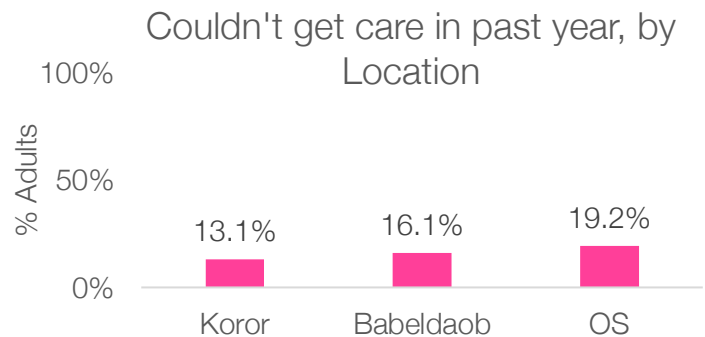
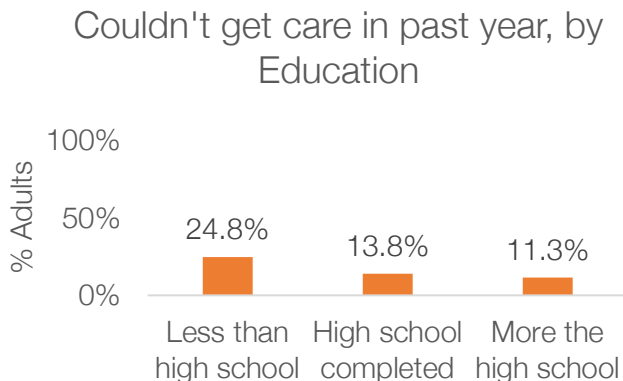
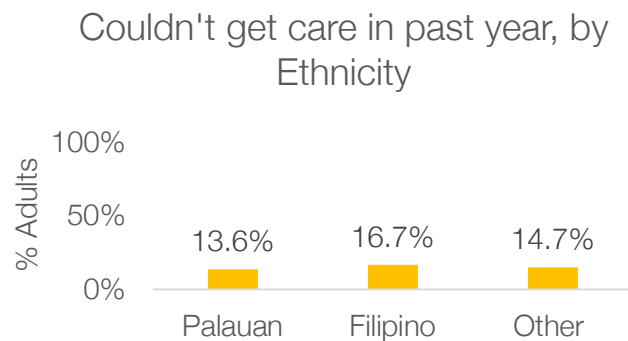
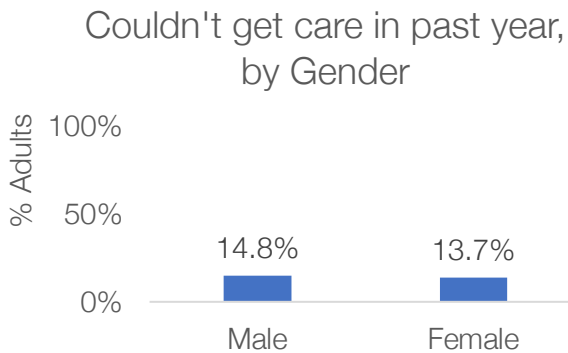
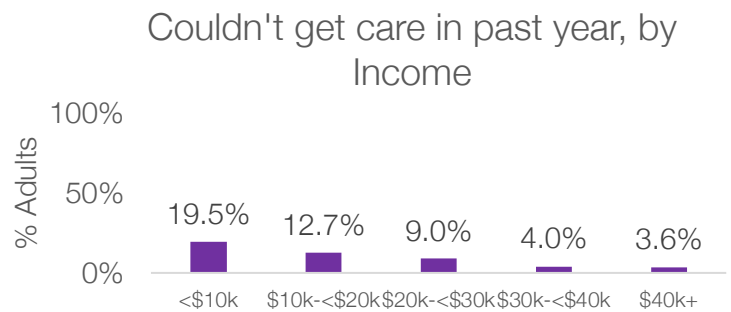
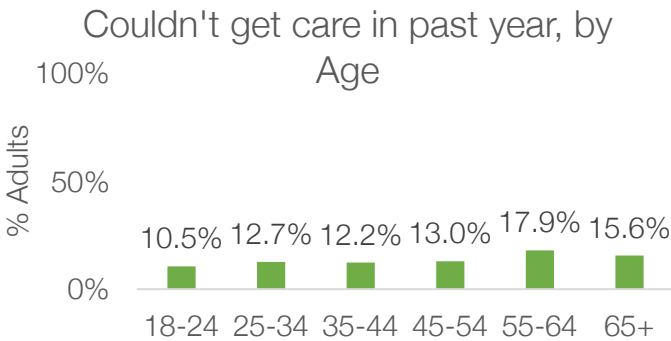
Challenges with getting basic needs was significantly higher among those adults with lower household incomes and those with lower education levels.



# Access to Care: No Care

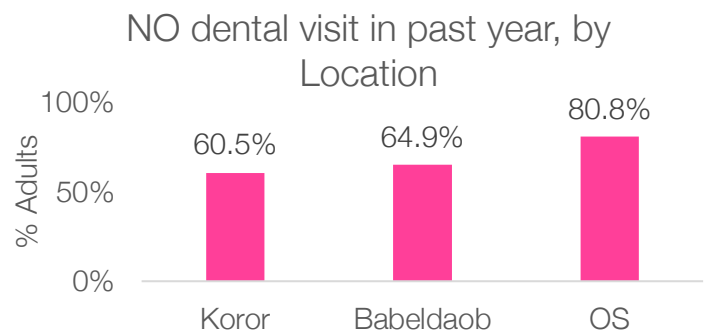
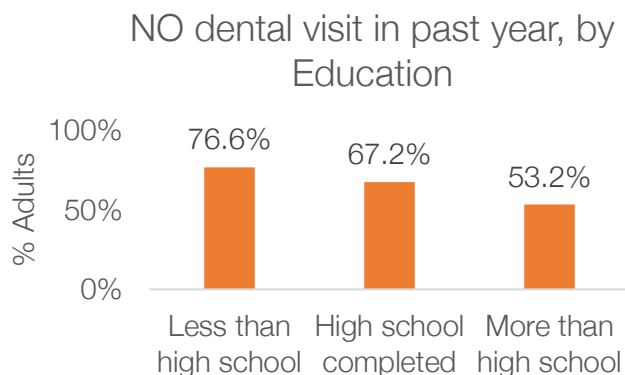
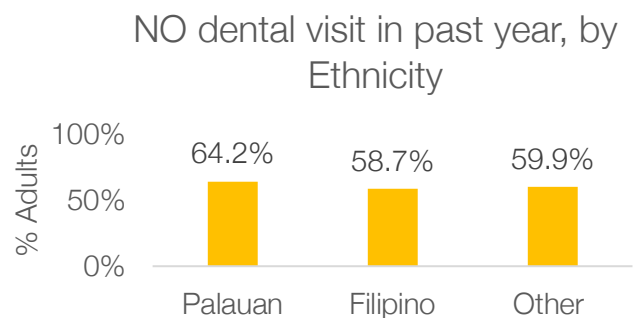
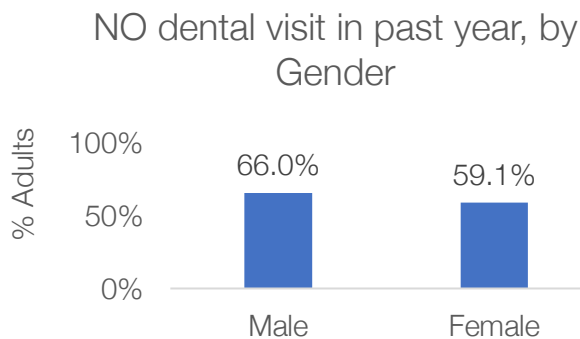
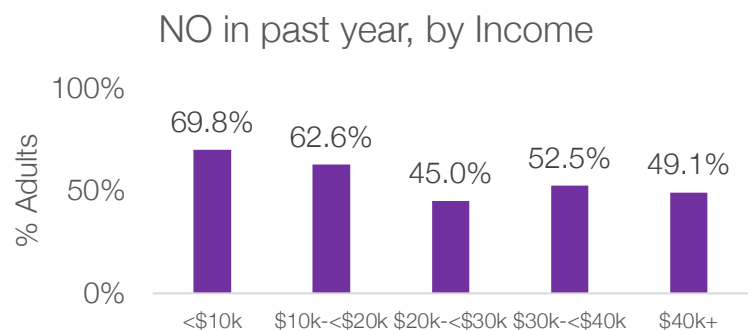
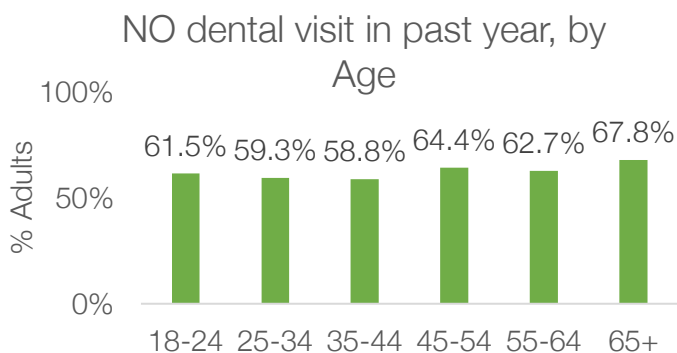
In the past 12 months, 14.3% (95%CI: 12.8%-16.0%) of adults were unable to see a doctor when they needed to because of cost or lack of transportation. Lack of access to care was significantly higher among those with lower household incomes and those with less than a high school education.

Was there a time in the past 12 months when you needed to see a doctor but could not because of...	
Cost	10.3%
Lack of Transportation	8.4%



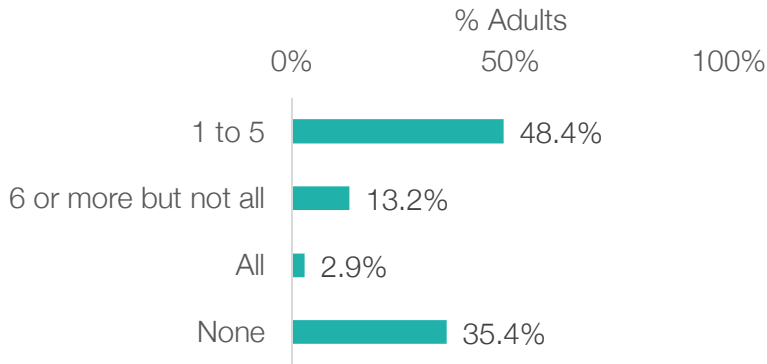
# Oral Health

Fewer than 2 out of 5 (37.3%; 95% CI: 35.1%-39.5%) adults in Palau have had a dental visit in the past year. Additionally, 22.8% of adults reported that they had never had a dental visit. NOT having a dental exam in the past year was significantly higher among those with lower household incomes, men, those with lower education levels, and those who reside in outlying states.



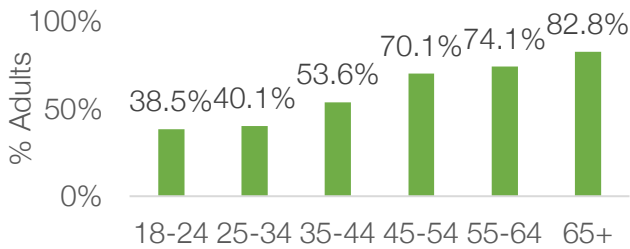
# Oral Health

Number of self-reported missing teeth among adults in Palau, 2023

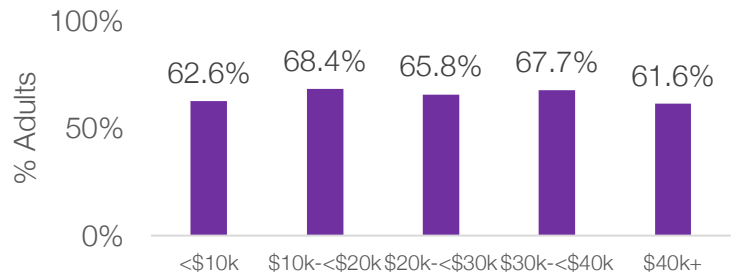


**Almost two-thirds (64.6%; 95% CI: 62.4%-66.7%) of adults in Palau have self-reported that they have at least one missing tooth due to tooth decay or gum disease. Having at least one missing tooth is significantly higher among older adults, women, and Filipinos.**

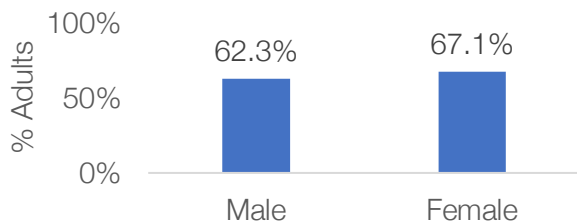
Any missing teeth, by Age



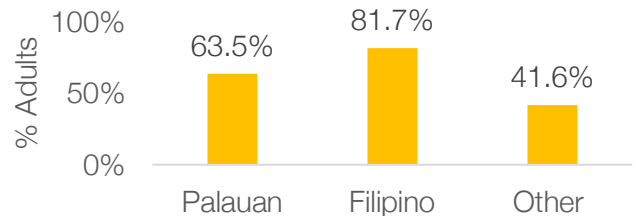
Any missing teeth, by Income



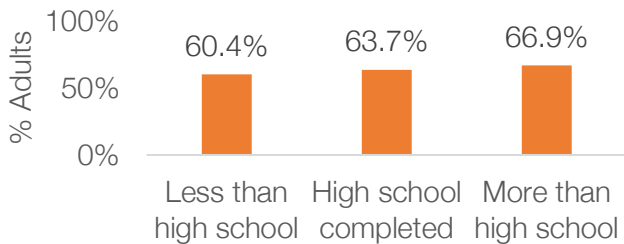
Any missing teeth, by Gender



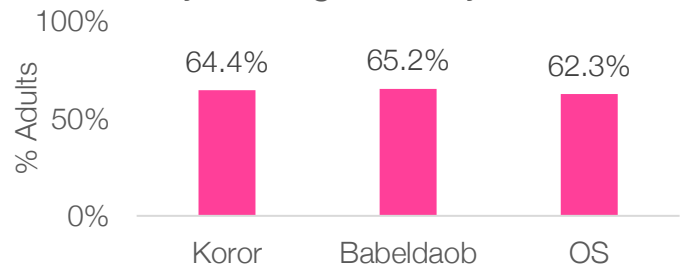
Any missing teeth, by Ethnicity



Any missing teeth, by Education

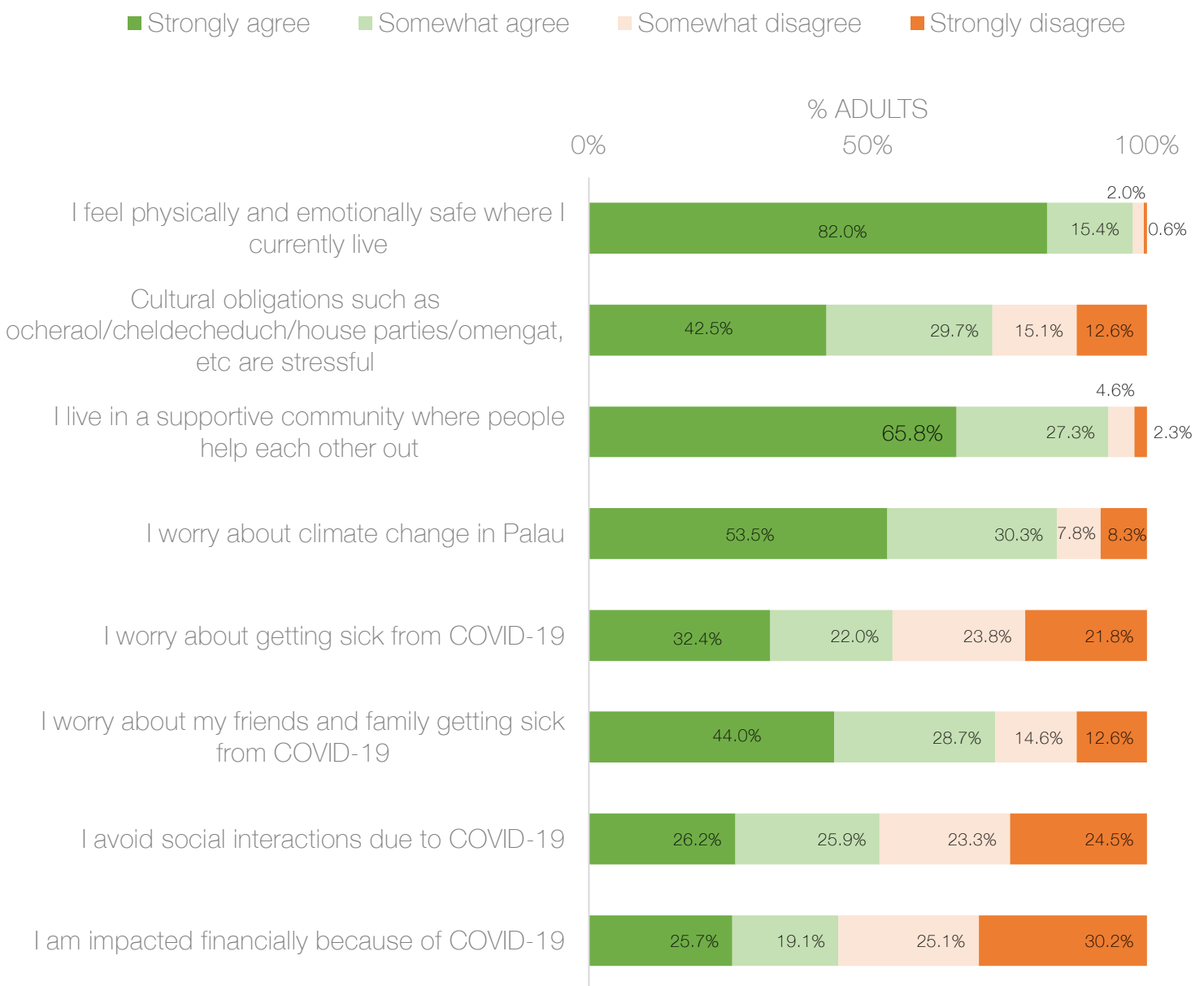


Any missing teeth, by Location



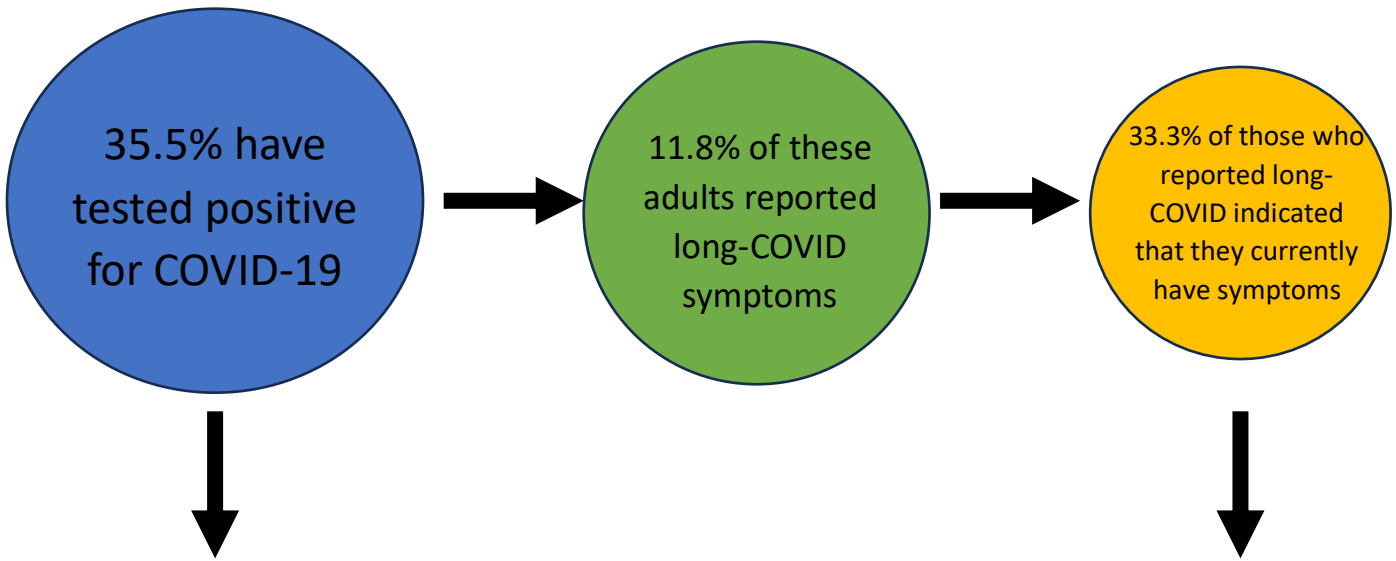
# Community Wellbeing

Several questions were asked to assess community well-being in Palau. Most adults in Palau feel safe where they live and feel that they live in a supportive community. However, most adults in Palau feel that cultural obligations are stressful and worry about climate change. About half of adults in Palau worry about getting sick from COVID-19, avoid social interactions due to COVID-19, and indicate that they have been impacted financially by COVID-19. Over half of adults in Palau worry about friends and family getting sick from COVID-19.

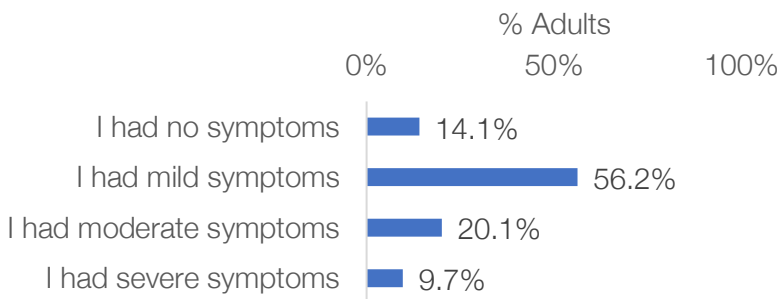


# COVID-19

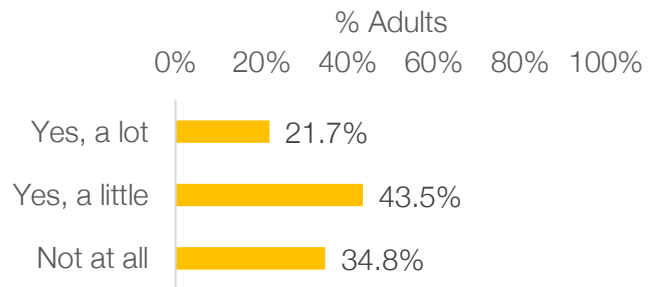
About one-third (35.5%) of adults in Palau indicated that they have tested positive for COVID-19. Among those who have reported having COVID-19, most reported having no or mild symptoms (70.3%). 11.8% of those who have tested positive for COVID-19 reported long-COVID symptoms, and among those 33.3% reported that they still had symptoms. Among those with current long-COVID symptoms, 21.7% indicated that their symptoms greatly reduced their ability to carry out day-to-day activities.



How would you describe your COVID-19 symptoms when they were at their worst?

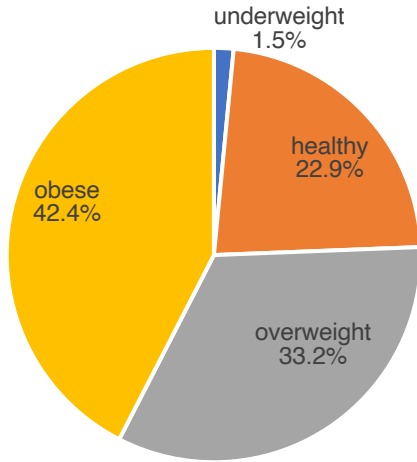


Do these long-term symptoms reduce your ability to carry out day-to-day activities compared with the time before you had COVID-19?



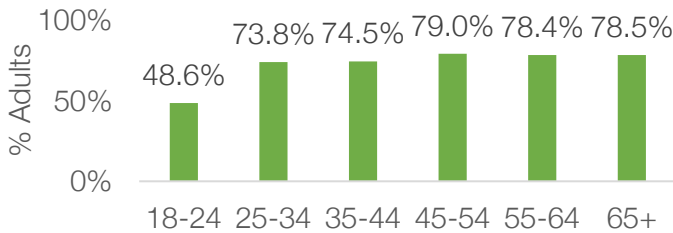
# Overweight / Obesity

BMI categories among adults in Palau, 2023

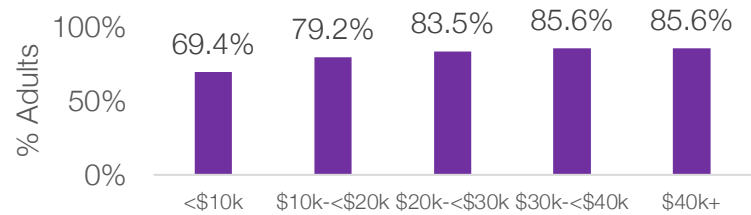


Body Mass Index (BMI) is calculated based on height and weight measurements. Overall, about 3 out of 4 (75.6%; 95% CI: 73.6%-77.5%) adults in Palau were overweight or obese. Overweight/obesity prevalence was significantly higher among those with higher household incomes, women, those 25 and older, those with a high school education or higher, and Palauans.

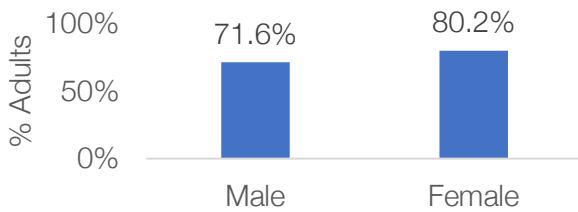
Overweight/obesity, by Age



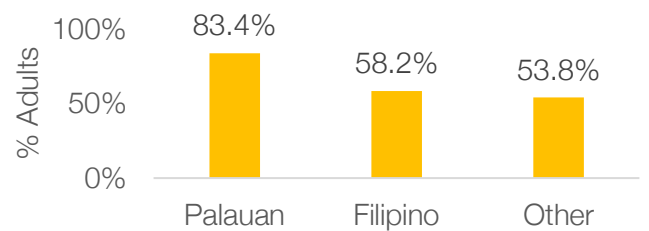
Overweight/obesity, by Income



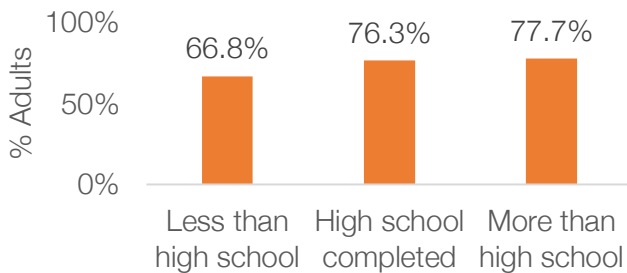
Overweight/obesity, by Gender



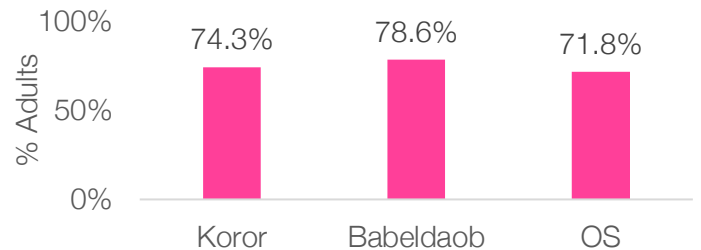
Overweight/obesity, by Ethnicity



Overweight/obesity, by Education



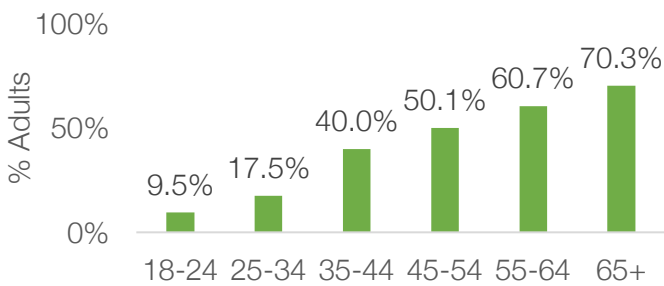
Overweight/obesity, by Location



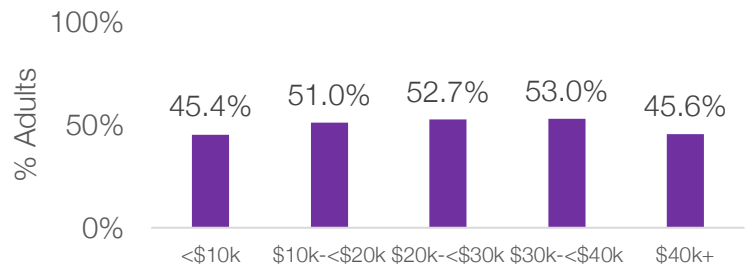
# Hypertension

Almost half of adults (47.7%; 95% CI: 45.4%-50.0%) in Palau had high blood pressure ( $\geq 140/90$ ) during screening or self-reported having hypertension for which they took medication. Hypertension prevalence was significantly higher among Palauans and Filipinos compared to “other” ethnicities. Hypertension prevalence significantly increased with age.

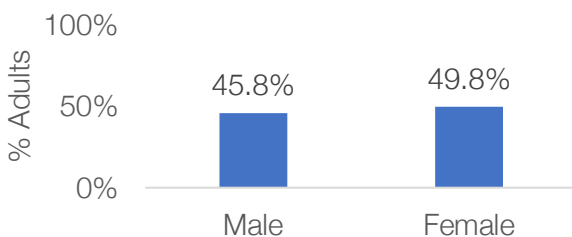
Hypertension, by Age



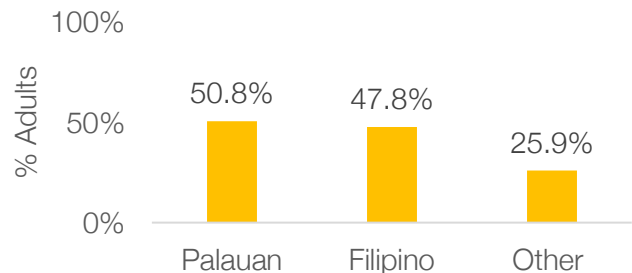
Hypertension, by Income



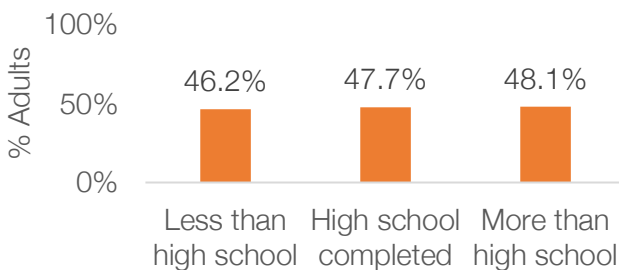
Hypertension, by Gender



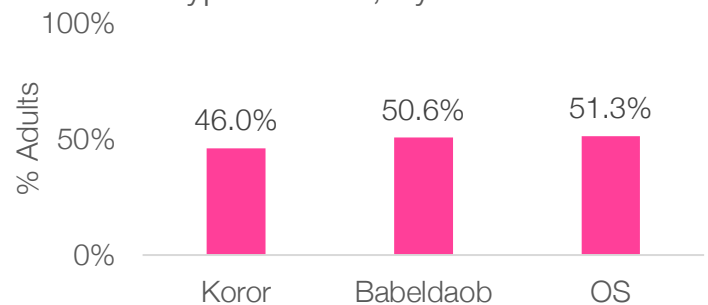
Hypertension, by Ethnicity



Hypertension, by Education



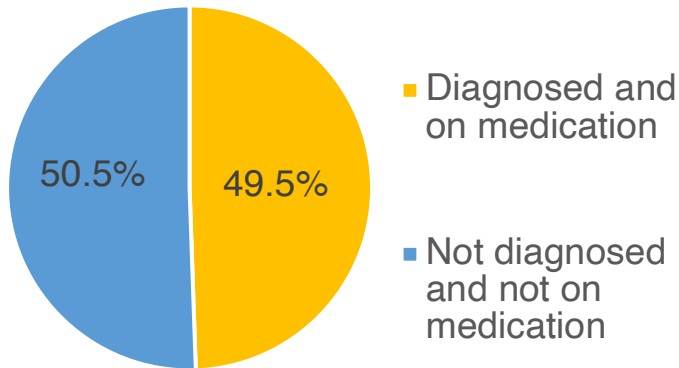
Hypertension, by Location



# Hypertension Diagnosis & Control

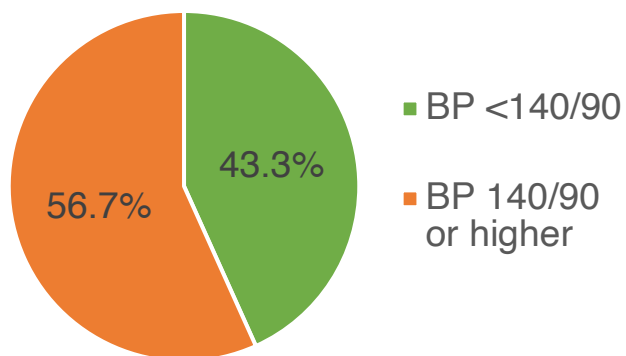
---

Diagnosis and medication status among hypertensives



Among the adults in Palau classified as having hypertension, 49.5% of adults reported that they were diagnosed and taking medication for their hypertension. Over half (50.5%) of adults with hypertension in Palau are not diagnosed and not on medication.

Blood pressure levels among those hypertensives who are diagnosed and on medication

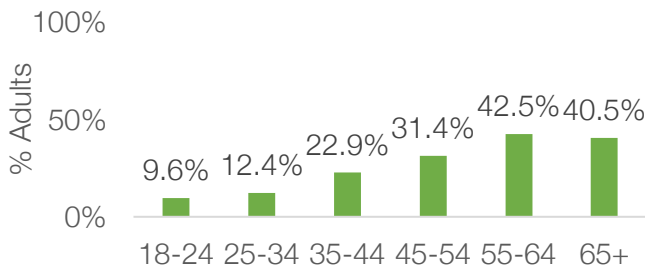


Among those adults who reported that they were diagnosed and taking medication for their hypertension, 56.7% had an uncontrolled blood pressure measurement. Uncontrolled blood pressure status was defined as having an average blood pressure measurement that was  $\geq 140/90$ . This indicates that these individuals with hypertension who are on medication are not controlled.

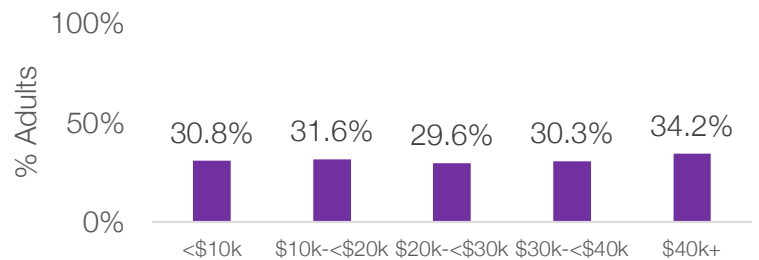
# Diabetes

**30.5% (95% CI: 28.4%-32.6%)** of adults in Palau were estimated to have diabetes (diabetes prevalence is estimated based on either a self-report of having diabetes for which the patient is taking medication and/or an A1c measurement of 6.5% or higher). Diabetes prevalence was significantly higher among Palauans and those residing in outlying states. Diabetes prevalence also significantly increased with age, with about 2 out of 5 adults 55 and older having diabetes.

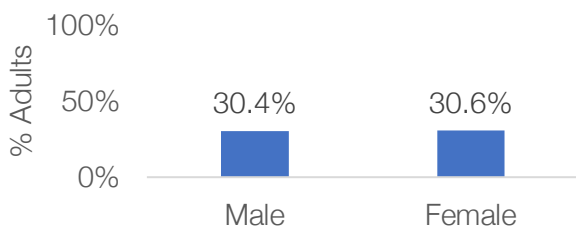
Diabetes, by Age



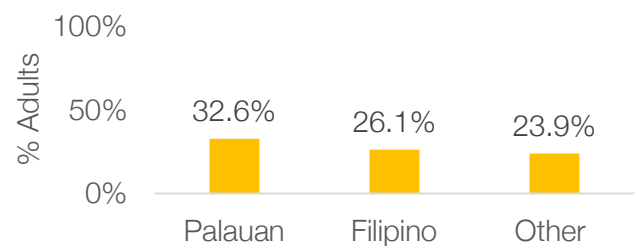
Diabetes, by Income



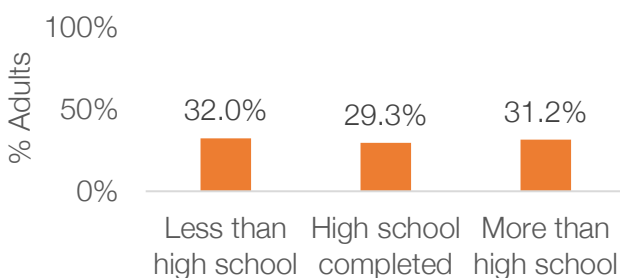
Diabetes, by Gender



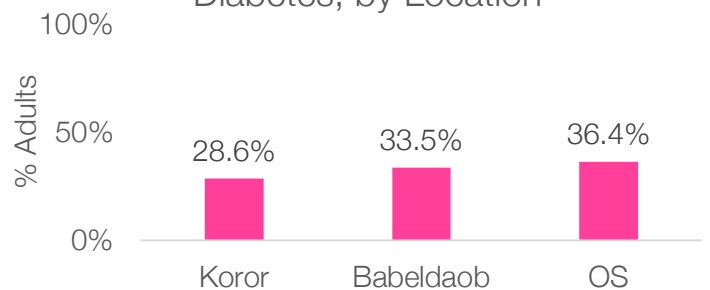
Diabetes, by Ethnicity



Diabetes, by Education

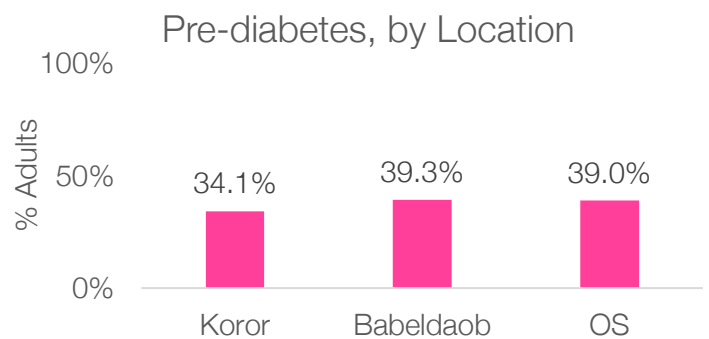
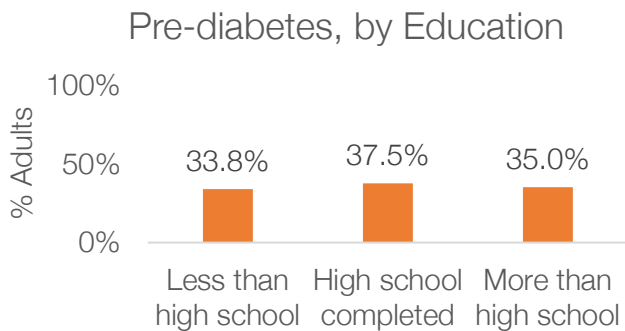
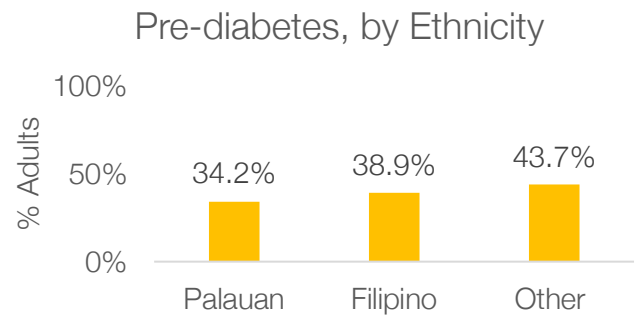
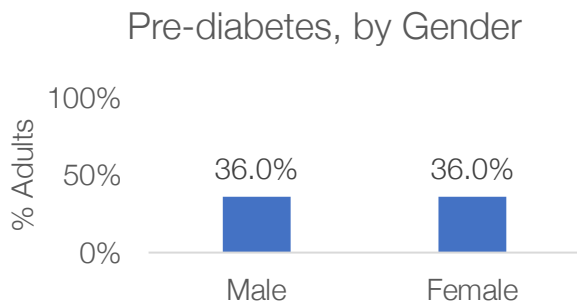
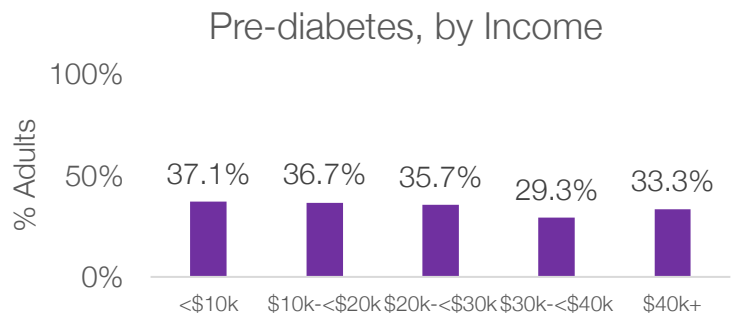
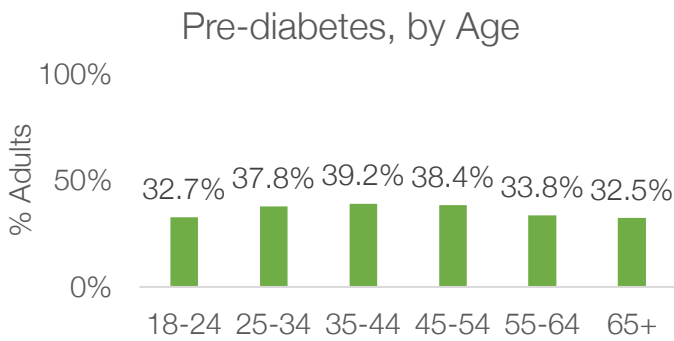


Diabetes, by Location



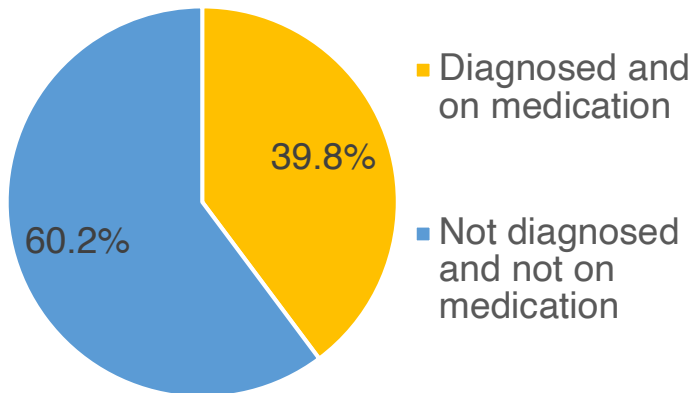
# Pre-diabetes

**36.0% (95% CI: 33.9%-38.2%) of adults in Palau were estimated to have pre-diabetes (pre-diabetes prevalence is estimated based on either a self-report of pre-diabetes and/or an A1c measurement of 5.7%-6.4%). Pre-diabetes prevalence was significantly higher among non-Palauan ethnicities.**



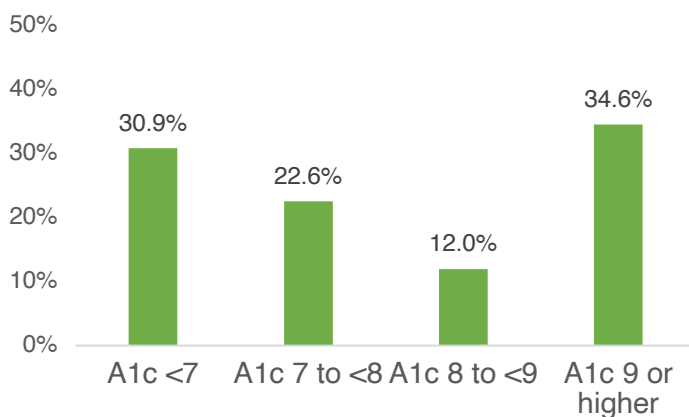
# Diabetes Diagnosis & Control

Diagnosis and medication status among diabetics



Among the adults in Palau classified as having diabetes, 39.8% of adults reported that they were diagnosed and taking medication for their diabetes. Over half (60.2%) of adults with diabetes in Palau are not diagnosed and not on medication.

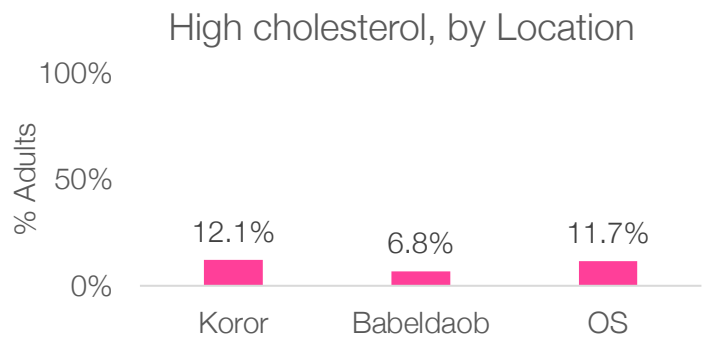
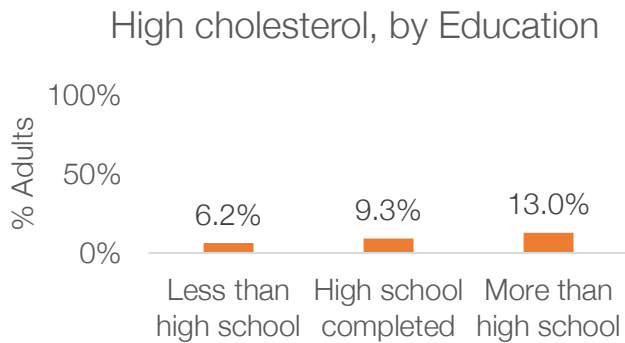
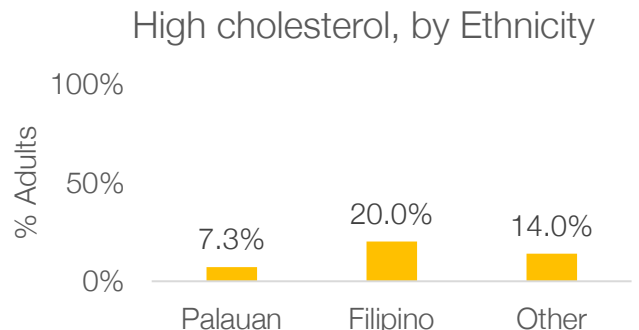
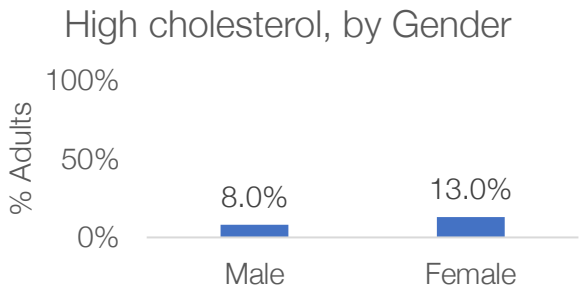
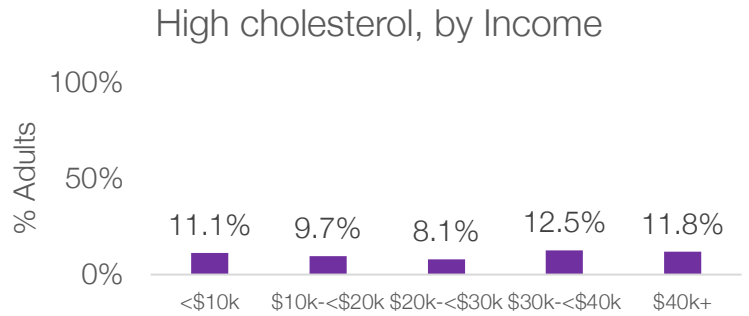
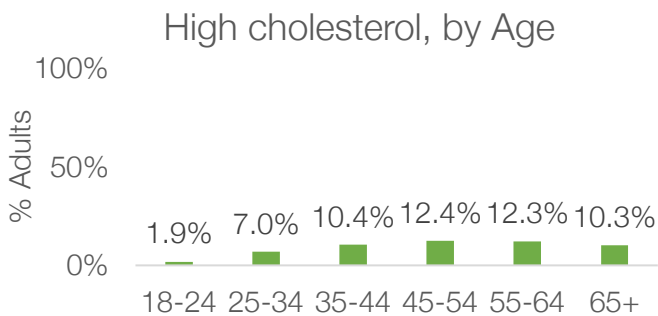
A1c levels among those diabetics who are diagnosed and on medication



Among the adults in Palau classified as having diabetes who have been diagnosed and are on medication, less than one-third (30.9%) are reaching the American Diabetes Association (ADA) A1c goal for diabetics having an A1c <7%.

# Total Cholesterol

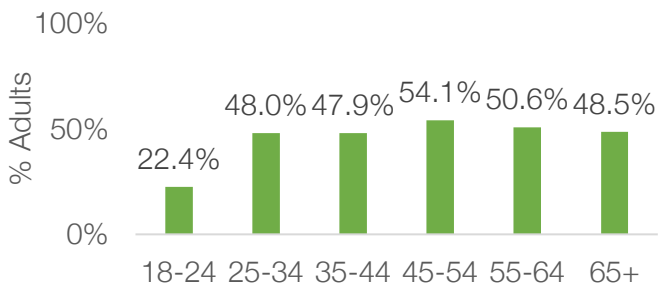
**10.4% (95% CI: 9.0%-11.8%) of adults in Palau had high total cholesterol (200mg/dL or higher). High total cholesterol was significantly higher among ages 45-64, women, non-Palauan ethnicities, those with more than a high school education, and those residing in Koror or outlying states.**



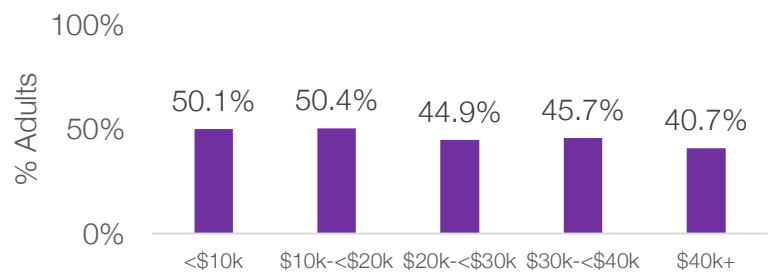
# LDL Cholesterol

**48.7% (95% CI: 46.4%-51.1%) of adults in Palau had high LDL cholesterol (100mg/dL or higher). High LDL cholesterol was significantly higher among those 25 and older, women, and non-Palauan ethnicities.**

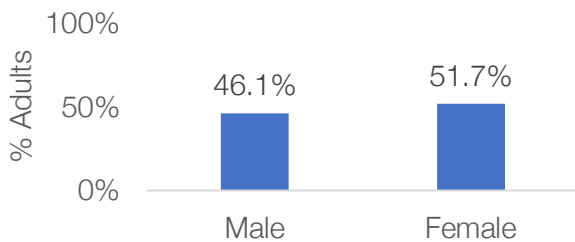
High LDL, by Age



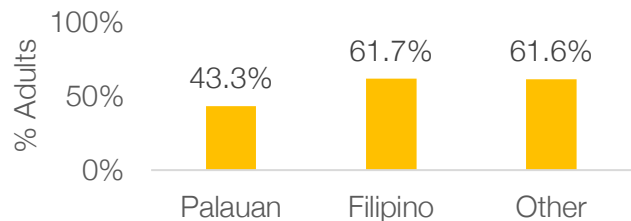
High LDL, by Income



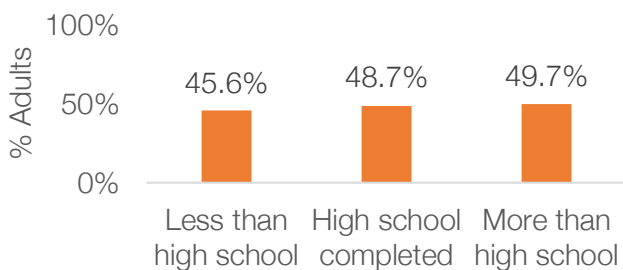
High LDL, by Gender



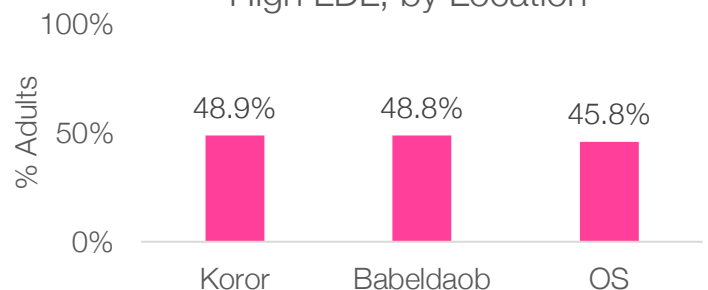
High LDL, by Ethnicity



High LDL, by Education



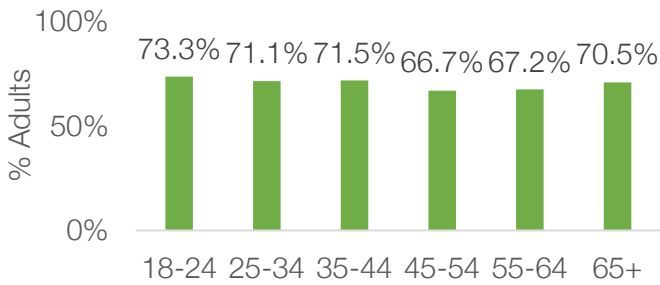
High LDL, by Location



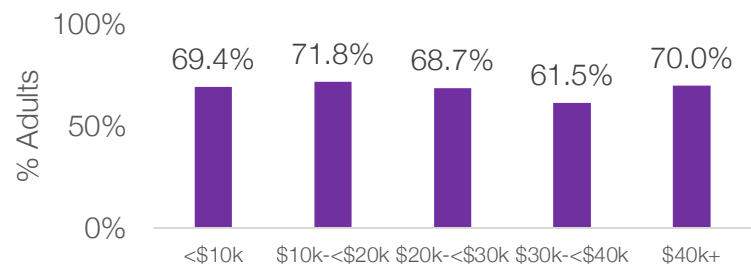
# HDL Cholesterol

**69.4% (95% CI: 67.2%-71.4%) of adults in Palau had low HDL cholesterol (<40mg/dL among men / <50mg/dL among women). Low HDL cholesterol was significantly higher among women, Palauans, and those residing in Babeldaob.**

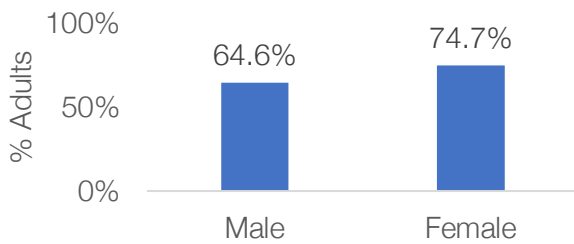
Low HDL, by Age



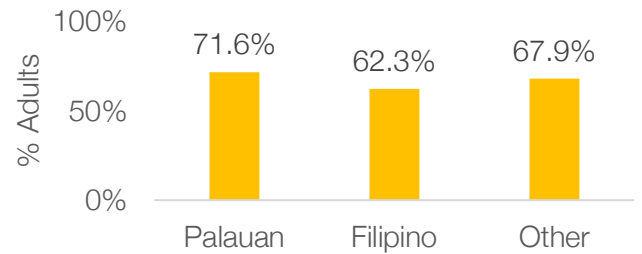
Low HDL, by Income



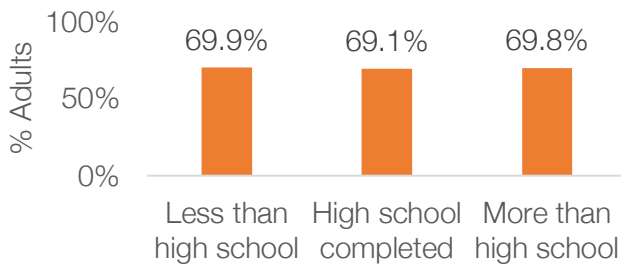
Low HDL, by Gender



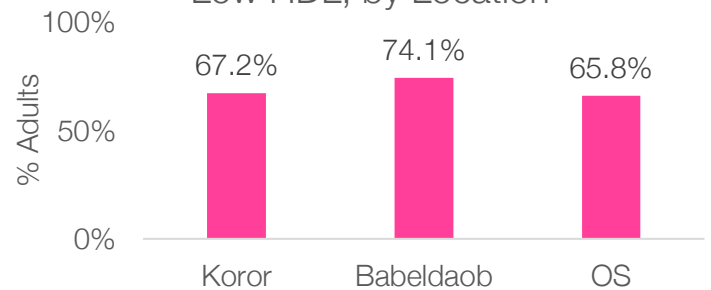
Low HDL, by Ethnicity



Low HDL, by Education



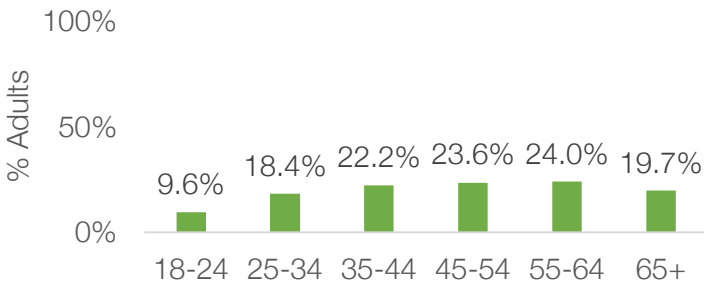
Low HDL, by Location



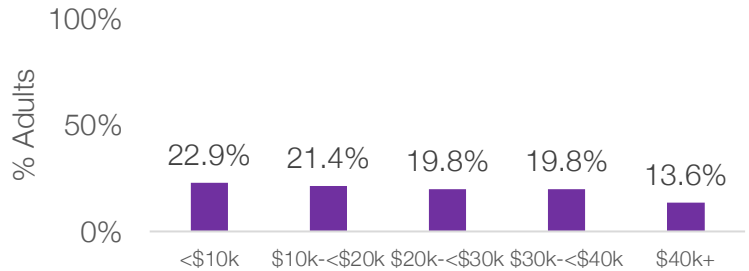
# Triglycerides

**21.3% (95% CI: 19.5%-23.2%) of adults in Palau had high triglycerides 200mg/dL or higher). High triglycerides was significantly higher among those 45-64 years old, men, and non-Palauan ethnicities.**

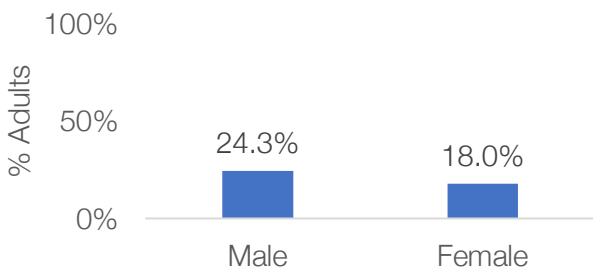
High Triglycerides, by Age



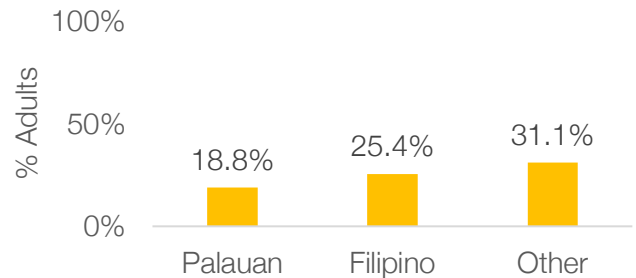
High Triglycerides, by Income



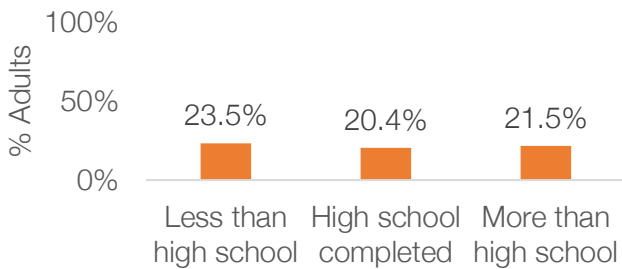
High Triglycerides, by Gender



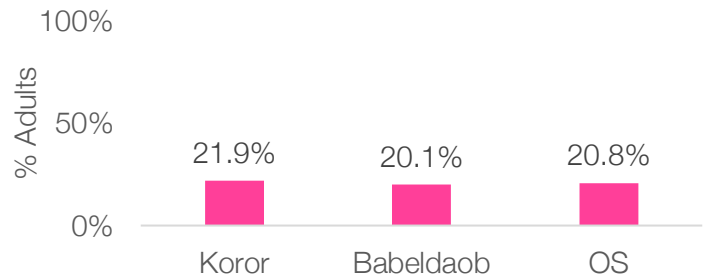
High Triglycerides, by Ethnicity



High Triglycerides, by Education



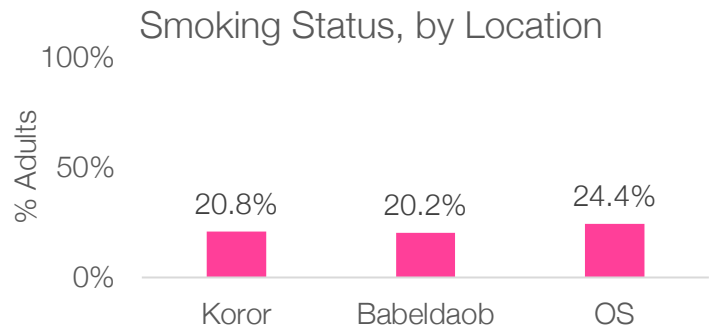
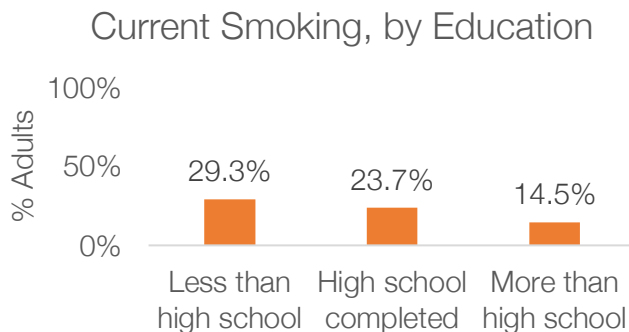
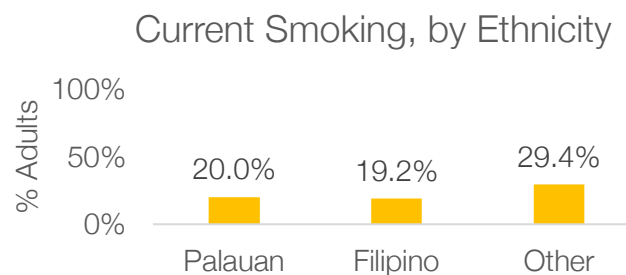
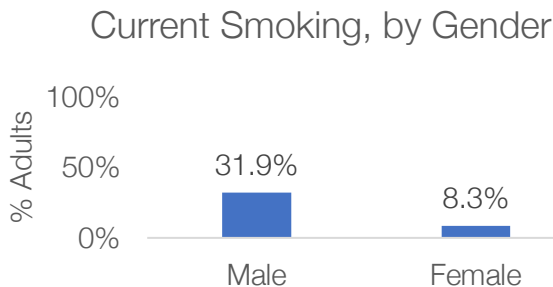
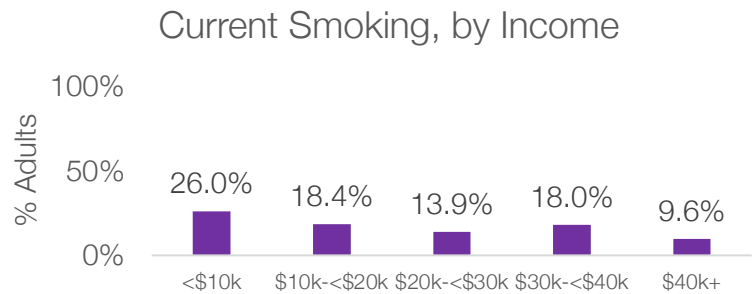
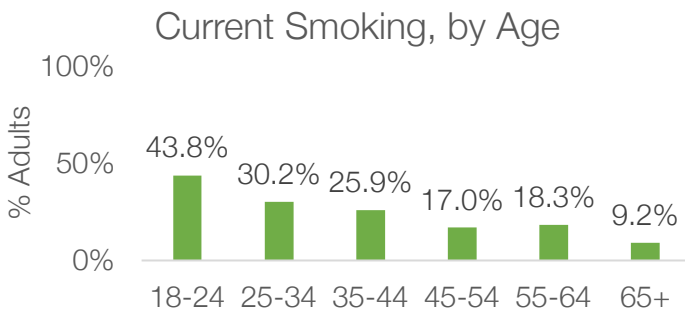
High Triglycerides, by Location



# Cigarette Smoking

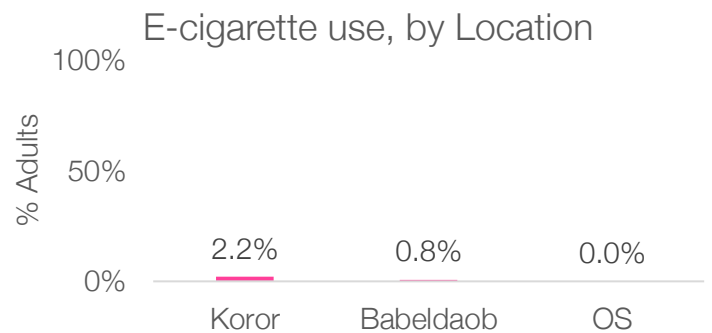
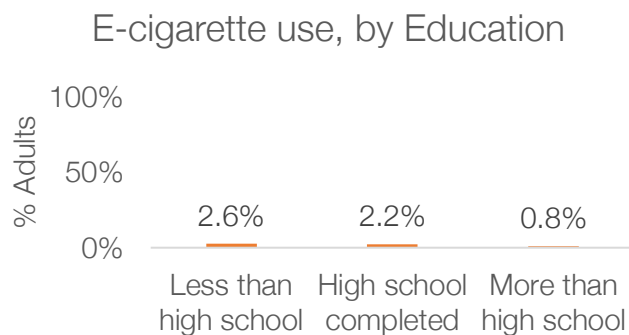
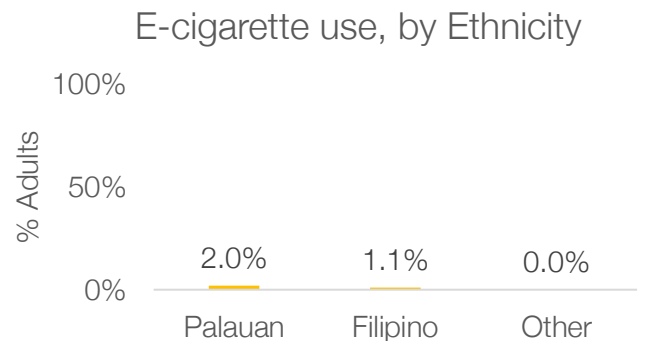
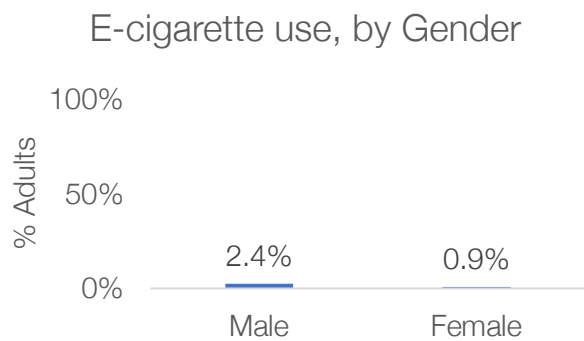
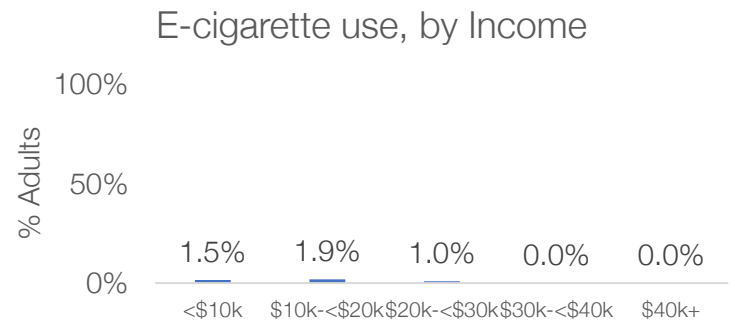
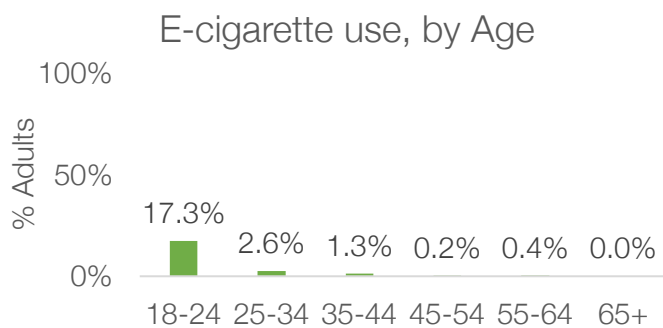
About one out of five (20.8%; 95% CI: 19.0%-22.6%) adults in Palau reported cigarette smoking in the last 30 days (current smoking). Among current smokers, 69.3% reported smoking every day in the past 30 days. Among current every-day smokers, the average age of smoking initiation was 22 years old, and the average number of cigarettes smoked per day is 11. Cigarette smoking was significantly higher among those with the lowest household income, younger adults, men, “other” ethnicities, and those with lower education levels.

<b>Current smoking prevalence (smoked in past 30 days)</b>	<b>20.8%</b>
<b>% of current smokers who smoke every day</b>	<b>69.3%</b>
<b>Average age of initiation among current every-day smokers</b>	<b>22</b>
<b>Average number of cigarettes smoked per day among current every-day smokers</b>	<b>11</b>



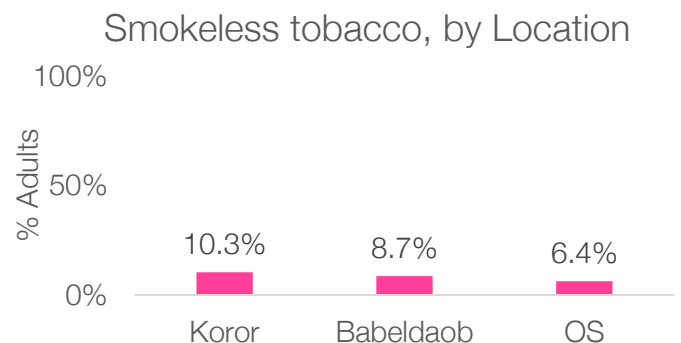
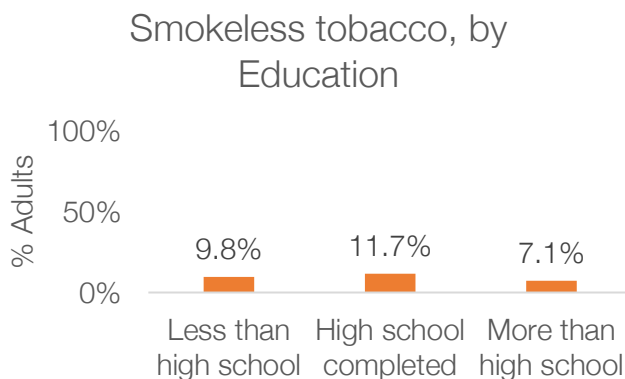
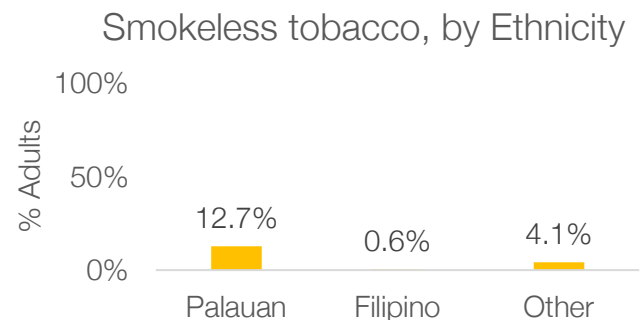
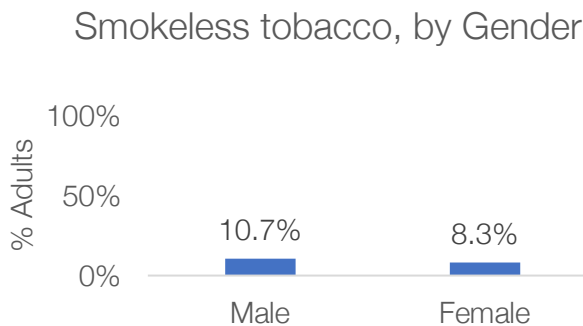
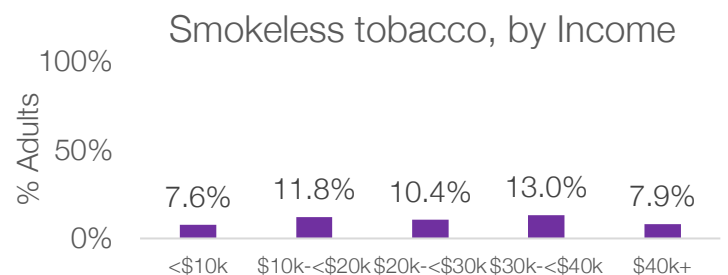
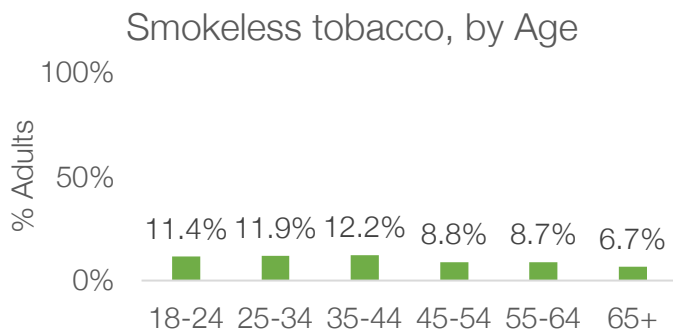
# Electronic Cigarette Use (E-Cigarette)

Palau banned the importation, use, possession, and sale of e-cigarettes beginning on May 29, 2023 according to law RPPL 11-27 (about one month after the start of this survey). The prevalence of e-cigarette use was 1.7% (95% CI: 1.1%-2.3%) according to this survey. Current e-cigarette use was significantly higher among men and those with lower education levels.



# Smokeless Tobacco Use

About 1 out of 10 adults in Palau (9.6%; 95%CI: 8.3%-11.0%) reported current smokeless tobacco use (use in the past 30 days). Smokeless tobacco use was significantly higher among Palauans and those who completed a high school education only.

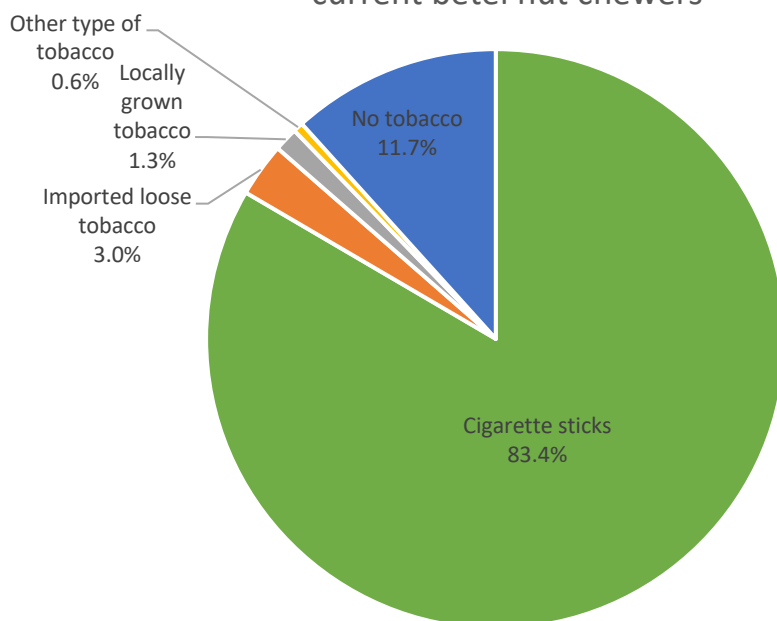


# Betel Nut Chewing

Almost half (46.7%; 95% CI: 44.4%-48.9%) of adults in Palau reported chewing betel nut in the last 30 days (current chewing). Among current chewers, 90.6% reported chewing every day in the past 30 days. Among current every-day chewers, the average age of chewing initiation was 18 years old. Among every-day chewers who add cigarette sticks to their chew, the average number of cigarette sticks chewed per day is 6.

Current betel nut chewing prevalence (chewed in past 30 days)	46.7%
Current betel nut with tobacco chewing prevalence (past 30 days)	41.2%
% of current betel nut chewers who chew every day	90.6%
% of current betel nut chewers who add tobacco to their chew	88.3%
Average age of initiation among current every-day chewers	18
# sticks of cigarettes chewed per day among every-day chewers who add cigarettes to their chew	6

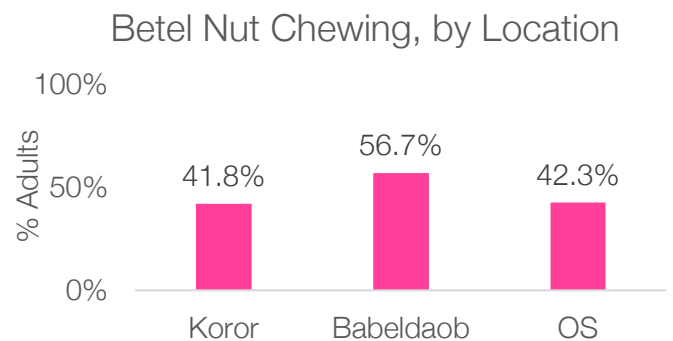
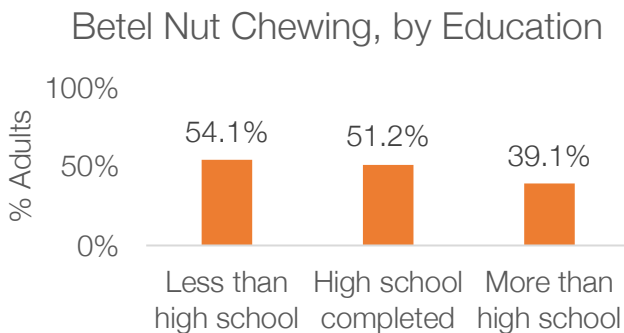
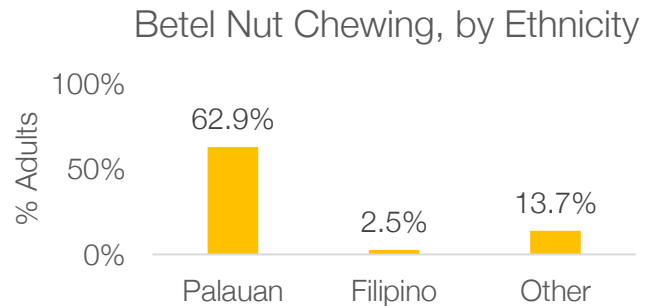
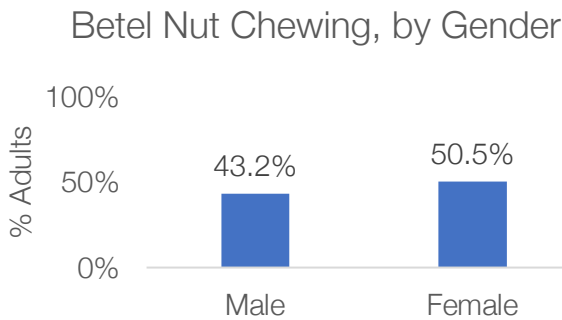
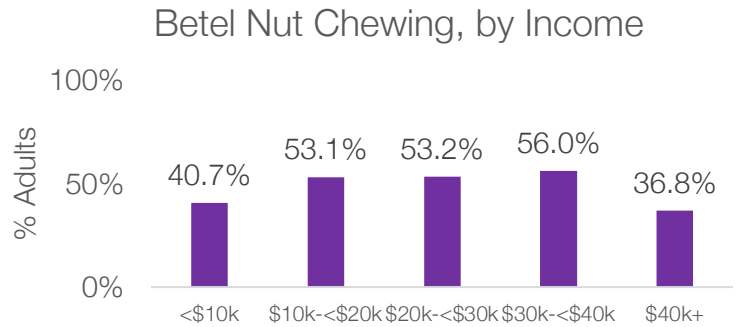
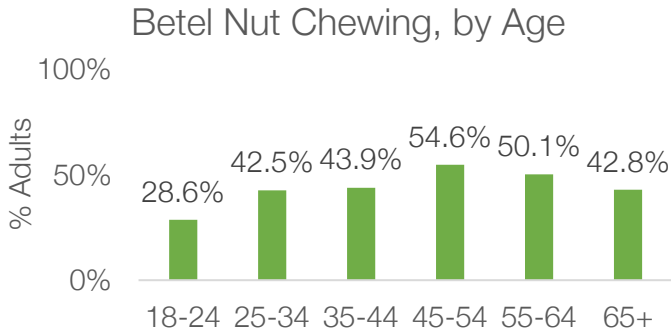
Type of tobacco added to betel nut chew among current betel nut chewers



Among current chewers, 83.4% reported adding cigarette sticks to their chew, followed by imported loose tobacco, locally grown tobacco, and other types of tobacco. Only 11.7% did not add any tobacco to their chew.

# Betel Nut Chewing

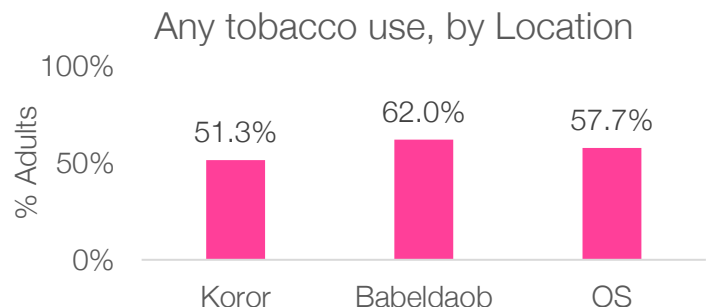
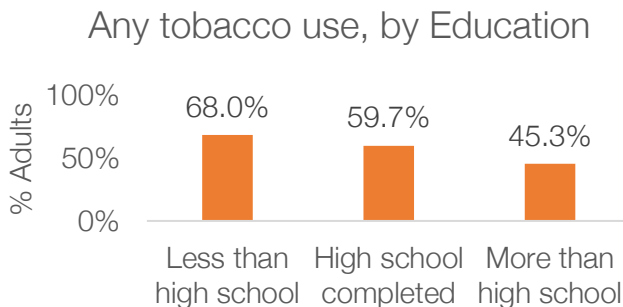
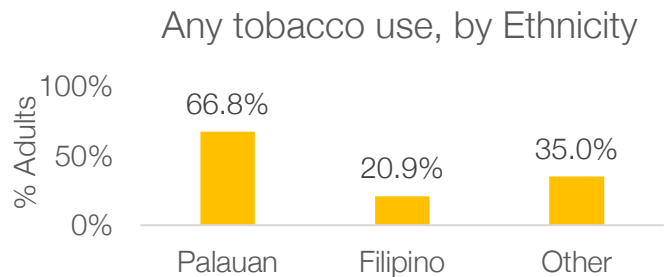
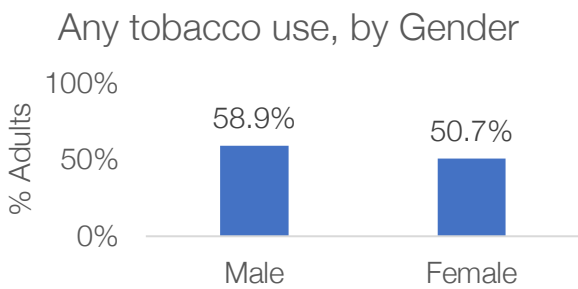
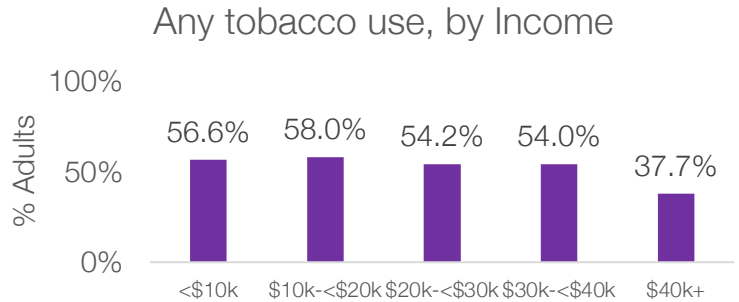
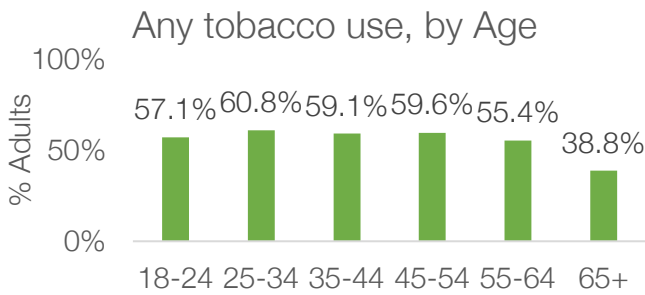
Betel nut chewing prevalence in Palau is significantly higher among adults 45-64 years old, those with household incomes between \$10,000- <\$40,000, women, Palauans, those with a high school education or less, and those residing in Babeldaob.



# Any Tobacco Use

Any tobacco use is defined as smoking cigarettes, chewing smokeless tobacco, chewing betel nut with tobacco, or using another form of tobacco. Among all adults in Palau, 55.0% (95%CI: 52.8%-57.3%) reported using any type of tobacco. Any tobacco use is significantly higher among those <65 years old, those with a household income <\$40,000, men, Palauans, those with a high school education or less, and those residing outside of Koror. Among any tobacco users, 69.8% reported that they want to quit using tobacco, 46.3% have tried to quit in the past 12 months, and 41.3% have been advised to quit by a doctor or any healthcare provider in the past 12 months.

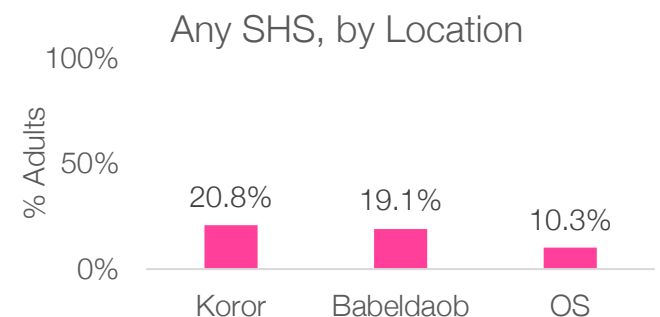
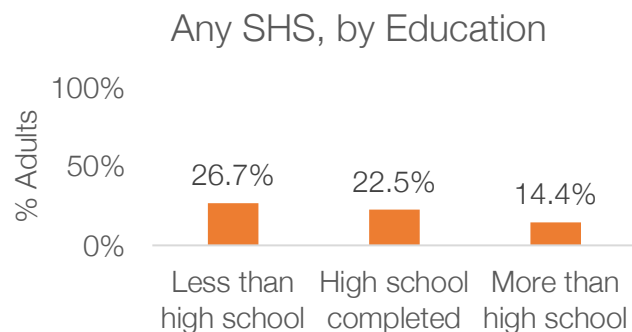
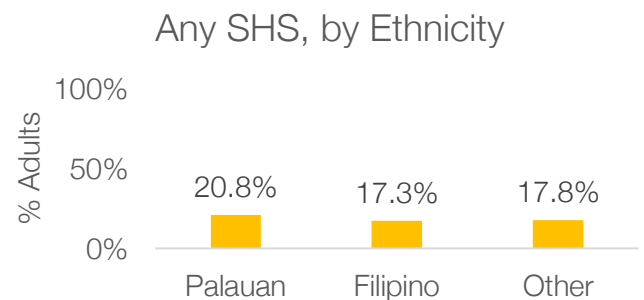
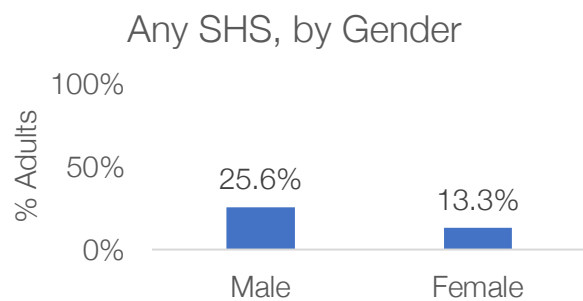
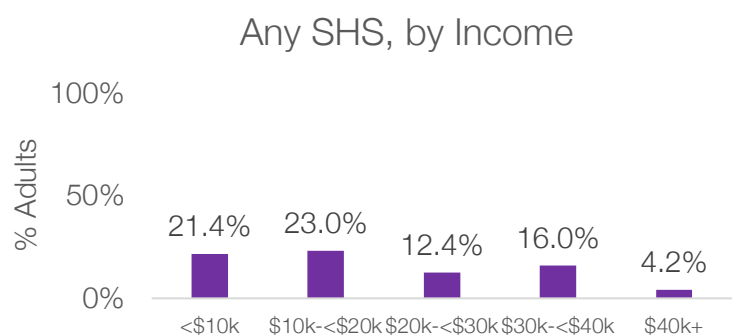
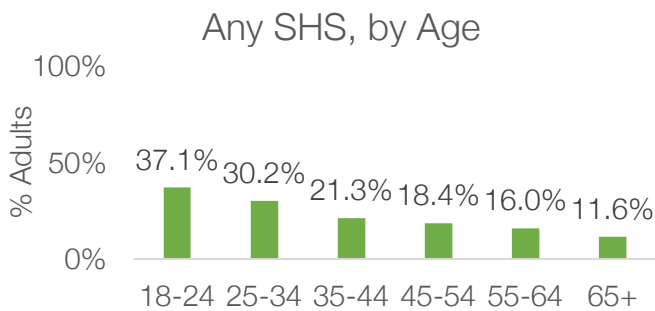
Wants to stop using tobacco	69.8%
Stopped using tobacco for one day or longer in the past 12 months because they were trying to stop using tobacco	46.3%
Advised to stop using tobacco during any visit to a doctor or any healthcare provider in the past 12 months	41.3%



# Second-hand Smoke

19.8% (95%CI: 18.1%-21.7%) of adults in Palau reported being exposed to second-hand smoke (SHS) at home, in indoor areas at work, or a vehicle in the past 7 days. Exposure to second-hand smoke was significantly higher among younger adults, those with lower household incomes, men, and those with lower education levels.

<b>Exposed to second-hand smoke in the home in the past 7 days</b>	<b>9.2%</b>
<b>Exposed to second-hand smoke in indoor areas at work in the past 7 days</b>	<b>9.1%</b>
<b>Exposed to second-hand smoke in a vehicle in the past 7 days</b>	<b>8.2%</b>



# Alcohol Use and Binge Drinking

---

More than one-third (35.6%; 95% CI: 33.4%-37.8%) of adults in Palau reported using alcohol in the last 30 days (current alcohol use). Almost one out of three (28.0%; 95% CI: 26.0%-30.0%) adults in Palau reported binge drinking in the past 30 days (current binge drinking). Therefore, 78.7% of current alcohol users binge drank in the past 30 days.

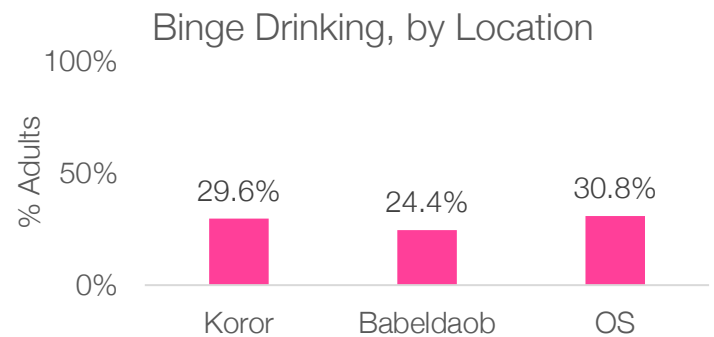
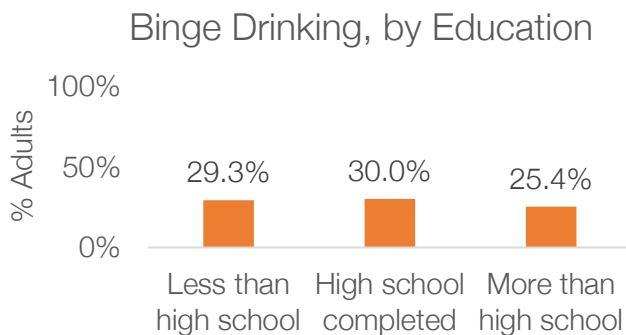
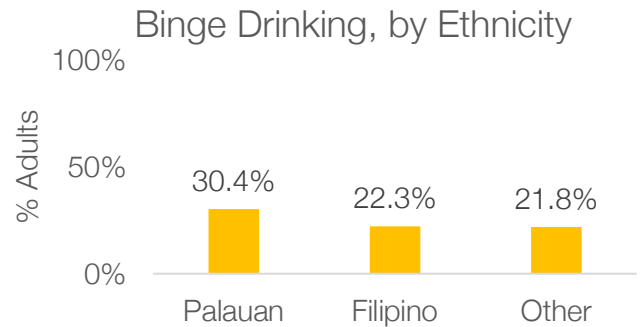
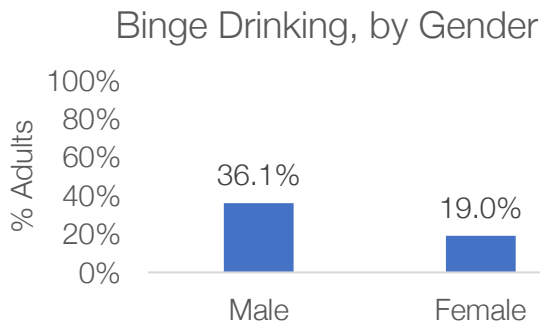
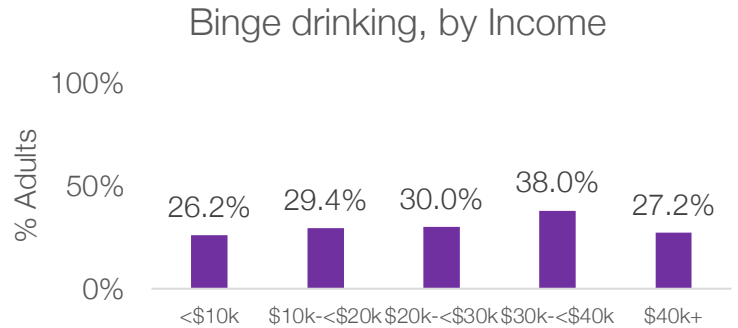
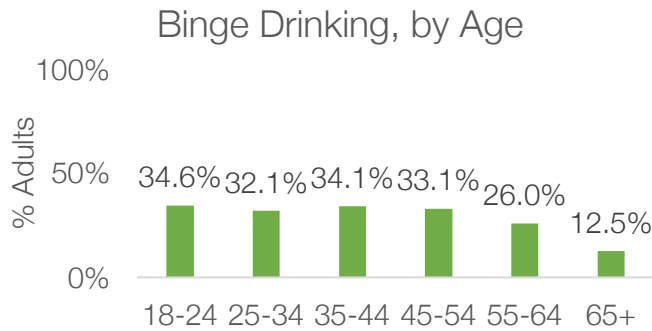
The average age of first drink among current alcohol users is 19 years old. The average number of drinks per day consumed among current alcohol users is 6. The average number of days current alcohol users consumed alcohol in the past 30 days is 7.

Among current alcohol users, over half (52.4%) reported that they have felt that they should cut down on their drinking. Almost one-third (29.2%) of current alcohol users reported driving a vehicle after consuming alcohol in the past 30 days. Almost 1 out of 10 adults (9.2%) in Palau reported being a passenger in a vehicle in the past 30 days with someone other than themselves who has consumed alcohol.

Current alcohol use prevalence (alcohol use in past 30 days)	35.6%
Current binge drinking (drinking 5+ standard drinks [men] / 4+ standard drinks [women] on one occasion) in the past 30 days	28.0%
Average age of first drink among current alcohol users	19
Average number of drinks per day consumed among current alcohol users	6
Average number of days current alcohol users consumed alcohol in the past 30 days	7
Ever felt that they should cut down drinking (among current alcohol users)	52.4%
Drove a vehicle after they've consumed alcohol in the past 30 days (among current alcohol users)	29.2%
Been a passenger in a vehicle in the past 30 days with a driver other than themselves who has consumed alcohol	9.2%

# Alcohol Use and Binge Drinking

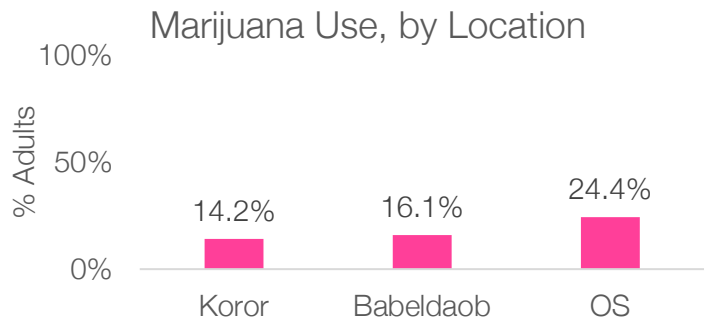
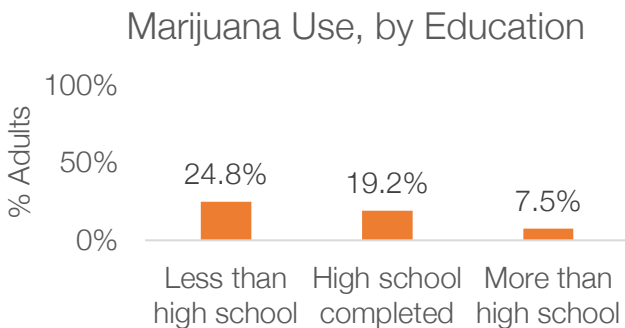
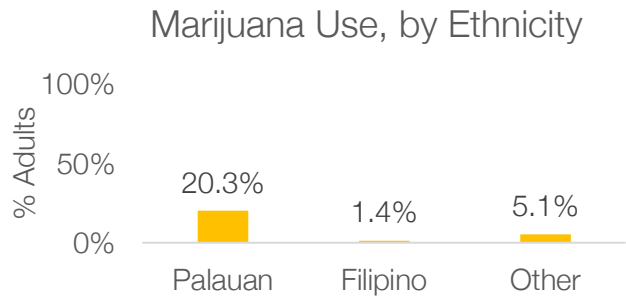
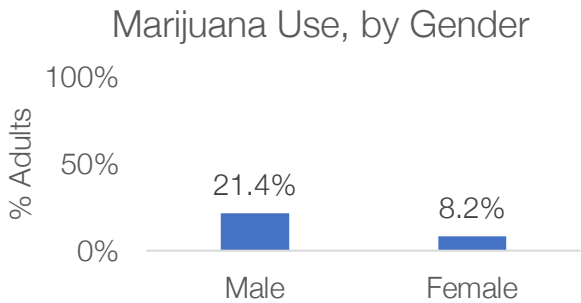
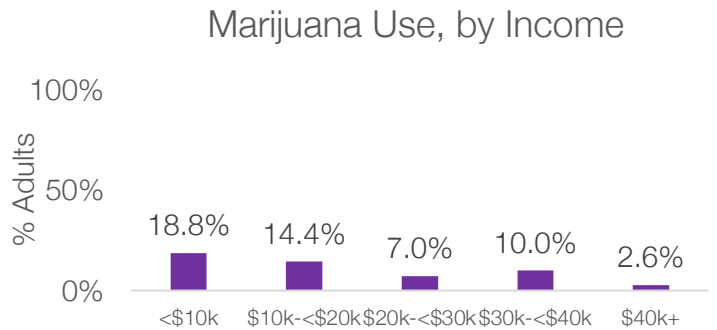
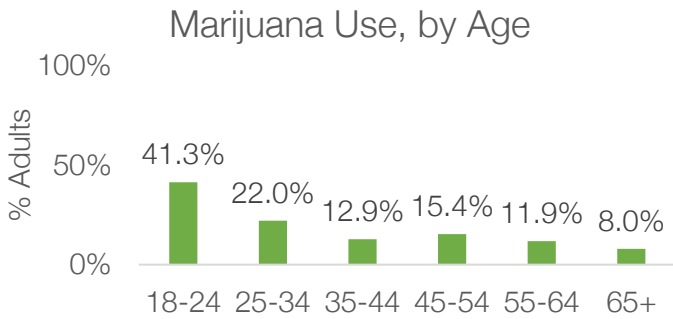
Binge drinking prevalence in Palau is significantly higher among those <55 years old, men, and Palauans



# Marijuana Use

About one out of six (15.2%; 95% CI: 13.6%-16.9%) adults in Palau reported using marijuana in the last 30 days (current marijuana use). Among current marijuana users, 41.6% reported using marijuana every day. Marijuana use is significantly higher among younger adults, those with lower household incomes, men, Palauans, those with a high school education or less, and those residing in outlying states.

Current marijuana use prevalence (marijuana use in past 30 days)	15.2%
% of current marijuana users who use marijuana every day	41.6%



# Other Substance Use

---

Adults in Palau reported their use of different types of substances. The most commonly reported substance was prescription drugs such as tramadol, demerol, oxycodone, codeine, or morphine without doctor's orders.

Among those adults with children in their household, 54.0% reported that they talked to the children in their household in the past 30 days about the dangers or problems associated with the use of tobacco, alcohol, or other drugs.

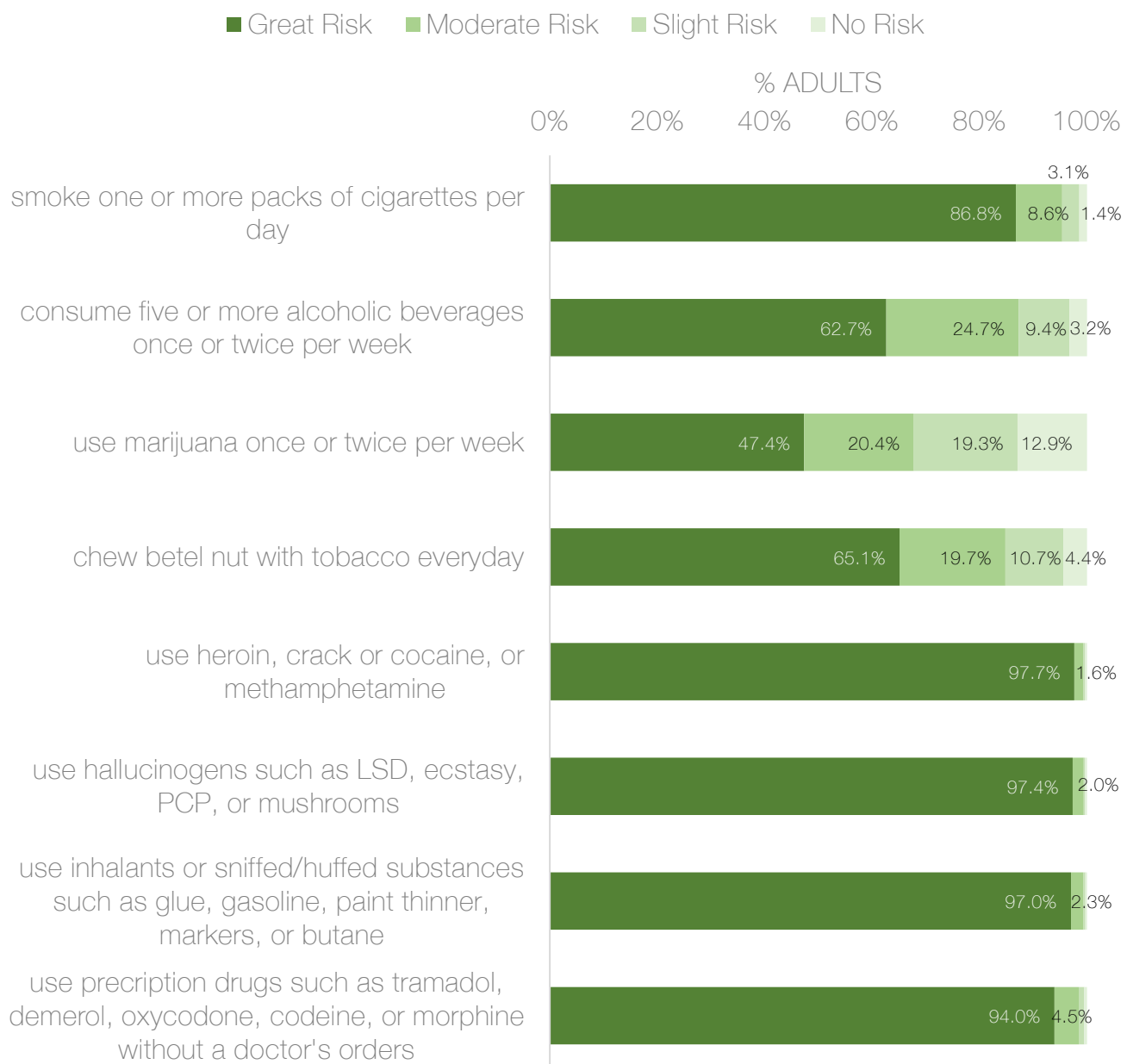
Current use (in past 30 days) of heroin, crack, cocaine, or methamphetamine	0.4%
Current use (in past 30 days) of hallucinogens such as LSD, ecstasy, or PCP	0.1%
Current use (in past 30 days) of inhalants or sniffed/huffed substances such as glue, gasolines, paint thinners, markers, or butane	0.1%
Current use (in past 30 days) of prescription drugs such as tramadol, demerol, oxycodone, codeine, or morphine without doctor's orders	2.1%

During the past 30 days, have you talked with your own child or other children in your household about the dangers or problems associated with the use of tobacco, alcohol, or other drugs (among those adults with children in their household)	54.0%
--	-------

# Perceptions of Substance Risk

Participants were asked to evaluate risk of certain substances. Illicit substances were perceived as most risky, followed by cigarette smoking. Chewing betel nut without tobacco, binge drinking, and using marijuana were perceived as least risky.

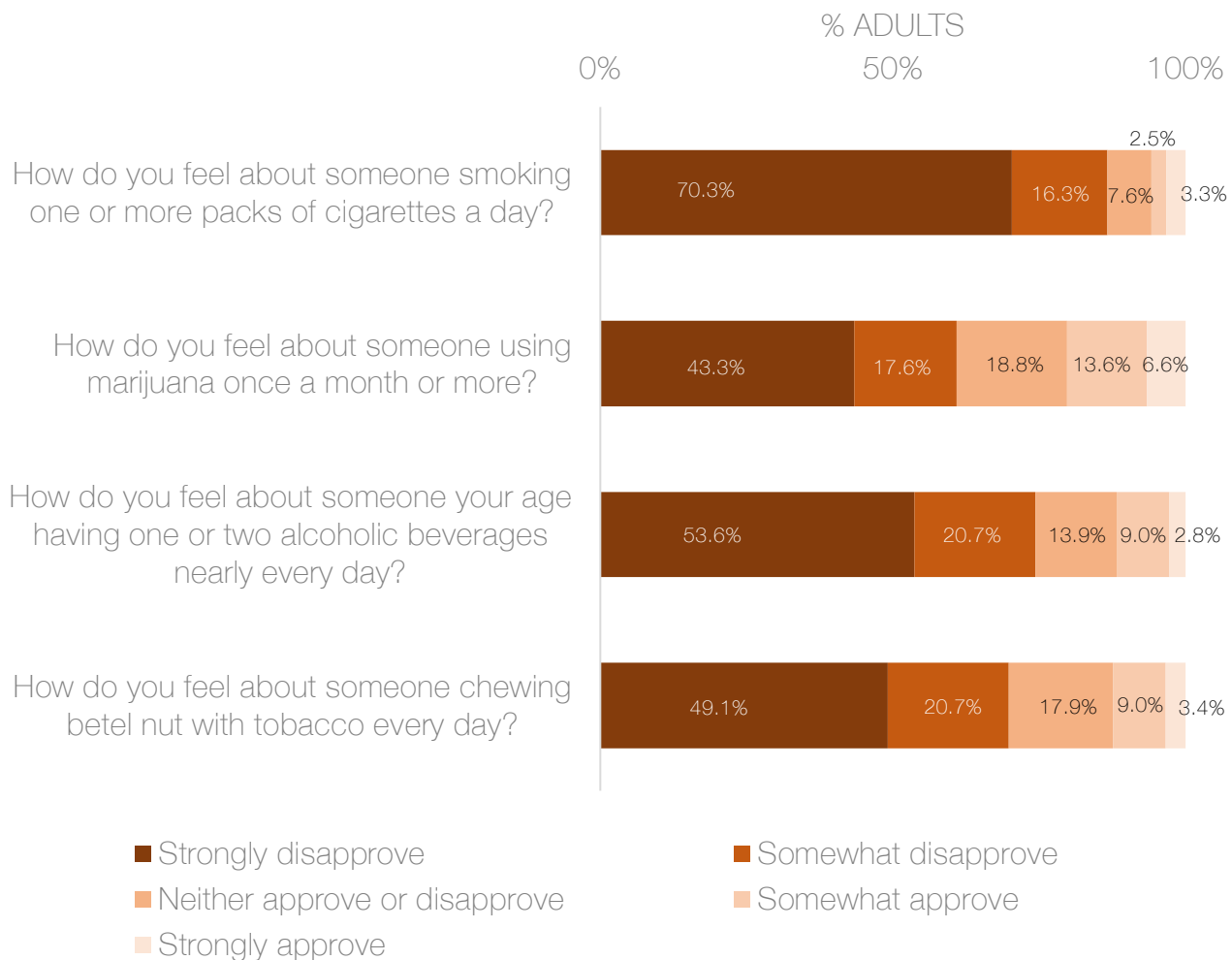
How much do people risk harming themselves physically and in other ways when they engage in the following behaviors



# Disapproval of Substance Use

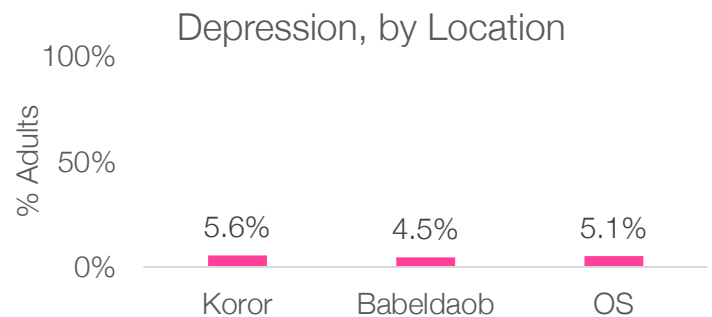
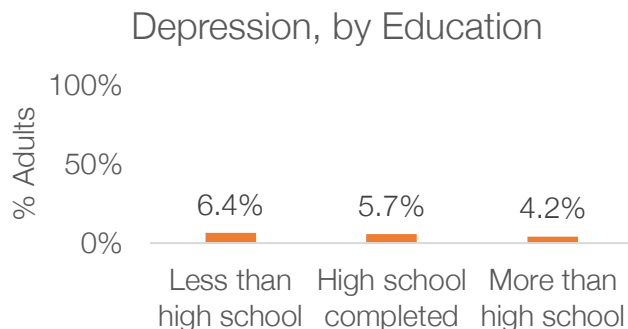
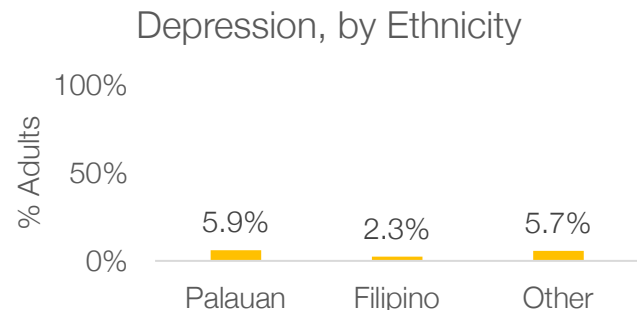
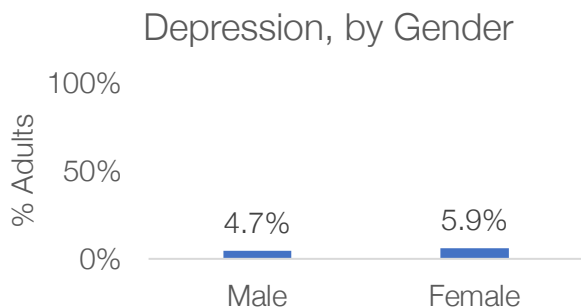
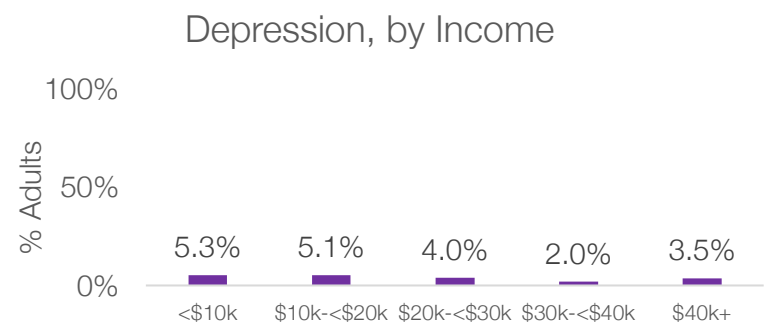
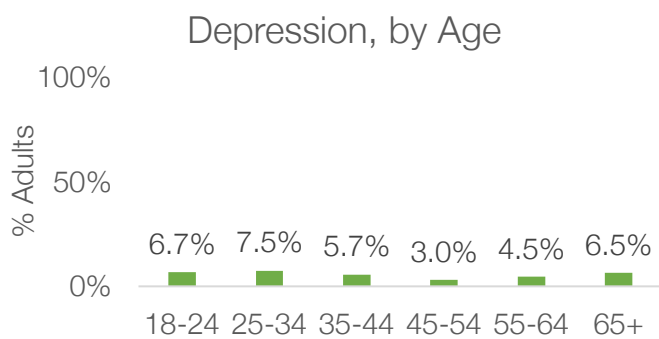
Participants were asked to assess disapproval of certain substances. The highest disapproval was of smoking cigarettes, followed by drinking alcohol, chewing betel nut with tobacco, and marijuana use.

How much do you approve of the following substances?



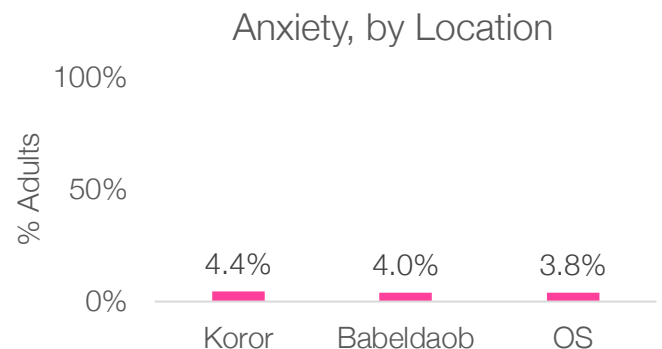
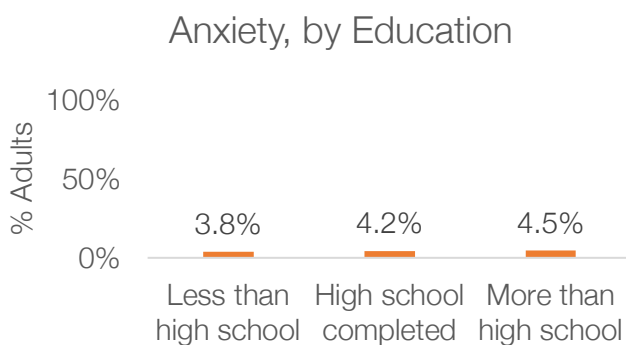
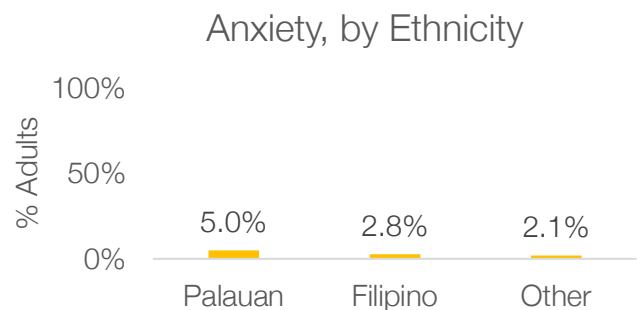
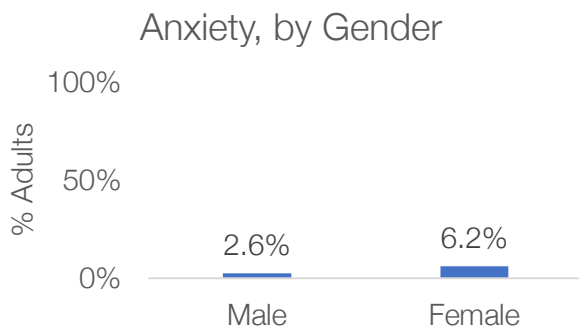
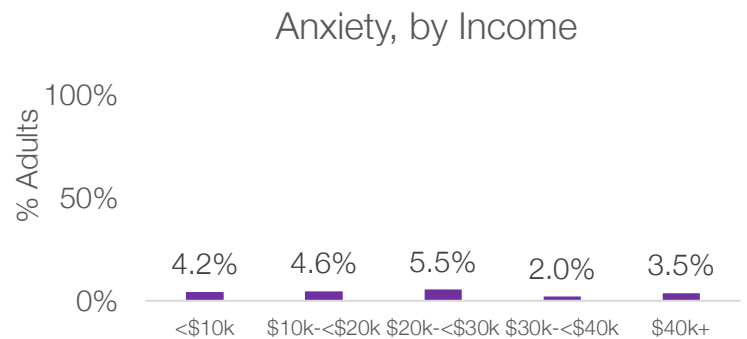
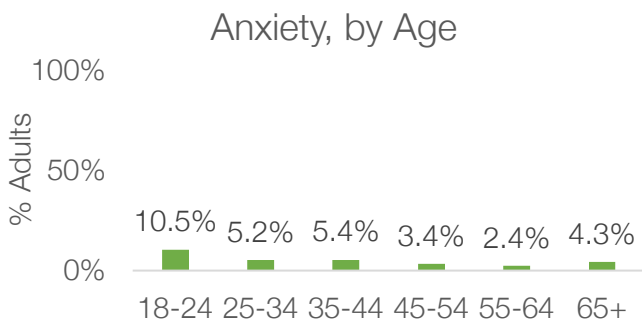
# Mental Health: Depression

Participants were asked questions regarding their mental health status. 5.2% (95% CI: 4.3%-6.3%) of adults reported signs of depression. Depression was screened using the PHQ-2. The only statistically significant difference by demographics is the increased prevalence of depression among Palauans and “other” ethnicities compared to Filipinos.



# Mental Health: Anxiety

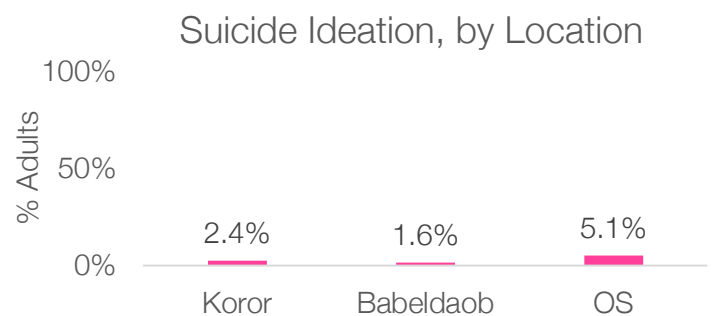
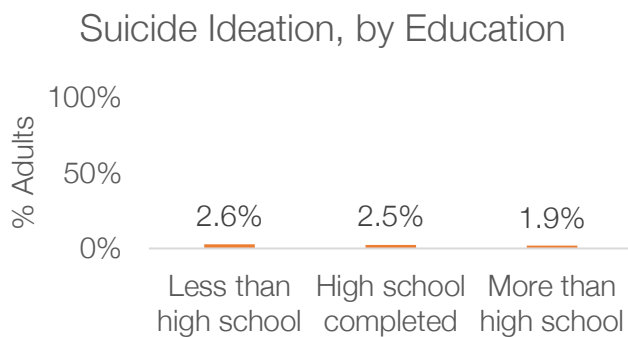
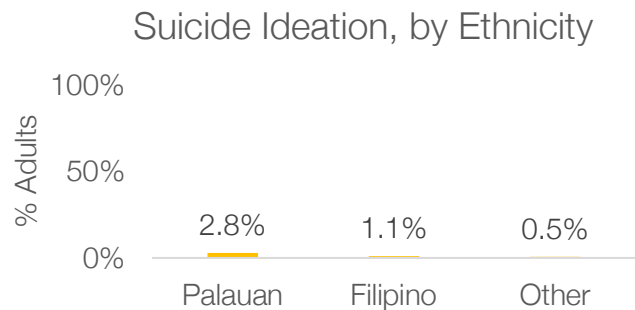
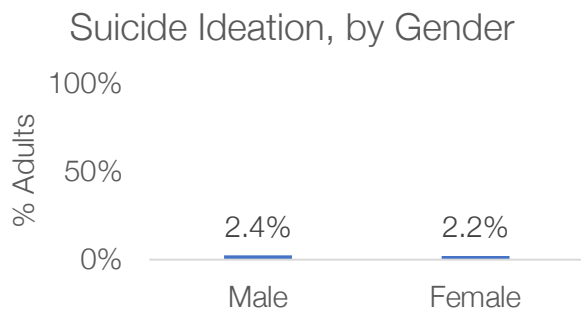
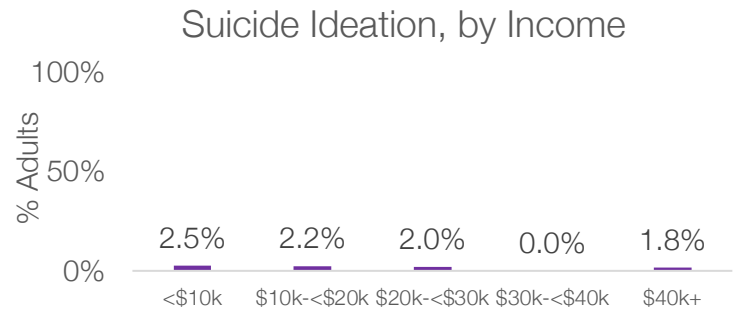
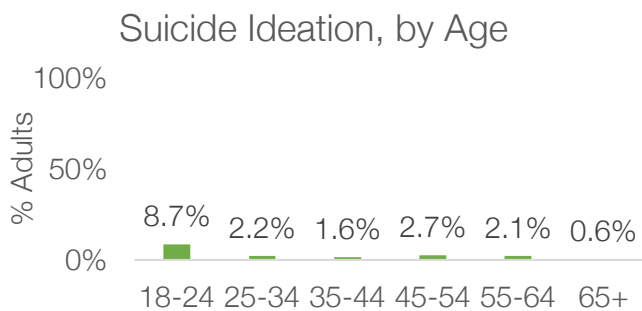
**4.3% (95%CI: 3.4%-5.3%) of adults in Palau reported signs of anxiety. Anxiety was screened using the GAD-12. Anxiety prevalence was significantly higher among adults 18-24 years old and women.**



# Mental Health: Suicide

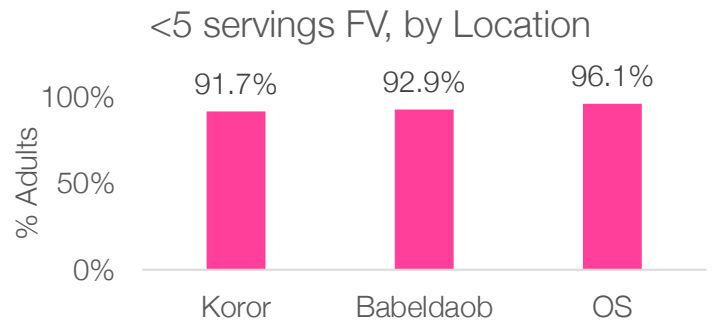
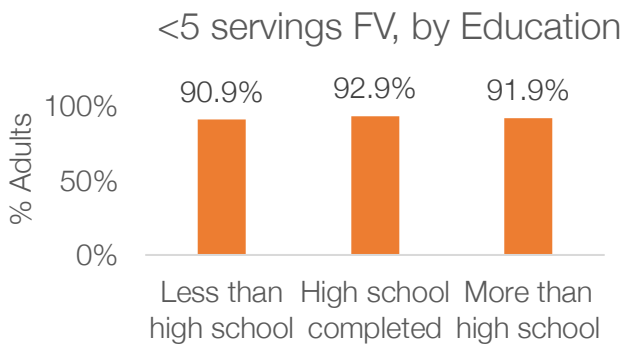
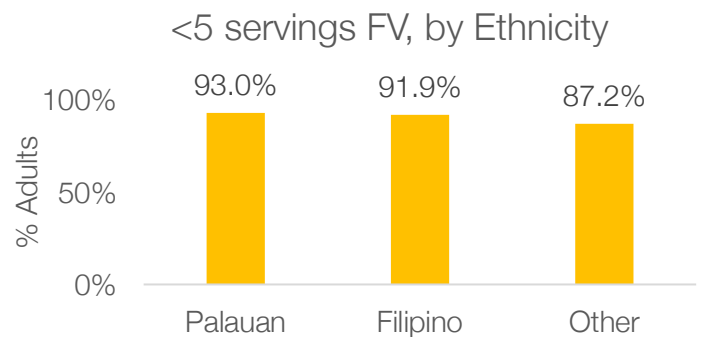
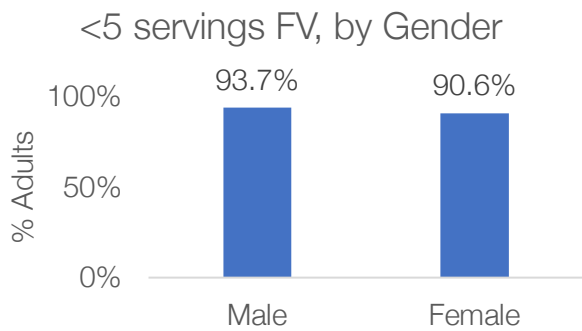
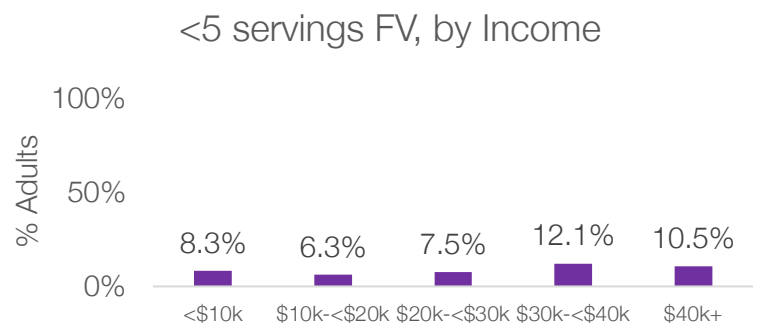
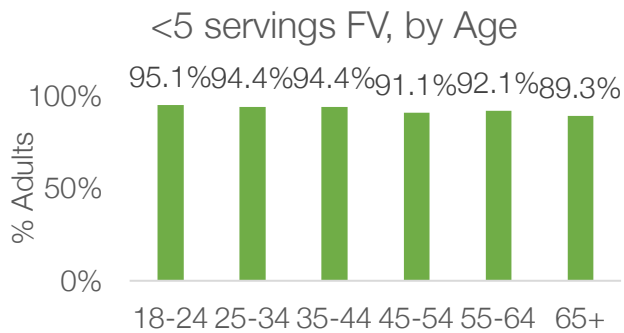
Among adults in Palau, 2.3% reported suicide ideation (thinking about, making plans, or attempting suicide) in the past 12 months. Suicide ideation prevalence was significantly higher among younger adults (18-24 years old) and Palauans.

Ever thought about killing yourself in the past 12 months	1.7%
Ever made plans to kill yourself in the past 12 months	1.3%
Ever tried to kill yourself in the past 12 months	0.9%



# Fruit and Vegetable Consumption

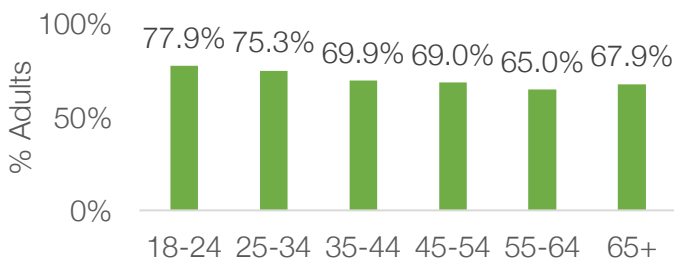
Over 9 out of 10 adults in Palau (92.2%; 95%CI: 91.0%-93.4%) reported that they consumed less than the recommended daily servings of fruits and vegetables (at least 5 per day). Low fruit and vegetable consumption (<5 servings per day) was significantly higher among men and Palauans.



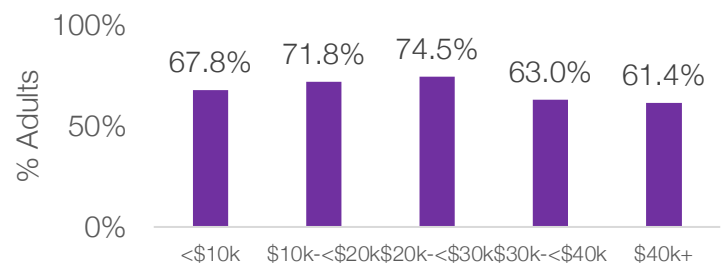
# Fruit Consumption

About 7 out of 10 adults in Palau (69.4%; 95%CI: 67.0%-71.3%) reported that they consumed less than one serving of fruit per day. Low fruit consumption (<1 serving per day) was significantly higher among young adults, lower income households, men, Palauans, and those residing outside of Koror.

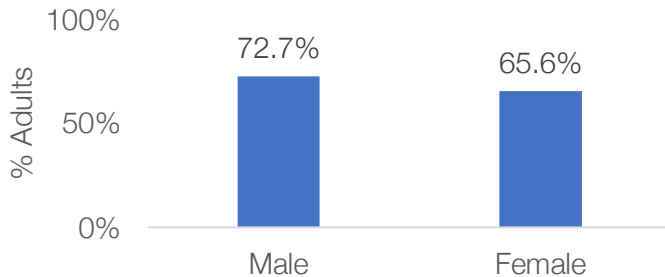
<1 serving of fruit per day, by Age



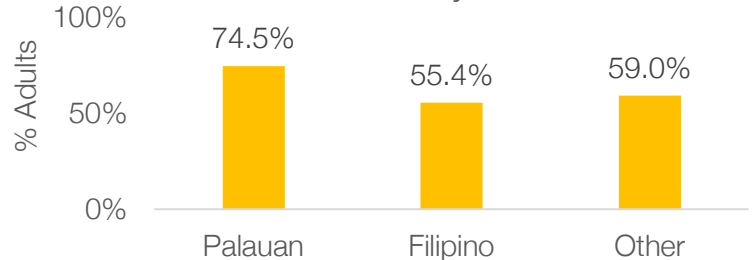
<1 serving of fruit per day, by Income



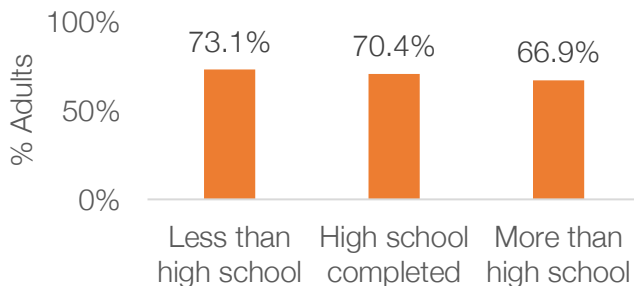
<1 serving of fruit per day, by Gender



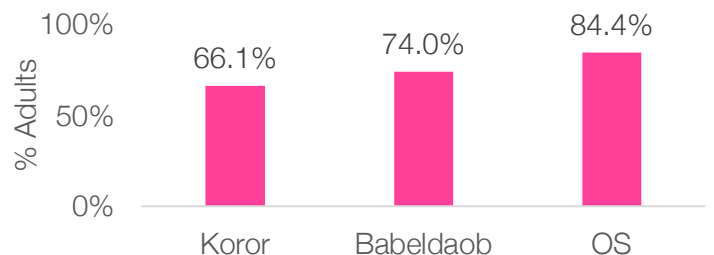
<1 serving of fruit per day, by Ethnicity



<1 serving of fruit per day, by Education



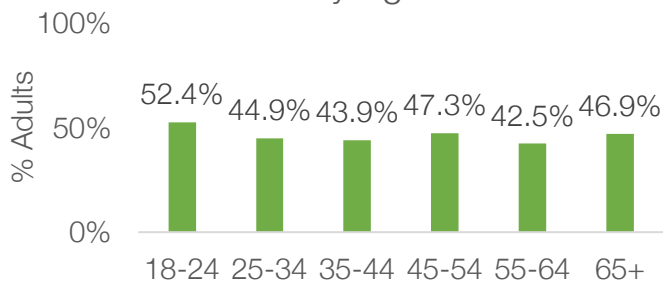
<1 serving of fruit per day, by Location



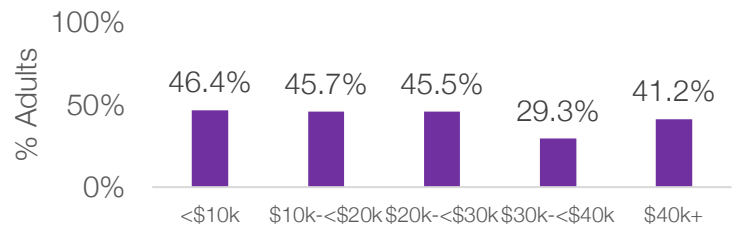
# Vegetable Consumption

Almost half (45.4%; 95%CI: 43.2, 47.7%) of adults in Palau reported that they consumed less than one serving of vegetables per day. Low vegetable consumption (<1 serving per day) was significantly higher among those with lower household incomes, men, Palauans, those with lower education levels, and those residing outside of Koror.

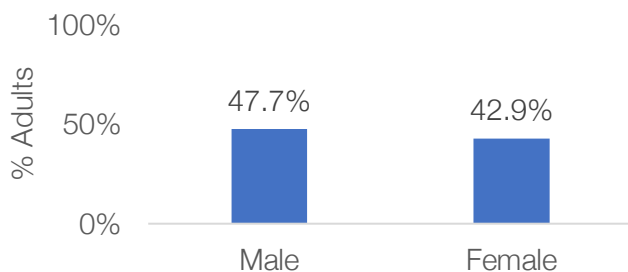
<1 serving of vegetables per day, by Age



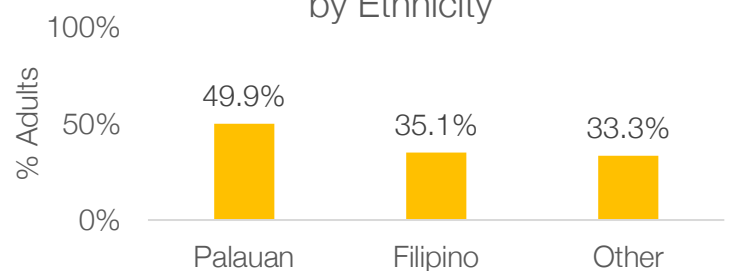
<1 serving of vegetables per day, by Income



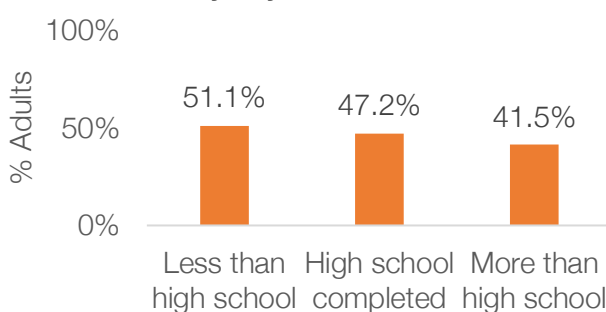
<1 serving of vegetables per day, by Gender



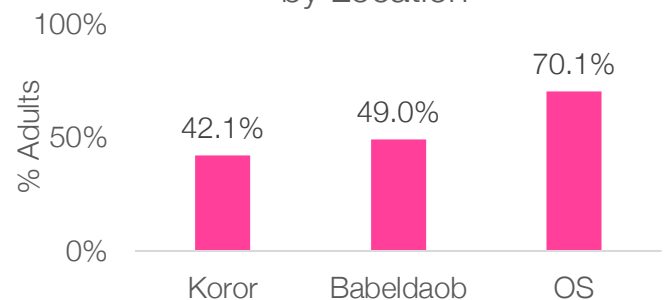
<5 serving of vegetables per day, by Ethnicity



<1 serving of vegetables per day, by Education

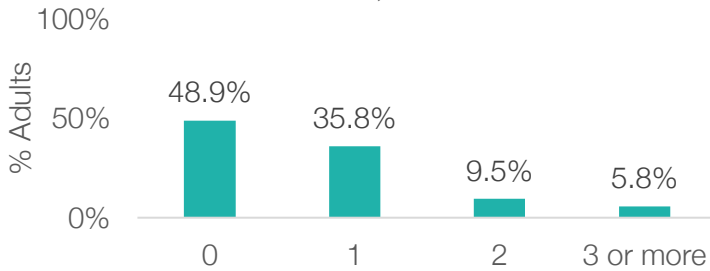


<1 serving of vegetables per day, by Location



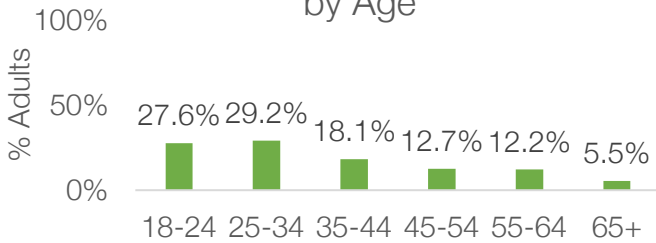
# Processed Meat Consumption

Times Processed Meats are Consumed Daily among Adults in Palau, 2023

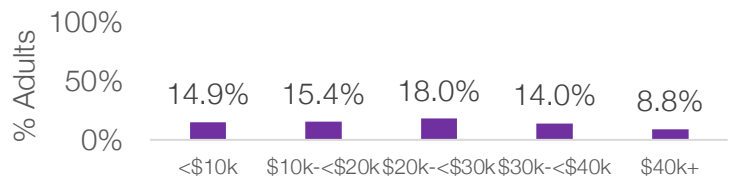


**Over half of adults in Palau (51.1%) reported that they consumed processed meats at least once per day. Heavy consumption of processed meats (2+ times per day) was significantly more prevalent among younger adults and men.**

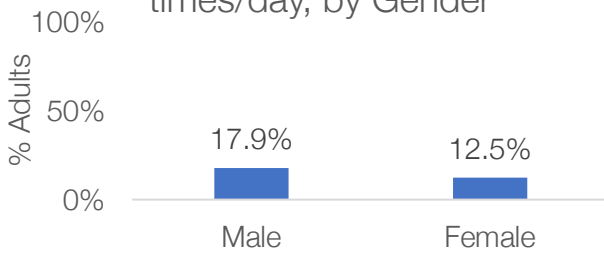
processed meats 2+ times/day, by Age



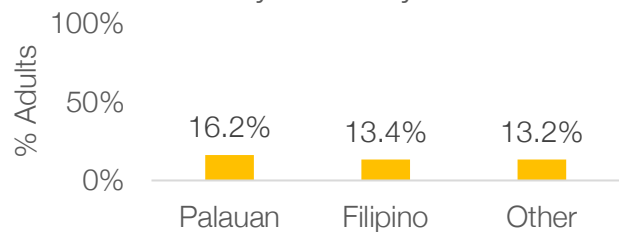
processed meats 2+ times/day, by Income



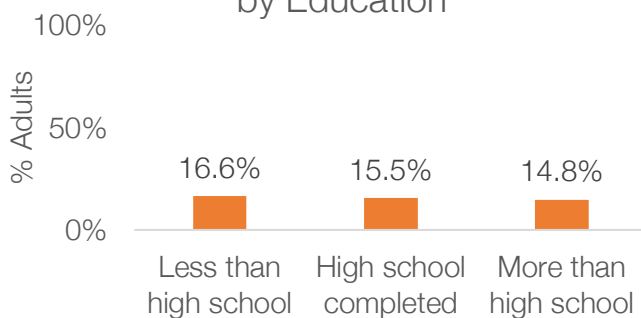
processed meats 2+ times/day, by Gender



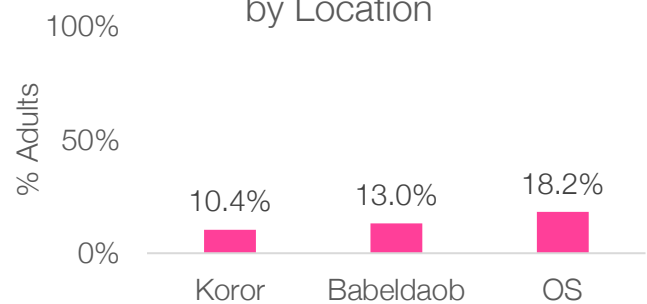
processed meats 2+ times/day, by Ethnicity



processed meats 2+ times/day, by Education

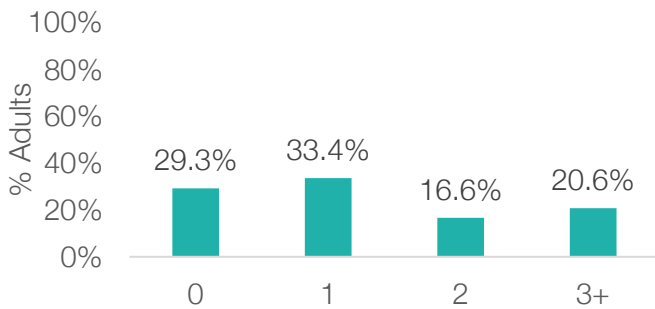


processed meats 2+ times/day, by Location



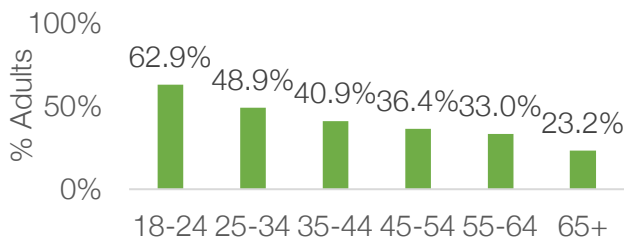
# Sugar-Sweetened Beverages

SSBs Consumed Daily among Adults in Palau 2023

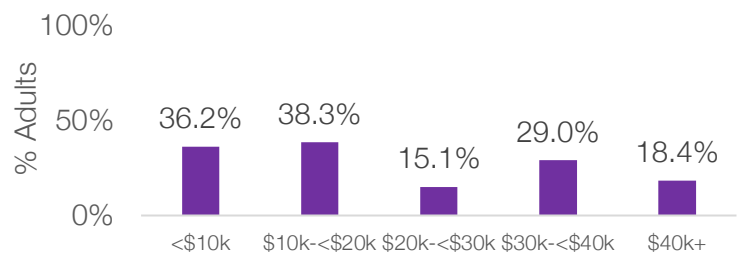


**Two out of three adults (70.7%) in Palau reported that they consumed at least one sugar-sweetened beverage (SSB) each day. Heavy consumption of SSBs (3+ per day) was significantly higher among younger adults, men, Palauans, and those with lower education levels.**

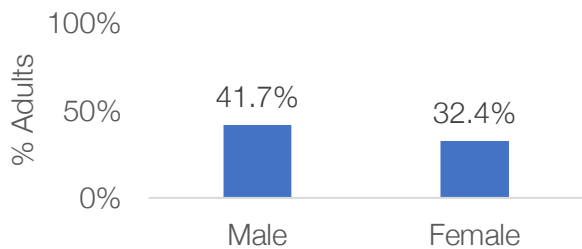
3+ SSBs per day, by Age



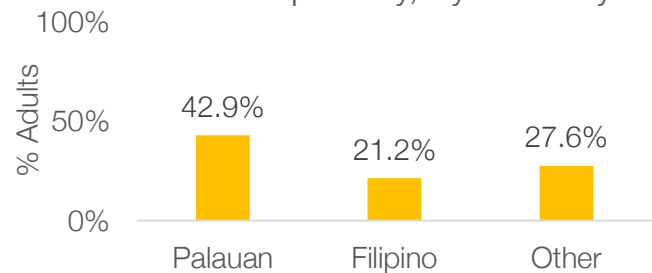
3+ SSBs per day, by Income



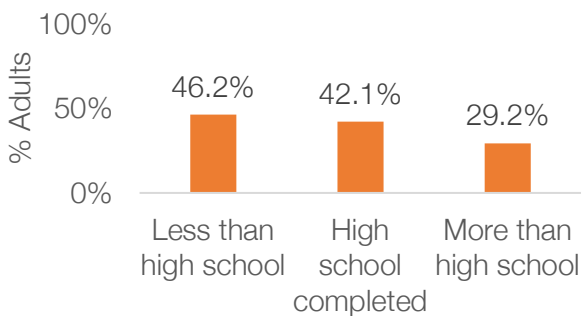
3+ SSBs per day, by Gender



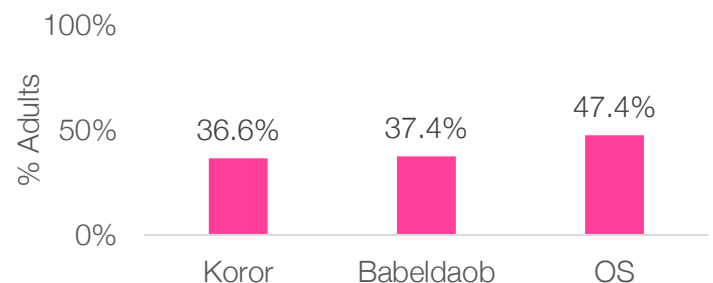
3+ SSBs per day, by Ethnicity



3+ SSBs per day, by Education



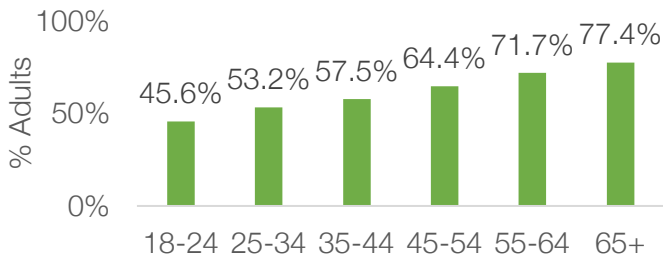
3+ SSBs per day, by Island



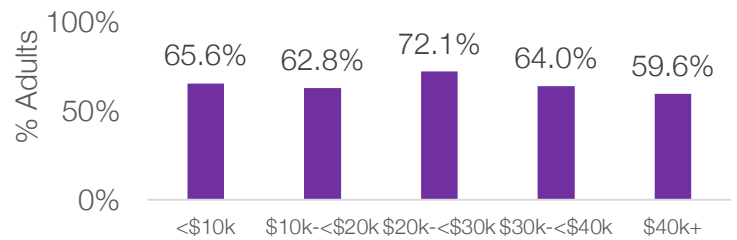
# Salt Intake

Two out of three adults (64.7; 95%CI: 62.5%-66.8%) in Palau reported that they are currently watching their sodium or salt intake. Watching sodium or salt intake was significantly higher among older adults and Filipinos.

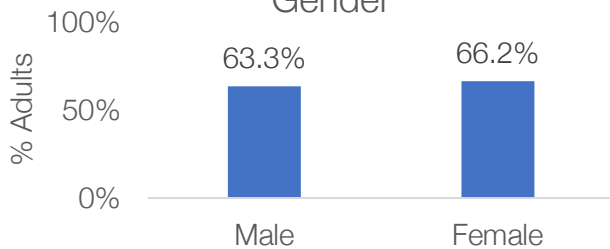
Watching salt intake, by Age



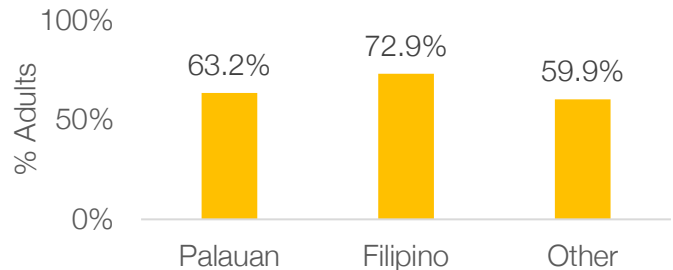
Watching salt intake, by Income



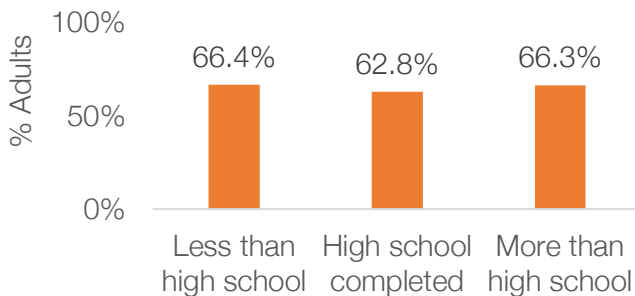
Watching salt intake, by Gender



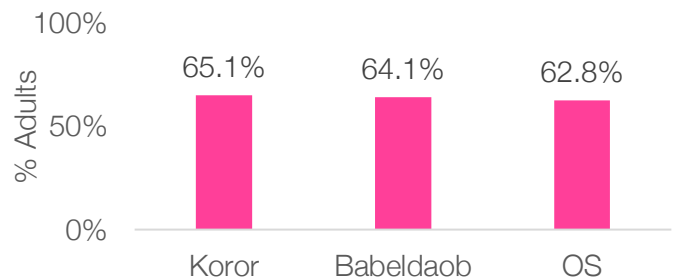
Watching salt intake, by Ethnicity



Watching salt intake, by Education



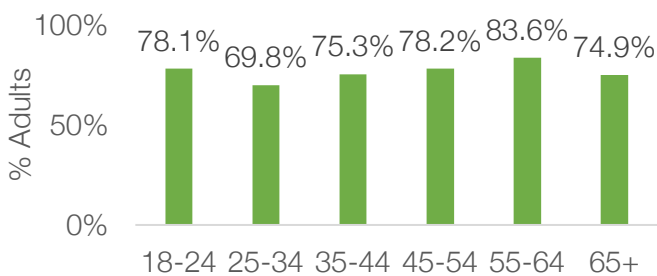
Watching salt intake, by Location



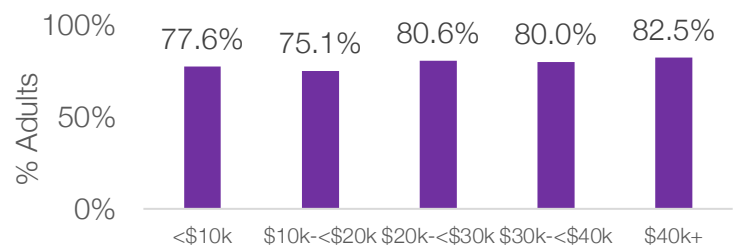
# Physical Activity

Among adults in Palau, about three-quarters (77.37%; 95%CI: 75.4%-79.2%) reported participating in any physical activity or exercises for exercise in the past 30 days. Physical activity was significantly higher among those 55-64 years old, men, non-Palauans, and those residing outside of Koror.

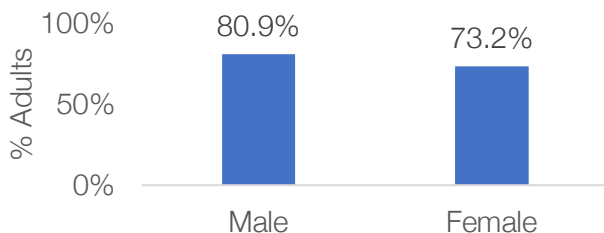
Physical Activity, by Age



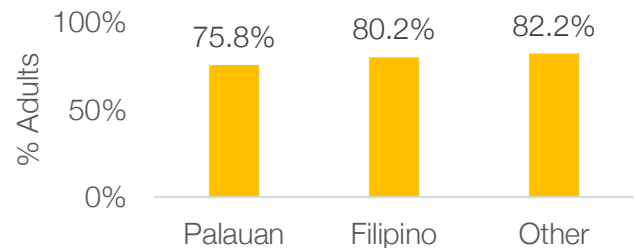
Physical Activity, by Income



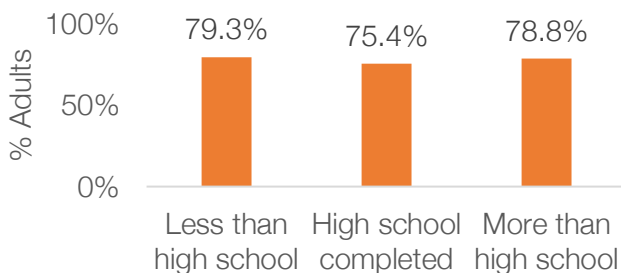
Physical Activity, by Gender



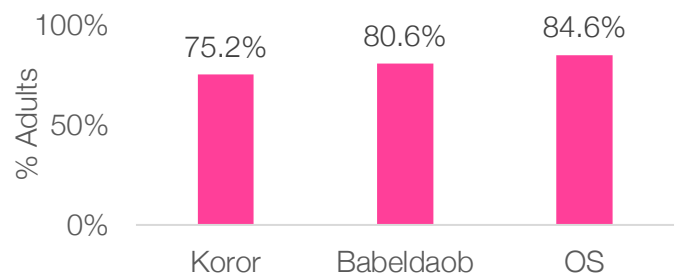
Physical Activity, by Ethnicity



Physical Activity, by Education

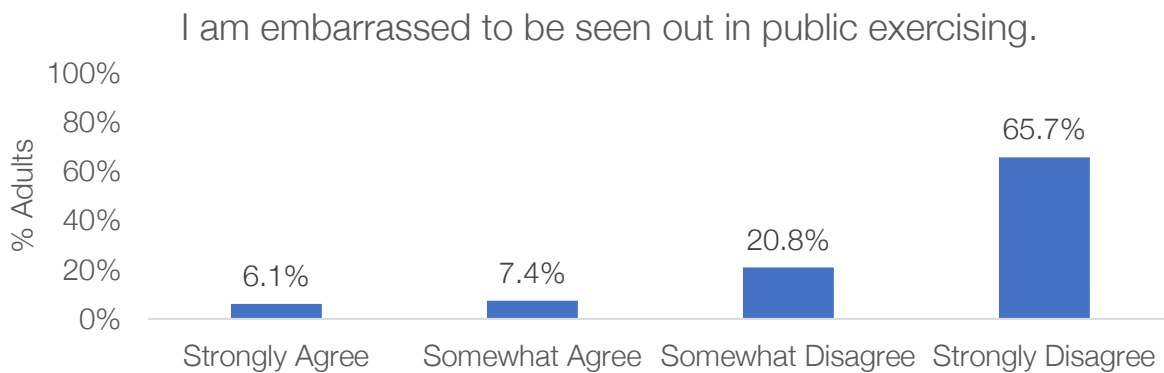
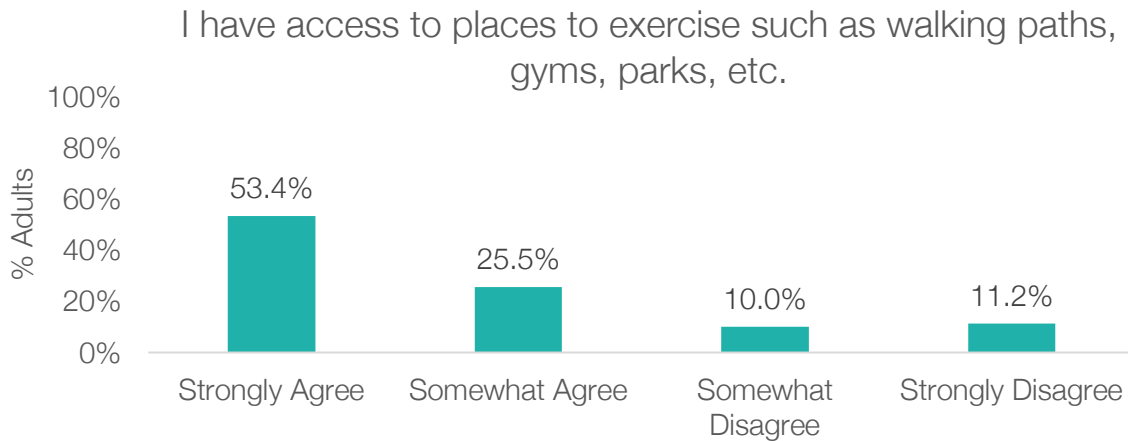


Physical Activity, by Location



# Physical Activity

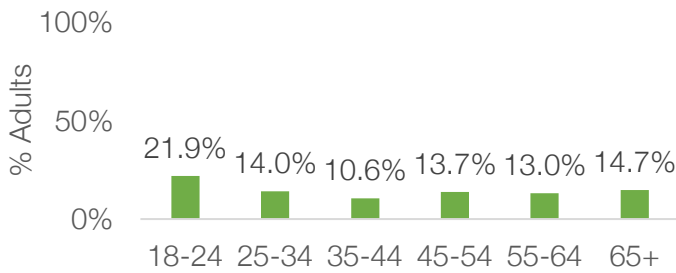
Among adults in Palau, most (78.9%) agreed that they have access to places to exercise such as walking paths, gyms, parks, etc. Most adults (86.5%) disagreed that it is embarrassing to be seen out in public exercising.



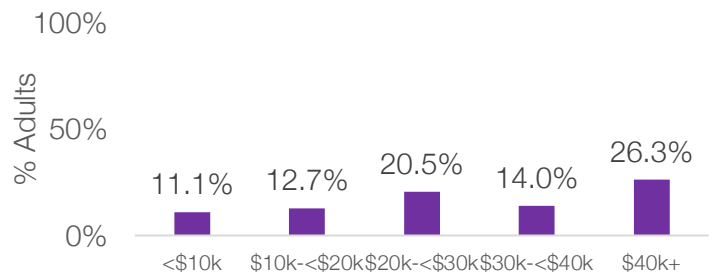
# Sedentary Behavior

Among adults in Palau, 13.7% (95%CI: 12.2%-15.3%) reported being sedentary 8 or more hours per day. Being sedentary 8 or more hours per day was significantly higher among young adults (18-24 years old), those with higher household incomes, women, Palauans, those with more than a high school education, and those residing in Koror and Babeldaob.

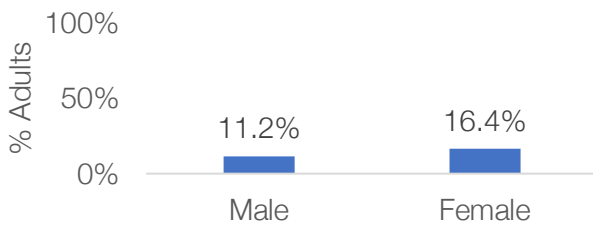
Sedentary behavior, by Age



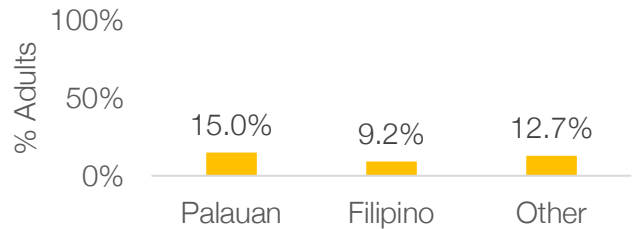
Sedentary behavior, by Income



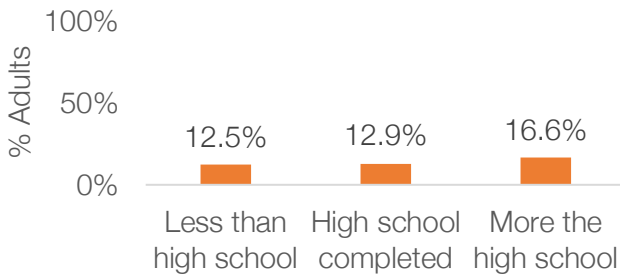
Sedentary behavior, by Gender



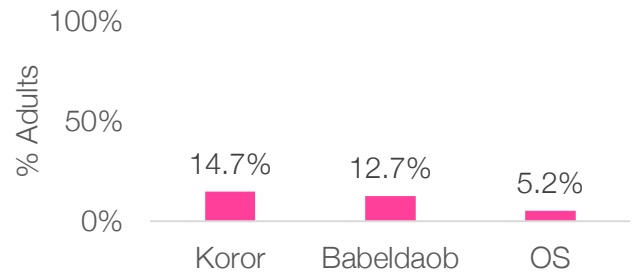
Sedentary behavior, by Ethnicity



Sedentary behavior, by Education

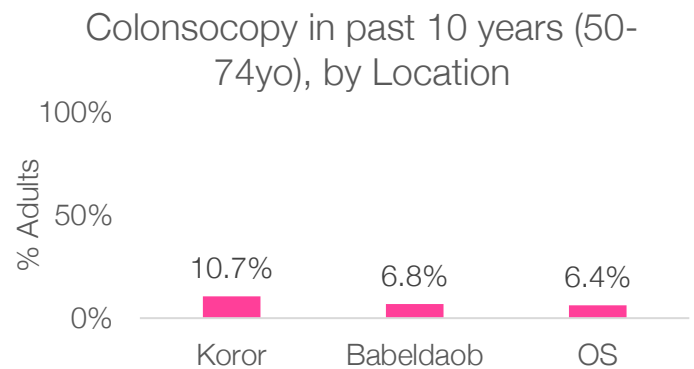
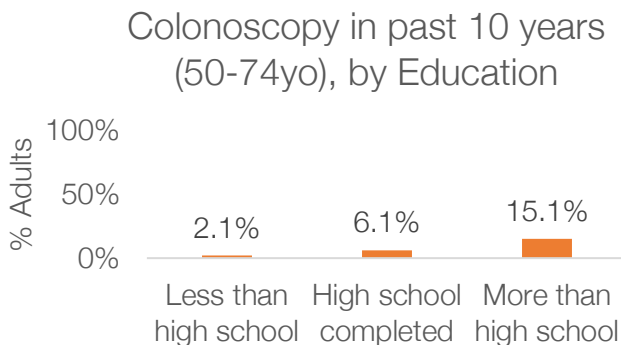
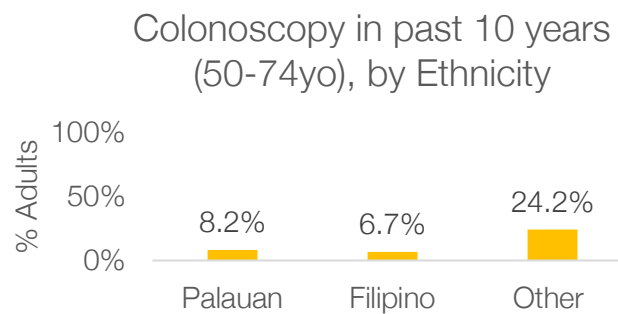
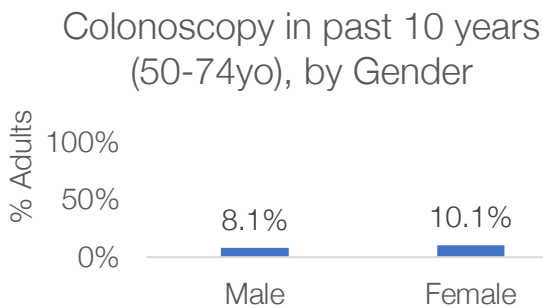
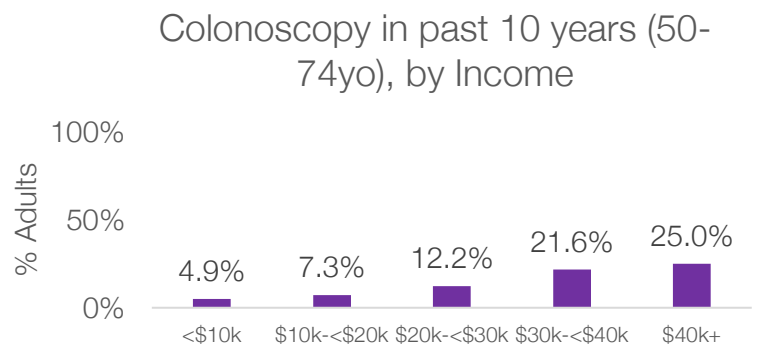
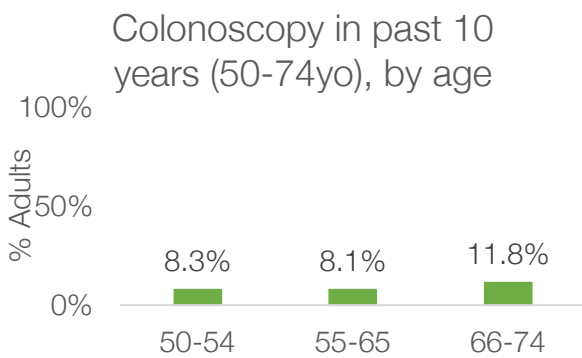


Sedentary behavior, by Location



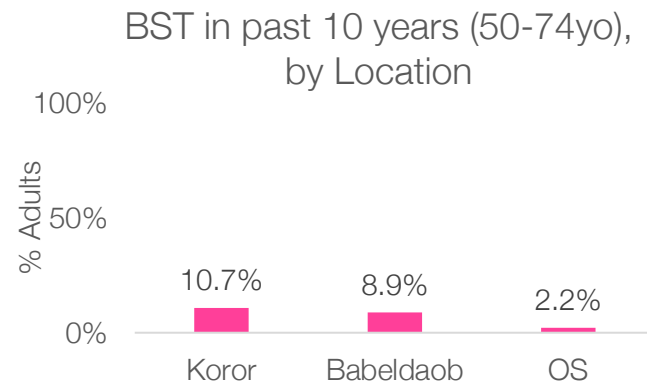
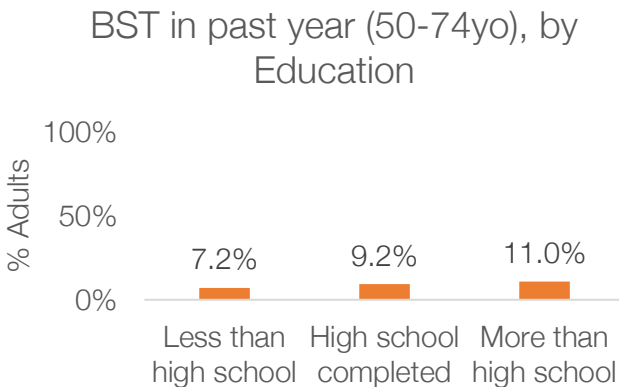
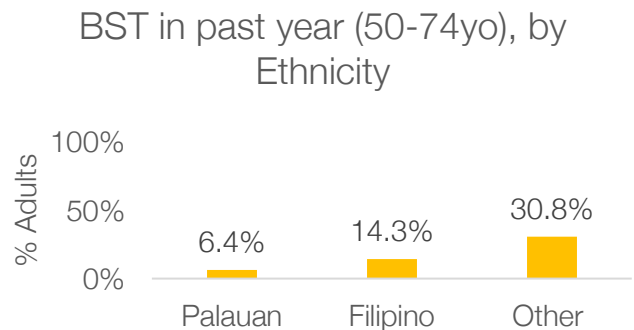
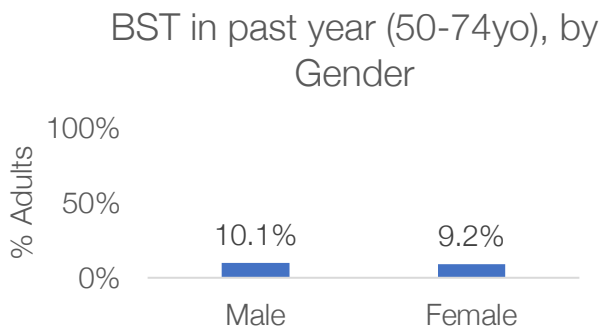
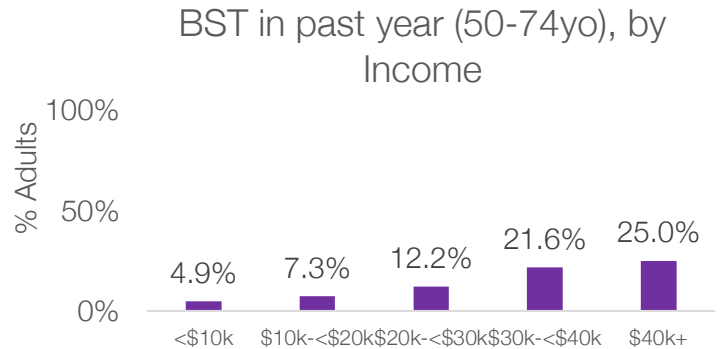
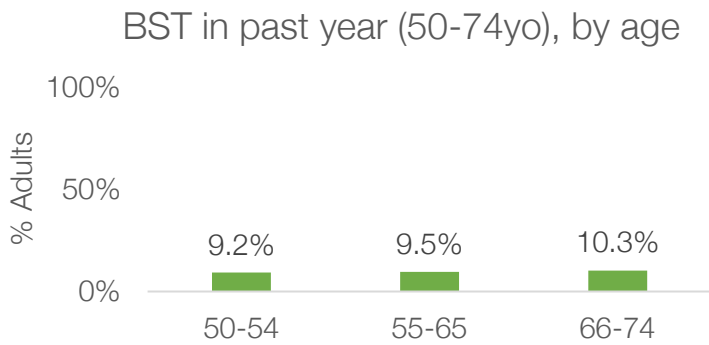
# Colon Cancer Screening: Colonoscopy

1 out of 10 adults aged 50-75 years old in Palau (10.8%; 95% CI: 8.9%-12.9%) meet the American Cancer Society recommendation for receiving a colonoscopy in the past 10 years. Having a colonoscopy in the past 10 years (among 50–74-year-olds) was significantly higher among those with higher household incomes, “other” ethnicities, and those with more than a high school education.



# Colon Cancer Screening: Blood Stool Test

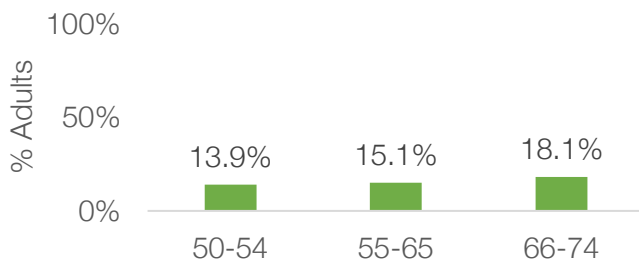
Among adults aged 50-75 years old in Palau, 1 out of 10 adults (9.6%; 95%CI: 7.8%-11.7%) met the American Cancer Society recommendation of receiving a Blood Stool Test once in the past year. Having a BST in the past year (among 50-74-year-olds) was significantly higher among non-Palauans.



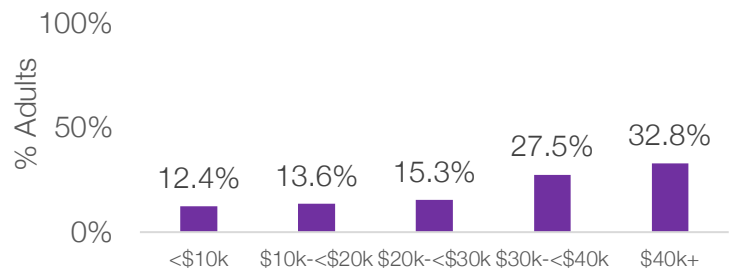
# Any Colon Cancer Screening

Among adults 50-75 years old, 15.6% (95% CI: 13.3%-18.1%) have had any up-to-date colon cancer screening. Any colon cancer screening is defined as someone who has had a blood stool test in the past year and/or a colonoscopy in the past 10 years. Colon cancer screening was significantly higher among those with higher household incomes, “other” ethnicities, and those with more than a high school education.

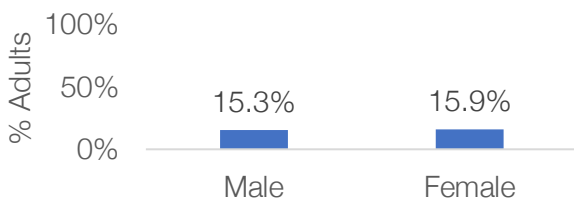
Up-to-date colon cancer screen (50-74yo), by age



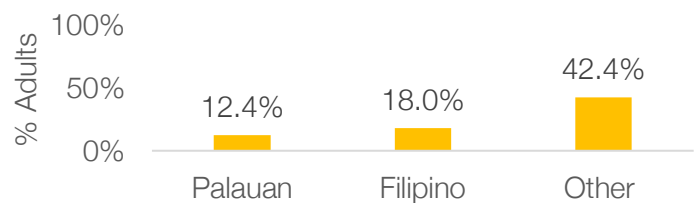
Up-to-date colon cancer screen (50-74yo), by Income



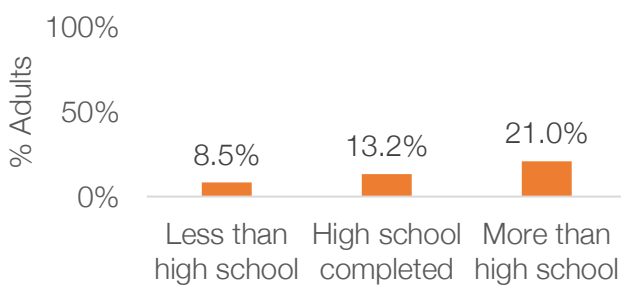
Up-to-date colon cancer screen (50-74yo), by Gender



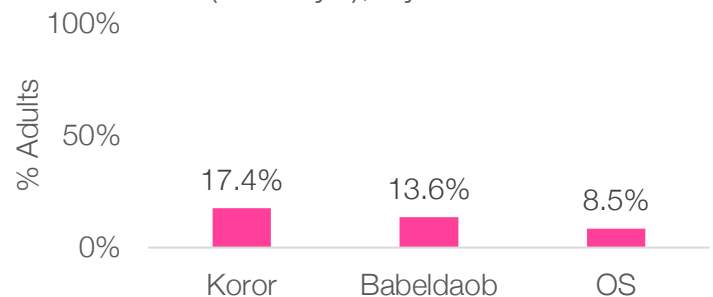
Up-to date colon cancer screen (50-74yo), by Ethnicity



Up-to-date colon cancer screen (50-74yo), by Education

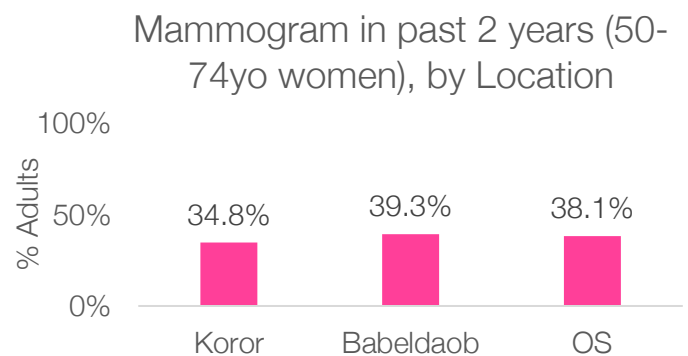
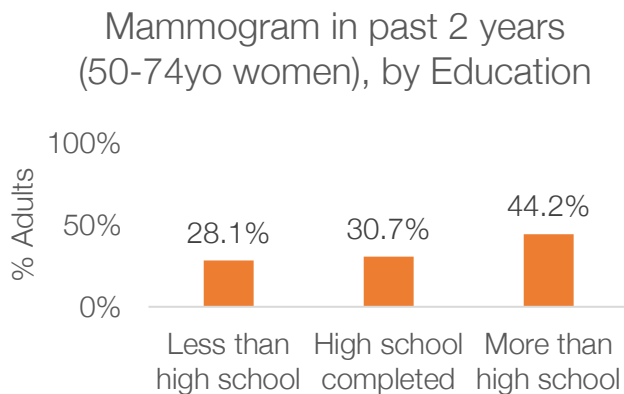
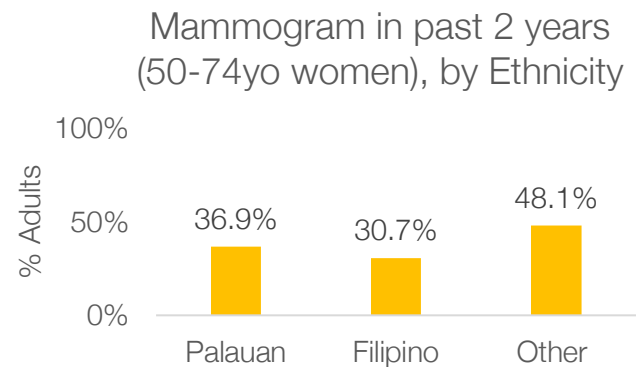
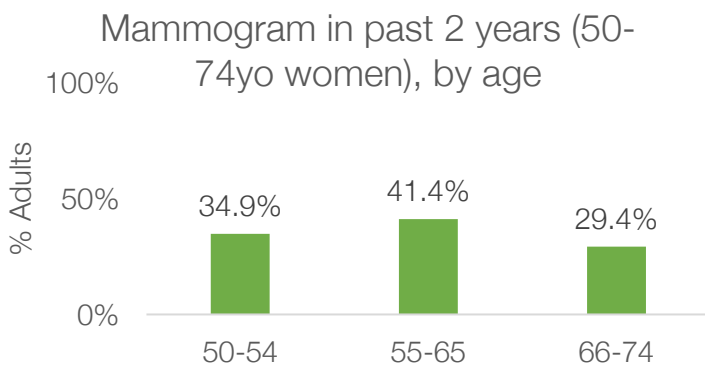


Up-to date colon cancer screen (50-74yo), by Location

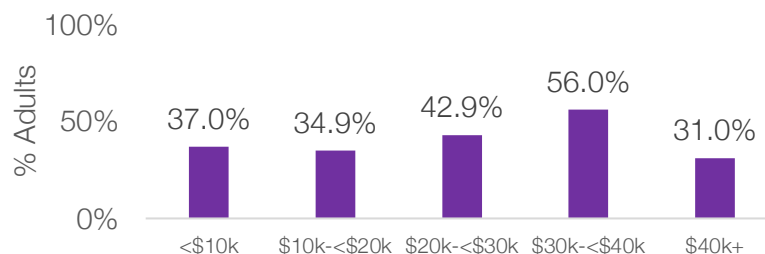


# Female Cancer Screening: Mammogram

**36.3% (95% CI: 32.0%-40.9%) of women aged 50-74 years in Palau have received a mammogram in the past two years per US Preventative Task Force (USPTF) recommendation. Having an up-to-date mammogram was significantly higher among women with more than a high school education.**

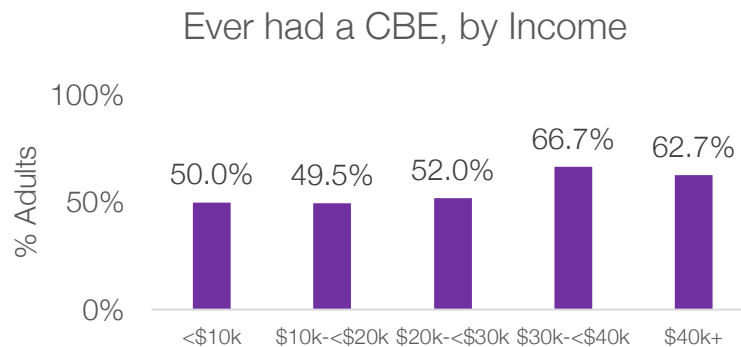
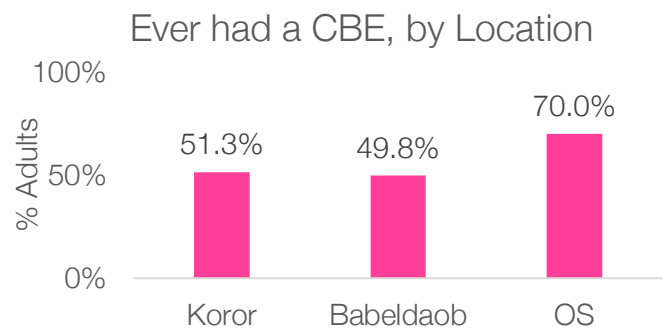
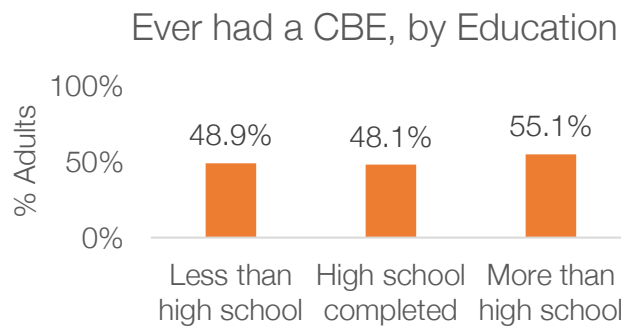
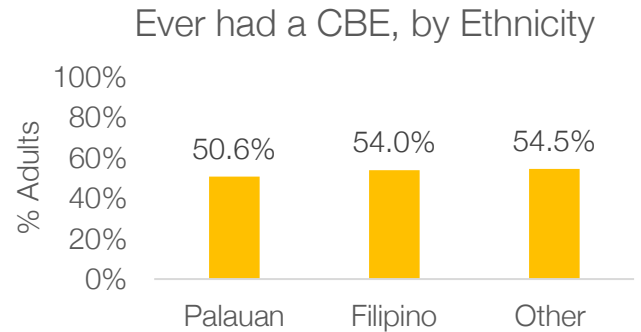
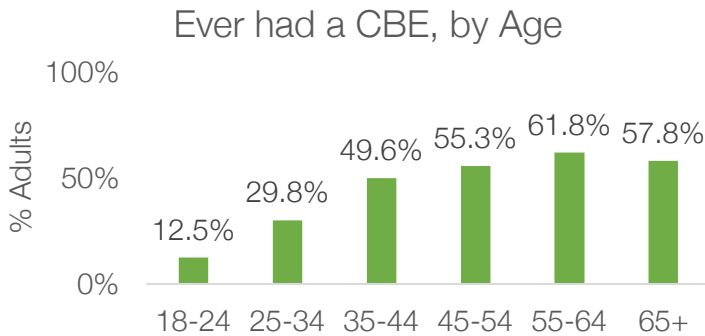


Mammogram in past 2 years (50-74yo women), by Income



# Female Cancer Screening: Clinical Breast Exam

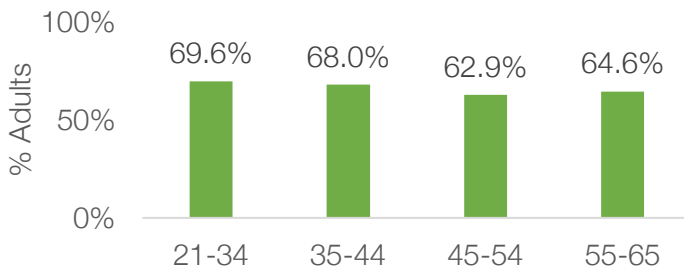
**51.5% (95% CI: 48.2%-54.8%) of women have ever had a clinical breast exam. Clinical breast exam prevalence was significantly higher among women 35 and older.**



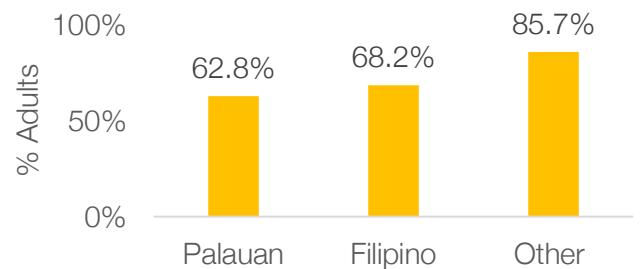
# Female Cancer Screening: Pap Smear

2 out of 3 (65.4%; 95%CI: 61.1%-69.4%) of women aged 21-65 years in Palau had a pap smear in the past 3 years (per USPTF recommendation); 21.6%. Having an up-to-date pap smear was significantly higher among women of “other” ethnicities.

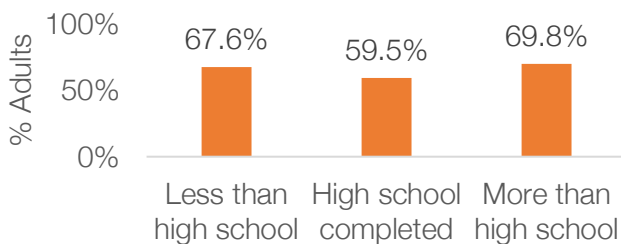
Pap in past 3 years (21-65yo women), by age



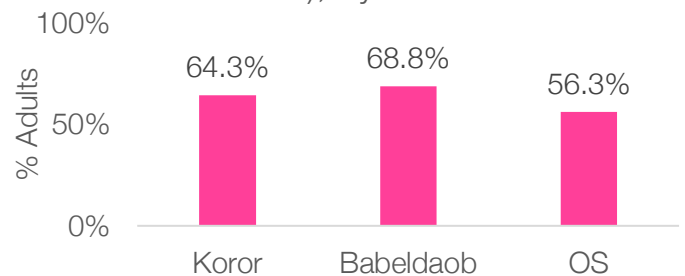
Pap in past 3 years (21-65yo women), by Ethnicity



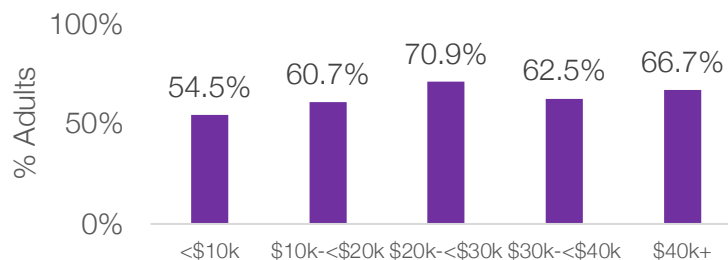
Pap in past 3 years (21-65yo women), by Education



Pap in past 3 years (21-65yo women), by Location



Pap in the past 3 years (21-65yo women), by Income



# Important notes about the survey

---

## Limitations:

- A good portion of the data collected are self-reported, thus bias may exist, specifically regarding the more sensitive questions about substance use and mental health. Therefore, certain indicators may be under-reported.
- The sample was a bit older than the last Census population estimates. However, the data were not weighted because the most recent Census data were several years old, and there were many population changes during the COVID-19 pandemic.

## Strengths:

- Physical and biochemical measurements were conducted for NCD prevalence estimation rather than just self-reporting.
- Quality and thorough training was provided for all surveyors over 3 days.
- The use of tablets ensured data collection was clean, efficient, and timely.
- There were successful partnerships and collaboration between internal and external stakeholders.
- There was substantial support from local leadership.

## Challenges:

- Some participants could not participate due to language barriers.
- Younger participants were more likely to refuse due to work, schooling, and other obligations.
- Some households were difficult to find using the Census data.

# Discussion and Recommendations

---

This adult Hybrid Survey provides much needed information about the status of NCDs and risk factors in Palau, which complements data from youth school surveys (that provide a picture of how well we are protecting youth from the development of habits that will make them sick in the future) and death rates (that give a picture of the final impact of NCDs).

Comparing the results of the present survey with data from the US helps to paint a picture of health disparities that exist between Palau and the US. Based on these comparisons, it is evident that almost all health indicators are significantly worse in Palau compared to the US. However, when the trend data from 2016 to 2023 were examined, there were some significant improvements within Palau. Specifically, there was a significant decrease in the use of betel nut with tobacco, although the cigarette smoking prevalence remained stable. The e-cigarette use prevalence remained relatively low, likely due to the recent law banning e-cigarettes in Palau. There was also a significant decrease in alcohol use prevalence, though binge drinking prevalence remains high. The prevalence of consuming 2 or more sugar-sweetened beverages decreased significantly, though consumption remains very high among young adults. There was a significant increase in access of some health services, specifically annual exams and mammograms, although there was a significant decrease in the use of dental services. When it comes to non-communicable diseases, there was a significant increase in overweight/obesity, diabetes, and hypertension prevalence, indicating an urgent need for more aggressive strategies to tackle these issues.

A large amount of effort has been given to control NCDs in Palau, especially in the areas of health promotion, health education, and the delivery of health services. It is now clear, however, that more needs to be done given the concerning rise in overweight/obesity, diabetes, and hypertension prevalence.

The Monitoring Alliance for NCD Action (MANA) Dashboard for Palau shows the status of the adoption of critical, evidence-based policies and programs that are known to be effective in controlling NCDs. This dashboard shows that there is much “unfinished business” in adopting policies that protect the community, especially youth, from the risk factors that cause NCDs.

From the MANA Dashboard, the list of policies that need adoption or strengthening for tobacco includes working on tobacco industry interference and tobacco health warnings. To combat obesity, diabetes, and hypertension, measures that need to be done include excise taxes on unhealthy foods (especially sugar-sweetened beverages and processed meats), banning of trans fats, restrictions on marketing of unhealthy foods to children, and stronger enforcement of NCD policies.

In addition to much more aggressive policies to control NCD risk factors, the results of this survey indicate that there is a large “protection gap” in the delivery of health services designed to screen for and control the damage done by NCDs. The findings of this survey indicate that only 24% of people with diabetes and 21% of those with hypertension have their disease under good control, and many adults do not have up-to-date cancer screening (84% for colon cancer, 64% for breast cancer, and 35% for cervical cancer). Much more aggressive efforts are needed to ensure that most adults receive the screening services they need for cancer prevention, and to provide the follow-up and care that those with diabetes and hypertension need to protect them from complications and death.

### Recommendations:

1. Assure that a Hybrid Adult Survey will be conducted every 5 years, in accordance with the NCD Monitoring & Surveillance Plan (next due in 2028).
2. Use the MANA Dashboard as the basis for developing a policy agenda and tracking progress to more effectively address NCD risk factors, especially overweight/obesity and tobacco use in Palau.
3. Develop a strategy across health service agencies to monitor care delivery, expand outreach, tracking, and accessible services for the care of patients with NCDs.
4. Provide appropriate services and support for substance use and mental health.

### Priority areas for health improvement in Palau include:

1. Reducing obesity, diabetes, and hypertension by improving diet/nutrition education and healthy food access and increasing physical activity using evidence-based programs and policies.
2. Strengthening NCD clinical screening and management programs among adults in Palau.
3. Providing appropriate cessation services for substance use, specifically tobacco and alcohol.
4. Strengthening mental health services, especially to young adults.
5. Consider policy approaches to reduce certain risk factors, especially those in the Monitoring Alliance for NCD Action (MANA) framework.
6. Support chronic disease self-management programs to help individuals with NCDs control their disease.

# Acknowledgements

---

## Within Palau:

- Republic of Palau Ministry of Health & Human Services  
Gaafar J, Uherbelau, Minister of Health
- Republic of Palau Ministry of Health & Human Services Bureau of Public Health  
Sherilynn Madraisau, Director, Bureau of Public Health
- Republic of Palau Ministry of Health, Division of Primary & Preventive Health  
Edolem Ikerdeu, Chief
- Republic of Palau Ministry of Health & Human Services, NCD Unit  
Selma August, NCD Unit Program Manager  
Suzette Brikul, Data Specialist
- Republic of Palau Ministry of Health & Human Services, Division of Behavioral Health-Prevention Unit  
Candace Koshiba, Prevention Unit Program Manager  
Israella Y. Reklai, Data Specialist
- ARC Consultancy  
Berry Moon Watson, MPH
- Office of Planning and Statistics  
Kyonori Tellames, Associate Planning Analyst
- Hybrid Survey Planning and Development Committee
  - Dr. Tzun Rafael
  - Kliu Kazuma
  - Vanessa Espangel
  - Janice Mathew
  - Jayvee Grapa
  - Edolem Ikerdeu
  - Suzette Brikul
  - Candace Koshiba
  - Hera Subediang
  - Sylvia Tmodrang
  - Tmong Udui
  - Mindy Sugiyama
  - Selma August
  - Israella Y. Reklai

## External Partners:

- United States Department of Interior (USDOI)
- Centers for Disease Control and Prevention (CDC)
- Health Resources and Services Administration (HRSA)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- Pacific Island Health Officers' Association (PIHOA)
- The Pacific Community (SPC)
- World Health Organization

# References

---

1. Pacific Islands Health Officers Association, Declaring a Regional State of Health Emergency Due to the Epidemic of Non-Communicable Diseases in the United States-Affiliated Pacific Islands- Board Resolution #48-01. 2010.
2. World Health Organisation, Global action plan for the prevention and control of noncommunicable diseases 2013-2020. 2014, WHO: Geneva.
3. World Health Organisation, Social determinants of health: the solid facts (2nd edition), R.Wilkinson and M. Marmot, Editors. 2003, World Health Organisation: Copenhagen.
4. World Health Organisation, Review of Areca (Betel) Nut and Tobacco Use in the Pacific: A Technical Report. 2012: WHO Western Pacific Region.
5. Värnik P, Suicide in the World. 2012, Int J Environ Res Public Health; 9(3):760-771.
6. Ran MS, Suicide in Micronesia: A Systematic Review. 2013, Primary Psychiatry; Archive, available at: <http://primarypsychiatry.com/suicide-in-micronesia-a-systematic-review/>
7. Cash H, Palau Health Status Report. 2014, available at: <http://www.palauhealth.org/MOHpages/MOHReports1.aspx>