



Yap State Youth Survey

2021 Report

ENDORSEMENT



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The Yap Department of Health Services is happy to endorse the Yap Youth Survey (2021-2022) Report. This report contains current prevalence of key youth risk factors and Yap, and evaluates trends from the previous youth survey conducted in 2016. The purpose of this report is to identify key issues that need to be addressed among Yap youth, and use these data to set priorities and develop strategic evidence-based interventions.

Based on the findings in this report, it is clear that many youth are using alcohol, betel nut, tobacco, and e-cigarettes in Yap. In fact, 60% of youth are currently using tobacco. Additionally, 2 out of 5 youth in Yap are overweight or obese, and these trends are getting worse. Many youth also reported symptoms of depression and suicide ideation, with highest prevalence among younger high school students. Finally, fewer than half of sexually active youth reported that they used condom during last intercourse and almost half of sexually active youth reported that they did not use any methods to prevent pregnancy during last intercourse. Therefore, there are many evidence-based interventions needed to address these risk findings and improve the health of high school students in Yap.

This survey was led by the Yap Department of Health Services in close collaboration with the Department of Education. We are grateful for this collaboration, and the support from parents and students. The data collected from the Yap Youth Survey are essential to improve the health of youth in Yap, and we look forward to our next survey during the 2023-2024 school year.

Respectfully,

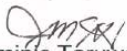

Dominic Taruwemai,
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Summary

The aim of this report is to present current prevalence of certain risk factors pertaining to non-communicable disease, mental health, and reproductive health among high school youth in Yap. These data can be used to better understand the burden of these risk factors, monitor trends, and determine who is at greatest risk for poor health in order to improve health among Yap youth through the development of targeted evidence-based interventions. The table below compares selected comparable indicators in Yap to Guam, CNMI, and the US. Green shading represents the location with the “best” prevalence, followed by orange shading, and red shading.

	Yap	Guam*	CNMI*	US*
Substance Use	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Smoking (within past 30 days)	36.7 (32.7-40.9)	11.9 (19.5-14.8)	10.8 (9.6-12.0)	6.0 (5.0-7.2)
Tobacco chewing (within past 30 days)	49.7 (45.5-54.0)	11.4 (8.8-14.7)	16.1 (14.7-17.5)	3.8 (3.2-4.6)
Alcohol use (within past 30 days)	30.9 (27.1-35.9)	25.3 (21.3-29.8)	26.1 (24.4-27.9)	29.2 (27.3-31.2)
E-cigarette use (within past 30 days)	7.9 (5.7-10.4)	35.2 (30.0-40.8)	24.4 (22.6-26.3)	32.7 (30.7-34.8)
Behavioral Health				
Felt sad or hopeless almost every day for 2 weeks or more	48.5 (44.3-52.8)	46.9 (43.0-50.8)	47.7 (45.9-49.5)	36.7 (35.1-38.3)
Seriously considered attempting suicide	18.0 (14.9-21.5)	23.8 (20.3-27.6)	28.5 (26.9-30.2)	18.8 (17.6-20.0)
Reproductive Health				
Ever had sexual intercourse	38.9 (34.8-43.1)	37.0 (32.1-42.2)	35.8 (34.0-37.8)	38.4 (35.4-41.6)
Did not use condom at last intercourse (among sexually active)	57.6 (50.6-64.4)	58.4 (50.5-65.9)	61.0 (56.8-65.2)	45.7 (43.4-48.0)
Did not use any method to prevent pregnancy at last intercourse (among sexually active)	42.7 (35.9-49.8)	35.7 (28.2-43.9)	27.1 (23.4-31.1)	11.9 (10.3-13.9)
Overweight/obesity				
Had obesity	18.4 (15.2-21.8)	23.8 (20.9-26.9)	21.6 (20.1-23.2)	15.5 (13.8-17.3)
Were overweight	23.0 (19.6-26.8)	18.3 (15.7-21.2)	15.9 (14.5-17.3)	16.1 (14.9-17.5)

*Guam, CNMI, and US data are from the 2019 YRBS (most current data available at the time of this report)

Youth Surveillance in Yap

The Rapid Youth High School Survey in Yap can inform us about the current prevalence of key youth risk factors, as well as tell us about trends. These trends are important because they tell us whether our current efforts are effective at improving risk factors among youth.

When we compare the 2016 Yap Youth Survey data to the current 2021 data, we see that tobacco chewing and alcohol use prevalence significantly decreased. There were no significant changes to smoking, betel nut chewing, depression, and pregnancy prevention prevalence from 2016 to 2021. Overweight/obesity prevalence increased significantly from 2016 to 2021. Although there were a couple of positive changes, many indicators remain unchanged or have gotten worse, and overall these indicators remain quite high in Yap. These data suggest that more evidence-based strategies should be considered to improve health among Yap youth.

	2016%	2021%	Comparison*
Smoking (within past 30 days)	39.0	36.7	○
Tobacco chewing (within past 30 days)	60.7	49.7	↓
Betel nut chewing (within past 30 days)	75.8	75.9	○
Alcohol use (within past 30 days)	45.5	30.9	↓
Overweight/obesity	33.4	41.3	↑
Depression	38.0	48.5	↑
Did not use method to prevent pregnancy	44.2	42.7	○

*Chi-square tests were used to test for statistically significant differences between 2016 and 2021; p-values<0.05 were considered statistically significant; ↑= indicator got significantly worse from 2016 to 2021; ○= indicator showed no significant change from 2016 to 2021; ↓=indicator got significantly better from 2016 to 2021. Additionally, it should be noted that a new school (Faith Christian Academy) was added to the sample during this year's survey which could have impacted these trends.

Background



Figure 1. Map of Yap
<https://en.wikipedia.org/wiki/Yap#/media/File:Yap.png>

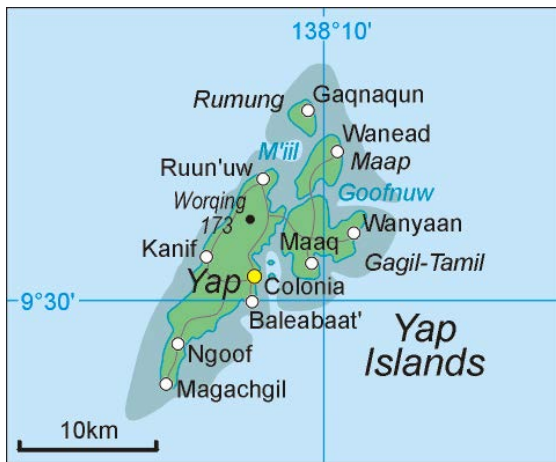


Figure 2. Map of Yap Proper
https://en.wikipedia.org/wiki/Yap#/media/File:Yap_Islands.png

Yap is one of the four states of the Federated States of Micronesia (FSM) located in the Pacific Ocean east of the Philippines. Yap is made up of many islands that are widely spread out with a total landmass of just 39 square miles. The main island is referred to as Yap Island or Yap Proper, and the majority (65%) of the population resides on this island. The other islands are referred to as the Outer or Neighboring Islands, and the remaining 35% of the population is spread out among these islands.

In 2010, the total population of Yap was 11,376 making it the third most populated state in FSM.

Yap is known for its strong tradition and culture. Subsistence activities are still very common, especially in the Outer Islands.

In 2015, Yap State declared a State of Health Emergency due to the epidemic of non-communicable diseases (NCDs). This is largely due to loss of longevity, quality of life, and loss of workforce productivity due to NCDs. There has been a shift away from traditional lifestyle and foods, which negatively impacts the culture and health of Yapese. The majority of the adult population in Yap is now overweight or obese and over

80% of adults chew betel nut, most with tobacco.

In 2010, the Pacific Island Health Officers' Association (PIHOA) declared a regional health emergency due to the epidemic of NCDs in the US-Affiliated Pacific Islands (USAPIs). The USAPIs include American Samoa, Commonwealth of the Mariana Islands (CNMI), Guam, Federated States of Micronesia (FSM), Republic of Palau, and Republic of the Marshall Islands. Stemming from this regional declaration of emergency, all six of these USAPIs agreed upon a regional NCD surveillance framework that includes core NCD and risk factor indicators that need to be routinely and consistently collected across the region in order to monitor the progress of local and regional NCD responses. This includes the following core youth indicators to be measured among high school youth every two years: 30-day tobacco smoking, 30-day tobacco chewing, 30-day alcohol use, and overweight/obesity (by physical measurement of height and weight). Therefore, Yap conducted its own "Yap Youth Survey" in 2016 to collect data on these indicators. This is the second youth survey conducted, with the next scheduled for 2023.

Methodology

The Yap Youth High School Survey was developed by the Yap State Department of Health Services (Yap DHS) with assistance from PIHOA (see Annex for copy of the survey). This survey instrument collects data on core youth NCD indicators (30-day smoking, tobacco chewing, betel nut chewing, e-cigarette use, alcohol use, and overweight/obesity). Additionally, in 2021 Yap added additional questions on mental health and reproductive health.

The Yap Youth Survey was conducted in almost all high schools in Yap to include Yap High School (YHS), Yap Catholic High School (YCHS), Yap Seventh Day Adventist School (YSDA), Outer Islands High School (OIHS), Faith Christian Academy (FCA) and Neighboring Islands Community High School (NICHS). Survey staff were unable to include the seventh high school, Yap International Christian School (YICS), due to late planning and scheduling conflicts; there would have been 5 students to survey from YICS. All students in grades 9-12 present on the survey day were eligible to participate in the survey.

The survey was conducted between October 2021 and May 2022 (2021-2022 school year). The long period of data collection was because two of the high schools are in the outer islands and regular transportation (by ship or small plane) have their unique challenges. The first part of the survey was completed by staff and included demographics, measured height, and measured weight. Then, students completed the second part of the survey on their own. This included questions on substance use, mental health, sexual behavior, nutrition, and physical activity. The completed surveys were then turned in anonymously. Afterwards, Yap DHS staff entered the paper surveys into a Microsoft Excel database. The Pacific Island Health Officers Association (PIHOA) provided technical support for cleaning and analyzing these data, as well as writing the report.

All data collected were based on self-report, excluding height and weight used to calculate Body Mass Index (BMI). BMI percentiles were used to determine BMI categories for those students under 18 years old. Adult BMI calculations were used for those students 18 and older. Overall, all students were classified as underweight, healthy, overweight, or obese. For school comparisons, YSDA was omitted due to small sample size (N=3).

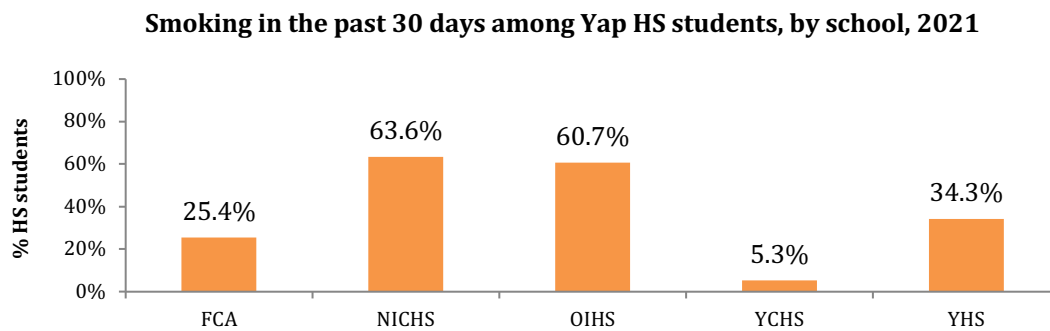
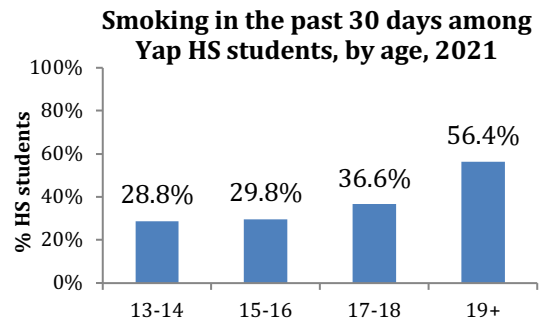
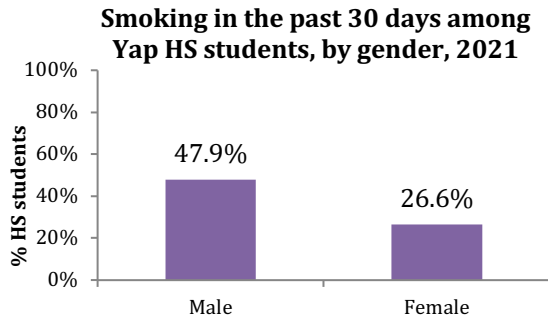
Sample Characteristics (N=557)

Demographic Characteristics	N	%
Gender*		
Male	261	46.9%
Female	295	53.1%
Age		
14 or younger	52	9.3%
15-16	207	37.2%
17-18	202	36.3%
19+	96	17.2%
Grade		
9	129	23.2%
10	158	28.4%
11	132	23.7%
12	138	24.8%
School		
Faith Christian Academy (FCA)	61	11.0%
Neighboring Island Community High School (NICHS)	107	19.2%
Outer Island High School (OIHS)	56	10.1%
Yap Catholic High School (YCHS)	95	17.1%
Yap High School (YHS)	235	42.2%
Yap Seventh-Day Adventist (SDA)	3	0.5%
Total	557	100.0%

*1 student missing data on gender

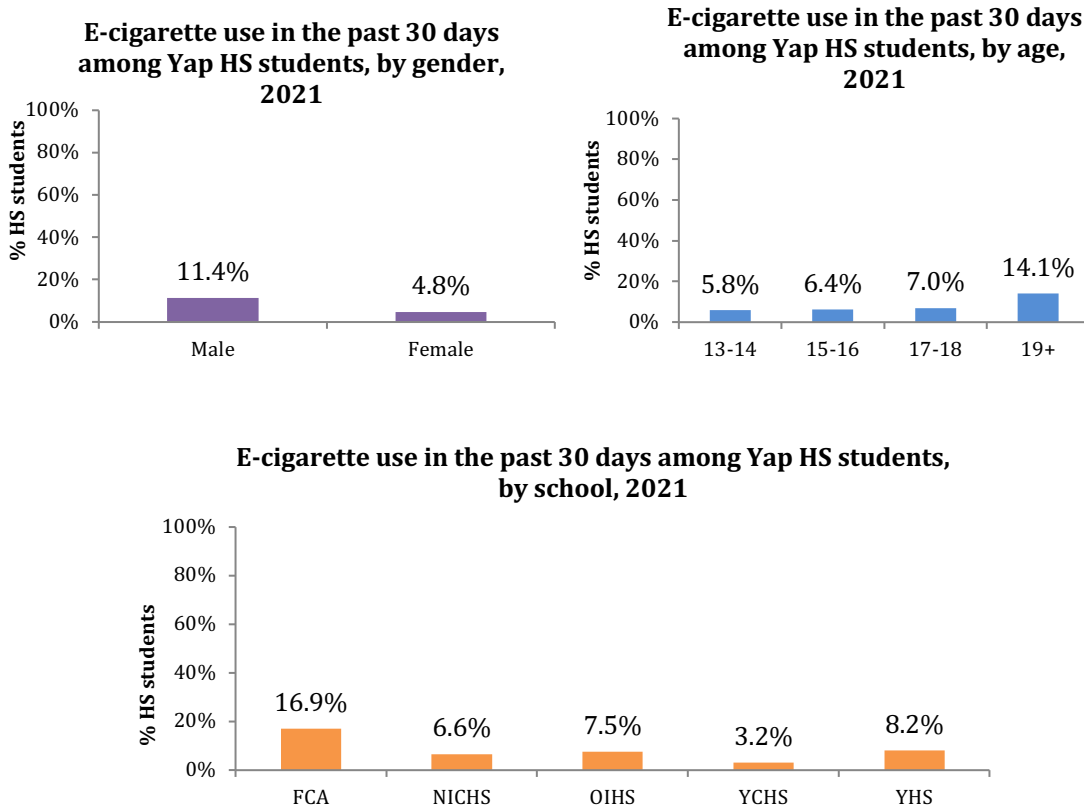
Smoking

36.7% of high school students in Yap are current smokers (smoked in the past 30 days). Male students have a higher smoking prevalence than female students (47.9% vs. 26.6%). Additionally, smoking prevalence increases with age, with the prevalence increasing from ages 13-14 (28.8%) to ages 19+ (56.4%). There also appears to be a lot of variation in smoking prevalence between schools ranging from 5.3% (YCHS) to 63.6% (NICHS).



E-Cigarette Use

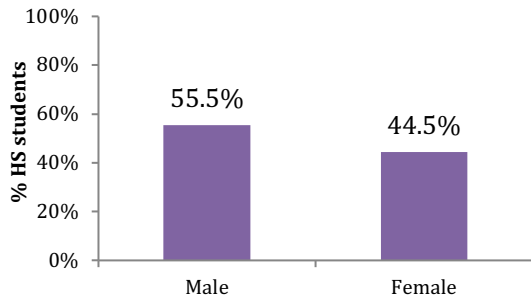
7.8% of high school students in Yap are current e-cigarette users (used e-cigarettes in the past 30 days). Male students have a higher e-cigarette use prevalence than female students (11.4% vs. 4.8%). E-cigarette use prevalence is highest among those 19 and older at 14.1%. E-cigarette use prevalence varies by school with the highest prevalence at FCA (16.9%).



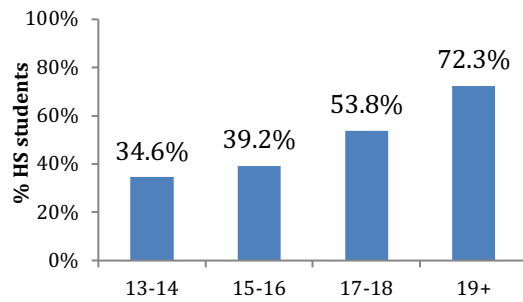
Tobacco Chewing

49.7% of high school students in Yap are current tobacco chewers (chewed tobacco in the past 30 days). This includes chewing tobacco with or without betel nut. Male students have a higher tobacco chewing prevalence than female students (55.5% vs. 44.5%). Tobacco chewing prevalence increases with age, doubling from ages 13-14 (34.6%) to ages 19+ (72.3%). Tobacco chewing prevalence is over 50% in all schools except for YCHS at 25.5%.

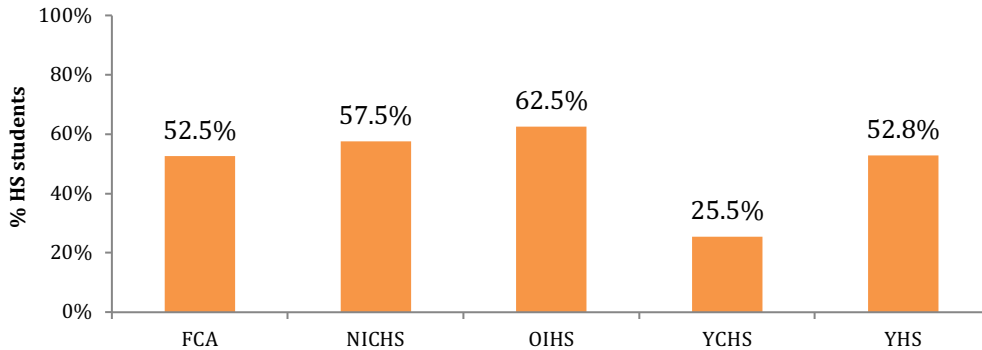
Tobacco chewing in the past 30 days among Yap HS students, by gender, 2021



Tobacco chewing in the past 30 days among Yap HS students, by age 2021



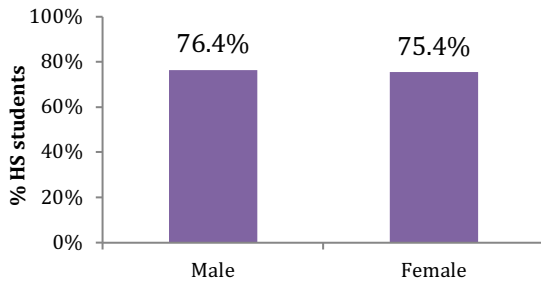
Tobacco chewing in the past 30 days among Yap HS students, by school, 2021



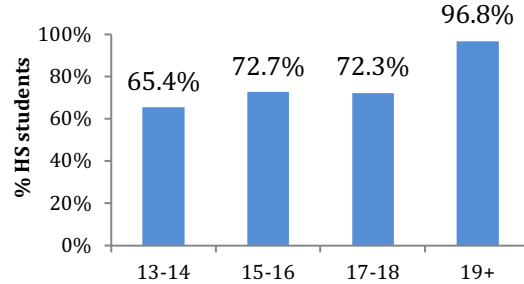
Betel Nut Chewing

Three out of four (75.9%) high school students in Yap are current betel nut chewers (chewed betel nut in the past 30 days). Betel nut chewing prevalence is similar among male and female students (76.4% and 75.4%, respectively). Betel nut chewing prevalence increases with age, with almost all youth 19 and older chewing betel nut (96.8%). Over half of all youth chew betel nut in all schools, with the highest prevalence in OIHS at 87.5%.

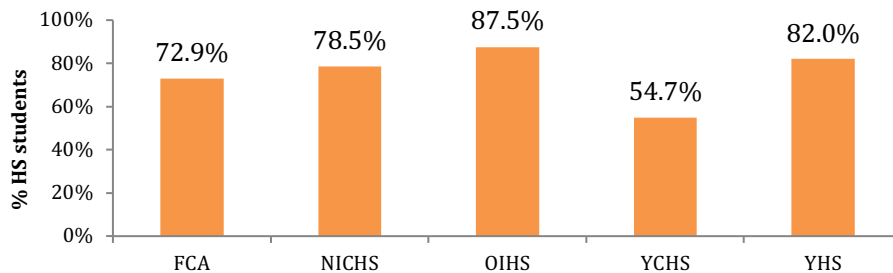
Betel nut chewing in the past 30 days among Yap HS students, by gender, 2021



Betel nut chewing in the past 30 days among Yap HS students, by age, 2021

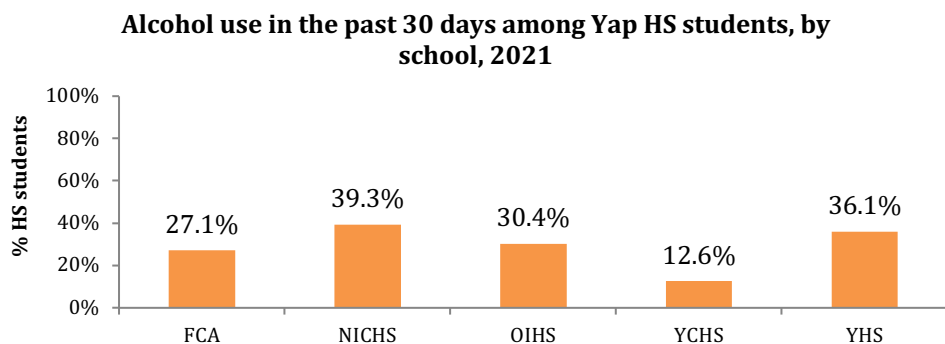
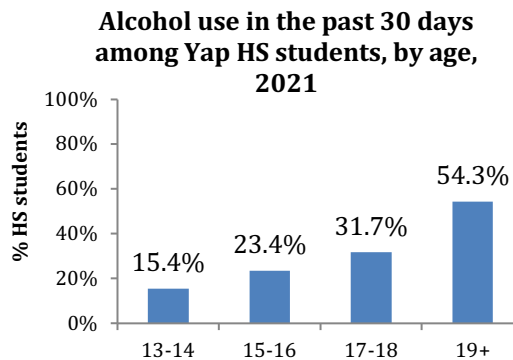
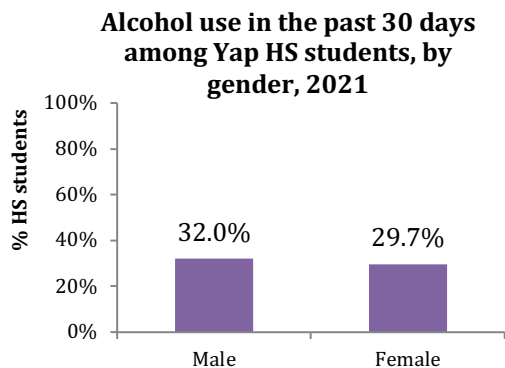


Betel nut chewing in the past 30 days among Yap HS students, by school, 2021



Alcohol Use

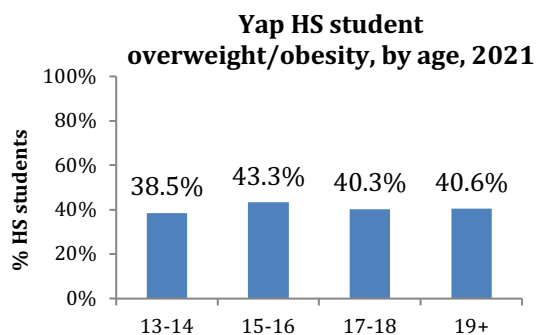
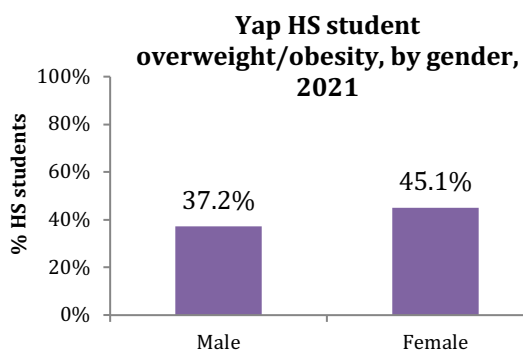
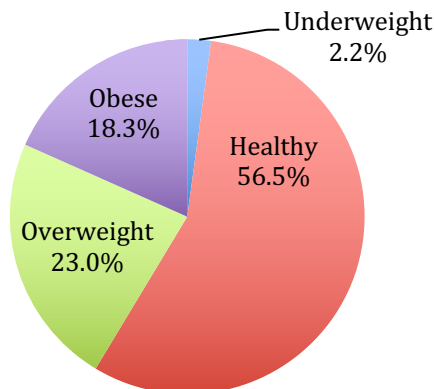
30.9% of high school students in Yap have used alcohol in the past 30 days. Alcohol use prevalence is similar among male and female students (32.0% and 29.7%, respectively). Like other substances, prevalence increases with age, from ages 13-14 (15.4%) to ages 19+ (54.3%). Alcohol use prevalence varies by school, with prevalence highest at NICHS (39.3%) and lowest at YCHS (12.6%).



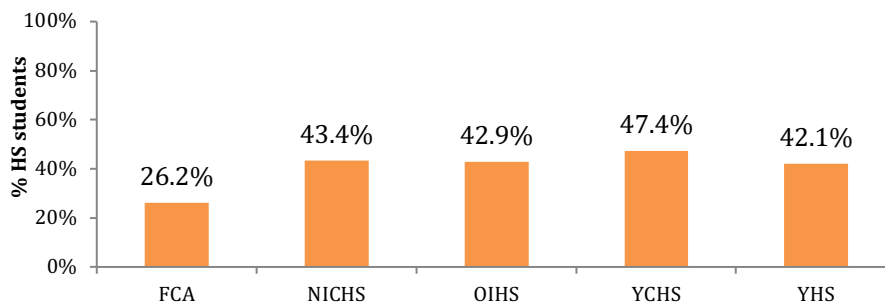
Overweight/Obesity

About 2 out of 5 (41.4%) high school students in Yap are overweight or obese. Prevalence of overweight/obesity is higher among female students (45.1%) compared to male students (37.2%). Overweight/obesity is similar among all age groups. Overweight/obesity is lowest among students attending FCA (26.2%).

Body Mass Index (BMI) Categories of Yap HS students, 2021



Yap HS student overweight/obesity, by school, 2021



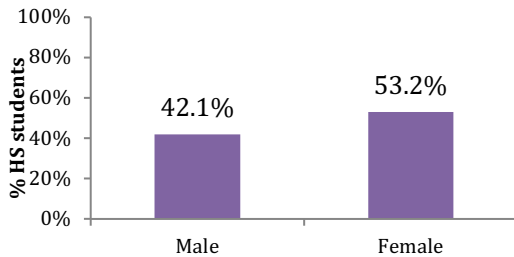
Mental Health

Mental Health Indicators*	N	%
During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?		
Yes	267	48.5%
No	283	51.5%
During the past 12 months, did you ever seriously consider attempting suicide?		
Yes	99	18.0%
No	451	82.0%
During the past 12 months, did you make a plan about how you would attempt suicide?		
Yes	109	20.0%
No	437	80.0%
During the past 12 months, how many times did you actually attempt suicide?		
0 times	461	84.4%
1 time	35	6.4%
2 or 3 times	29	5.3%
4 or 5 times	6	1.1%
6 or more times	15	2.7%
*7 students missing data on depression, 7 students missing data on suicide consideration, 11 missing data on suicide plan, and 11 missing data on suicide attempts		

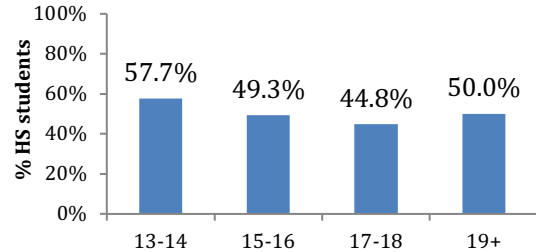
Mental Health

48.5% of youth reported that they felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing some usual activities, which is an indicator for depression. Depression prevalence was higher among female students (53.2%) compared to male students (42.1%). Depression prevalence is highest among younger students (13-14) at 57.7%. Depression prevalence ranged by school from 42.1% at YHS to 59.3% at FCA.

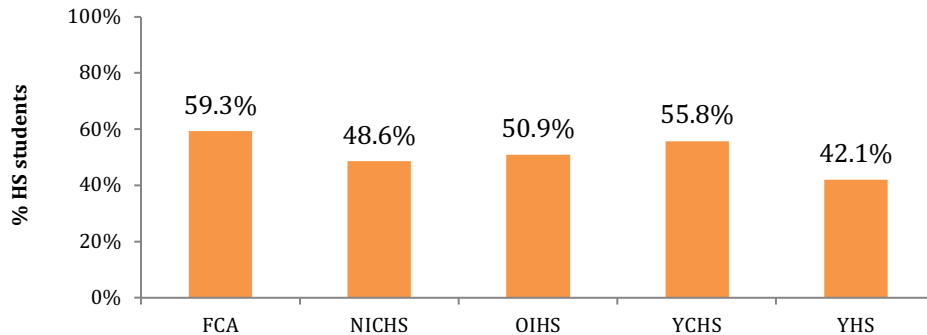
Depression among Yap HS students, by gender, 2021



Depression among Yap HS students, by age, 2021

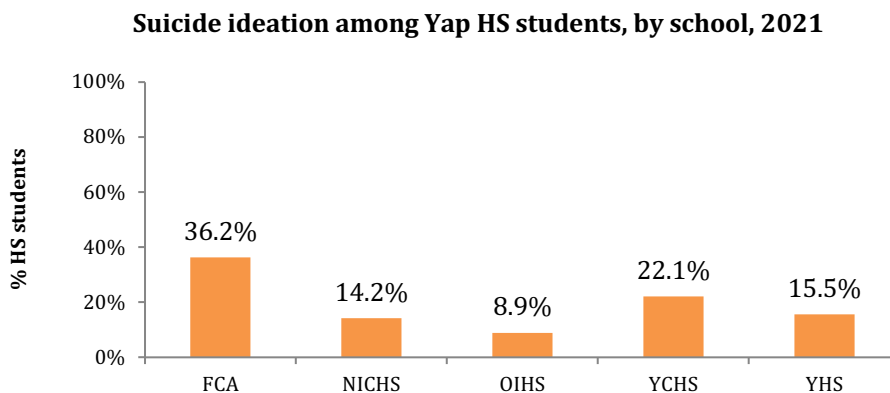
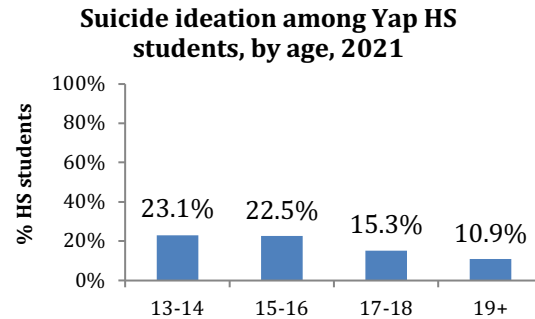
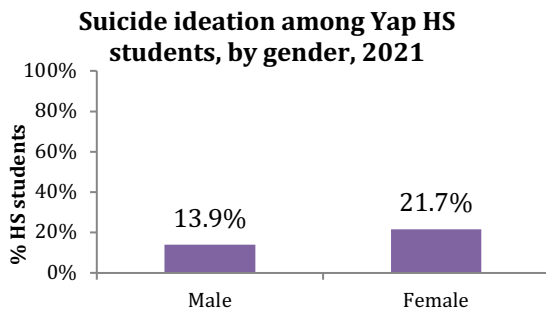


Depression among Yap HS students, by school, 2021



Mental Health

18.0% of youth reported that they seriously considered attempting suicide in the past 12 months. Suicide ideation prevalence was higher among female students (21.7%) compared to male students (13.9%). Suicide ideation prevalence is highest among younger students (13-14) at 23.1%. Suicide ideation ranged greatly by school from 8.9% at YHS to 36.2% at FCA.



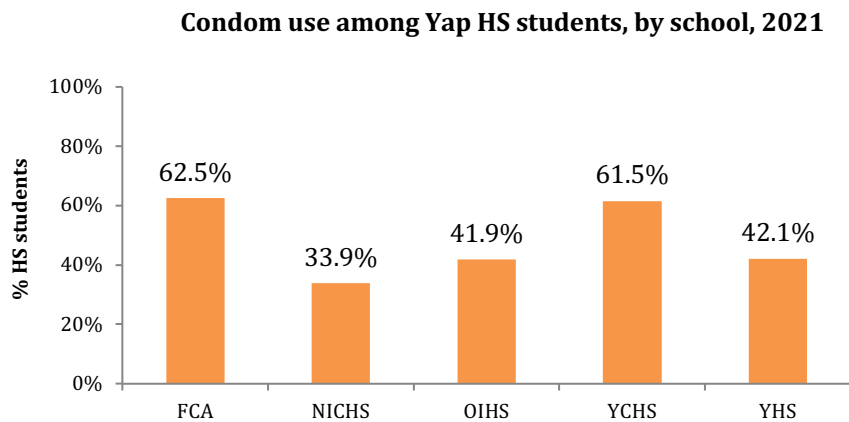
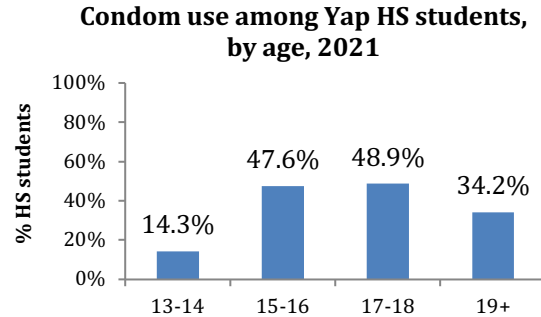
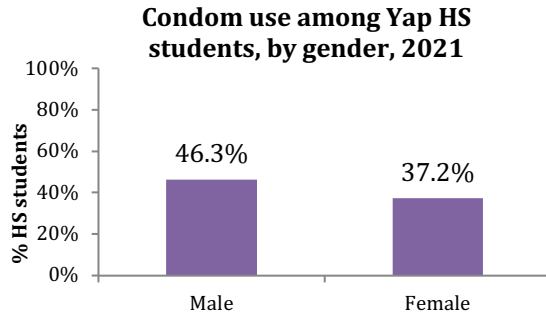
Reproductive Health

Reproductive Health Factors	N	%
Ever had sexual intercourse*		
Yes	214	38.9%
No	336	61.1%
Number of sexual partners**		
1 person	53	24.9%
2 people	32	15.0%
3 people	31	14.6%
4 people	25	11.7%
5 people	14	6.6%
6 or more people	58	27.2%
Age at first intercourse**		
11 years old or younger	13	6.1%
12 years old	9	4.2%
13 years old	19	8.9%
14 years old	22	10.3%
15 years old	35	16.4%
16 years old	52	24.3%
17 years old or older	63	29.4%
Condom use during last intercourse**		
Yes	89	42.4%
No	121	57.6%
Method used to prevent pregnancy during last intercourse**		
No method used	88	42.7%
Birth control pills	5	2.4%
Condoms	82	39.8%
IUD or implant	1	0.5%
Shot, patch, or birth control ring	5	2.4%
Withdrawal	14	6.8%
Calendar	5	2.4%
Other	6	2.9%

*7 students missing data on ever had sexual intercourse, 1 missing data on number of partners, 1 missing data on age at first intercourse, 4 missing data on condom use, 8 missing data on pregnancy prevention methods

Reproductive Health

42.4% of sexually active youth reported that they used a condom during last intercourse. Male students reported higher condom use prevalence than female students (46.3% and 37.2%, respectively). Condom use prevalence was lowest among younger students (13-14) at 14.3%. Condom use prevalence was lowest at NICHS (33.9%) and highest at FCA (62.5%) and YCHS (61.5%).



Discussion

Based on the data presented in this report, it's clear that there are many risk factors prevalent among youth in Yap. Tobacco use through smoking and chewing (with betel nut) is a significant concern given that these prevalence rates are much higher than other jurisdictions in the region and the **majority of high school youth (60%) are using tobacco**. Additionally, **one out of three high school youth in Yap are using alcohol**. There are clear trends in these use patterns, highlighting the need to prioritize certain high schools in Yap for intervention. Additionally, substance use begins early in Yap, so interventions in youth prior to high school should be considered.

Overweight/obesity prevalence among high school youth is high in Yap, and this issue appears to be getting worse. Overweight/obesity prevalence is high even among the younger high school youth, suggesting that early childhood intervention is necessary. Evidence-based programs that increase physical activity and improve dietary habits should be considered in Yap.

Many students reported depression symptoms and suicide ideation. **Depression and suicide ideation are highest among younger high school students, suggesting that intervention is needed beginning at young ages.** Providing healthy, supportive environments at school is important for promoting good mental health.

Two out of five high school students in Yap are sexually active. **Fewer than half of students reported using a condom at last intercourse, and almost half did not use any method to prevent pregnancy at last intercourse.** Effective modern methods such as birth control pills, implants, IUDs, and Depo are highly under-utilized by students. These risky behaviors could result in sexually transmitted infections and unplanned pregnancies among youth in Yap. Evidence-based family planning programs could be considered in Yap.

Survey Recommendations

In addition to evaluating existing youth health programs in Yap, it is also recommended that this survey be carried out every two years to monitor these youth risk factors over time. Additionally, efforts should be made to include all high schools in Yap and increase participation among students. This is due to the fact that there was non-response from some students.

Acknowledgements

Dept. of Education: Director Pam Legdesog and her staff for statistics and initial communications with the neighboring island high schools

Faith Christian Academy (FCA): Principal John Malimai and staff

Neighboring Island Community High School (NICHS): Principal Stanley Retogral and staff

Outer Island High School (OIHS): Principal John Ugulmar and staff

Yap Catholic High School (YCHS): Principal Michael Wiencek and staff

Yap High School (YHS): Principal Lazarus Ulith

Yap Seventh-Day Adventist (SDA) School: Principal Shahzad Masih and staff

College of Micronesia/Continuing Research Extension staff & volunteers

Catholic Relief Services and staff

Public Health Programs: Personal Responsibility Education Prog., Tobacco Prog., Cancer Prog., and Noncommunicable Disease Prog. staff and volunteers

All parents who allowed their children to contribute to this important survey and last but not least, the brave students who gave their time and honest answers so that they, their peers, and future youth can have a better tomorrow!

Annex

Yap State High School Core Risks Questionnaire 2019 ID: _____

Students will first be interviewed and measured by trained NCD Survey Staff to complete questions 1-11 in the box. Students will complete the rest of the questions independently, and then submit forms into a designated box. **No names are to be collected.**

SECTION 1: To be completed by NCD Survey Staff:

1. Date (M/D/Y):	_____ / _____ / _____
2. Name of School:	_____
3. Grade:	9 10 11 12 (circle one)
4. Name of Class or Section:	_____
5. Gender:	Male Female (circle one)
6. Age (years)	_____ years
7. Residence (Municipality):	_____
8. Staff Member Initials (Questions)	_____
9. Height:	_____ cm
10. Weight:	_____ kg
11. Staff Member Initials (Measurement):	_____

SECTION 2: To be completed by Student after SECTION 1:

This section is for the student to complete (Do not put your name on this sheet. All information is confidential.)

12. During the **past 30 days**, did you **smoke** any tobacco? Yes No (circle one)
13. During the **past 30 days**, did you have **at least one drink of alcohol**? Yes No (circle one)
14. During the **past 30 days**, did you chew **at least one betel nut**? Yes No (circle one)
15. During the **past 30 days**, did you **chew** any tobacco (with or without betel nut)? Yes No (circle one)
16. During the **past 30 days**, did you use any **electronic vapor products including e-cigarettes, vapes, vape pens, e-cigars, ehookahs, hookah pens, and mods**? Yes No (circle one)

TURN PAPER OVER TO COMPLETE SURVEY- MORE QUESTIONS ON THE BACK!!!

Yap State High School Core Risks Questionnaire 2019

ID: _____

17. During the past 12 months, did you ever feel so sad or hopeless almost every day for **two weeks or more in a row** that you stopped doing some usual activities? Yes No (circle one)
18. During the past 12 months, did you ever **seriously** consider attempting suicide? Yes No (circle one)
19. During the past 12 months, did you make a plan about how you would attempt suicide? Yes No (circle one)
20. During the past 12 months, how many times did you actually attempt suicide? (circle one)
- A. 0 times
 - B. 1 time
 - C. 2 or 3 times
 - D. 4 or 5 times
 - E. 6 or more times
21. Have you ever had **sexual intercourse**? Yes No (circle one)
-**IF NO, STOP HERE!**
22. How old were you when you had sexual intercourse **for the first time**? (circle one)
- A. 11 years old or younger
 - B. 12 years old
 - C. 13 years old
 - D. 14 years old
 - E. 15 years old
 - F. 16 years old
 - G. 17 years old or older
23. During your life, with **how many people** have you had sexual intercourse? (circle one)
- A. 1 person
 - B. 2 people
 - C. 3 people
 - D. 4 people
 - E. 5 people
 - F. 6 or more people
24. The last time you had sexual intercourse, did you or your partner **use a condom**? Yes No (circle one)
25. The **last time you had sexual intercourse**, what one method did you or your partner use to prevent pregnancy? (Select only one response.)
- A. No method was used to prevent pregnancy
 - B. Birth control pills
 - C. Condoms
 - D. An IUD or implant
 - E. A shot (such as Depo-Provera), patch, or birth control ring
 - F. Withdrawal
 - G. Calendar
 - H. Other: _____
(if other, please describe)

THANK YOU FOR COMPLETING THE SURVEY!