

**Screening and Intervention to Reduce Alcohol and Substance Use
in the Adolescent Population**

Stacie Burleson RN, BSN, CCRN¹; Diane Caruso, DNP, FNP-BC²; Rudy Medina, MD³; Kelley Bradley, CPNP, IBCLC⁴; Judy Phillips, DNP, FNP-BC, AOCN, CCRN⁵

¹Doctoral candidate, School of Nursing, Lenoir-Rhyne University, Hickory, NC

²Director, Doctor of Nursing Practice Program, School of Nursing, Lenoir-Rhyne University

³Mountain View Pediatrics, Morganton, NC

⁴Mountain View Pediatrics, Morganton, NC

⁵Messino Cancer Center. Assistant Professor, Doctor of Nursing Practice Program, School of Nursing, Lenoir-Rhyne University, Hickory, NC

AUTHORS' NOTE

The authors report no actual or potential conflicts of interest. No external or intramural funding was received. Correspondence concerning the article should be addressed to Stacie Burleson, P.O. Box 822, Glen Alpine, NC 28628 (Stacie.burleson@my.lr.edu; phone: 828-443-9821).

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Abstract

Problem: The *National Youth Risk Behavior Survey* (2018) reported that in North Carolina, approximately 25% of adolescents currently drink alcohol and 18% currently use marijuana. Adolescent alcohol and substance use influence academic performance, personal safety, and mental health. Many adolescents are not screened in the primary care setting (PCS) for alcohol and substance use.

Methods: Standardized alcohol and substance use screening and interventions were implemented in a pediatric PCS. The interventions were motivational interviewing and referrals, based on the screening results and discretion of the providers. Descriptive statistics evaluated tool usage, adherence to interventions by the providers, population demographics, and categorized substances used. Secondary outcomes were measured by Spearman's Correlation analysis that evaluated the association between the PHQ-9M score and CRAFFT risk.

Findings: The CRAFFT screening tool version 2.1 and interventions were successfully implemented in a pediatric PCS. A very weak association was found between PHQ-9M score and CRAFFT risk.

Conclusion: The quality intervention project provided a standardized process for alcohol and substance use screening. The project is sustainable due to its simplicity and EHR documentation.

Keywords: alcohol, substance use/abuse; adolescent; quality improvement; PHQ-9 teen; CRAFFT version 2.1.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Screening and Intervention to Reduce Alcohol and Substance Use in the Adolescent Population

The *National Survey on Drug Use and Health* (2016) stated that 16% of adolescents ages 12-17 reported drinking in the past 30 days (Palmer et al., 2019). During adolescence, the brain undergoes rapid neurological development and is vulnerable to addictions. Alcohol or drug use can result in immediate, life-threatening consequences or lead to a lifetime of poor health (Palmer et al., 2019). The Surgeon General (Office of the Surgeon General, 2007), the National Institute on Alcohol Abuse and Alcoholism (2011), and the American Academy of Pediatrics (AAP) (Committee on, 2011) recommend routine screening and interventions for alcohol and substance use (summarized in Pitts & Shrier, 2014). The need for routine assessment with a validated assessment tool and intervention is essential in the pediatric setting (Alinsky, et al., 2020).

The primary care setting (PCS) provides an opportunity to screen a large number of adolescents and identify those who are using alcohol or drugs (D'Amico, et al., 2016). Evidence-based practice guidelines suggest all adolescents be screened for alcohol and substance use, be given brief counseling, and possible referral (Pitts & Shrier, 2014).

There are a significant number of adolescents not screened in the PCS. Not identifying adolescents using alcohol or drugs contributes to poor academic performance, reduced personal safety, and mental health problems (D'Amico et al., 2016). The primary reasons providers have reported a lack of screening include time constraints, uneasiness discussing substance use, and limited referral options for counseling or group therapy services (Palmer et al., 2019).

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Review of Literature

Substance use in the adolescent population can significantly influence school performance, relationships, personal safety, and mental health (Curtain & Rowe, 2020). The *National Youth Risk Behavior Survey* (YRBS) reports 60% of adolescents from 9th-12th grade have had at least one alcohol drink once in their lifetime (CDC, 2017). The report indicated 35.6% adolescents have used marijuana one or more times. In North Carolina, a 2018 state-specific study revealed that 27% of high school students reported drinking at least once in the past 30 days, and 12% reported heavy alcohol use at least once in the past 30 days (Curtain & Rowe, 2020).

The brain undergoes a series of developmental trajectories, with higher cognitive functioning developing during the adolescent and young adulthood years (Gray & Squeglia, 2019). Exposure to neurotoxins such as alcohol and substance use has the potential to stagnate cognitive development (Gray & Squeglia, 2019).

There is a strong correlation between substance use during adolescence and substance use disorder in adulthood (Curtain & Rowe, 2020). In a national sample (n=42,093; average age=44 years), 47% reported alcohol use at or before age 14 and having had at least one episode of alcohol dependency, compared to only 9% who first used alcohol at 21 years of age or older (Curtain & Rowe, 2020). Alcohol is the most widely used substance among adolescents; 64% of 18 year-olds endorse lifetime alcohol use (Johnston et al, 2017 in Gray & Squeglia, 2018).

Many of those with a substance use disorder are also diagnosed with mental health disorders (NIDA, 2020b). The high prevalence of comorbidities associated with substance use disorders and other mental illness such as anxiety, panic disorder, post-traumatic stress disorder, attention-deficit hyperactivity disorder, depression, and bipolar disorder does not necessarily

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

mean that one causes the other, as determining causality is difficult to assess (NIDA, 2020a). The nine-item Patient Health Questionnaire (PHQ-9) is a widely used tool for depression screening. The tool was initially developed for the adult population but has since been validated and adapted for use with the adolescent population (PHQ-9M) (Bentley et al., 2021). The PHQ-9M score is a numeric score ranging from 0-27 to scale the severity of depression (Selph & McDonagh 2019). No studies were found comparing PHQ-9 scores and substance screening tool scores.

Due to the prevalence of substance use in the adolescent population, the AAP recommends using a validated screening tool (Curtain & Rowe, 2020). Validated tools should be used rather than relying on clinical, non-structured interview questions. Deviating from standard questions on screening tools can lead to under-detection or missed opportunities to address substance use (Curtain & Rowe, 2020). A survey of primary care providers (n=65) reported that at least 84% spoke to adolescents about the effects of alcohol and substance use. However, 27% reported never using a standardized screening tool (Palmer et al., 2019).

A meta-analysis that considered four screening tools based on their effectiveness to identify alcohol or marijuana use in adolescents 12-18 years old found that the CRAFFT tool and the PESQ-PS identified more at-risk youth for alcohol and marijuana use than other instruments (D'Amico et al., 2016).

CRAFFT Screening Tool

The CRAFFT tool provides a series of questions related to alcohol, substance use, and at-risk behaviors among adolescents. CRAFFT is an acronym from the key words of the six items in the second section of the assessment: Car, Relax, Alone, Forget, Friends, Trouble (*CRAFFT 2.1 Manual*, 2018).

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

The CRAFFT tool is a short, straightforward form filled out by the patient. Part A of the screening tool asks if, during the past year, how many days did they:

1. Drink more than a few sips of beer, wine, or any drink containing alcohol? Put “0” if none.”
2. Use any marijuana (weed, oil, hash, by smoking, vaping, or in food) or “synthetic marijuana” (like “K2,” “Spice”)? Put “0” if none.
3. Use anything else to get high (like other illegal drugs, prescriptions, or over-the-counter medications, and things that you sniff, huff, or vape)? Put “0” if none. (*CRAFFT 2.1 Manual, 2018*).

Part B consists of screening questions. If all questions were marked “0” in Part A, only the “CAR” question is answered. If the score is greater than 0, all 6 CRAFFT questions are completed. Part B questions are answered “yes” or “no,” They are:

C: Have you ever ridden in a Car driven by someone (including yourself) who was “high” or had been using alcohol or drugs?

R: Do you ever use alcohol or drugs to Relax, feel better about yourself, or fit in?

A: Do you ever use alcohol or drugs while you are by yourself, or Alone?

F: Do you ever Forget things you did while using alcohol or drugs? Does your Family or FRIENDS ever tell you that you should cut down on your drinking or drug use?

T: Have you ever gotten into Trouble while you were using alcohol or drugs?” (*CRAFFT 2.1 Manual, 2018*).

Motivational Interviewing

Motivational interviewing is an evidence-based method of communication in which open ended, non-judgmental, and reflective communication are used. This technique helps the patient to prioritize their willingness to change a harmful or undesirable behavior (Marcovitz et al.,

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

2020). The technique is meant to be a self-motivating dialogue to encourage or promote behavioral changes (*CRAFFT 2.1 Manual*, 2018). The OARS model promotes provider-patient communication. The OARS acronym stands for: open questions, affirmation, reflection, and summarization. Open questions cannot be answered with “yes” or “no” responses. Affirmations comment on the person’s strengths and efforts, reflections mirror the content or feelings stated by the person, summaries put together what has been stated (Adams & Hamera, 2022).

Referrals

Interventions and referrals for treatment should be based on the level of risk identified by the CRAFFT tool. Adolescents who report not using any substances or riding in a vehicle with someone under the influence should receive praise and encouragement from the provider (Curtain & Rowe, 2020). Those who report either driving under the influence or riding with someone impaired should be asked to develop a safety plan. This plan requires the adolescent to make a commitment to call a responsible friend or adult to drive or assist in a situation that could endanger safety (Curtain & Rowe, 2020). CRAFFT scores of 0-1 recommend brief intervention through motivational interviewing done by the provider. A score >2 and provider assessment that warrants concern about substance dependence, indicates the need for a referral for counseling and more intensive interventions (Curtain & Rowe, 2020).

Overcoming Barriers

Implementing a standardized screening tool and interventions in the pediatric PCS must be well-organized and efficient in order to integrate the practice change into the workflow and electronic health record (Alinsky et al., 2020). Practices have a wide variety of health questionnaires already in place. Additional screening tools and interventions must be considered in light of their benefits while acknowledging time constraints (Gray & Squeglia, 2017).

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Project Aim

Adolescent alcohol and substance use is a major public health concern and is one of the leading causes of unintentional injuries and deaths (Kann et al., 2017 in Alinsky et al., 2020). Alcohol and substance use imposes a burden on individuals, families, and communities (Kulak & Griswold, 2019). Due to the prevalence and detrimental effects of alcohol and substance use, there is a need for standardized alcohol and substance use screening in the pediatric PCS (Jones et al., 2020). The purpose of this QI project was to implement a standard process for alcohol and substance use screening and interventions in a pediatric PCS.

The primary outcomes were provider adherence to CRAFFT tool use, motivational interviewing documentation, and number of referrals. The secondary outcome measured the association between the PHQ-9M score and CRAFFT risk. The robust data provided information related to population demographics, and alcohol or type of substance used.

Methods

This was a 6-month prospective QI project that implemented the CRAFFT screening tool version 2.1 and interventions such as motivational interviewing and/or referrals- for further evaluation and treatment, to identify and reduce adolescent alcohol and substance use. The study was developed and managed in a private pediatric PCS. A quantitative method design was used to obtain primary and secondary outcomes, and to measure robust data.

Participants

A convenience sample was obtained from two clinicians, one a pediatric nurse practitioner and the other a general pediatrician in the pediatric PCS who performed the screenings, interventions, and referrals. Eligibility for participation required the providers to be employed by the practice and have routine office visits with the patient population, ages 12-21:

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Measures

Provider Adherence to the CRAFFT tool

Provider adherence to alcohol and substance use screening was measured by the percentage of well-visits having completed CRAFFT tools. Adherence was evidenced by the number of CRAFFT forms filled out by the adolescent and scanned into the EHR.

Provider Adherence to Motivational Interviewing

The providers used motivational interviewing to communicate with adolescents after reviewing CRAFFT tool results during the well-visit exam. Motivational interviewing adherence was measured by provider documentation of a confidential discussion related to alcohol, drug usage, and safety.

Referrals

Referrals were made according to CRAFFT risk level and provider discretion. All charts having a CRAFFT risk that was ranked medium or high were evaluated for documentation of a referral.

PHQ-9M and CRAFFT

Providers were already using the PHQ-9M questionnaire to evaluate depression severity. Once the adolescent filled out the PHQ-9M questionnaire and the CRAFFT tool, the forms were scanned into the EHR. The scanned documents were reviewed to compare PHQ-9M score and CRAFFT risk.

Robust Data

Demographic data of the population being screened by providers were evaluated via chart review. This information provided insight about the age, gender, and ethnicity of the adolescent

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

population being screened. Robust data provided information related to alcohol or type of substance used.

Procedures

Providers implemented a standardized process for screening adolescents ages 12-21 for alcohol and substance use using the CRAFFT tool during scheduled well-visits. The QI initiative took place in a rural pediatric PCS in Morganton, NC. The screening tool results were used to assess the need for interventions such as motivational interviewing and/or referral at the providers' discretion to mental health and counseling services.

The university Institutional Review Board approved the QI initiative. There were no potential risks identified by participating in this study. Informed consent is not required for providers to implement the CRAFFT tool and interventions in their practice.

The practice has a collaborative agreement with a counseling service that provides comprehensive behavioral health and substance use disorder services. The providers used an inter-professional approach by collaborating with community resources and counseling services. This ensured that community resources were readily available. Inter-professional collaboration provided successful implementation and sustainability for the project (Hickey & Brosnan, 2017).

The CRAFFT tool was administered in print and in a private usually confidential setting during a scheduled office visit. The CRAFFT tool takes approximately 74 seconds in paper copy for the adolescent to fill out (Kulak & Griswold, 2019). The provider reviewed results and interventions such as motivational interviewing and referrals were made and documented according to CRAFFT results and provider discretion. CRAFFT forms filled out by patients were scanned into the medical record. CRAFFT results, the motivational interview, and/or referrals were documented in the EHR well-visit exam template.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Analysis

Primary outcomes were measured with descriptive statistics to evaluate the percentage of CRAFFT tool use for scheduled adolescent well-checks by the provider and motivation interviewing adherence. Descriptive statistics were used to evaluate the number of referrals completed for CRAFFT risk scores ranked medium or high.

In order to determine if there was an association between CRAFFT risk score and the PHQ-9M score, a Spearman correlation was done. Cohen's d was used to evaluate the strength of the relationship. A Spearman correlation was also used to test for a correlation between CRAFFT risk score and age. Cohen's d was again used to evaluate the strength of the relationship.

A chi-square test of independence was done to examine whether there was an association between gender and CRAFFT risk. There were two levels in Gender: self-identified male and female. There were three levels in CRAFFT risk: low, medium, and high. All assumptions were met.

Descriptive statistics were used to determine demographic data of the population screened by providers and identified the number of adolescents screened by providers using alcohol, marijuana, or other substances.

Results

A chart review performed on providers' adolescent well-visits for a 6-month period. The chart review consisted of a query of 525 well-visits of patients between the ages of 12 and 21 in the pediatric PCS. Of the 525 charts reviewed, 389 (74%) had a documented CRAFFT tool. Adherence to motivational interviewing based on EHR documentation reflected 100% adherence to a confidential discussion related to alcohol, drug usage, and safety. There were 34 patients identified as medium or high risk and referrals were made. Of the 34 elevated scores, 24 ranked

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

medium risk and 10 ranked high risk. Of these 10, six referrals were made for counseling, but only two of the six patients accepted or followed through with the referral.

A Spearman correlation was used to determine if there was a correlation between CRAFFT risk score and PHQ-9M score. The results of the Spearman correlation were examined based on $\alpha=0.05$. The p-value was 0.032, indicating a significant, positive correlation. However, r_s was only 0.11, indicating the correlation has a small effect size. Therefore, only a very weak relationship between the modified PHQ-9 score and risk identified on the CRAFFT (Table 1) was found.

The Spearman correlation test was also used to assess whether there was a correlation between age and CRAFFT risk score. The results of the Spearman correlation were examined based on $\alpha=0.05$. The p-value is $< .001$ indicating significant positive correlation was observed between age and CRAFFT risk score. The r_s value was 0.33, showing a moderate effect size. The larger the effect size, the more significant the relationship among the variables. Therefore, a moderate effect size corresponding to age and higher CRAFFT scores (Table 2) was demonstrated.

A chi-square test of independence was conducted to examine whether there was an association between gender and CRAFFT risk. The chi-square test was not significant based on $\alpha=0.05$. The p-value was 0.149, indicating that gender and CRAFFT risk were independent of one another. The observed frequencies were not significantly different from the expected frequencies (Table 3).

Characteristics of patients in the chart review are given in Tables 4 and 5. Robust data collected via chart review for CRAFFT risk was: low ($n=355$), medium ($n=24$), high ($n=10$). Chart review revealed 22 adolescents reported using alcohol, 17 reported using marijuana, and 3

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

reported using other illicit substances in the past 12 months (see Table 6). Alcohol or substance usage does not automatically rank CRAFFT risk as medium or high, the score is based on at risk behaviors (CRAFFT 2.1 Manual, 2018).

Discussion

The quality improvement initiative sought to implement evidence-based practice guidelines for adolescent screening and interventions related to alcohol and substance in a pediatric setting. The providers advocate for quality improvement initiatives and strive to deliver optimal care. These values are reflected in this study since provider adherence to CRAFFT tool usage was excellent, with 74% of well-visits having documented CRAFFT tools and 100% adherence to motivational interviewing.

Integrating the documentation of the CRAFFT screening tool results, motivational interviews, and referrals into the EHR well-visits template likely increased the rate of adherence and improved the overall workflow, which are key elements to sustain this practice change (Alinsky et al., 2020). Electronic templates enable standardization and complete documentation of quality improvement system changes (*AHIMA Practice Brief*, 2018).

The PHQ-9M tool was already established in the practice. Therefore, it was a simple process to assess if there was an association between the PHQ-9M score and CRAFFT risk. The PHQ-9M tool was used 88% of the time during scheduled well-visits. There were 389 CRAFFT tools completed; each visit with a completed CRAFFT tool also had a completed PHQ-9M tool. This allowed for further testing to assess if there was an association between higher PHQ-9M scores and elevated CRAFFT risk. The data in this study did not demonstrate a strong association between them. However, the literature noted that depression increases risk of substance use (Curtain & Rowe, 2020). The National Institute of Mental Health (NIMH) reported that almost

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

50% of adults that suffer from a substance use disorder will also experience a co-occurring mental health disorder such as depression or anxiety and vice versa (NIMH, 2021). The prevalence of depression in adolescents is rising in the United States, *The National Survey on Drug Use and Health* reported in 2016, 13% of adolescents experienced one or more major depressive episodes (Selph & McDonagh, 2019). Due to the high rates of comorbidity related to substance use and mental health disorders, it is important to screen for both depression and substance use in the pediatric setting using standardized tools (Curtain & Rowe, 2020).

Demographic data was assessed to identify vulnerable populations. There was a correlation between age and CRAFFT risk: as age increases, CRAFFT risk tends to increase. This information is consistent with the literature that compared percentages of any alcohol use over a 30-day period for 8th grade, 10th grade, and 12th grade. The 8th grade reported 7.3%, 10th grade 19.9%, and 12th grade 33.2% (Johnson et al., 2017 in Gray & Squeglia, 2018). The CDC YRBS (2019) reported that there was a higher prevalence of alcohol and substance use in grades 11 and 12 compared to those in 9th and 10th grade.

The study found that CRAFFT risk was not related to gender. The literature reveals that adult men use substances at almost twice the rate compared to women. However among the adolescent population, substance use is equally distributed for males and females (Curtain & Rowe, 2020).

In North Carolina 25.3%-25.9% of adolescents currently drink alcohol, and 16.7%-18.3% currently use marijuana (CDC, 2019). 16.6% of adolescents reported misusing prescription medications (CDC, 2019). In this study, 6 % reported drinking alcohol, 4% reported using marijuana, and 1% using other substances.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

In contrast, Burke County (the site of this study) had a rate of more than 1 in 4 adolescents and young adults (ages 12-25, n=560) misusing prescription medications, which is more consistent with the state average (Burke County Health Department, 2017). The disparity between this study and county percentages may partially be the result of drug use by older adolescents and young adults. This study did not separate prescription misuse; it was classified under “Other.” There was no data reported on adolescent alcohol or marijuana usage in the 2017 Burke County Report.

Limitations

There were limitations in the study. Motivational interviewing is challenging due to variable skill levels and provider time constraints (D’Amico, et al., 2016). Universal agreement on the use of motivational interviewing has not been established due to the various strategies available to provide open-communication dialogue, which is a key component of motivational interviewing (Lundahl et al., 2019). In this study, motivational interventions was reflected by documenting a confidential discussion related to alcohol, drug usage, and safety. Implementing the CRAFFT screening tool and providing motivational interviewing is generalizable to other providers in this practice and other primary care. Some level of motivational interviewing training is desirable and should be considered prior to screening.

The referral sample size was small in this study. There is potential for judgement bias because referrals were made according to provider discretion in conjunction with the CRAFFT risk score. Recommendations for referrals and treatment options must be individually tailored (Curtain & Rowe, 2020). Screening adolescents at all visits (both well and sick) would likely uncover a more accurate prevalence of alcohol and substance use.

Conclusions

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Implementing alcohol and substance use screening and intervention gave the providers a process for following standardized, evidence-based practice guidelines in a pediatric PCS. The project is sustainable due to its simplicity and EHR documentation. The process has the potential to spread to other providers within the practice and affiliated offices. Implementing the screening tool and interventions is also adaptable to other pediatric or PCS.

In future quality improvement initiatives, a detailed family history related to alcohol and substance use would likely add to the risk assessment. Youth having a family history of alcohol or substance use are three to four times more likely to develop an alcohol or substance use disorder (Gray & Squeglia, 2018).

Future studies can further evaluate referral options to increase participation by adolescent patients that have been screened by their provider. In this study, of the six referrals made, only two patients agreed to counseling services. Due to logistical barriers (such as under-aged teens trying to reach office-based visits), new research should focus on delivering evidence-based care to mobile applications and web-based technologies (Gray & Squeglia, 2018).

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

References

- Adams, S., & Hamera, E. (2022). Motivational interviewing. In K. Wheeler (Ed.), *Psychotherapy for the Advanced Practice Psychiatric Nurse: A How-to-Guide for Evidence-Based Practice* (3rd ed.; pp. 409–419). Springer.
- AHIMA Practice Brief (2018). *Electronic documentation templates support ICD-10-CM/PCS implementation (2015 update)*. <http://library.ahima.org/doc?oid=107665#.YFd9Ha9KjIX>
- Alinsky, R. H., Percy, K., Adger, H., Jr, Fertsch, D., & Trent, M. (2020). Substance use screening, brief intervention, and referral to treatment in pediatric practice: A quality improvement project in the Maryland Adolescent and Young Adult Health Collaborative Improvement and Innovation Network. *Clinical Pediatrics*, 59(4-5), 429–435.
<https://doi.org/10.1177/0009922820902441>
- Allen, M. L., Garcia-Huidobro, D., Porta, C., Curran, D., Patel, R., Miller, J., & Borowsky, I. (2016). Effective parenting interventions to reduce youth substance use: A systematic review. *Pediatrics* 138(2), e20154425. doi:10.1542/peds.2015-4425
- Berridge, B. J., McCann, T. V., Cheetham, A., & Lubman, D. I. (2018). Perceived barriers and enablers of help-seeking for substance use problems during adolescence. *Health Promotion Practice*, 19(1), 86–93. doi:10.1177/1524839917691944
- Burke County Health Department (2017). *State of the County Health Report*.
<https://www.burkenc.org/ArchiveCenter/ViewFile/Item/256>
- Centers for Disease Control and Prevention (2017). *YRBSS: Trends in the Prevalence of Alcohol Use National YRBS: 1991-2017*. https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trends/2017_alcohol_trend_yrbs.pdf

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Centers for Disease Control and Prevention (2019). *Adolescent and School Health: Reports, Fact Sheets, and Publications*. https://www.cdc.gov/healthyyouth/data/yrbs/reports_factsheet_publications.htm

Committee on Substance Use, Levy, S. J., & Kokotailo, P. K. (2011). Substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics*, *128*(5):e1330-e1340. doi:10.1542/peds.2011-1754

CRAFFT 2.1 Manual. (2018). *Get the CRAFFT*. <https://crafft.org/>

Curtain, L., & Rowe, E. (2020). Substance use and misuse among youth. *North Carolina Medical Journal*, *(81)*2, 130–133.

D’Amico, E. J., Parast, L., Meredith, L. S., Ewing, B. A., Shadel, W. G., & Stein, B. D. (2016). Screening in primary care: What is the best way to identify at-risk youth for substance use? *Pediatrics*, *138*(6), e20161717. doi:10.1542/peds.2016-1717

Gray, K. M., & Squeglia, L. M. (2018). Research review: What have we learned about adolescent substance use? *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *59*(6), 618–627. doi:10.1111/jcpp.12783.

Hickey, J.V., & Brosnan, C.A. (2017). *Evaluation of health care quality for DNPs* (2nd ed.). Springer.

Intellectus Statistics [Online computer software] (2021). *Intellectus Statistics*. <https://analyze.intellectusstatistics.com/>

Jones, C. M., Clayton, H. B., Deputy, N. P., Roehler, D. R., Ko, J. Y., Esser, M. B., Brookmeyer, K. A., & Hertz, M. F. (2020). *Prescription Opioid Misuse and Use of Alcohol and other Substances among High School Students — Youth Risk Behavior Survey, United States, 2019*. <https://www.cdc.gov/mmwr/volumes/69/su/pdfs/su6901a5-H.pdf>

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

- Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, B., Lowry, R., Chyen, D., Whittle, L., Thornton, J., Lim, C., Bradford, D., Yamakawa, Y., Leon, M., Brener, N., & Ethier, K. A. (2018). Youth risk behavior surveillance - United States, 2017. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, 67(8), 1–114.
<https://doi.org/10.15585/mmwr.ss6708a1>
- Kulak, J. A., & Griswold, K. S. (2019). Adolescent substance use and misuse: Recognition and management. *American Family Physician*, 99(11), 689–696.
- National Institute on Alcohol Abuse and Alcoholism (2011). *Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide*. (NIH Publication No. 11-7805).
 Department of Health and Human Services.
- National Institute of Drug Abuse [NIDA] (2020a, April). *Common Comorbidities with Substance Use Disorders Research Report: Part 1: The Connection between Substance Use Disorders and Mental Illness*.
<https://www.drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders/part-1-connection-between-substance-use-disorders-mental-illness>
- NIDA (2020b, April). *Common Comorbidities with Substance Use Disorders Research Report: Why is there Comorbidity between Substance Use Disorders and Mental Illnesses?*
<https://www.drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders/why-there-comorbidity-between-substance-use-disorders-mental-illnesses>
- National Institute of Mental Health (NIMH) (2021, March). *Substance Use and Co-Occurring Mental Disorders*.
<https://www.nimh.nih.gov/health/topics/substance-use-and-mental-health/index.shtml>

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Office of the Surgeon General (2007). *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking*. Office of the Surgeon General.

Palmer, A., Karakus, M., & Mark, T. (2019). Barriers faced by physicians in screening for substance use disorders among adolescents. *Psychiatric Services, 70*(5):409–412
doi:10.1176/appi.ps.201800427

Pitts, S., & Shrier, L. A. (2014). Substance abuse screening and brief intervention for adolescents in primary care. *Pediatric Annals, 43*(10), 412. doi:10.3928/00904481-20140924-09

Selph, S. S., & McDonagh, M. S. (2019). Depression in children and adolescents: Evaluation and treatment. *American Family Physician, 100*(10), 609–617.

White, K. M., Dudley-Brown, S., & Terhaar, M.F. (2016). *Translation of evidence into nursing and healthcare*. (2nd ed.). Springer.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Acknowledgements

S. Burleson would like to thank the stakeholders serving on the front lines to make this project happen: Rudy Medina, MD and Kelley Bradley, CPNP. Special thanks to Ari Sigal for editing this study.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 1*Spearman Correlation Results between CRAFFT Risk and PHQ-9M*

Combination	r_s	95% CI	p
CRAFFT risk and PHQ9M	0.11	[0.01, 0.21]	.032

 $n = 379$.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 2*Spearman Correlation Results between Age and CRAFFT Risk*

Combination	r_s	95% CI	p
Age and CRAFFT risk	0.33	[0.24, 0.41]	< .001

 $n = 389$.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 3*Population Screened CRAFFT Risk and Age*

CRAFFT risk	<i>n</i>	Self-identified Gender		<i>X</i> ²	<i>df</i>	<i>p</i>
		Male	Female			
Low	355	173[176.13]	182[178.87]	3.81	2	.149
Medium	24	12[11.91]	12[12.09]			
High	10	8[4.96]	2[5.04]			

Note. Values formatted as Observed[Expected].

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 4*Summary of Population Screened, Mean, and Standard Deviation of Age*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SE_M</i>	Min	Max	Skewness	Kurtosis
Age	15.13	2.19	389	0.11	12.00	21.00	0.44	-0.55

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 5*Population Characteristics as a Percentage of the Screened Adolescent Sample*

Characteristic	(n = 389)	%
Self-identity Ethnicity		
Caucasian	147	37.79
Other	6	1.54
African American	22	5.66
Hispanic	193	49.61
Hmong	21	5.40
Missing	0	0.00
Gender		
M	193	49.61
F	196	50.39
Missing	0	0.00

Note. Due to rounding errors, percentages may not equal 100%.

SCREENING AND INTERVENTION TO REDUCE SUBSTANCE USE

Table 6*Substance Use Reported by Adolescents*

Self-Reported Substance Use	<i>n</i>	%
Alcohol	24	4.57
Marijuana	19	3.62
Other	3	0.57