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Master of Public Health Research Project
Nonmedical Prescription Drug Use on College Campuses:
Risk Factors for Abuse

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ABSTRACT

Background

In recent years, there has been an increase in prescription drug abuse, particularly among adolescents and young adults. While substance abuse on college campuses has remained a pervasive public health concern, rates of nonmedical prescription drug use surpass commonly abused drugs. The three most commonly abused prescription drugs (central nervous system (CNS) depressants, opioids, and stimulants) were assessed to identify differences among student characteristics, as well as their relationship with abuse.

Purpose

The purpose of this study is to conduct a secondary analysis to explore demographic variables (race, gender, academic performance, living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority) and their relationship with nonmedical prescription drug use. Also, this study aims to identify potential strategies and provide suggestions to address nonmedical prescription drug abuse for future interventions.

Methods

Data was obtained from the 2009 National College Health Assessment. The study consisted of $n = 1,417$ undergraduate students attending Virginia Commonwealth University. Initially, overall prevalence rates for past-year illicit use of prescription CNS depressant, opioids, and stimulant use were examined. Bivariate analyses were conducted to identify differences among users and nonusers for each class of prescription drug using Pearson's Chi-Square test of significance. Multiple logistic regressions were used to examine associations between these demographics and illicit use of each prescription drug. Interactions between individual demographics and drug use were also examined.

Results

The past year prevalence use of nonmedical prescription central nervous system depressants, opioids, and stimulants use were 4, 11.2, and 8.7% respectively. According to bivariate analyses, nonmedical use was higher among certain college students, however characteristics varied by type of prescription drug. Multiple logistic regression analyses indicated that students living off campus (OR = 2.12, 95% CI = 1.03, 4.35) and reported use of alcohol (OR = 3.91, 95% CI = 1.21, 12.64) and marijuana (OR = 4.41, 95% CI = 2.28, 8.54) were more likely to use prescription depressants. Students with a GPA of a C or lower (OR = 1.50, 95% CI = 1.03, 2.17), and reported use of marijuana (OR = 3.25, 95% CI = 2.22, 4.78) were more likely to use prescription opioids. Nonmedical prescription stimulant use was highest among White students (OR = 2.02, 95% CI = 1.28, 3.30) with a GPA of a B or lower (OR = 2.06, 95% CI = 1.28, 3.30) and reported lifetime use of alcohol (OR = 7.96, 95% CI = (2.50, 25.41)).

Conclusions

The results of this study provide insight into the demographic variables and their relationship with nonmedical prescription drug abuse. The findings have important implications for identifying potential strategies to address nonmedical prescription drug abuse and will assist in the development of targeted and tailored interventions.

INTRODUCTION

The abuse of alcohol and drugs on college campuses remains a pervasive public health concern. While alcohol and cigarettes have shown significant changes in use throughout the intervening decades, many new illicit drugs have emerged, including the use of nonmedical prescription drugs (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Nonmedical use of prescription drugs is defined as use without a legitimate prescription or inconsistent with a doctor's instructions (Hamilton, 2009). An estimated 48 million people (ages 12 and older) have used prescription drugs for nonmedical reasons in their lifetime, constituting roughly 20% of the U.S. population (Volkow, 2009). In a single survey, first-time nonmedical use of pain relievers was reported by 2.2 million people aged 12 years or older (Hamilton, 2009). Between 1992 and 2003, the use of nonmedical prescription drugs among 12 to 17 year olds increased 212% (Ford & Schroeder, 2008). This issue has received significant public health attention during the past 15 years and has developed into a concerning trend among college students (Garnier, O'Grady, & Wish, 2009).

The annual prevalence of nonmedical use of any prescription drug (i.e., stimulants, opioids, sedatives, or tranquilizers) among U.S. college students increased from 8.3% in 1996 to 14.6% in 2006. Over the same time period, the prevalence of marijuana declined, indicating a shift in drug abuse among students (McCabe, 2007). The three classes of prescription drugs that are most commonly abused are central nervous system (CNS) depressants, opioids, and stimulants (National Institute on Drug Abuse [NIDA], 2009). The safety of these prescription medications is often misconstrued as they are known for their therapeutic benefits, however they are extremely addictive and misuse can result in serious health consequences (Hamilton, 2009; NIDA, 2009).

Commonly Abused Prescription Drugs

CNS depressants are used to treat anxiety and sleep disorders. Commonly prescribed depressants include Amytal, Valium, and Xanax. Side effects include impaired coordination and dizziness however, when used at unprescribed rates, or combined with other substances that depress functioning, including alcohol, heart rate and respiration can slow down dangerously. Abuse of these medications can result in cardiac arrest and potentially death (NIDA, 2009).

Opioids, also known as prescription narcotics or pain killers, are prescribed for their effective pain-relieving qualities. Commonly prescribed opioids include OxyContin, Percodan, and Percocet. Opioids are highly addictive and side effects include drowsiness, nausea, constipation, and, depending upon the amount taken, depressed respiration (NIDA, 2009). Opioids also have dangerous combination effects, particularly when consumed with alcohol, which increases respiratory distress (NIDA, 2009).

The third most commonly abused class of prescription drugs are stimulants which are often used to prescribe certain sleep disorders and attention deficit hyperactivity disorder (ADHD). Common stimulants such as Ritalin and Adderall, are mistakenly perceived as safe, and are used nonmedically to improve academic performance or cause weight loss (Hamilton, 2009). However, taken repeatedly or in high doses, stimulants can cause anxiety, paranoia, dangerously high body temperatures, irregular heartbeat, or seizures (NIDA, 2009).

As awareness of their side effects and access has increased, prescription drugs have become a significant public health concern. Students are not only using these drugs for recreational purposes, but also to help with concentration when cramming for papers or tests, to self-medicate for anxiety or depression, and even to enhance their stamina when playing sports (Higher Education Center for Alcohol, Drug Abuse, and Violence Prevention, 2010). It is

critical that health professionals understand the risk factors associated with nonmedical prescription drug use to correct student's misperceptions and reduce use on college campuses (Hamilton, 2009; McCabe, 2008).

The purpose of this study is to identify risk factors for nonmedical prescription CNS depressant, opioid, and stimulant use among college students to create effective health interventions to reduce abuse on campus. Prescription drug abuse is a growing concern, therefore information regarding race, gender, academic performance (measured by grade point average, GPA), living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority will assist health professionals in addressing this public health issue. This research will identify student characteristics that are associated with increased likeliness of abuse and offer strategies for the creation of effective interventions.

Specific Aims:

- Explore the demographic variables (race, gender, academic performance, living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority) associated with nonmedical prescription drug use.
- Explore the relationship between race, gender, academic performance, living arrangement, alcohol and other drug usage, and/or affiliation with a fraternity/sorority and nonmedical prescription drug use.
- Identify potential strategies and provide suggestions to address nonmedical prescription drug abuse for tailored and targeted interventions.

LITERATURE REVIEW

Prescription medications provide invaluable relief to countless people with health problems, and when taken appropriately can improve the quality and length of life (NIDA, 2009). Regrettably, the nonmedical use of prescription drugs is a serious and growing public health problem in this country, especially among college students (Ford & Schroeder, 2008; Hamilton, 2009; Garnier et al., 2009). The College Alcohol Study reported significant increases in the prevalence of nonmedical prescription drug use between 1993 and 2001 across several types of prescription medication (Ford & Schroeder, 2008). Furthermore, a comparison of survey summaries between 2002 and 2005 revealed an increase in intentional abuse of prescription medications among college students from 5.4% to 6.3% (Hamilton, 2009). Current past-year use estimates among college students range from 7% to 9%, with lifetime use ranging between 12% and 14% (Garnier et al., 2009).

The National Institute on Drug Abuse's categories of prescription drugs with potential for abuse includes dissociative anesthetics, opioids and morphine derivatives, stimulants, anabolic steroids, tranquilizers, sedative-hypnotics, and muscle relaxers. These drugs are generally recognized as addictive, with the potential for users to develop tolerance to the medication, as well as withdrawal syndrome (Hamilton, 2009). The three classes of prescription drugs that are most commonly abused are central nervous system (CNS) depressants, opioids, and stimulants (NIDA, 2009). The annual prevalence of nonmedical use of any type of prescription drug in the general population (individuals aged 18 to 25) is 15.5%. Reflecting national trends, the annual prevalence of use among U.S. college students increased from 8.3% in 1996 to 14.6% in 2006 (McCabe, 2008). Specifically, the prevalence rate for illicit use within the past year among

college students was highest for pain medication, followed by stimulant medication, sedative or anxiety medication, and sleeping medication (McCabe, Teter, & Boyd, 2006).

CNS Depressants

Central Nervous System (CNS) depressants are medications that slow brain function. In higher doses, some CNS depressants, including tranquilizers and sedatives, can be used as general anesthetics or preanesthetics. Based on their chemistry and pharmacology, CNS depressants are divided into three categories: barbiturates, benzodiazepines, and newer sleep medications (NIDA, 2009). Barbiturates, such as mephobarbital (Mebaral) and sodium pentobarbital (Nembutal), are used as preanesthetics, promoting sleep. Benzodiazepines, such as diazepam (Valium), alprazolam (Xanax), and estazolam (ProSom), are most commonly used to treat anxiety, acute stress reactions, panic attacks, convulsions, and sleep disorders. They are usually prescribed only for short-term relief of sleep problems due to the risk of developing tolerance and addiction. Newer sleep medications, such as zolpidem (Ambien) and eszopiclone (Lunesta), are now more commonly prescribed to treat sleep disorders as they act on a subset of the receptors in the brain, lowering the risk for abuse and addiction (NIDA, 2009).

Most of the CNS depressants enhance the actions of the neurotransmitter gamma-aminobutyric acid (GABA), which works by decreasing brain activity. Although the classes of CNS depressants work in different ways, it is ultimately their ability to increase GABA activity that produces a calming or drowsy effect (NIDA, 2009).

Benzodiazepines are the most widely used anxiolytic medications due to their well-established efficacy in the treatment of anxiety disorders. There has been a recent increase in the U.S. prescription rates for benzodiazepines in general and for benzodiazepine anxiolytics among youths 20 years and younger specifically. An increase in prescription rates may increase the

likelihood that these medications will be misused for their calming effects (NIDA, 2009; McCabe, 2005).

Overdose of CNS depressants can cause severe breathing problems and potentially lead to death, particularly when these drugs are combined with other medications or alcohol (NIDA, 2009). The Drug Abuse Warning Network (DAWN), recently found benzodiazepines to be one of the most frequently reported prescription medications in emergency room drug-abuse related cases. According to DAWN data, emergency department mentions of benzodiazepines significantly increased (38%) between 1995 and 2002. In particular, mentions of alprazolam (Xanax) increased 62% and mentions of clonazepam (Klonopin) increased 33% over a similar time frame (McCabe, 2005)

National epidemiological studies, national surveillance reports, and college-based studies provide strong evidence that the nonmedical use of prescription benzodiazepine anxiolytics is increasing among young adults and college students. The Harvard School of Public Health College Alcohol Study (CAS) reported that the past year nonmedical use of benzodiazepine anxiolytics more than doubled between 1993 and 2001 (1.8% and 4.5%, respectively) in the past decade among U.S. college students (McCabe, 2005). Recent studies indicate that the nonmedical use of prescription benzodiazepine anxiolytics among college students is at its highest level in the past two decades, with 1 in every 10 college students report nonmedical use of these drugs in their lifetime (McCabe, 2005).

Opioids

Opioids, also known as prescription narcotics or pain killers, are prescribed for their effective pain-relieving qualities. Commonly prescribed opioids include morphine (e.g., Kadian, Avinza), codeine, and oxycodone (e.g., OxyContin, Percodan, Percocet). Opioids affect the

brain and body by attaching to proteins called opioid receptors, found in the brain, spinal cord, and gastrointestinal tract. Once attached, these drugs can block the perception of pain. Side effects of opioids include drowsiness, nausea, constipation, and, depending upon the amount taken, depress respiration (NIDA, 2009).

Nonmedical use of opioids is common because of their euphoric effects which impact the regions of the brain that perceive pleasure. Euphoric effects are often intensified when administered by routes other than those recommended, such as snorting or injecting. This also increases the risk for serious medical consequences, such as opioid overdose (NIDA, 2009).

When taken as directed, opioids can be used to manage pain effectively; however long-term use of opioids can lead to physical dependence and addiction (NIDA, 2009). Opioid-based medications may cause abnormally slow speech, reaction time, and movements, as well as confusion and disorientation. Abusers typically appear apathetic, lethargic, and/or sleepy. Taking a large single dose of an opioid may result in severe respiratory depression which can lead to death (NIDA, 2009).

Currently, approximately 1 in every 10 Americans between the ages of 18 and 25 report the nonmedical use of opioid analgesics in the past year. Among four different classes of psychotherapeutic drugs (opioid analgesics, tranquilizers, stimulants, and sedatives), opioid analgesics was the class with the greatest nonmedical use, abuse, and dependence according to the 2001 National Household Survey on Drug Abuse (McCabe, Teter, Boyd, Knight, & Wechsler, 2005a).

The 2002 National Survey on Drug Use and Health found that more than half (55%) of admissions to emergency departments involved prescription narcotics (Hamilton, 2009). In addition, the 2006 DAWN data indicated that the overall mention of opioid analgesics

combinations by emergency departments significantly increased from 1995 to 2002 by 163%. Emergency department visits naming hydrocodone combinations also increased 160% in 2002 with hydrocodone the most commonly reported pain reliever (McCabe et al., 2005a).

Numerous studies have been published reporting the growing trends of prescription opioid use on college campuses, with lifetime prevalence of use around 12% and past year prevalence around 7% (McCabe et al., 2005a). The life-threatening side effects associated with opioid use provide strong rationale for public health professionals to understand the reasons and patterns associated with use (Hamilton, 2009).

Stimulants

Stimulants are frequently prescribed to increase alertness, attention, and energy. Stimulants have been used to treat a variety of disorders including asthma, obesity, and neurological disorders, however, as their potential for abuse and addiction became increasingly evident, the medical use of stimulants began to decline. Currently, stimulants are prescribed for the treatment of only a few health conditions, including narcolepsy, depression, and most notably, ADHD (NIDA, 2009).

Stimulants, such as dextroamphetamine (e.g., Dexedrine and Adderall) and methylphenidate (e.g., Ritalin and Concerta) resemble the chemical structures of the brain neurotransmitter monoamines, which includes norepinephrine and dopamine. Stimulants enhance the effects of these neurotransmitters in the brain, which is often associated with a sense of euphoria. However, stimulants also increase blood pressure and heart rate, and constrict blood vessels (NIDA, 2009).

Adverse effects of stimulants include headaches, anxiety, anorexia, gastrointestinal distress, and sleeping problems (Hamilton, 2009). Abusers appear to have boundless energy and

may display irritability, paranoia, and anger with some reporting hallucinations in the form of amphetamine psychosis (NIDA, 2009).

As with other drugs of abuse, it is possible to become dependent upon or addicted to stimulants. Repeated use of stimulants over a short period can lead to feelings of hostility or paranoia (NIDA, 2009). Prescriptive stimulants have a black box warning mandated by the U.S. Food and Drug Administration because they can cause cardiovascular problems (Hamilton, 2009). Taking high doses of a stimulant may result in dangerously high body temperature and an irregular heartbeat, with the potential for cardiovascular failure or lethal seizures (NIDA, 2009).

Studies have indicated a rise in the prescribing of psychoactive medications in the United States, including amphetamines and other stimulant medications. This rise may be attributable to increased awareness of the disorder. While these are effective treatments for ADHD, there is a growing concern regarding the potential abuse of these medications. In a study by McCabe et al., (2005b), approximately 6.9% of college students reported lifetime nonmedical use, with 4.1% reporting use in the past year (McCabe, Knight, Teter, & Wechsler, 2005b). Furthermore, the Monitoring the Future Study reported higher rates of nonmedical Ritalin among college students when compared to their peers not attending college (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009; McCabe et al., 2005b). College students aged 18 to 22 were twice as likely as their counterparts (who were not full time college students) to report past year nonmedical use of Adderall. They were also 5 times more likely to have used prescription pain relievers nonmedically (SAMHSA, 2009).

Illicit use of prescription stimulants by college students is primarily through oral administration. Motives of stimulant use most commonly reported were to help with

concentration and alertness when studying. Reported less often were to get “high” and experimentation (Hamilton, 2009).

Risk Factors for Abuse

Compared to the understanding of tobacco and alcohol use on college campuses, knowledge on the risk factors and use of prescription drugs is lacking. The minimal epidemiological research presents a need to accurately assess the characteristics of those individuals most at risk for nonmedical use of prescription drugs (McCabe et al., 2005a). Recent research has identified characteristics of collegiate nonmedical prescription CNS depressant, opioid, and stimulant users, noting differences in race, gender, academic performance, and living arrangement (McCabe et al., 2005a; McCabe et al., 2005b; McCabe, 2008). While many characteristics are known, there remains a need to more accurately identify the risk factors and trends associated with nonmedical use.

Race

Nonmedical prescription drug use has been found to vary among race/ethnicity. Recent studies indicate that prescription drug use is much more prevalent among White students than students of a different race or ethnicity. Specifically, nonmedical use of depressants was higher among White college students. In addition, nonmedical use of prescription benzodiazepine anxiolytics was less likely to occur among college students who were Asian, and Hispanic (McCabe, 2005).

Studies also note racial differences among prescription opioid users. McCabe et al., (2005a) found that White students were over two times more likely than African-American and Asian college students to report nonmedical use of prescription opioid analgesics. These higher rates of nonmedical use found among White college students compared to other racial groups

also parallel recent racial differences identified among high school seniors (McCabe et al., 2005a).

Nonmedical stimulant use also varies by student's race/ethnicity. White students were more likely than Asian and African American students to report nonmedical use of stimulants in both past year and past month prevalence (McCabe et al., 2005b).

Gender

The Monitoring the Future Report indicates that males are more likely to use most illicit drugs, with the differences seeming to be largest at the higher frequency of use levels. Specifically, gender differences in prescription drug abuse have been noted in various studies (Johnston et al., 2009).

In a study by McCabe et al., (2005b), after adjusting for a number of predictors including race, age, living arrangement, grade point average, college men were almost two times more likely than women to report non-medical use of prescription stimulants. Furthermore, experimentation with stimulants was reported as reason for abuse by 34.6% of men versus 18.2% of women whereas women were more likely than men report using prescription stimulants to lose weight, to help study, and to help increase alertness (Teter, McCabe, LaGrange, Cranford, & Boyd, 2006).

Although the actual past-year prevalence for non-medical use of prescription opioids did not differ by gender (men = 7.4% and women = 7.5%), undergraduate women perceived the past-year prevalence to be significantly higher than their male counterparts (McCabe, 2008).

Academic Performance

Prior research has indicated that college students often turn to illicit drugs and or alcohol in response to stress in academic settings (Ford & Schroeder, 2008). Specifically, past year depressant use varied significantly as a function of grade point average (GPA) (McCabe, 2005).

A 2005 study by McCabe et al. found that students who earned a B or lower were almost two times more likely to report nonmedical use prescription opioids when compared to students with higher grade point averages (McCabe et al., 2005a).

Furthermore, students who had a B or lower grade point average were almost two times more likely to report nonmedical stimulant use when compared to students with a B+ average or higher. Additional research has indicated that the most commonly reported motives for illicit stimulant use were to concentrate (65.2%), help study (59.8%) and increase alertness (47.5%) (Teter, et al., 2006).

Living Arrangement

A student's living conditions can significantly impact the availability and perception of substances. In a longitudinal study from 1997 to 2001, commuter status was significantly associated with nonmedical prescription drug abuse (McCabe, West, & Wechsler, 2007).

Additionally, students residing in off-campus housing and fraternity and sorority houses were almost two times more likely than students living on campus to use opioids nonmedically (McCabe et al, 2005a).

Similarly, students living in a fraternity or sorority house were significantly more likely to use stimulants when compared to students living in same-sex residence halls (McCabe et al., 2005b).

Alcohol and other drug use

Rates of prescription drug abuse are higher among students who use other substances such as alcohol and marijuana, as well as those who engage in risky behaviors. The odds of reporting use of 3,4-methylenedioxymethamphetamine (Ecstasy) was more than 14 times greater among past-year nonmedical users of prescription drugs compared with college students who did not use prescription drugs in the past year. The findings of this study provide compelling evidence that nonmedical users of prescription drugs are at substantially higher risk of a positive screening result for drug abuse (McCabe, 2008).

Nonmedical benzodiazepine anxiolytic users were over four times more likely than students who had not used benzodiazepine anxiolytics nonmedically to report past month cigarette use and frequent binge drinking in the past 2 weeks. Users were also over 10 times more likely to report past month and past year use of cocaine, ecstasy, and prescription stimulants. Most notably, nonmedical benzodiazepine anxiolytic users were over 30 times more likely to report past year nonmedical use of prescription opioid analgesics (OR = 32.13, $p < 0.001$) (McCabe, 2005).

Nonmedical prescription opioid users were over 4 times more likely to report frequent binge drinking, over 8 times more likely to report marijuana use in the past year, and over 13 times more likely to report cocaine use in the past year. Furthermore, users were four times more likely to report driving after binge drinking, and almost six times more likely to report being a passenger with a drunk driver than college students who had not abused prescription opioids. This is particularly concerning as opioids, even in small, monitored doses can have an increased the risk of injury or medical emergency. Yet when combined with other drugs, such as alcohol which is also a depressant, there is an increased risk for severe psychomotor impairment, respiration depression, unconsciousness, and death (Garnier et al., 2009).

Nearly 90% of full-time college students who used Adderall nonmedically in the past year were past month binge alcohol consumers, and more than 50% were heavy alcohol users (SAMHSA, 2009). Nonmedical use of prescription stimulants is related to substance use and risky behaviors. Students reporting nonmedical use of stimulants were 10 times more likely to report marijuana use in the past year, 7 times more likely to be a binge drinker, and 20 times more likely to report cocaine use (McCabe et al., 2005b).

Affiliation with a Fraternity/Sorority

Fraternity and sorority membership can play a significant role in a student's perceptions and access to substances, including prescription drugs. Previous research has noted that nonmedical past month use of prescription benzodiazepine anxiolytics differed significantly as a function of fraternity/sorority membership. Past-year non-medical use of prescription stimulants was significantly more prevalent among fraternity/sorority members (12.0%) compared to non-members (5.0%). Similarly, fraternity/sorority members also perceived a higher rate of non-medical prescription stimulant use compared to non-members (McCabe, 2008).

Restatement of Specific Aims

The purpose of this study is to examine risk factors for nonmedical prescription drug abuse and their relationship with use of depressants, opioids, and stimulants. Virginia Commonwealth University has not previously assessed prescription drug use among its students therefore, this improved understanding will assist in the creation of effective health programs aimed at preventing and reducing use on campus.

METHODS

The purpose of this study is to conduct a secondary analysis of survey data collected during February 2009 at Virginia Commonwealth University (VCU). The study population consists of $n = 1,417$ randomly selected VCU undergraduate students in February 2009.

Study Design

The ACHA-NCHA II was approved by the institutional review board at a large, urban university and was conducted during February 2009. A random sample of 5,238 undergraduate and graduate students was drawn from a total population of 29,513. The random sample received a letter notifying students of their selection for the study. The letter described the study and informed students that they would soon receive an email that contained a self-administered confidential web survey; similar methods have proved to be effective for conducting research on alcohol and drug use among college students (Pealer, Weiler, Pigg, Miller, Forman, 2001). Following the initial letter and email, nonrespondents were sent up to two reminder emails. Participants were eligible to win prizes including a Nintendo Wii, Starbucks gift cards, and VCU t-shirts. The final response rate was 36.4%.

Study Instrument

The American College Health Association-National College Health Assessment II (ACHA-NCHA II) was used to survey students. The survey contains 65 multiple choice questions on 8 content areas including: Health, Health Education, and Safety; Alcohol, Tobacco, and Drugs; Sex Behavior and Contraception; Weight, Nutrition, and Exercise; Mental Health; Physical Health; Impediments to Academic Performance; and also assesses demographic characteristics. An additional 14 questions were added to assess VCU specific health promotion campaigns and services.

Demographics

Respondents were asked to provide demographic information, including their race/ethnicity and gender.

Student Characteristics

Participant's academic performance was assessed in the survey. Students were asked, "What is your approximate cumulative grade point average," with responses ranging from (1) A to (5) N/A. Student's living arrangement was also assessed with responses ranging from (1) campus residence hall to (6) other. Student's affiliation with a fraternity or a sorority was also assessed.

Nonmedical use of prescription drugs

Respondents were asked, "Within the last 12 months, have you taken any of the following prescription drugs that were not prescribed to you?" The scale included "No" and "Yes" and listed sedatives (e.g., Xanax, Valium), pain killers (e.g., OxyContin, Vicodin, Codeine), and stimulants (e.g., Ritalin, Adderall).

Alcohol Use

Alcohol use was assessed with the question, "Within the last 30 days, on how many days did you use alcohol?" The response scale ranged from (1) Never used to (8) Used daily. Respondents were also assessed on their alcohol consumption behaviors; "In the last two weeks how often did you consume more than 5 drinks in one setting," with responses ranging from (1) N/A, don't drink to (12) 10 or more times.

Other Drug Use

Other drug use was assessed by past 30 day use of marijuana. Respondents answered the question, “Within the last 30 days, on how many days did you use marijuana?” The response scale ranged from (1) Never used to (8) Used daily.

Sample

The final sample included $n = 1,417$ undergraduate students. Only students who were 18 years or older are included in the sample. This sample was cleaned to only include undergraduate students.

The mean age of the sample population was 21.62 years ($SD = 5.13$). Females constituted 67.7% ($n = 960$) of the sample, compared to 31.6% ($n = 448$) of males. The majority of the sample was White, non-Hispanic (67.2%, $n = 952$) followed by 14.8% ($N = 210$) identifying as Black, non-Hispanic and 12.3% ($n = 174$) Asian or Pacific Islander. Almost all survey participants were full time students (92.2%, $n = 1,306$). The majority of students completing the survey lived off campus without their parents (49.8% $n = 705$) reflecting VCU’s high commuter population. Students living in campus residence halls constituted 27% ($n = 382$) of the sample, and 17.1% ($n = 242$) lived off campus with a parent or guardian. Of the total sample, 23.8% ($n = 337$) were first year students, 22.9% ($n = 325$) were second year students, 24.0% ($n = 340$) were third year and 19.9% ($n = 282$) were fourth year students.

Statistical Analysis

All statistical analyses were conducted using Predictive Analytics SoftWare (PASW) Statistics version 18. Overall prevalence rates for lifetime and past-year illicit use of prescription CNS depressant, opioid, and stimulant use were examined. Bivariate analyses were conducted for each prescription drug and individual student characteristics (e.g., race, gender, academic performance, living arrangement, use of alcohol and marijuana, and fraternity/sorority

affiliation) using Pearson's Chi-Square test of significance. Multiple logistic regressions were used to examine the relationships between student characteristics and illicit use of each prescription drug. Interactions between individual level characteristics and nonmedical prescription drug use were also examined.

RESULTS

Nonmedical Prescription Depressant Use by Student Characteristics

Approximately 4% (n = 57) of college students reported past year use of nonmedical prescription CNS depressants. The average age of depressant users was 20.68 (SD = 2.45), indicating that users were slightly younger than nonusers who averaged 21.61 years of age (SD = 5.12). White, non-Hispanic students constituted the largest percentage of users with 4.74 (n = 45) reporting nonmedical depressant use in the last year (See Table 1a). Approximately 4.49% (n = 45) of male students were users, compared to 3.86% (n = 37) of females. Those living in off campus or other housing constituted 4.84% (n = 34) and 5.8% (n = 4) respectively.

Differences among nonmedical prescription antidepressant users and student characteristics (race, age, gender, academic performance (GPA), living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority) were assessed using Pearson's χ^2 test. As illustrated in Table 2, past year use of prescription depressants differed significantly as a function of residence ($\chi^2 = 4.33$, df = 1, $p < 0.05$), alcohol ($\chi^2 = 20.43$, df = 1, $p < 0.05$) and marijuana use ($\chi^2 = 33.33$, df = 1, $p < 0.05$), and past 14-day binge drinking ($\chi^2 = 6.76$, df = 1, $P < 0.05$). Race, gender, academic performance, and fraternity/sorority affiliation did not significantly differ among users and nonusers of prescription CNS depressants.

Specifically, those who lived off campus were 2.12 times more likely to use CNS depressants nonmedically when compared to students living on campus (95% CI = 1.03, 4.35). Additionally, students who reported alcohol use were 4.26 times more likely to use depressants compared to students who do not drink (95% CI = 1.32, 13.73). Students who used marijuana (OR = 5.15, 95% CI = 2.79, 9.50) and reported an episode of binge drinking in the past 14 days (OR = 3.58, 95% CI = 1.28, 9.98) were also more likely to use depressants (See Table 2).

Multiple logistic regression analyses further indicated that college students who lived off campus, used alcohol and marijuana in their lifetime was the best predictor of nonmedical prescription depressant use (see Table 3). These students were 4.41 times more likely to use depressants than students who lived on campus, and who did not consume alcohol or use marijuana (95% CI = 2.28, 8.54).

Interactions between prescription CNS depressant users and nonusers and student characteristics were examined. There were no statistically significant interactions for past year prescription depressant use.

Nonmedical Prescription Opioid Use by Student Characteristics

Approximately 11.2% (n = 158) of college students reported past year use of nonmedical prescription use of pain killers. As described in Table 1, the average age of users was 21.81 (SD = 5.07) compared to nonusers which was 21.61 (SD = 5.12). Furthermore, 10.71% (n = 48) of males reported prescription opioid use compared to 11.48% (n = 110) of females. White, non-Hispanic students constituted 12.3% (n = 117) of users, compared to 10.95% (n = 23) of Black, non-Hispanic students. Approximately 10.24% (n = 39) of students living in campus residence halls, 12.36% (n = 87) of off-campus students and 15.49% (n = 11) of other non campus housing students reported nonmedical use. Approximately 11.96% (n = 11) of part time students reported nonmedical prescription opioid use, compared to 11.20% (n = 149) of full time students.

Differences among nonmedical prescription pain killer users and individual characteristics (race, gender, academic performance (GPA), living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority) were assessed using Pearson's χ^2 test. Differences among users and nonusers were found to be significant among Asian or Pacific/Islanders compared to nonusers ($\chi^2 = 8.50$, $df = 1$, $p < 0.05$). Use also different

significantly as a function of academic performance ($\chi^2 = 4.80$, $df = 1$, $p < 0.05$). Consistent with the literature, opioids use differed significantly as a function of lifetime alcohol ($\chi^2 = 12.34$, $df = 1$, $p < 0.05$) and marijuana use ($\chi^2 = 59.99$, $df = 1$, $p < 0.05$), and incidence of binge drinking ($\chi^2 = 69.72$, $df = 1$, $p < 0.05$). Differences among characteristics such as gender, residence, and fraternity or sorority affiliation were not found to be significant.

Asian or Pacific Islander students were less likely to use prescription opioids (OR = 0.35, 95% CI = (0.17, 0.73) compared to students of a different race/ethnicity (see Table 2). However, students who earned a C or lower GPA (OR = 1.51, 95% CI = 1.04, 2.18), used alcohol (OR = 2.74, 95% CI = 1.53, 4.92) and marijuana (OR = 3.75, 95% CI = 2.64, 5.33), and those who reported an episode of binge drinking in the past 14 days (OR = 2.74, 95% CI = 1.58, 4.73) were more likely to use prescription opioids nonmedically.

However, multiple logistic regression analyses indicated that Asian or Pacific Islander students who had a C or lower GPA and reported use of alcohol and marijuana was the best predictor of nonmedical prescription opioid use (see Table 3). These students were 3.25 times more likely to use prescription opioids when compared to other students (95% CI = 2.22, 4.78).

Interactions between student characteristics and nonmedical prescription opioids use were examined however none were found to be significant.

Nonmedical Prescription Stimulant Use by Student Characteristics

Approximately 8.7% ($n = 123$) of students reported past year use of nonmedical prescription use of stimulants. As noted in Table 1, the average age of nonmedical prescription stimulant users was 20.85 (SD = 3.48) compared to 21.70 (SD = 5.27) of nonusers. Furthermore, 9.87% ($n = 44$) of male students reported use, compared to 8.25% ($n = 79$) of female students. Approximately 10.33% ($n = 98$) of users in the sample were White, non-Hispanic, compared to

12.07% (n = 7) of Hispanic students, and 3.81% (n = 8) of Black, non-Hispanic students.

Additionally, 11.14% (n = 78) of users reported living off campus with 8.99% (n = 117) enrolled in the university full time.

Differences among nonmedical prescription stimulant users and student characteristics (race, gender, academic performance (GPA), living arrangement, alcohol and other drug usage, and affiliation with a fraternity/sorority) were assessed using Pearson's χ^2 test. Nonmedical prescription stimulant users differed significantly among students reporting White, non-Hispanic and African American, non-Hispanic race/ethnicity. Nonmedical users differed significantly between students reporting A GPAs compared to those reporting B or lower averages (See Table 2). Nonmedical prescription stimulant users differed significantly among students living on or off campus, ($\chi^2 = 4.73$, df = 1, p < 0.05) as well as those living with or without their parents ($\chi^2 = 4.15$, df = 1, p < 0.05). Consistent with the literature, use was found differ significantly as a function alcohol use ($\chi^2 = 23.10$, df = 1, p < 0.05). Marijuana use and past 14 day incidence of binge drinking were also noted to differ significantly among users ($\chi^2 = 91.07$, df = 1 p < 0.05) and ($\chi^2 = 20.46$, df = 1, p < 0.05) respectively. Gender and fraternity/sorority affiliation were not statistically significant.

White, non-Hispanic students were 2.02 times more likely to use prescription stimulants (95% CI = 1.28, 3.18) compared to students of a different race/ethnicity (See Table 2).

However, Black, non-Hispanic students were less likely to use prescription stimulants (OR = 0.37, 95% CI = 0.18, 0.78). Students with a B or lower GPA were more likely to use stimulants (OR = 1.93, 95% CI = 1.21, 3.08) compared to students earning an A average. Students living off campus (OR = 1.66, 95% CI = 1.05, 2.64) and living off campus without their parents (OR = 1.84, 95% CI = 1.02, 3.32) were also more likely to use prescription stimulants. Alcohol users

were 10.04 times more likely to use than non users (95% CI = 3.17, 31.83). Students reporting marijuana use (OR = 6.94, 95% CI = 4.43, 10.86) and past 14 day binge drinking (OR = 5.52, 95% CI = 2.40, 12.75) were also more likely to use prescription stimulants nonmedically.

The best predictor of nonmedical prescription stimulant use was found to be among students who were White, non-Hispanic, had B or lower grade point averages and reported alcohol use (OR = 7.96, 95% CI = 2.50, 25.41) (see Table 3). Furthermore, students who lived off campus without their parents and reported alcohol use were significantly more likely to use prescription stimulants nonmedically (OR = 7.99, 95% CI = 2.51, 25.47).

Interactions were examined between the student characteristics investigated however there were no statistically significant interactions for past year prescription stimulant use.

DISCUSSION

This study found that the past year use of nonmedical prescription depressant, opioids, and stimulant use was 4%, 11.2% and 8.7% respectively. These rates are similar to recent studies conducted at other institutions (Garnier et al., 2009; McCabe et al., 2005a, McCabe et al., 2005b). Nonmedical use was higher among certain college students, however characteristics varied by type of drug. The student characteristics analyzed in this study provide several implications for guiding prevention and intervention efforts as certain characteristics were associated with an increased or decreased risk of nonmedical prescription drug use. More importantly, this research suggests that prescription drug interventions should be uniquely tailored as the student characteristics associated with use vary across each class of prescription drug.

Specifically, interventions focusing on nonmedical prescription depressant should target college students who live off campus, and have used alcohol or marijuana in their lifetime. Interventions aimed at reducing opioid use should focus on students who have a C or lower average and reported lifetime use of marijuana. Finally, nonmedical prescription stimulant interventions should target students who are White, non-Hispanic with a B or lower grade point average. Additionally, students who lived off campus, without their parents and reported alcohol use were significantly more likely to use prescription stimulants nonmedically. Many of these characteristics have been shown in previous studies to be associated with higher rates of substance abuse (Garnier et al., 2009; McCabe et al., 2005a; McCabe et al., 2005b).

Consistent with previous studies, student's race/ethnicity plays an important role in the nonmedical use of prescription drugs. Stimulant use was found to be much higher among White, non-Hispanic college students (McCabe et al., 2005b).

Both prescription depressant and stimulant use was associated with student's residence. Students who lived off campus were more likely to use depressants and stimulants nonmedically. In previous studies, commuter status was significantly associated with nonmedical prescription drug abuse (McCabe, 2008). Additionally, students who lived off campus without their parents were more likely to use stimulants. These findings are particularly significant, as the university has a large commuter population therefore, interventions should be targeted towards this population.

Prior research has indicated that college students often turn to illicit drugs or alcohol in response to stress in academic settings (Ford & Schroder, 2008). These findings support previous research as use of prescription opioids and stimulants varied significantly as a function of academic performance. Students with a GPA of a C or lower were significantly more likely to use opioids compared to students with a B or lower average who were more likely to use prescription stimulants. This difference may be attributed to reasons for use such as "get high" compared to performance enhancement and should be investigated further to develop more tailored interventions.

Alcohol and other drug use were significantly associated with all three types of prescription drugs, supporting the findings of previous studies. Studies conducted at other universities have documented higher rates of prescription drug abuse among students who use other substances such as alcohol and marijuana, as well as those who engage in other risky behaviors (Garnier, 2009; McCabe, 2005; McCabe, 2008). Furthermore, students who reported binge drinking the past 14 days were significantly more likely to abuse prescription drugs. The findings of this study provide compelling evidence that nonmedical users of prescription drugs are at substantially higher risk of abusing other types of drugs.

The Monitoring the Future Report indicates that males are more likely to use most illicit drugs, with the differences seeming to be largest at the higher frequency of use levels (Johntston et al., 2009). Contrary to this report, gender was not found to be significantly associated with use of any of the prescription drugs examined in this study.

Additionally, fraternity or sorority affiliation was not significantly associated with drug use. These findings may be a reflection of the low percentage of students involved in greek organizations at this institution and require further investigation.

Limitations

Several limitations prevent conclusive interpretation of the study findings. The ACHA-NCHA II consists of data from a web-based survey emailed to participants; therefore the findings are subject to the limitations of self-report surveys. The survey attempted to minimize the bias typically associated with self-report surveys instituting certain procedures that past research has shown improves the validity and reliability of substance use data collected via self-report surveys, including informing the student that participation was voluntary, ensuring anonymity and explaining the relevance of the study. Furthermore, research has documented the effectiveness of web-based surveys for college populations (Pealer et al., 2001).

The data analyzed were cross-sectional; therefore inferences about the temporal sequence of causality between student characteristics and nonmedical prescription drug use could not be established. Furthermore, cross-sectional surveys are often prone to selection bias. Although the response rate was adequate for college surveys, selection bias may impact the interpretation of the findings as there may be inherent differences among students who did and did not elect to complete the survey. While selection bias cannot be fully moved, the sample analyzed closely matched the demographics of the university, reliving concerns regarding non-response.

The sample size for this study was particularly small. A small sample size has a greater probability that the observation was coincidentally particularly good or particularly bad. Therefore it is difficult to find significant relationships from the data, as statistical tests typically require a larger sample size to justify that the effect was not due to chance alone. As such, it is important not to make strong conclusions about the risk factors identified in this study whether the results were positive or not. However, data from this study should be used to design larger confirmatory studies.

Although rates of nonmedical use were consistent with other findings, additional research is needed in diverse settings in order to assess the generality of the findings. It is important for individual institutions to assess prescription drug use among their student population in order to create the most effective and appropriate interventions.

Despite these limitations, this study provides a clear understanding of the overall use of nonmedical prescription drugs on campus, as well as identified student characteristics that may be useful in future research and interventions. Though research exists documenting motives for use, future analysis should investigate these factors at this particular institution to obtain a more accurate and reliable understanding of prescription drug abuse on campus.

CONCLUSION

As prescription drug abuse rates continue to rise among college students, it is imperative that universities identify characteristics and associations with use in order to reduce harm on campus. The information presented in this research will help guide the development of effective wellness programs designed to reduce the usage of prescription drug abuse. This study provides valuable information for university administration and health education staff alike. The results from this study will be useful in developing targeted and tailored interventions for prescription drug abuse. The characteristics associated with prescription drug use will help guide health promotion campaign decisions.

As a result of this research, the 2010 survey was modified to include more specific questions regarding student's perceptions of prescription drug abuse on campus, specifically on depressants, opioids, and stimulants. Combined with the findings of this study, future research on the impacts of student perceptions and usage may be investigated to implement prescription drug abuse into an existing social norms campaign.

TABLES AND FIGURES

Table 1a: Nonmedical Prescription CNS Depressant Users and Nonusers by Student Characteristics

	Users		NonUsers	
	Mean	SD	Mean	SD
Age	20.68	2.45	21.61	5.12
	N	Row %	N	Row %
Race/Ethnicity				
White, non-Hispanic	45	4.74%	905	95.26%
Black, non-Hispanic	4	1.91%	205	98.09%
Hispanic or Latino/a	2	3.45%	56	96.55%
Asian or Pacific Islander	6	3.47%	167	96.53%
AI, Alaskan Native, or Native Hawaiian	1	5.88%	16	94.12%
Biracial or Multiracial	1	1.75%	56	98.25%
Other	2	6.25%	30	93.75%
Gender				
Male	20	4.49%	425	95.51%
Female	37	3.86%	922	96.14%
Academic Performance				
A	15	3.63%	398	96.37%
B	26	3.87%	645	96.13%
C	15	5.02%	284	94.98%
D/F	1	6.67%	14	93.33%
N/A	0	0.00%	12	100.00%
Residence				
Campus residence hall	9	2.36%	373	97.64%
Fraternity or sorority house	1	50.00%	1	50.00%
Other college/university housing	0	0.00%	11	100.00%
Parent/guardian's home	9	3.72%	233	96.28%
Other off-campus housing	34	4.84%	669	95.16%
Other	4	5.80%	65	94.20%
Year in School				
1st year undergraduate	18	5.34%	319	94.66%
2nd year undergraduate	10	3.08%	315	96.92%
3rd year undergraduate	8	2.37%	330	97.63%
4th year undergraduate	13	4.63%	268	95.37%
5th year or more undergraduate	8	6.06%	124	93.94%
Enrollment Status				
Full time	55	4.22%	1249	95.78%
Part time	2	2.22%	88	97.78%
Other	0	0.00%	13	100.00%
Fraternity or sorority member				
Yes	5	4.67%	102	95.33%
No	52	4.04%	1236	95.96%

Table 1b: Nonmedical Prescription Opioid Users and Nonusers by Student Characteristics

	Users		NonUsers	
	Mean	SD	Mean	SD
Age	21.81	5.07	21.6	5.14
	N	Row %	N	Row %
Race/Ethnicity				
White, non-Hispanic	117	12.30%	834	87.70%
Black, non-Hispanic	23	10.95%	187	89.05%
Hispanic or Latino/a	5	8.62%	53	91.38%
Asian or Pacific Islander	8	4.62%	165	95.38%
AI, Alaskan Native, or Native Hawaiian	2	11.76%	15	88.24%
Biracial or Multiracial	4	7.02%	53	92.98%
Other	4	10.00%	36	90.00%
Gender				
Male	48	10.71%	400	89.29%
Female	110	11.48%	848	88.52%
Academic Performance				
A	39	9.40%	376	90.60%
B	72	10.73%	599	89.27%
C	43	14.38%	256	85.62%
D/F	3	20.00%	12	80.00%
N/A	1	8.33%	11	91.67%
Residence				
Campus residence hall	39	10.24%	342	89.76%
Fraternity or sorority house	0	0.00%	2	100.00%
Other college/university housing	0	0.00%	11	100.00%
Parent/guardian's home	21	8.68%	221	91.32%
Other off-campus housing	87	12.36%	617	87.64%
Other	11	15.49%	60	84.51%
Year in School				
1st year undergraduate	35	10.42%	301	89.58%
2nd year undergraduate	40	12.35%	284	87.65%
3rd year undergraduate	31	9.12%	309	90.88%
4th year undergraduate	36	12.77%	246	87.23%
5th year or more undergraduate	16	12.03%	117	87.97%
Enrollment Status				
Full time	146	11.20%	1158	88.80%
Part time	11	11.96%	81	88.04%
Other	0	0.00%	13	100.00%
Fraternity or sorority member				
Yes	12	11.21%	95	88.79%
No	110	8.55%	1177	91.45%

Table 1c: Nonmedical Prescription Stimulant Users and Nonusers by Student Characteristics

	Users		NonUsers	
	Mean	SD	Mean	SD
Age	20.85	3.48	21.7	5.27
	N	Row %	N	Row %
Race/Ethnicity				
White, non-Hispanic	98	10.33%	851	89.67%
Black, non-Hispanic	8	3.81%	202	96.19%
Hispanic or Latino/a	7	12.07%	51	87.93%
Asian or Pacific Islander	13	7.56%	159	92.44%
AI, Alaskan Native, or Native Hawaiian	1	5.88%	16	94.12%
Biracial or Multiracial	6	10.53%	51	89.47%
Other	7	17.50%	33	82.50%
Gender				
Male	44	9.87%	402	90.13%
Female	79	8.25%	878	91.75%
Academic Performance				
A	23	5.56%	391	94.44%
B	64	9.57%	605	90.43%
C	34	11.37%	265	88.63%
D/F	2	13.33%	13	86.67%
N/A	0	0.00%	12	100.00%
Residence				
Campus residence hall	23	6.02%	359	93.98%
Fraternity or sorority house	1	100.00%	0	0.00%
Other college/university housing	1	9.09%	10	90.91%
Parent/guardian's home	13	5.37%	229	94.63%
Other off-campus housing	78	11.14%	622	88.86%
Other	7	9.86%	64	90.14%
Year in School				
1st year undergraduate	27	8.06%	308	91.94%
2nd year undergraduate	29	8.92%	296	91.08%
3rd year undergraduate	27	7.96%	312	92.04%
4th year undergraduate	28	9.96%	253	90.04%
5th year or more undergraduate	12	9.09%	120	90.91%
Enrollment Status				
Full time	117	8.99%	1185	91.01%
Part time	6	6.52%	86	93.48%
Other	0	0.00%	12	100.00%
Fraternity or sorority member				
Yes	12	11.21%	95	88.79%
No	110	38.33%	177	61.67%

Table 2: Bivariate Analyses: Student Characteristics and Nonmedical Prescription Drug Use

	χ^2	p-value	OR	95% CI
Nonmedical CNS Depressant Use				
Residence				
Off-campus housing	4.33	<0.05	2.12	(1.03, 4.35)
Alcohol and Other Drug Use				
Lifetime alcohol use	20.43	<0.05	4.26	(1.32, 13.73)
Lifetime marijuana use	33.33	<0.05	5.15	(2.79, 9.50)
Past 14-day binge drinking	6.76	<0.05	3.58	(1.28, 9.98)
Nonmedical Opioid Use				
Race				
Asian or Pacific Islander	8.50	<0.05	0.35	(0.17, 0.73)
Academic Performance				
C or lower average	4.80	<0.05	1.51	(1.04, 2.18)
Alcohol and Other Drug Use				
Lifetime alcohol use	12.34	<0.05	2.74	(1.53, 4.92)
Lifetime marijuana use	59.99	<0.05	3.75	(2.64, 5.33)
Past 14-day binge drinking	69.72	<0.05	2.74	(1.58, 4.73)
Nonmedical Stimulant Use				
Race				
White, non-Hispanic	9.50	<0.05	2.02	(1.28, 3.18)
Black, non-Hispanic	7.45	<0.05	0.37	(0.18, 0.78)
Academic Performance				
B or lower average	7.74	<0.05	1.93	(1.21, 3.08)
Residence				
Off-campus housing	4.73	<0.05	1.66	(1.05, 2.64)
Does not live with parents	4.15	<0.05	1.84	(1.02, 3.32)
Alcohol or Other Drug Use				
Lifetime alcohol use	23.10	<0.05	10.04	(3.17, 31.83)
Lifetime marijuana use	91.07	<0.05	6.94	(4.43, 10.86)
Past 14-day binge drinking	20.46	<0.05	5.52	(2.40, 12.75)

*The results for student characteristics that were not significantly associated ($p > 0.05$) with past year nonmedical use of prescription drugs are not shown.

Table 3: Logistic Regression Analysis: Student Characteristics and Nonmedical Prescription Drug Use

	OR	95% CI	p-value
Nonmedical CNS Depressant Use			
Residence			
Off campus housing	2.12	(1.03, 4.35)	<0.05
Alcohol and Other Drug Use			
Lifetime alcohol use	3.91	(1.21, 12.64)	<0.05
Lifetime marijuana use	4.41	(2.28, 8.54)	<0.05
Nonmedical Opioid Use			
Race			
Asian or Pacific Islander	0.35	(0.17, 0.73)	<0.05
Academic Performance			
C or lower average	1.50	(1.03, 2.17)	<0.05
Alcohol and Other Drug Use			
Lifetime marijuana use	3.25	(2.22, 4.78)	<0.05
Past 14-day binge drinking	1.65	(2.15, 4.67)	<0.05
Nonmedical Stimulant Use			
Race			
White, non-Hispanic	2.02	(1.28, 3.30)	<0.05
Academic Performance			
B or lower average	2.06	1.28, 3.30	<0.05
Residence			
Live without parents	2.00	(1.10, 3.63)	<0.05
Alcohol and Other Drug Use			
Lifetime alcohol use	7.96	(2.50, 25.41)	<0.05
Lifetime marijuana use	5.04	(3.15, 8.07)	<0.05
Race			
Black, non-Hispanic	0.37	(0.18, 0.78)	<0.05
Academic Performance			
B or lower average	2.09	(1.30, 3.34)	<0.05
Residence			
Live without parents	1.96	(1.08, 3.55)	<0.05
Alcohol and Other Drug Use			
Lifetime alcohol use	8.79	(2.76, 27.96)	<0.05
Lifetime marijuana use	5.05	(3.16, 8.07)	<0.05

*The results for student characteristics that were not significantly associated ($p > 0.05$) with past year nonmedical use of prescription drugs are not shown.

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