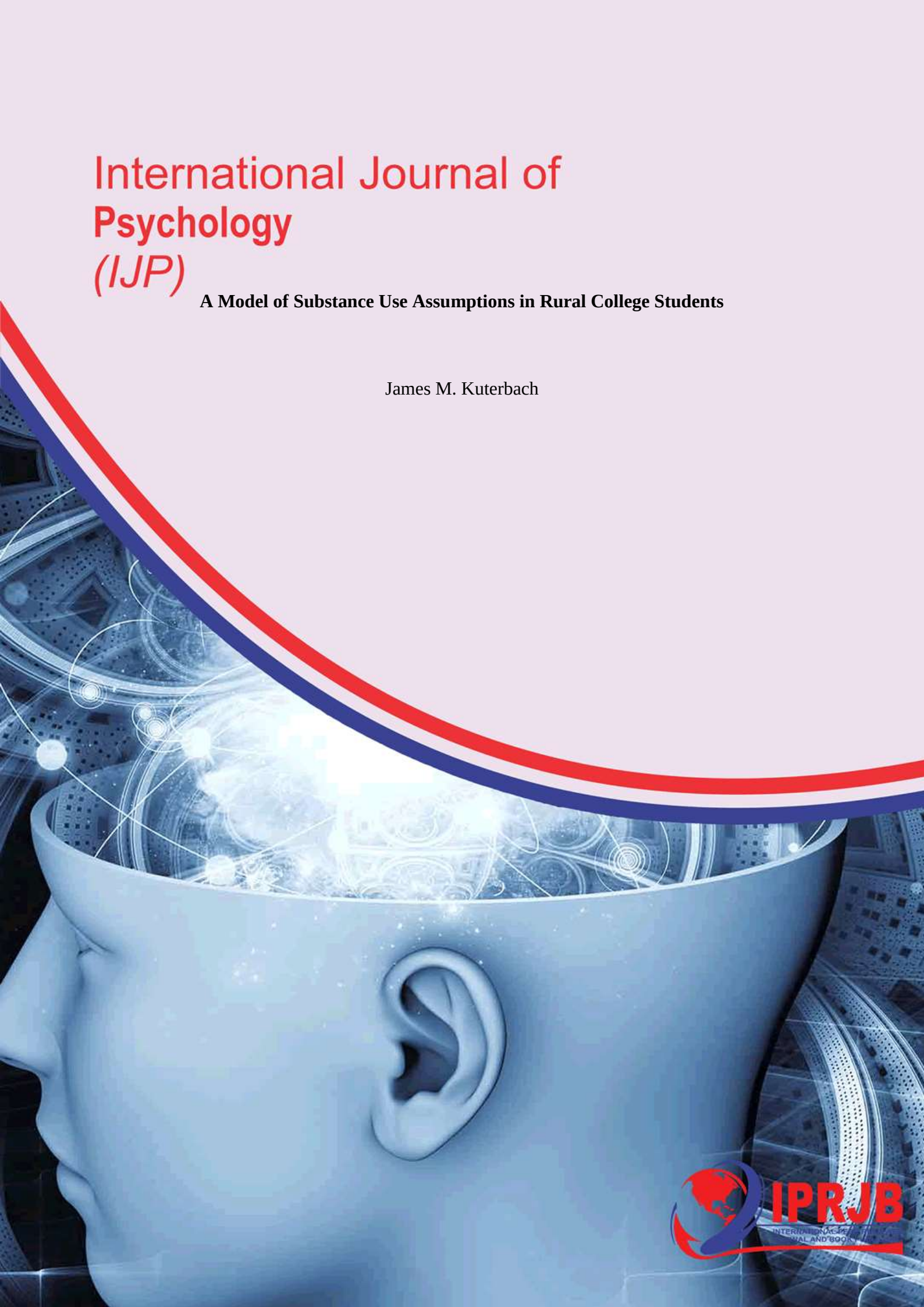
International Journal of
Psychology
(IJP)

A Model of Substance Use Assumptions in Rural College Students

James M. Kuterbach



International Journal of Psychology
ISSN 2957-6881 (Online)
Vol 11, Issue 2, No. 2, pp 15 - 23, 2026

www.iprjb.org

A Model of Substance Use Assumptions in Rural College Students

James M. Kuterbach
Division of Behavioral and Social Sciences,
Harford Community College

Article History

Received 10th May 2026

Received in Revised Form 12th June 2026

Accepted 9th July 2026

How to cite in APA format:

Kuterbach, J. (2026). A Model of Substance Use Assumptions in Rural College Students. *International Journal of Psychology*, *11*(2), 15–23. https://doi.org/10.47604/ijp.3860

Abstract

Purpose: Substance use, particularly alcohol, marijuana, and opioid drugs, at colleges throughout the United States is problematic. Consequences for this use range from embarrassment, legal and academic trouble, to health problems and even death. Interventions to prevent and treat these issues run into many roadblocks due to population and location. Targeted interventions tend to be the most effective. Among the factors influencing college student substance use is the student's attitudes and beliefs about their peers' substance use.

Methodology: This study used data from the Core Alcohol and Drug Survey – Long Form gathered from a conveniences sample of 145 undergraduate students at a rural college to examine important factors in assumptions about peer substance use. Ordinary least squares regression was used to analyze the data and find significant predictors of substance use within the last year.

Findings: Student's age, gender, and past use were the most important factors in determining student's attitudes about peer substance use. Interventions surrounding substance use attitudes should focus on younger students, female students, and students with a past history of substance use. Limitations of the study are also discussed.

Unique Contribution to Theory, Practice and Policy: Social Norms Theory has demonstrated that perceived peer behavior influences individual substance use, less is known about the factors that shape these perceptions. Colleges should consider incorporating social norms education into substance use prevention programs, particularly during students' first year of enrollment. Prevention efforts may be especially beneficial when targeted toward younger students, female students, and students with a history of substance use. Educational interventions that provide accurate information regarding actual levels of peer substance use may help reduce misconceptions that contribute to risky behaviors.

Keywords: *Substance Use, Perceived Peer Use, Rural College Students, Risk Factors*

International Journal of Psychology
ISSN 2957-6881 (Online)
Vol 11, Issue 2, No. 2, pp 15 - 23, 2026
www.iprjb.org

A Model of Substance Use Assumptions in Rural College Students

Substance use, especially in excess, is a public health problem in the United States. For instance, the Centers for Disease Control and Prevention (CDC) reports that binge drinking is responsible for over half of the 80,000 annual deaths caused by excessive alcohol consumption in the United States (CDC, 2012). One place where substance use is particularly problematic is on college campuses in the United States (Welsh, Shentu, & Sarvey, 2019). This use and abuse of substances can lead to a range of academic, physical, mental, and social problems. Consequences related to substance use range from embarrassment, poor academic performance, blackouts and withdraw symptoms, sexual assault and legal issues, to addiction, life-long health problems, and death (Palmer, McMahon, Moreggi, Rounsaville, & Ball, 2012). College age people (18 to 25) report the highest use and misuse of alcohol, marijuana, opioids such as heroin and prescription pain relievers, cocaine, prescription stimulants, and LSD in a recent national survey 2020 (Substance Abuse and Mental Health Services Administration; SAMSHA, 2022).

Alcohol use, in particular, is very high among college students. It is the substance used most often by college students, followed by marijuana and opioids, such as prescription pain relievers (Miech, Johnston, O'Malley, Bachman, Schulenberg, & Patrick, 2020). People of college age (18 to 25) reported the highest percentage of alcohol use disorders (15.6%) and marijuana use disorders (13.5%), in 2020 (SAMSHA, 2022). While these drugs are used most often by college students a plethora of other substance are also used by this population, ranging from prescription stimulants and LSD, to ecstasy and cocaine (Juergens, 2022; Miech et al., 2020). One study (Mallett, Turrisi, Hultgren, Sell, Reavy, & Cleveland, 2017) found that nearly 60% of students reported the use of both alcohol and another substance, such as marijuana, stimulants, or ecstasy, and that more than one-quarter of all drinking occasions involved the use of one or more substances in addition to alcohol. Students who use alcohol in combination with other drugs have more adverse consequences, such as dry mouth, blackout, saying harsh things, and getting more high or drunk than originally planned, compared to students who use alcohol alone (Mallett et al., 2017). Drinking to excess is even more problematic in first generation male minority students (Czyzewska & McKenzie, 2016). With the exception of inhalant use, the use of all substances increases with age (Lipari, 2017). While the use of alcohol increases for all college aged people, its use among college students surpasses their non-college attending peers, significantly (O'Malley & Johnston, 2004).

While college campuses across the United States are attempting to mitigate the problem of substance use, identification, prevention, and treatment are all difficult with college populations (Welsh et al., 2019). One way for colleges to focus their attempts at prevention is for them to be more aware of the variables that may indicate future problems with substance use. Studies have found that variables such as attitudes, norms, and motivations for substance use are important in determining the amount of the substance that is used (Lac & Donaldson, 2016). While high school seniors in the United States have reported an increase in disapproval for the regular use of substances such as alcohol, heroine, and ecstasy over the last decade, the disapproval for the regular use of marijuana, LSD, crack and powder cocaine, and amphetamines has decreased (Miech et al., 2020). The disapproval for occasional use of has also dropped for these same substances, with disapproval rates for occasional use of marijuana dropping 19.6 points over ten years (Miech et al., 2020). This decrease in disapproval may stem from students' ideas about how often their peers use such substances. There is evidence that both high school (Henry, Kobus, & Schoeny, 2011) and college (Carey, Borsari, Carey, &

Maisto, 2006) students tend to overestimate other students' drinking behavior and attitudes. It has been found that misconceptions and overestimations of peer substance use leads to increased substance use in adolescents (Amialchuk, Ajilore, & Egan, 2019). College students have also been found to overestimate their peer's substance use (Jones, Oeltmann, Wilson, Brener, & Hill, 2001).

This study is informed by Social Norms Theory (Perkins & Berkowitz, 1986), which proposes that individuals' behavior is influenced not only by their own attitudes but also by their perceptions of the attitudes and behaviors of others. Among college students, numerous studies have demonstrated that students frequently overestimate the prevalence and acceptability of alcohol and drug use among their peers. These perceived norms have been shown to predict personal substance use and have formed the basis for many campus prevention programs. While previous research has consistently shown that students' perceptions of peer substance use are associated with their own substance use behaviors, most of this work has been conducted at large or urban institutions, with relatively little attention given to rural college populations. Because these assumptions can lead to possible negative outcomes it is important to determine some possible antecedents to these beliefs. If these factors can be uncovered prevention programs may be better targeted at at-risk students at rural colleges. Although previous research has largely examined the relationship between perceived peer use and students' own substance use, less attention has been given to the factors that shape these perceptions, particularly among students attending rural colleges. The present study addresses this gap by examining demographic and behavioral predictors of students' assumptions about peer substance use, by employing a quantitative, nonexperimental, cross-sectional predictive correlational design. Using survey data collected from a convenience sample of undergraduate students, ordinary least squares (OLS) multiple regression was used to examine whether demographic characteristics and prior substance use predicted students' perceptions of peer substance use.

METHODOLOGY

Participants

Participants for this study were 145 undergraduate students (76 female and 69 male students) enrolled at a small, rural commuter campus of a large university in the northeastern part of the United States. Participants ranged in age from 16 to 55, with a median age of 19. The majority (86.9%) of the students identified themselves as White (non-Hispanic), with 3.4% identifying as each Asian/Pacific Islander or Black (non-Hispanic), 2.1% identifying as Hispanic, and 0.7% identifying as Native American/Alaskan Native. An additional 3.4% did not answer the question. Participants were recruited using a convenience sample of undergraduate students enrolled in general education courses throughout the campus. Precautions were taken to ensure that students were not surveyed twice.

Materials

Data was collected using the Core Alcohol and Drug Survey – Long Form (Core Institute, 2018), which is a reliable and valid standardized instrument, used widely across the country at the post-secondary level (Serowoky & Kwasky, 2017). The survey is a 39-item self-report paper-and-pencil questionnaire, completed on a scannable form, which assesses the nature, scope, and consequences of alcohol and other drug use on college campuses, as well as student attitudes, perceptions, and opinions about alcohol and drugs (Presley, Meilman, & Lyerla,

1994). The Core Alcohol and Drug Survey – Long Form takes between 20 to 30 minutes for participants to complete.

Procedure

The study employed a quantitative, nonexperimental, cross-sectional predictive correlational design to examine whether demographic characteristics and prior substance use predicted rural college students' assumptions about peer substance use. The Core Alcohol and Drug Survey – Long Form was distributed to students in select general education courses throughout campus as a part of the campus effort to assess itself and for inclusion in a national data-base of substance use on college campuses (Core Institute, 2018). While some participants were students in more than one course, precautions were taken to insure that no participant submitted a survey in more than one class. Extra credit was provided to students in each class where the survey was distributed, with an alternative extra credit assignment for students who had completed the survey, previously, or who chose not to complete the survey. Surveys were administered by the campus nurse in each class in which the surveys were distributed. Surveys were handed out and collected within the class period. No identifying information was collected from participants.

Analysis

All analyses were completed using SPSS version 25. Ordinary least squares (OLS) regression was used to create the models that were analyzed for this study. The predictor variables were (a) *age*, (b) *gender*, (c) *living arrangements* (living at home with parents or not living at home), (d) *family substance use*, (e), *the student's age at first use of any substance*, and (f) *frequency of the student's own substance use over the past year*. These variables were used to predict the student's assumptions about the frequency of other student's use of illegal substances. The researchers used $\alpha = 0.05$ in order to determine which predictors contributed significantly to the model. Several regression models were run in order to find the most parsimonious models. In the end four models were generated, using all of the above predictor variables and swapping out *frequency of student's* (a) *alcohol use*, (b) *marijuana use*, (c) *opiate use*, and (d) *aggregate of all substance use* over the past year as the final predictor. The final model generated was the model that demonstrated the most predictive power with the least number of variables. Descriptive statistics were calculated to summarize participant characteristics. Regression results are presented in tabular form and described narratively, including regression coefficients, standard errors, p-values, and model fit statistics.

RESULTS

The initial four models for this study are presented in Table 1.

International Journal of Psychology
ISSN 2957-6881 (Online)
Vol 11, Issue 2, No. 2, pp 15 - 23, 2026
www.iprjb.org

Table 1: OLS Regression with Frequency of Student's Aggregate of All Substance Use as a Predictor

Characteristics	Model 1[b]		Model 2[c]		Model 3[d]		Model 4[e]	
	B	Std. Err	B	Std. Err	B	Std. Err	B	Std. Err
Age	-.068	.034	-.060	.034	-.070*	.034	-.073*	.034
Gender[a]	.671	.408	.645	.396	.423	.396	.819*	.403
Living Arrangement	-.087	.851	-.055	.842	.079	.856	.016	.846
Age at First Use	-.145	.100	-.089	.090	-.059	.091	-.170	.097
Family Use	.345	.404	.259	.404	.409	.404	.185	.413
Use in Last Year[f]	.200	.104	.215*	.086	1.467	1.171	.216*	.073
Intercept	5.798	.811	5.773	.799	6.167	.801	5.741	.795
R^2	.074		.091		.060		.103	

Note. B = Unstandardized Coefficient; Std. Err = Standard Error; a = Female; b = use in last year: alcohol; c = use in last year: marijuana; d = use in last year: opiates; e = use in last year: aggregate of all drug use; f = use in last year of specific substance (different for each model); * = Coefficient is significant at the 0.05 level. N = 145 for all models.

Of the first three OLS regression models using frequency of specific substances (alcohol, marijuana, and opiates, respectively) as predictors only model two, using frequency of marijuana use over the past year produced a significant model, with an F-Ratio of 2.243 and p = 0.043. Within that model *frequency of student's marijuana use over the past year* was the only significant predictor. The model that used *frequency of student's aggregate of all substance use over the past year* was also significant, with an F-Ration of 2.583 and p = 0.021. In this model the predictors *age*, *gender*, and *frequency of student's aggregate of all substance use over the past year* all became significant predictors.

Table 2: Ordinary Least Squares Regression Final Model with Frequency of Student's Aggregate of All Substance Use as a Predictor

Characteristics	B	Std. Err	p-value
Age	-0.071*	0.033	0.035
Gender[a]	0.855*	0.393	0.031
Age at First Use	-0.172	0.095	0.071
Use in Last Year	0.222*	0.073	0.003
Intercept	5.746	0.786	
R^2	0.101		

Note. B = Unstandardized Coefficient; Std. Err = Standard Error; a = Female; * = Coefficient is significant at the 0.05 level. N = 145.

Table 2 shows the final model, which includes *age*, *gender*, *the student's age at first use of any substance*, and *frequency of student's aggregate of all substance use over the past year* as predictors. This model is also significant, with an F-Ratio of 3.876 and p = 0.005. In the final model the predictors *age*, *gender*, and *frequency of student's aggregate of all substance use over the past year* are all significant predictors; however, while not a significant predictor, when *the student's age at first use of any substance* is included in the model the overall predictability of the model increases, and so it was included in the final model.

Discussion

The purpose of this study was to examine some factors that may lead to college students' beliefs and assumptions about their peers' substance use. Attitudes and beliefs about peer substance use is an important factor in the quantity of substance used by college students (Lac & Donaldson, 2016). This research found that the most salient factors for predicting students' attitudes about their peers' use of substance were age, gender, and previous substance use; namely, students that were younger, were female, and who had used substances previously, were most likely to perceive that their peers were using substances.

Students' attitudes about substance use have been changing in the last decade, with disapproval for use of some substance increasing (Miech et al., 2020). It is logical to assume that with decreased approval of such drugs students' use of substances would decrease, as well, but use and the associated problems have increased in college-aged people in this same time (SAMSHA, 2022). Even though disapproval for the regular use of substances such as alcohol, heroine, and ecstasy have increased over the last decade among secondary students, the disapproval for regular and occasional use of marijuana, LSD, crack and powder cocaine, and amphetamines has decreased over the last decade (Miech et al., 2020).

This study suggests that interventions may be best focused on younger students, female students, and students with a past history of substance use. The idea that age and past history of use would be important factors agrees with past research. National surveys on substance use show that previous use of substances is a good indicator of future use (SAMSHA, 2022). Other research (Dierker et al., 2008) suggests that college substance use interventions are best focused on the initial weeks on campus, as use tends to be highest at this time, particularly among first-year students. This study's findings of female students being more likely to perceive their peers suggests that it may be beneficial for interventions focusing on female students to emphasize the misconceptions about peer use of substances.

Limitations

One major limitation for this study is the lack of diversity in several variables. Table 3 lists the number of participants responding in the negative to several questions on the Core Alcohol and Drug Survey – Long Form. Almost 94% of participants responded that they did not live with a parent and nearly 98% of participants responded that they had never used opiates in the past year. This lack of diversity in these variable means that they effectively function as constants.

Table 3: Percentage of Participants Responding to Specific Questions

Responding	Percentage
Do not live with parent	93.8
Never used alcohol in the past year	25.5
Never used marijuana in the past year	66.9
Never used opiates in the past year	97.9
No use in family	56.6

A second possible limitation is that data for this study were collected prior to the COVID-19 outbreak and pandemic. This major event in the lives of college students, and of all people, may have long lasting effects that alter or negate the effects seen in this study. Continued research is needed area.

Recommendations

Future research should continue to examine the mechanisms through which students develop perceptions of peer substance use. While Social Norms Theory has demonstrated that perceived peer behavior influences individual substance use, less is known about the factors that shape these perceptions. Additional research should investigate how demographic characteristics, campus culture, social networks, and media exposure contribute to students' assumptions about peer substance use. Longitudinal studies would also help clarify whether changes in perceived norms precede changes in personal substance use over time.

Colleges should consider incorporating social norms education into substance use prevention programs, particularly during students' first year of enrollment. Prevention efforts may be especially beneficial when targeted toward younger students, female students, and students with a history of substance use. Educational interventions that provide accurate information regarding actual levels of peer substance use may help reduce misconceptions that contribute to risky behaviors. Rural colleges should also consider tailoring prevention efforts to reflect the unique characteristics and resources of their campus communities.

Institutions of higher education should consider routinely assessing students' perceptions of peer substance use as part of campus health assessments. Accurate data regarding perceived norms may assist administrators in developing evidence-based prevention initiatives and allocating limited prevention resources more effectively. In addition, campus policies should support the implementation of prevention programs based on Social Norms Theory by promoting educational campaigns that communicate accurate information about student substance use. Given the unique characteristics of rural campuses, policymakers should also recognize the need for prevention strategies that reflect local demographics, available resources, and patterns of substance use.

Finally, most previous research has focused on the relationship between perceived peer substance use and students' own substance use. The present study shifts attention to understanding why some students develop these perceptions in the first place. By identifying characteristics associated with perceived peer substance use, this research provides a foundation for developing more targeted prevention strategies before risky behaviors become established.

Conclusion

This study contributes to the growing body of research on college student substance use by identifying factors associated with rural college students' perceptions of peer substance use. Consistent with Social Norms Theory, students' perceptions of their peers' substance use are important because they may influence their own substance use behaviors. The findings suggest that younger students, female students, and students with a history of substance use are more likely to perceive higher levels of peer substance use. These results extend previous research by examining these relationships within a rural college population, an understudied setting in the substance use literature. Although the study cannot establish causal relationships, it suggests that demographic characteristics and previous substance use may influence how students perceive the behaviors of their peers. Understanding these perceptions may help institutions identify students who are most likely to benefit from prevention and education programs aimed at correcting misconceptions about peer substance use.

REFERENCES

Amialchuk, A., Ajilore, O., & Egan, K. (2019). The influence of misperceptions about social norms on substance use among school-aged adolescents. *Health economics, 28*, 736-747.

Apodaca, T. R., Borsari, B., Jackson, K. M., Magill, M., Longabaugh, R., Mastroleo, N. R., & Barnett, N. P. (2014). Sustain talk predicts poorer outcomes among mandated college student drinkers receiving a brief motivational intervention. *Psychology of Addictive Behaviors, 28*, 631-638.

Butler Center for Research, Hazelden Betty Ford Foundation. (2015, September 1). *The social norms approach to student substance abuse prevention*. Retrieved from https://www.hazeldenbettyford.org/education/bcr/addiction-research/social-norms-ru-915.

Carey, K. B., Borsari, B., Carey, M. P., & Maisto, S. A. (2006). Patterns and importance of self–other differences in college drinking norms. *Psychology of Addictive Behaviors, 20*, 385–393.

Centers for Disease Control and Prevention (2012). Vital signs: Binge drinking prevalence, frequency, and intensity among adults—United States. *Morbidity and Mortality Weekly Report, 61*, 14.

Core Institute (2018). *Core Alcohol and Drug Survey-Long Form*. Retrieved from https://core.siu.edu/surveys/.

Culleton L. R., Van Hout M. C., & Foley M. (2013). A social norms approach to drug prevention in schools in Ireland: results from a pre development study. *Journal of Alcohol Drug Education, 57*, 27–46.

Czyzewska, M. & McKenzie, J. A. (2016). Alcohol binge drinking in first-generation college students. *North American Journal of Psychology, 18*, 345-358.

DiBello, A. M., Benz, M. B., Miller, M. B., Merrill, J. E., & Carey, K. B. (2018). Examining residence status as a risk factor for health risk behaviors among college students. *Journal of American College Health¸66*, 187-193.

Dierker, L., Stolar, M., Lloyd-Richardson, E., Tiffany, S., Flay, B., Collins, L., Nichter, M., Michter, M., Bailey, S., Clayton, R., & The Tobacco Etiology Research Network (2008). Tobacco, alcohol, and marijuana use among first-year U.S. college students: A time series analysis. *Substance Use & Misuse, 43*, 680–699.

Henry, D. B., Kobus, K., & Schoeny, M. E. (2011). Accuracy and bias in adolescents' perceptions of friends' substance use. *Psychology of Addictive Behaviors, 25*, 80–89.

Jones, S. E., Oeltmann, J., Wilson, T. W., Brener, N. D., & Hill, C. V. (2001). Binge drinking among undergraduate college students in the United States: Implications for other substance use. *Journal of American College Health, 50*, 33-38.

Juergens, J. (2022, October 26). *College students and drug abuse*. Addiction Center, https://www.addictioncenter.com/college/

Lac, A. & Donaldson, C. D. (2016). Alcohol attitudes, motives, norms, and personality traits longitudinally classify nondrinkers, moderate drinkers, and binge drinkers using discriminant function analysis. *Addictive Behaviors, 61*, 91-98.

Lipari, R. N. (2017). *Understanding adolescent inhalant use*. Substance Abuse and Mental Health Services Administration.

Mallett, K. A., Turrisi, R., Hultgren, B.A., Sell, N., Reavy, R., & Cleveland, M. (2017). When alcohol is only part of the problem: An event-level analysis of negative consequences related to alcohol and other substance use. *Psychology of Addictive Behaviors, 31*, 307–314.

Miech, R. A., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2020). *Monitoring the Future national survey results on drug use, 1975–2019: Volume I, Secondary school students*. Ann Arbor: Institute for Social Research, The University of Michigan

O'Malley, P. M. & Johnston, L. D. (2004). Epidemiology of alcohol and other drug use among American college students. *Journal of Studies on Alcohol, Supplement 14*, 23–39.

Palmer, R. S., McMahon, T. J., Moreggi, D. I., Rounsaville, B. J., & Ball, S. A. (2012). College student drug use: Patterns, concerns, consequences, and interest in intervention. *Journal of college student development, 53(1),* doi:10.1353/csd.2012.0014.

Perkins, H. W. & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *The International Journal of the Addictions 9-10*, 961–976.

Presley, C. A. Meilman, P. W., & Lyerla, R. (1994). Development of the Core Alcohol and Drug Survey: Initial findings and future directions. *Journal of American College Health, 42*, 248-255.

Serowoky, M. L. & Kwasky, A. N. (2017). Health behaviors survey: An examination of undergraduate students' substance use. *Journal of Addictions Nursing, 28(2)*, 63-70.

Substance Abuse and Mental Health Services Administration (2022). *2020 National Survey On Drug Use And Health: Office Of The Assistant Secretary (OAS) National Presentation*. https://www.samhsa.gov/data/sites/default/files/reports/rpt37924/2020NSDUHNationalSlides072522.pdf

Welsh, J. W., Shentu, Y., & Sarvey, D. B. (2019). Substance Use Among College Students. *Focus, 17(2)*, 117–127.