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Substance Use Among College Students: Correlations with Intent to Graduate, Academic Integration, and Social Integration

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ABSTRACT

Substance use is one of the greatest concerns for adolescents and emerging adults. The consequences of prolonged substance use can lead to physical, psychological, and financial consequences for those suffering from use as well as their loved ones. One consequence that has not been researched thoroughly is the association between substance use and the decision to leave higher education, which is a decision that could have lasting effects on former students' ability to obtain satisfactory employment in the future. This research looks at substance use and variables that are associated with the decision to leave college, which are derived from Tinto's theory of student attrition. These variables are social and academic integration. Researchers used the Drug Use Screening Inventory and the Institutional Integration Scale to obtain data from 169 undergraduate college students from an introductory psychology course. Researchers hypothesized that there would be a negative relationship between substance use and academic integration. The results found were partially supportive of the hypotheses. The implications of these results as well as future directions for research are discussed.

Substance Use Among College Students: Correlations with Intent to Graduate, Academic
Integration, and Social Integration

A Thesis

Presented to

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CHAPTER I

INTRODUCTION

Substance Use Among College Students

Prevalence and Course of Substance Use in Adolescence and College

Early onset of illicit substance and alcohol use is associated with later development of substance use disorder or SUD (Behrendt, Wittchen, Höfler, Lieb, & Beesdo, 2009; Pilatti, Caneto, Garimaldi, Vera, & Pautassi, 2014; Walters & Urban, 2014). With over 4,000 adolescents under the age of 18 trying a drug for the first time each day (Substance Abuse and Mental Health Services Administration, 2014), this means the number of diagnosable SUD's will persist, if not grow. This also suggests that by the time adolescents reach young adulthood and enter the next stage of life, possibly college, they are likely to have used substances already and may continue to do so.

Results from the 2013 National Survey on Drug Use and Health indicate that 43.5% of young adults aged 18-25 engaged in use of an illicit substance in the past month (Substance Abuse and Mental Health Services Administration, 2014). This same survey also indicates 7.4% of young adults in this age category qualify for a diagnosis of substance abuse or dependence. Substance use among college students does not deviate dramatically from their non-college peers, though college students are more likely to use certain substances such as alcohol, marijuana, and amphetamines such as Adderall (Blanco et al., 2008; Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2014).

Associated Factors of Substance Use Among College Students

Preexisting factors. Many studies show various demographic or preexisting factors to substance use disorders. Some factors associated with substance use among college student populations are the presence of a mental illness and lack of or low-quality mental health care (Lev-Ran, Imtiaz, Rehm, & Le Foll, 2013; Lo, Monge, Howell, & Cheng, 2013; Oberleitner, Tzilos, Zumberg, & Grekin, 2011; Ogloff, Talevski, Lemphers, Wood, & Simmons, 2015), gender distribution differences, such as males being more likely to binge drink or use illicit substances (Lev-Ran, 2013; Liguori & Lonbaken, 2015; Shannon, Havens, Oser, Crosby, & Leukefeld, 2011), and sexual minorities being more likely to use illicit substances (Duryea, Calleja, & MacDonald, 2015; Flentje, Heck, & Sorensen, 2015; Kerr, Ding, & Chaya, 2014).

A meta-analysis of 65 studies suggests that a family history of alcohol or substance abuse increases susceptibility to problematic use and abuse among college students (Elliott, Carey, & Bonafide, 2012). Family history of problematic alcohol use and the age of the first use of alcohol increase the risk of problematic alcohol use among college age students (Ystrom, Kendler, & Reichborn-Kjennerud, 2014). Interestingly, college students whose parents have higher education are more likely to binge drink, use cocaine, and smoke marijuana (Humensky, 2010). This may be related to how experiencing parental pressure in terms of academic or career success is correlated with recreational use of prescription opioids (LeMoyne & Buchanan, 2011).

Beliefs and perceptions. Beliefs and perceptions of college students regarding substance use also affect substance use behaviors among college students. For example, students tend to be less judgmental of other students who use prescription stimulants for

the purpose of increasing focus during studying as opposed to simply using prescription stimulants to get high (Lookatch, Moore, & Katz, 2014). Students are more likely to engage in substance use or excessive alcohol use if they perceive little to no risk associated with alcohol or substance use (Jurcik, Moulding, & Naujokaitis, 2013), if they believe the benefits to excessive drinking outweigh the known consequences (Champion, Lewis, & Myers, 2015), and if they believe their peers are drinking in excess or using illicit substances (Champion et al., 2015; Javier, Belgrave, Hill, & Richardson, 2013). Students also tend to drink excessively if they overestimate their parents' approval of drinking behavior (Hummer, LaBrie, & Ehret, 2013).

Finally, college students tend to report that drinking is an integral part of college life, assisting in stress relief, increasing sexual encounters, and acting as a social buffer during events or parties, as well as being associated with risk-taking, which is promoted among young adults who are only barely stepping out of adolescence (Tan, 2012).

Personality correlates. Impulsive personality, positive expectations of use, and positive evaluations can predict nonmedical use of prescription stimulants, such as amphetamine salts (Lookatch, Dunne, & Katz, 2012). Stress and neuroticism are strongly correlated to both minor and major drug use among college students (Coleman & Trunzo, 2015). Sensation seeking and risk-taking tendencies are also predictive of overall illicit substance use (Ayvasik & Sümer, 2010; Lang et al., 2012). Depressive, anxious, and irritable temperaments have also been associated with substance use (Unsel et al., 2012).

As mentioned, impulsivity has been associated with greater risk of substance use. This appears to be due to the apparent increased activity in the reward centers of the brain associated with impulsivity (Dunne, Freedlander, Coleman, & Katz, 2013; Kaiser,

Milich, Lynam, & Charnigo, 2012; Richardson, Freedlander, Katz, Chia-Liang, & Ching-Chen, 2014;). This appears to be especially so if impulsivity increases during distressing events (Kaiser et al., 2012).

Effects of Substance Use Among College Students

Substance use among young adults involves many physiological and biological consequences, such as the effects of substance use on parts of the brain responsible for executive functioning as well as disrupting important developmental milestones that are vital to young adulthood, resulting in the potential for school dropout, unemployment, and legal problems (Sheidow, McCart, Zajac, & Davis, 2012). This can be problematic for emerging adults at a time when other mental health disorders tend to emerge (Sheidow et al., 2012).

Other consequences include substance and alcohol use related injuries that result in ER visits (Turner, Keller, & Bauerle, 2010). Substance use is also associated with other high-risk behaviors, such as driving after drinking (Teeters, Pickover, Dennhardt, Martens, & Murphy, 2014) and high-risk sexual behavior that tends to occur after use (Caldeira, Singer, O'Grady, Vincent, & Arria, 2012). Substance use has also shown to correlate with relational problems with peers and risk of engaging in violent behaviors (Reingle, Jennings, Connell, Businelle, & Chartier, 2014; Stiles, 2013)

Of importance for the proposed study, some studies have examined how drug use affects student success in college. For example, drug use, especially excessive alcohol and marijuana use, increases risk for dropping out of college (Arria et al., 2013a; Arria et al., 2013b). Marijuana use is positively correlated with skipping classes, which leads to poorer academic performance and later anticipated graduation (Arria, Caldeira, Bugbee,

Vincent, & O'Grady, 2015). In addition, even if students who use substances manage to graduate within 6 years from the start of their program, they are still more likely to be unemployed after graduation compared to non-using peers (Arria et al., 2013c).

As noted, while there has been some work examining the relationship between substance use and academic performance, little to no research exists examining the effects of substance use upon college retention. That association is the focus of the proposed study.

Retention of College Students

Retention is defined as a college or a university's ability to successfully graduate the students that initially enroll at that institution (Seidman, 2005). This is often measured by looking at which students retain from their first year of college into their second year, as this measurement tends to accurately predict if college students will complete their degree at a specific institution (Bowman, 2014; Fowler & Boylan, 2010; Liguori, & Lonbaken, 2015; Soria, & Linder, 2014).

College personnel are generally interested in identifying which students are most likely to leave their institution as this ultimately and practically means revenue loss and potentially a waste of scholarships that may have gone toward that student's education. Also, over the past few decades, the increase in required qualifications of many occupations has increased the need for obtaining degrees in higher education, and college students' decision to depart from their initial academic goals could result in socioeconomic consequences for those individuals, as those former students are now limited to career paths that do not require a college degree (Seidman, 2005).

A common predictor of retention is grade point average from high school and freshman fall semester (Fowler & Boylan, 2010; Pruett & Absher, 2015; Soria & Linder, 2014). In addition, students from underrepresented groups such as ethnic minorities are at increased risk for attrition, as well as students with disabilities, learning disabilities, students who come from a low socioeconomic background, and first-generation college students (O'Keeffe, 2013).

From an economic perspective, if the cost of school outweighs students' perceived benefits, they may forego the opportunity to complete their studies (Kuh, Kinzie, & Buckley, 2007). According to Kuh et al. (2007), cultural perspectives also play a role in student attrition, in that students from underrepresented groups entering the college setting may experience conflict between their family culture and the new culture (college) that they are entering, which historically has been structured to accommodate the majority culture. This aspect might affect a minority student's perception of an institution, which can lead to the student's decision to depart; research shows that students from ethnic minority groups are more likely to depart from college (Chen, 2012; Kuh, et al., 2007; O'Keeffe, 2013). On a psychological level, students may engage in avoidance behaviors that do not promote their sense of integration to the college community (Eaton, & Bean, 1995).

Tinto's Model of Student Attrition

Vincent Tinto developed what is likely the most influential model of student attrition, with numerous researchers using or modifying the model to predict student attrition (Bean & Eaton, 2000; Pascarella & Terenzini 1980, 1983; Weng, Cheong, & Cheong, 2010).

Tinto (1975, 1997, 2006) developed a model that attributes college students' decision to leave to various factors. A student comes to higher education with a pre-existing set of characteristics, such as previous schooling experiences and performance, skills and abilities, and family background. This student then enters the realm of higher education and interacts with two broad domains that Tinto has identified: academic integration and social integration. Tinto has operationalized academic integration as the culmination of a student's intentions for higher education, goals and commitments (to the institution), academic performance, and faculty and staff interactions within and outside of the class setting (Tinto, 1975). Collectively, these factors determine the extent to which a student is integrated on an academic level with her or his institution (Tinto, 1975, 1997, 2006).

In terms of social integration, Tinto argues that a student's external commitments, extracurricular activities, and peer group interactions all determine the extent to which that student is integrated socially on campus. Tinto's model suggests that appropriate academic and social integration predict student retention. Poor or insufficient integration, by contrast, are factors that lead to student attrition.

Pre-College Characteristics in Tinto's Model

Pre-college characteristics refer to the qualities students possess upon entry into college. These include a wide range of attributes such as intelligence, aptitude and abilities as measured by students' test scores and high school grade point average, parental education, socioeconomic status (SES), and minority status (Keels, 2013; Pascarella & Terenzini, 1980; Tinto, 1975).

Many studies have examined the ways in which these characteristics mediate college success, but a review of literature suggests that high school GPA is the most robust predictor of students' ability to persist successfully in an academic setting (Tinto, 1975). In addition, SES could indicate students' ability to financially obtain higher education, though researchers acknowledge the complex nature SES might play beyond one's practical ability to pay for college (Tinto, 1975). For example, it is possible that the negative relationship between SES and dropout rate is associated with certain attributes that may help favor high SES students in an academic setting, such as urbanity, knowledge of how to navigate a culture that traditionally demands high SES acceptable behaviors, or a general sense of belonging (Langhout, Drake, & Rosselli, 2009; Tinto, 1975).

Parental education appears to affect student retention through more indirect ways. For example, first-generation college students (students whose parents or caregivers did not complete a 4-year degree) are generally less likely to receive encouragement to continue their postsecondary degrees and are generally less informed about what to expect when entering college (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996; Tinto, 1975). In addition, students' minority versus majority status may play a large role in students' decision to depart from their institution.

It should be noted that the way in which minority vs. majority characteristic plays a role student attrition is complex and that this relationship could come from a lack of social integration or belonging due to discrimination related to minority status (Keels, 2013; O'Keeffe, 2013; Tinto, 1975). It is also possible that minority status is associated

with other pre-college characteristics that affect retention, such as first-generation student status (Fischer, 2007).

Academic Integration

Academic integration refers to the degree to which students' characteristics harmonize with the academic aspects of transitioning in college, especially the specific institution to which they have decided to enroll (Tinto, 1975). Tinto states that whereas involuntary withdrawals from the institution are mainly due to an incongruence of intellectual development, voluntary withdrawals tend to be due to insufficient academic integration and are more likely rooted in students' lack of commitment to complete postsecondary education. Academic integration is operationalized as students' intentions and commitment to graduation (which is the ultimate reflection of academic integration), academic performance, and faculty and staff interactions.

Intentions and commitment to goals. Students presumably enter postsecondary education with preconceived intentions of whether or not they fully intend to complete their education. This preconception can be viewed as students' intentions toward postsecondary education, while commitment to goals can be viewed as students' level of adherence to the initial intention to graduate from college (Tinto, 1975). Students' commitment to their goals of completing college is arguably the central factor that leads to the decision to drop out. Some research has shown that commitment to complete college can be influenced by various factors, such as familial and peer support (Strom & Savage, 2014).

Academic performance. As discussed previously, high school GPA and standardized test scores have long been used to predict academic performance in college.

Likewise, academic performance in college, especially in the first year, can be a predictive indicator of students' decision to depart (Tinto, 1975). Beyond, GPA, Tinto's model also accounts for students' perception that they are developing intellectually and academically in positive ways (Pascarella & Terenzini, 1980; Tinto, 1975).

Faculty and staff interactions. Several studies have indicated that faculty and staff interactions have a significant impact on students' integration to the college atmosphere (Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1980; Tinto, 1975). These interactions include both in-class and outside-of-class interactions and include interactions that are not academically related. Students engaged with faculty and staff in ways that both support their academic goals as well as enriching their lives outside of academia retain at higher rates than students who lack these relationships with faculty and staff (Nora & Cabrera, 1996; Pascarella & Terenzini, 1980; Shepherd & Tsong, 2014; Terenzini, & Pascarella 1980; Tinto, 1975).

Social Integration

Social integration includes peer group interactions, whether informal or semi-formal activities. Staff and faculty interactions can also be placed in this category as they are also a part of social integration. However, Tinto (1975) suggests that staff and faculty interactions could just as well be placed in academic integration, as interactions with faculty may directly affect the students' academic and intellectual development. Tinto (1975) also indicates that peer-group associations (friendship support) seem to bear the most importance in terms of sufficient social integration compared to other social interactions such as activities or faculty and staff interactions. However, findings from Terenzini and Pascarella (1980) suggest that while social integration may predict

retention, a sufficient level of academic integration can compensate for the effect of low social integration. Other research shows that social integration has almost no relationship with retention in some contexts, such as transfer students at a community college (D'Amico, Dika, Elling, Algozzine, & Ginn, 2014), or nontraditional students (Shepherd, & Tsong Shin, 2014). Therefore, research is not entirely clear as to how social integration plays a role in students' decision to leave college in certain contexts; however, social integration has overall predicted retention (Jones, 2010; Pascarella & Terenzini, 1980; Pascarella & Terenzini 1983; Tinto, 1975).

The Present Study

As discussed, substance use, especially alcohol, marijuana and nonmedical use of prescription medication, is a problem on many college campuses. Substance use often related to engaging in risky behaviors (e.g., drinking and driving, unprotected sex, violent behaviors, etc.), health problems and psychiatric issues, and unemployment. Substance use has also been related to poorer academic performance. And while research has not thoroughly explored the relationship between substance use and retention, students who use substances are more likely to drop out of college and are less likely to obtain employment after graduation. And while comparatively these academic consequences may seem minor in comparison to the consequences of risky behaviors, health and psychiatric problems, students who do not complete their education are putting themselves into positions that may further complicates their already complicated situation. For example, dropping out of college is associated with decreased potential income, which can compound existing negative consequences of substance use by

creating obstacles to seeking treatment, obtaining proper medical care, and increasing stress.

Given the lack of research examining the relationship between substance use and metrics of retention, the purpose of the current study was to investigate the relationship between substance use and Tinto's model of academic and social integration. Overall, it was predicted that substance use would have little to no relationship with measures of social integration. In contrast, it was predicted that substance use would be negatively associated with measures of academic integration.

CHAPTER II

METHODS

Participants

Students were recruited from an undergraduate introductory psychology course. Students were given a link to an online survey in which informed consent was given prior to the assessment. Students were informed of the nature of the survey and were assured of the confidentiality of their information.

Participants' mean age was 19.71 years old with a standard deviation of 2.105. The sample consisted of 34.9% males and 65.1% females. Sixty-eight percent of the participants reported being white, 19.5% reported being Hispanic or Latino, 9.5% reported being black or African American, 1.8% were Native Hawaiian or other Pacific Islander, 1.2% were American Indian or Alaska Native, and .6% reported another ethnicity, Dominican.

Instruments

The Drug Use Screening Inventory (DUSI)

The Drug Use Screening Inventory (DUSI; Tarter, & Hegedus, 1991) is a 149-item self-report instrument that was originally developed for adolescent screening of drug use but has been shown to be valid among adult populations and has been used in research in a college population as well (Coleman & Trunzo, 2015). The DUSI is used to assess for substance use and to predict the severity of substance use that may qualify an individual for a substance use disorder. The full instrument is broken down into 10

scales, or domains. These domains are 1.) substance use, 2.) health status, 3.) psychiatric disorder, 4.) behavior patterns, 5.) work adjustment, 6.) school adjustment, 7.) family system, 8.) peer relationships, 9.) social competence, and 10.) leisure/recreation. Overall, the DUSI has excellent psychometric properties (Tarter & Hegedus, 1991; Tarter & Kirisci, 1997). For example, when administered to adults, the DUSI was able to discriminate between those diagnosed with polysubstance use disorder (PSUD) and control groups with $p < .001$, and the overall instrument appears to have good reliability (Tarter, & Kirisci, 1997).

For the purposes of this study, only domain one from the DUSI was used to measure alcohol and drug use. Unfortunately, no studies specify the psychometric properties of this specific domain; however, Tarter et al. (1997) indicates that the substance use domain was able to discriminate between PSUD groups and control groups. To assess substance use the DUSI presents a list of drugs: alcohol, cocaine/crack, marijuana/pot, stimulants/uppers, LSD/mescaline, tranquilizers, pain killers, heroin/opiates, PCP, sniff gases or fumes, other. Respondents are asked to indicate frequency of use for each substance by selecting one of five options to the prompt "How many times have you used each of the drugs listed below in the last month?" (0 times, 1-2 times, 3-9 times, 10-20 times, more than 20 times). A second question asks the participant to indicate which substance the participant believes he/she has the most problem with. Finally, a third question asks the participant to indicate which substance the participant most prefers.

The questions that follow for the rest of this domain consist of 15 yes/no questions. Example items include "Have you ever had to use more and more drugs or

alcohol to get the effect you want?” and “Have you ever missed out on activities because you spent too much money on drugs or alcohol. The DUSI items used in this study can be found in Appendix B.

Institutional Integration Scale (IIS)

The Institutional Integration Scale (IIS) was developed by Pascarella and Terenzini (1980) to assess Tinto’s constructs of academic and social integration. The IIS contains five scales: 1.) peer group interactions, 2.) interactions with faculty, 3.) faculty concern for student development and teaching, 4.) academic and intellectual development, and 5.) institutional and goal commitments. The 30 items are answered using a 5 point Likert scale ranging from 5 = Strongly Agree to 1 = Strongly Disagree. For example, an item for the peer group interactions subscale reads, “My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.” A sample item from the interactions with faculty subscale includes, “My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.” A sample item from faculty concern for student development and teaching reads, “Few of the faculty members I have had contact with are generally interested in students.” A sample item from academic and intellectual development includes, “My interest in ideas and intellectual matters has increased since coming to this university,” and a sample item from institutional and goal commitments includes, “It is important for me to graduate from college.”

Overall, studies have shown that the IIS exhibits overall good internal and predictive validity for identifying persisters and dropouts and supports the dimensions of

Tinto's model as a model of retention (Baker, Caison, & Meade, 2007; Pascarella, & Terenzini 1980; Terenzini, Lorang, & Pascarella, 1981; Terenzini, & Pascarella, 1980).

The IIS items can be found in Appendix C.

Pre-College Characteristics

To assess pre-college characteristics associated with retention, the study asked participants to report high school GPA, high school percentile ranking, standardized test scores, estimated family income, highest parental education, student's highest expected academic degree (Bachelor to Ph.D., Ed.D., M.D., J.D). and importance of graduating from college ("extremely important" to "not at all important"). Finally, choice in attending the university (1st choice to 4th or lower choice) and confidence that choosing to attend this university was the right decision ("extremely confident" to "not at all confident") was also assessed. These pre-college characteristic items can be found in Appendix D.

Intent to Return

Finally, intent to return to the institution the next semester was assessed with a single item "Do you intend to return to this institution for the fall of 2016" using a "Yes," "No," or "Not Sure"

CHAPTER III

RESULTS

Substance Use Among Sample

Approximately 200 students responded to the survey; however, incomplete responses were removed, resulting in a pool of 169 responses. Prior to hypothesis testing, substance use frequencies were calculated. The DUSI contains an item that measures past month use of various substances. Using this item, the percentage of the sample that reported use of these substances within the last month could be calculated. This frequency analysis can be found in Table 1. As can be seen in Table 1, in this sample alcohol, pain killers, marijuana, and stimulants were the most highly endorsed substances, in order of frequency. For the purpose of reporting relevant results, only analyses associated with these most frequently endorsed substances will be considered for the remainder of this study.

Substance Use and Institutional Integration

The purpose of this study was to identify relationships between substance use and dimensions of institutional integration. It was predicted that there would be no statistically significant correlation between substance use and social integration. It was also predicated that substance use would have a negative correlation with academic integration scales, specifically interactions with faculty and faculty concern for student development and teaching, as well as academic and intellectual development and

institutional and goal commitments. The correlational analyses of these variables can be found in Table 2.

Table 1

Past Month Total Frequency and Gender Frequencies of Substance Use

Drug:	0 times	1-2 times	3-9 times	10-20 times	20+ times	Overall
Alcohol	56.2%	24.9%	13.0%	2.4%	3.6%	43.9%
Males	50.8%	22.0%	18.6%	0.0%	8.5%	49.1%
Females	59.1%	26.4%	10.0%	3.6%	0.9%	40.9%
Pain killers	68.0%	17.2%	9.5%	1.8%	2.4%	30.0%
Males	74.1%	12.1%	8.6%	1.7%	3.4%	25.8%
Females	66.1%	20.2%	10.1%	1.8%	0.0%	32.1%
Marijuana	86.4%	5.3%	3.0%	2.4%	1.8%	12.5%
Males	84.5%	3.4%	3.4%	5.2%	3.4%	15.4%
Females	89.0%	6.4%	2.8%	0.9%	0.9%	11.0%
Stimulants/Uppers	91.7%	2.4%	1.2%	3.0%	0.0%	6.6%
Males	89.7%	5.2%	1.7%	3.4%	0.0%	10.3%
Females	95.4%	0.9%	0.9%	2.8%	0.0%	4.6%

As can be seen in Table 2, weak but significant positive correlations were observed between peer group interactions and alcohol and stimulant use. Analyses also showed weak but significant negative correlations between alcohol and marijuana use with academic/intellectual development and institutional and goal commitments. Finally, stimulant use showed a weak but significant correlation with faculty concern for student development and teaching.

Another purpose of this study was to identify relationships between drug involvement and institutional integration measures. It was predicted that higher drug be

negatively correlated with academic integration measures. Correlational analyses were performed using these variables. These analyses can be found in Table 3.

Surprisingly, for the entire sample drug involvement did not show significant associations with the integration measures. However, when drug involvement was assessed by gender, two significant associations were observed. As can be seen in Table 3, among male participants drug involvement was negatively associated with interactions with faculty and academic/intellectual development. No significant associations were observed for female participants.

Table 2

Past Month Frequency of Substance Use and Integration Measures

Institutional Integration:	Alcohol	Pain	Marijuana	Stimulants/Uppers
Peer Group Interactions	.13*	.05	.01	.16*
Interactions with Faculty	-.06	.10	.00	-.02
Faculty Concern for Student Development and Teaching	-.04	.07	-.12	-.14*
Academic/Intellectual Development	-.21**	.09	-.13*	-.03
Institutional and Goal Commitments	-.17*	.10	-.15*	-.05

* $p \leq .05$

** $p < .01$

The final goal of this study was to look at substance use measures in relationship to students' intention to return to campus for the fall of 2016. One-hundred-thirty-five respondents of the sample said they intended to return to the institution next year, 16 indicated that they were not sure about returning, and 17 indicated they would not return

next year. It was predicted that increased drug use would show decreased intention to return for the following semester (Fall 2016). An ANOVA was performed to look at this relationship. Contrary to predictions, results were non-significant across all substance use measures and their relationship to students' responses regarding whether they planned to return for the fall semester of 2016. The results of these analyses can be found in Table 4.

Table 3

DUSI Drug Involvement by Gender

Institutional Integration:	<u>Drug Involvement by Sample</u>		
	Male	Female	Total Sample
Peer Group Interactions	.11	.11	.11
Interactions with Faculty	-.24*	-.04	-.11
Faculty Concern for Student Development and Teaching	-.03	.09	-.07
Academic/Intellectual Development	-.25*	-.05	-.12
Institutional and Goal Commitments	-.27*	.07	-.07

* $p < .05$

Table 4

Descriptive and ANOVA Statistics for Intent to Graduate and Substance Use Measures

Substance Use Measure:	Mean (SD)	F-test	p-value
DUSI – Drug Involvement		.03	.97
Yes	1.53 (2.19)		
Not Sure	1.38 (2.21)		
No	1.53 (2.92)		
Alcohol Past Month Frequency		.62	.54
Yes	1.73 (0.99)		
Not Sure	1.88 (1.45)		
No	1.50 (0.79)		
Pain killers Past Month Frequency		1.28	.76
Yes	1.54 (0.95)		
Not Sure	1.44 (0.81)		
No	1.39 (0.78)		
Marijuana Past Month Frequency		.36	.26
Yes	1.27 (0.77)		
Not Sure	1.44 (1.21)		
No	1.00 (0.00)		
Stimulants Past Month Frequency		.31	.73
Yes	1.12 (0.52)		
Not Sure	1.19 (0.75)		
No	1.22 (0.73)		

CHAPTER IV

DISCUSSION

Summary of Findings

Thousands of adolescents try new substances every day that can potentially lead to continued use. Continued use of substances may further lead into countless medical, psychological, and financial consequences for each individual who travels down the path of substance use. At the same time, many young adults embark on a journey through higher education, many of which are involved or will become involved with the use of illicit substances. While few studies have looked at the relationship between illicit substance use and a decision to leave higher education institutions, some studies have indicated substance use affects students' well-being, which may in turn directly affect students' academic performance or even their ability to complete their degree through graduation.

The purpose of this study was to explore potential relationships that might exist between substance use and substance use behaviors and variables that have been used to predict student success, i.e. academic and social integration. Given the literature reviewed on substance use and institutional integration, it was predicted that substance use would be negatively correlated with academic integration. In order to assess these associations 169, undergraduate participants from Abilene Christian University completed measures of substance use along with measures of institutional integration. Intent to return to the university was also assessed.

In the sample used in this study, the substances most highly endorsed with respect to frequency were alcohol, pain killers, marijuana, and stimulants/uppers, which is consistent with other research among college samples (Arria et al., 2015; Lanier & Farley, 2011; Varela, & Pritchard, 2011). Regarding the predictions of the study, the hypotheses were partially supported.

Specifically, drug use measures did show weak but significant relationships with integration measures. For example, alcohol and marijuana use reflected negative relationships with academic/intellectual development and institutional and goal commitments. Stimulant use reflected a weak but significant negative relationship with faculty concern for student development. In addition, alcohol and stimulants showed weak but significant positive correlations with peer group interactions.

Surprisingly, the drug involvement scale, which measures drug use behaviors, experiences, or occurrences that are usually a result of use did not show significant relationships with academic or social integration overall. Interestingly, however, increased substance use among males showed a weak but significant negative correlations with interactions with faculty, academic development, and institutional and goal commitments. Alternatively, increased substance use among females did not show significant relationships with academic or social integration. This finding will be discussed later. Finally, contrary to predictions, when testing for the relationship between substance use and students' intentions to return to campus for the following semester, no significant results were found.

The relationship between increased substance use in males and interactions with faculty, academic development, and institutional and goal commitments is perplexing.

While the data at our disposal does not provide enough information regarding this finding, a few considerations can be made. It is possible that males and females are using substances in different ways in that females may be using in ways that do not impair their ability to become socially and academically integrated. For example, it could be that females use less per instance so that physical recovery from the substance does not take as long, or perhaps females tend to use on weekends when recovery can take place while males may be use more frequently during weeknights. It is also possible that females more often utilize social support networks that help avoid academic failure, such as getting notes from a friend for a class that might have been missed as a result of substance use.

While our hypothesis regarding finding a negative relationship between substance use and academic integration showed partial support, this negative relationship did not translate across all scales associated with academic integration. For example, increased substance use for alcohol and marijuana reflected a negative relationship with academic/intellectual development and institutional and goal commitment, but no significant relationship with interactions with faculty or faculty concern for student development. The reasoning behind this could involve students' original intentions for attending college; it is possible that increased alcohol and marijuana use may not be associated with poor relationships or perceptions of faculty; rather it may be a result of being encouraged by external influences to attend college despite a lack of commitment or desire to fulfill that goal.

Implications

The findings of this study suggest an already developing story for institutional involvement regarding mental health concerns on campus. Granted, while existing relationships of this study do not reflect strong correlations between substance use and overall institutional integration, or even an indication that increased substance use is associated with a decision to leave the institution, relationships do show that substance use affects academic performance and students' goals and commitments for higher education. These aforementioned relationships could indicate an indirect relationship between substance use and a decision to leave higher education which could be mediated by other variables.

Ultimately, while data does not suggest administrators should assume students using substances are at the highest risk for leaving the university, a lack of response by institutions in light of data that does show existing relationships between substance use and academic development would be careless. Indeed, this data suggests that institutions should look into ways they can help support students who struggle with substance use, even when students are not willing to quit.

Also, data analyses regarding negative relationships between substance use and academic integration beg the question of why students use substances when there are undesirable consequences associated with use. While physical dependence on substances can explain some of students' poor decision making, physical dependence does not account for all instances in which students in this sample decided to use substances and yet experienced academic consequences. It is possible that students' decision to use substances may be related to coping with the stress of college life as well as increasing

academic performance (Tan, 2012). Should this be the case, institutions may need to become more proactive in providing students with resources that increase stress tolerance or help students innovate ways to accommodate the demands of academia. Interestingly, the relationship between alcohol, marijuana use, and institutional and goal commitments suggests a disconnect between students' goals and institutional fit and assumes students' reasons for coming to any given institution may be unsustainable reasons.

Furthermore, to better understand the dynamic that exists between mental health and the decision to leave college, researchers could spend more time on mental health variables and take into account variables related to retention. Also, research has shown that there is a relationship between substance use and other mental health diagnoses (Lev-Ran, Imtiaz, Rehm, & Le Foll, 2013; Lo, Monge, Howell, & Cheng, 2013; Oberleitner, Tzilos, Zumberg, & Grekin, 2011; Ogloff, Talevski, Lemphers, Wood, & Simmons, 2015). While the results of this study suggest substance use has some relationship with institutional integration, there is a likeliness that students in this sample to an extent are also dealing with symptoms related to mental illness.

Finally, an important question to consider is what it means that substance use does not necessarily indicate a risk for drop out. While results of this study suggest a disconnect between institutional fit and students' goals, commitments, and academic development while using substances, encouragement can be gained from seeing that this disconnect does not have to translate into attrition. In fact, these results could suggest that to the students' benefit the lack of decision to leave the institution gives staff and faculty more of a chance to be able to offer resources or help to students who are struggling with substance use.

Limitations

Various limitations should be taken into account regarding the current study.

Firstly, the sample was derived from a private, religious-based institution in a remote and thinly populated area of the United States. Substance use in public institutions or more populated areas may vary in comparison; therefore limited external validity. Replicating a similar study at a larger, public institution may yield more valid results. Also, using a sample that is already directly receiving some sort of attention by the institution's student life department, such as students flagged for substance use, could allow researchers to identify integration correlates to substance use more accurately. Taking a sample such as a flagged group of students could then also allow researchers to follow this group longitudinally through their academic careers in order to obtain a more thorough story of what could be happening with students who struggle with substance use.

Secondly, considering that the drug involvement items from the Drug Use Screening Inventory did not produce significant results among the given sample, despite the endorsement of regular use of substances, some consideration should be given to a flaw in the choice of instrumentation. While the DUSI has shown excellent psychometric properties in past studies, no other studies have attempted to use domain 1 on its own, and it is possible that utilizing the other nine domains could have resulted in more conclusive findings. Other options for future studies could include using the entire 10 domain inventory to pick up on other experiences or behaviors generally associated with substance use involvement or an entirely different instrument that measures behaviors and experiences typically associated with substance use.

Also, some language found within the DUSI could be considered open to interpretation for participants. When domain 1 asks about stimulant/upper use, for example, students could potentially mistake this question to include the legal use of prescribed stimulants such as Ritalin or Adderall. Therefore, some of the results of drug use frequency could come into question if there happen to be any students who use their prescription medicine as prescribed. The same miscommunication could be found when endorsing pain killers, which the assessment does not specify what constitutes as a pain killer. This could be all the more confusing with the added category within the assessment, heroin/opiates. Students could have potentially mistaken over-the-counter pain killers such as Tylenol or ibuprofen to be included in this category. Granted, while it is possible to abuse over-the-counter medications, researchers for this current study were not interested in misuse or abuse of over-the-counter medications.

Finally, the conclusions of this study lead to more questions. For example, does the relationship between increased substance use and academic integration indicate students' preexisting difficulties with being able to integrate well in higher education, or does the choice to use substances cause deficits in integration opportunities? Not knowing where the beginning of these issues lies leads to complications for administrators and professionals to know how to address the problems associated with substance use and poor institutional integration.

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APPENDIX A

INFORMED CONSENT TO PARTICIPATE IN STUDY

Title of Study: Substance Use Among College Students: Correlations with Intent to Graduate, Academic Integration and Social Integration

You may be eligible to take part in a research study. This form provides important information about that study, including the risks and benefits to you, the potential participant. Please read this form carefully and ask any questions that you may have regarding the procedures, your involvement, and any risks or benefits you may experience. You may also wish to discuss your participation with other people, such as your family doctor or a family member.

Also, please note that your participation is entirely voluntary. You may decline to participate and you may withdraw from the study at any time for any reason without any penalty or loss of benefits to which you are otherwise entitled.

Please contact the Principal Investigator if you have any questions or concerns regarding this study. This contact information may be found at the end of this form. Please ensure all of your questions or concerns that you might have are addressed prior to participating in this survey.

Purpose and Procedures

Purpose of the Research—the purpose of this study is to investigate if a relationship exists between drug use and students' decision to leave school. We hope to

learn if this relationship exists, and—if it does— to what extent and how drug use might play a role in a students' decision to leave school.

Expected Duration of participation—participation in this study only requires that you follow a link to a survey at your convenience for one sitting. This survey may last anywhere from 20-30 minutes, depending on your speed of answering questions.

Description of the procedures—once you consent to participation in the study, you will be asked to participate in the following procedures:

Study Procedures—you will be provided a link to an online survey. You may answer this survey anywhere; though for your privacy, it is recommended you complete this survey in your own home as some questions may be invasive. These questions include behaviors in the past year that involve drug and alcohol use. Other questions involve your experience in the university setting. Your answers are kept confidential, as there will be no identifying information in the results. Once you have completed this survey, your participation is complete.

You do not have to answer any question you do not want to; however, your survey may be removed from the results if you do not answer all of the items on the survey.

Risks and Discomforts

There are risks to taking part in this research study. Below is a list of the foreseeable risks, including the seriousness of those risks and how likely they are to occur:

You will be asked questions regarding your history of drug and alcohol use in the last year. These questions may be painful for some to answer or think about.

As stated before, if answering the survey in a public setting, you run the risk of someone seeing your answers to questions involving your history of drug and alcohol use in the last year. We recommend taking precaution by answering this survey in the privacy of your own home. This survey is supported by Survey Monkey. Though we are not collecting identifiable information in the survey, Survey Monkey will collect information from your computer. For further information about this, please read Survey Monkey's [privacy policy](#) [hyperlink]. Any breach of confidentiality with this survey could result in harm to your reputation or legal standing.

The researchers have taken steps to minimize the risks associated with this study. However, if you experience any problems, you may contact Cecilia Clowdus at cmc04a@acu.edu, or Dr. Richard Beck at beckr@acu.edu.

The researchers and ACU do not have any plan to pay for any injuries or problems you may experience as a result of your participation in this research. However, should you feel the need to seek help or support for any reason, whether as a result of painful memories or to seek help for recovery from drugs or alcohol, please do not hesitate to contact the researchers for referral to counselling resources that are available to you, or you may contact the ACU counseling center at counseling@acu.edu or 325-674-2626.

Potential Benefits

There are potential benefits to participating in this study. Such benefits may include a better understanding of drug use behavior among college students and exploring ways that students who use drugs or alcohol might be helped. The researchers cannot guarantee that you will experience any personal benefits from participating in this study.

However, the researchers hope that the information learned from this study will help others in similar situations in the future.

Compensation

You will receive extra credit points in Dr. Beck's Introduction to Psychology course for your participation in this study. You do not have to complete this study in order to receive the extra credit. You may complete an alternative assignment writing a 600 word essay on how your ACU experience has affected your spirituality. It is expected that both activities will take approximately the same amount of time.

Provisions for Confidentiality

Information collected about you will be handled in a confidential manner in accordance with the law. Some identifiable data may have to be shared with individuals outside of the study team, such as members of the ACU Institutional Review Board. Aside from these required disclosures, your confidentiality will be protected by the fact that personal identifying information, such as your name, address, etc., will not be obtained in the survey. However, as stated before, one risk to your privacy is the choice to complete this survey in a public setting. Please take precaution in protecting your information by taking this survey in the privacy of your home, as there is nothing investigators can do to protect your privacy in a public setting (i.e. library, coffee shop, or classroom).

Contacts

You may ask any questions that you have at this time. However, if you have additional questions, concerns, or complaints in the future, you may contact the Principal

Investigator of this study. The Principal Investigator is Cecilia Clowdus, Graduate Student and may be contacted at (214) 415-0144, or cmc04a@acu.edu.

If you are unable to reach the Principal Investigator or wish to speak to someone other than the Principal Investigator, you may contact Richard Beck, Ph.D. at beckr@acu.edu.

If you have concerns about this study or general questions about your rights as a research participant, you may contact ACU's Chair of the Institutional Review Board and Director of the Office of Research and Sponsored Programs, Megan Roth, Ph.D. Dr. Roth may be reached at

(325) 674-2885

megan.roth@acu.edu

320 Hardin Administration Bldg, ACU Box 29103

Abilene, TX 79699

APPENDIX B

DRUG USE SCREENING INVENTORY

Domain 1: Substance Use

A. Drug Preference

1. How many times have you used each of the drugs listed below in the last month? Put an "X" in each box that applies to you.

0 1-2 3-9 10-20 More than 20 times

Alcohol

Cocaine/crack

Marijuana/pot

Stimulants/uppers

LSD/mescaline

Tranquilizers

Pain killers

Heroin/opiates

PCP

Sniff gases or fumes

Other

2. Circle the drugs that you think you may have a problem with.

3. Shade in the circle of the drug that you prefer the most.

Instructions: Answer all of the following questions, even if a question does not apply exactly, answer according to whether it is mostly yes (true) or mostly no (false). Answer the questions as if they apply to you within the past year and leading up to the present time. Put a check mark (✓) in the box for each question.

B. Drug Involvement

Yes

No

1. Have you ever had a craving or very strong desire for alcohol or drugs?
2. Have you ever had to use more and more drugs or alcohol to get the effect you want?
3. Have you ever felt that you could not control your alcohol or drug use?
4. Have you ever felt that you were "hooked" on alcohol or drugs?
5. Have you ever missed out on activities because you spent too much money on drugs or alcohol?
6. Did you ever break rules, miss curfew, or break the law because you were high on alcohol or drugs?
7. Do you change rapidly from very happy to very sad or from very sad to very happy because of drugs?
8. Have you ever had a car accident after using alcohol or drugs?
9. Have you ever accidentally hurt yourself or someone else after using alcohol or drugs?
10. Have you ever had a serious argument or fight with a friend or family member after drinking or drug use?
11. Have you ever had trouble getting along with any of your friends because of alcohol or drug use?
12. Have you ever experienced any withdrawal symptoms following use of alcohol or drugs (e.g., headaches, nausea, vomiting, shaking)?

13. Have you ever had a problem remembering what you had done when you were under the effects of drugs or alcohol?
14. Do you like to play drinking games when you go to parties?
15. Do you have trouble resisting using alcohol or drugs?

APPENDIX C

INSTITUTIONAL INTEGRATION SCALE

Directions: Answer each item as it pertains to your experience at this university on a scale from 5-1, with 5 = Strongly Agree, 4 = Mostly Agree, 3 = Not Sure or Neither Agree nor Disagree, 2 = Mostly Disagree, and 1 = Strongly Disagree.

Rating Scale: 5 pt. Likert

Scale I: Peer-Group Interactions

1. Since coming to this university, I have developed close personal relationships with other students.
2. The student friendships I have developed at this university have been personally satisfying.
3. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.
4. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas.
5. It has been difficult for me to meet and make friends with other students.
6. Few of the students I know would be willing to listen to me and help me if I had a personal problem.
7. Most students at this university have values and attitudes different from my own.

Scale II: Interactions with Faculty

8. My non-classroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.
9. My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.
10. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations.
11. Since coming to this university I have developed a close, personal relationship with at least one faculty member.
12. I am satisfied with the opportunities to meet and interact informally with faculty members.

Scale III: Faculty Concern for Student Development and Teaching

13. Few of the faculty members I have had contact with are generally interested in students.
14. Few of the faculty members I have had contact with are generally outstanding or superior teachers.
15. Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.
16. Most of the faculty I have had contact with are interested in helping students grow in more than just academic areas.
17. Most faculty members I have had contact with are genuinely interested in teaching.

Scale IV: Academic and Intellectual Development

18. I am satisfied with the extent of my intellectual development since enrolling in this university.
19. My academic experience has had a positive influence on my intellectual growth and interest in ideas.
20. I am satisfied with my academic experience at this university.
21. Few of my courses this year have been intellectually stimulating.
22. My interest in ideas and intellectual matters has increased since coming to this university.
23. I am more likely to attend a cultural event (for example, a concert, lecture, or art show) now than I was before coming to this university.
24. I have performed academically as well as I anticipated I would.

Scale V: Institutional and Goal Commitments

25. It is important for me to graduate from college.
26. I am confident that I made the right decision in choosing to attend this university.
27. It is likely that I will register at this university next fall.
28. It is not important to me to graduate from this university.
29. I have no idea at all what I want to major in.
30. Getting good grades is not important to me.

APPENDIX D
ADDITIONAL ITEMS

Pre-college characteristics

1. To the best of your recollection, what was your high school GPA on a traditional 4.0 scale?

2. To the best of your recollection, what was your high school percentile ranking?

0-24%

25-49%

50-74%

75-100%

3. Sex Racial/ethnic origin _____

4. To the best of your recollection, what was your combined SAT score?

5. Estimated family income _____

6. Highest parental education

Less than High School

High School

Some College

Associates Degree or Trade School, Certification

Bachelor's Degree

Professional Degree

Master's Degree

Doctoral Degree

7. Student's highest expected academic degree

Bachelors

Master's

Ph.D.

Ed.D., M.D., J.D.

8. How important is it to you to graduate from college?

Extremely Important

Not at all Important

5

4

3

2

1

9. Confidence that choosing to attend this university was the right decision

Extremely Confident

Not at all Confident

5

4

3

2

1

APPENDIX E
ADDITIONAL ITEM

Intention to Persist

Do you intend to return to this institution for the fall of 2016?

Yes

No

Not Sure

APPENDIX F
IRB APPROVAL

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World
Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885



3/9/2016

Cecilia Clowdus
Department of Psychology
Abilene Christian University

Dear Ms. Clowdus,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled Substance Use Among College Students: Correlations with Intent to Graduate, Academic Integration and Social Integration was approved by full board review on 3/9/2016 for a period of one year (IRB #16-013). The expiration date for this study is 3/9/2017 . If you intend to continue the study beyond this date, please submit the [Continuing Review Form](#) at least 30 days, but no more than 45 days, prior to the expiration date. Upon completion of this study, please submit the [Inactivation Request Form](#) within 30 days of study completion.

If you wish to make **any** changes to this study, including but not limited to changes in study personnel, number of participants recruited, changes to the consent form or process, and/or changes in overall methodology, please complete the [Study Amendment Request Form](#).

If any problems develop with the study, including any unanticipated events that may change the risk profile of your study or if there were any unapproved changes in your protocol, please inform the Office of Research and Sponsored Programs and the IRB promptly using the [Unanticipated Events/Noncompliance Form](#).

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs