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An Investigation of "Actual" versus "Perceived" Substance Use Among College Students

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THE ACTUAL VERSUS THE PERCEIVED SUBSTANCE USE AMONG COLLEGE STUDENTS

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Abstract

Alcohol and illicit substance use is recognized as a widespread public health concern across college campuses in the United States (Shepard Meteyer, Bruzios, Pol, & Charpentier 2017). Perceived norms are among the strongest predictors of college student alcohol use and related problems (Ecker, Cohen, & Buckner 2017). Prior research has shown that normative perceptions relate to one's own drinking behavior (Lewis, Litt, Blayney, Lostutter, Granato, Kilmer, & Lee 2011). This data has shown that college students typically over estimate the amount other students or peers drink. Based on previous literature this can be applied to drug, marijuana, and nicotine use. The purpose of this study is to examine the relationship between self-report and perceived peer alcohol, drug, marijuana, and nicotine use and to determine if a relationship exists. Specifically, this research aims to investigate if college students overestimate peer drinking and drug use by several contexts (i.e. fraternity/sorority and sports teams) and to examine normative perceptions for drinking and drug use by contexts that relate to one's own drinking behavior. The participants in this experiment are college students who will complete a 32 item forced choice questionnaire, which measures the reported personal alcohol, drug, nicotine, and marijuana consumption compared to participants' perceived norms of their peers' substance use behavior.

It is hypothesized that those who overestimate peer drinking and substance use will have a higher frequency of self-reported substance use, as well as those who underestimate their peers drinking and substance use will have a lower self-reported substance use. It is also hypothesized that those who are in a group, such as a fraternity or sports team, will overestimate peer substance use as well have more frequent substance use. Possible reasons for this overestimation will be discussed.

Introduction

Recent studies demonstrate the continuing widespread use of alcohol, nicotine, and hard

drugs by individuals on the cusp of adulthood. In 2014, there were an estimated 12.4 million

college students aged 15-24 in the United States. As these young adults mature, substance use

seems to become more common for them. College drinking habits and drug use in general has

become a great concern in today's society. Both alcohol and drug use have long been a

recognized public health issue (Arria, Garnier-Dystra, Calderira, Vincent, Winick, and O'Grady,

2013). According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) in

2012, one fifth of full-time college students met the criteria for substance addiction (Arria et al.,

2013). These high numbers of college student substance use are well documented, including in a

study conducted by Arria et al., 2013. During the previous past 30 days, they found 23% of full-

time college students used an illicit drug with prevalence estimates for marijuana use increasing

significantly (Arria et al., 2013). This is particularly dangerous because there is more of a threat

for potential negative consequences that stem from substance use. Given the existing prevalence

of substance use on college campuses, the current thesis study will examine the perceptions

students have about personal and peer substance use in order to gain more insight on the

motivations and behaviors of students.

There are many factors that extensive research suggests why college students fall victim

to substance abuse. For decades, researchers and educators have attempted to find strategies that

will reduce the high risk that college students have for falling into a trap of this use. There have

been widespread efforts to help prevent this abuse such as the implementation of D.A.R.E (Drug.

Abuse. Resistance. Education.) and other educational programs in order to help decrease the

substance use of young adults. D.A.R.E is a police officer run program that began in 1983, it is

designed to provide students with strategies on how to resist drugs, alcohol, and other risky

behaviors (D.A.R.E. America, n.d.). The goal of programs such as these and many others are to

teach children at a young age how to gain proper decision making skills and not succumb to peer

pressure. Other educational programs have attempted to raise awareness of the potential risks

associated with substance use however it has been found that the effectiveness is limited

(Shepard et al., 2016). According to Ludwig (2019), youth educational programs are beginning

to become reevaluated because substance use has become so mainstream and accepted in society.

These traditional methods have shown limited success in reducing harmful excessive drinking

(Martens, Page, Mowry, Damann, Taylor, & Cimini, 2006). Programs such as these that find no

success in substance use reduction leaves students who do not know how to gain further help to

be at serious risk for long term effects on their physical and psychological well-being.

Specifically, these students risk fatal or non-fatal injuries, academic failure, violence, unintended

pregnancies, or sexually transmitted diseases all due to the fact that they are unable to receive

proper help or education about their illicit substance use behavior (White, Labouvie, &

Papadaratsakis 2005).

Psychologists and other health professionals continue to seek further assistance on how to

reduce these high rates of college substance use. It is imperative to explore further ideas on how

and why college students are participating in substance use around the country. It is evident that

that many educational programs are not the answer to this problem. The purpose of this study

was to compare changes in alcohol, marijuana, nicotine, and hard drug use related problems

during this transition from late adolescence into adulthood. The direct and the indirect influences

were examined in order to evaluate what motivates and affects young adult substance use.

Direct Influences on College Substance Use

Transitional Period

Young adults entering college experience a great deal of change. This can be one of the

most difficult and life altering transitions in a young adult's life. It puts students in situations

where they are forced to initiate new friendship networks while at the same time separate from

their family. Academics are much more challenging, increased independence as well as less

parental monitoring, guidance, and support (White et al., 2005). These changes are fostering an

environment for increased stress and anxiety, which can ultimately lead to turning to substance

use to cope with these emotions. But these young adults are not only entering a new place to call

"home" but a new phase in their life known as "emerging adulthood." This stage of life is

between ages 18-25 between late adolescent and early adulthood (White et al., 2005). Emerging

adulthood is a time of great instability, arguably the most throughout one's life due to, identity

exploration, instability, self-focus, feeling in-between adolescence and adulthood, and a sense of

broad possibilities in the future (White et al., 2005).

There is also considerable pressure from society to know who you are as a person and

where you will be going on after college. This is why emerging adulthood is especially more

stressful to young adults who obtain an education. They are surrounded by an environment

where they are under a lot of stress and they may turn to substance use as a way of coping. This

kind of behavior is not uncommon at all for young adults, for example, White et al. (2005)

conducted a study about young adult substance use throughout the emerging adulthood stage of

life. This longitudinal study took place over the course of ten years by examining if the

situational and socialization effects of college are unique during this developmental stage. An

ANOVA revealed that the frequency of drug use, including hard drugs (i.e. cocaine,

methamphetamine, MDMA, ecstasy, heroin, LSD, and inhalants), is at its peak during this age

range. The substance use rates were especially high if conflict or failure occurred throughout this

developmental stage. This leads to a high probability for frustration and stress, which can lead to

a variety of unhealthy behaviors including the increase in drug use. Overall White et al. (2005),

showed that entering college is a time where there is an increased risk for substance use and

related problems.

On top of these internal pressures and changes that emerging adults are feeling, other

researchers such as Arnett (2005) also found that as work and school become more serious, they

are ultimately faced with an identity crisis. Therefore, substance use could be a large contributor

in identity exploration in emerging adulthood in two ways. The first is in emerging adults who

want to gain a wide range of experience before they settle into their adult life (i.e. marriage and

children) may want to experience what different states of consciousness are like (Arnett, 2005).

The second reason because creating or finding one's identity may be difficult and confusing for

many young adults transitioning into their adult lifestyle. By turning to various substances is

potentially a way of relieving this confusion and changing their state of mind.

Similar to White's et al. (2005) research ideas, Tucker, Ellickson, Orlando, Martino, and

Klein (2005) explored the developmental trajectories of binge drinking, cigarette smoking, and

marijuana use in emerging adulthood compared to early adulthood. They used data from the

RAND Adolescent/ Young Adult panel across three different studies which tested about 6,500

participants, in order to explain patterns of substance use from 13-23 year olds (Tucker et al.,

2005). Throughout this ten-year period there were six waves of data collected at ages 13, 14, 15,

16, 18 and 23. The participants were asked how many times they smoked cigarettes or marijuana

and binge drank in the past 6 months throughout each of the waves. It was classified by

answering the frequency to the following questions. When the participants reached the age of 23, they were asked different questions to address whether they felt they were successful in life or not (ie. married or have a college degree). The participants were then classified into groups based on their substance use: the abstainers (meaning no marijuana), drinking or cigarette participation persistent light- moderate use, high use in early adolescence, and steady increase from initial too low use (Tucker et al. 2005). The participants throughout this survey that refrained from the use of cigarettes who were around the age of 23 did not have any sort of addiction issues. It was also discovered that there is a linear trend whenever those who began binge drinking, cigarette smoking and marijuana use at an earlier age were much more susceptible to substance use when older. The findings identified two important periods of vulnerability: early adulthood (ages 13-14) and emerging adulthood for youths that have previously engaged in substance use which are the steady increasers in usage. The steady increasers are the students that have believed substance use to be normalized throughout their lifestyle.

The results presented by Tucker et al. (2005) are not unique throughout the literature. Many researchers have found that students in both young and emerging adulthood that partake in substances do not maintain their substance use at a more moderate level compared to those who try substances at an older age. The substantial number of individuals who engage in this pattern of substance use, may be missed by educational programs that are targeting them during early adulthood. The results from Tucker et al. (2005) highlight the importance that the younger adults that try substances earlier in life are more likely to have higher rates of substance use as they age. Therefore, these people are putting them at even more of a risk of substance abuse as they begin to enter emerging adulthood.

Based on the idea presented by Tucker et al. (2005), Arnold (2005) and White et al.

(2005), it is evident that the transitional period into emerging adulthood is a critical time. These

studies help explain why a large number of college students report symptoms of alcohol abuse

and dependence during their college life. But after college graduation, research has shown that

drug and alcohol rates may drop significantly. During an eight yearlong longitudinal study

conducted by Arria, Caldeira, Allen, Bugbee, Vincent, and O'Grady (2017), they tested the

variation in use of ten different substances once a year, during the four years of college as well as

four more years prior to graduating. The findings of the study indicated that marijuana and

ecstasy consumption were the only drugs that were consistent in use after leaving college as

during college; however, substance use rates of all eight other drugs significantly decreased

(Arria et al., 2017). This shows that the college environment fosters illicit use of drugs and

alcohol are promoted and wildly consumed. Once many of the participants left this environment

in which substance use was promoted, they did not participate in substance use afterwards nearly

as much. The college environment overall fosters the substance use for many emerging adults,

making them feel pressured to regularly partake socially with peers.

The Gateway Drug Theory

The progression of drug use has been studied by researchers for decades. It has long been

thought that the age of which someone begins to partake in substance did not matter as much as

which substance one would take. Biggar, Forsyth, and Burstein (2017) has discovered that

typically alcohol and tobacco are some of the first substances used, followed by marijuana, and

potentially hard drugs. The "gateway drug theory" suggests, that drugs such as marijuana lead

users into the experimentation with illicit hard substances (Biggar et al., 2017). This theory has

long been studied by researchers in order to determine what leads people to substance abuse as

they age. But the gateway drug theory seems to be a flawed methodology when it comes to

having an accurate correlation between marijuana or alcohol and later drug use. It was found in a

multitude of studies that age is a better prediction of future drug use rather than prior usage

(Biggar et al., 2017). Recent studies have now rejected the causal link between the traditional

gateway drugs and future use of illicit drugs, but rather have examined the social factors of youth

and how that is the link towards future use. This agrees with similar results by Tucker et al.

(2005) who stated that the earlier in life one uses substances, the more at risk they are for a more

serious habit of substance use. Researchers have now begun to move away from the gateway

drug theory entirely but are more concerned with the age at which many people begin trying

substance for the first time. This can even facilitate young adults that socialize and surround

themselves with others who use drugs are more likely to find themselves in social gatherings

where substance use is occurring.

Environment

A very obvious direct influence for substance use on emerging adults are the

environmental factors in college. It is a more feasible explanation for why peers find themselves

in drug using situations due to the fact substances in colleges seem to be readily available and

easily accessible. The simple availability of illicit drugs seems to be widespread throughout most

colleges. Students have reported to researchers that there is easy access to marijuana or

prescription drugs (Arria et al., 2017). If drugs are readily available in one's social environment,

their subsequent social interactions increase their chances of trying other drugs, increasing their

motives to drink, or use nicotine.

Cultural Perceptions

Other direct influences that effect the decision of emerging adults are the cultural

perceptions that surround illicit substances. Both social media and movies have a huge influence

on how society portrays college. Whether it is prior research, something learned in school, or

simply knowledge from a friend's experience, studies have shown that the media are some of the

key sources in shaping public perceptions (Blake, Viswanath, Blendon, and Vallone 2010). The

entertainment industry and various media programs often display the college environment to be

portrayed in a specific way. Alcohol use is typically glorified in movies. For example, in the

iconic movie *Animal House,* students make binge drinking seem like a natural, fun, common

occurrence at all college parties (Martens et al., 2006). Famous films such as this give people the

perception that all colleges are socially structured as they are in the movies.

There is such strong empirical evidence which suggests exposure to movies and

television may lead to an increase in substance use (Blake et al., 2010). A study based on this

was carried out by Blake et al. (2010), in order to discover if the number of times tobacco was

shown in a film would affect the perception someone has about tobacco and nicotine products.

Participants who were 18 or older answered a series of questions related to the portrayals of

cigarette smoking in movies. It was hypothesized that those who were exposed to tobacco

advertisements, tobacco specific messages, new coverage about tobacco, and pro-tobacco

advertisements in the past 30 days would affect their opinions on tobacco. In fact, those who

were exposed to more cigarette advertisements in magazines were more likely than those who

didn't see the advertisements, to be against the showing of cigarette brand names in movies.

Overall the media is a major vehicle for the tobacco industry. The sheer number of

advertisements in their most attractive form are especially targeted at youths. The advertisements

that have an eye grabbing portrayal of colors or design, serve as contextual cures which could be

lessening reader's sensitivity to the dangers of tobacco and smoking (Blake et al., 2010).

Although this study only focused on the effects of media exposure of tobacco advertisements,

this can be applied to substance use in general. This study illustrates that sustained media

exposure facilitates the normative use of certain substances. This justifies emerging adults when

it comes debates they may have with themselves about substance use. Whether the media tends

to show substances in a good or bad way, society is highly influenced by what the media has to

say.

Indirect Influences on College Substance Use

Social Norms

It is evident that numerous factors are associated with the increased rates of high college

substance use. Apart from direct influences such as those mentioned above, the indirect

influences known as *social norms*, are found to predict drinking behavior, drug use, marijuana

use, and nicotine consumption rates. Although direct influences such as the transitional period,

cultural perceptions, and environment all contribute to substance use, understanding how the

social norms theory influences college student substance use has the potential to be a successful

prevention method. Normative beliefs, based on the social norm theory demonstrated by

Berkowitz (2005), suggests individuals incorrectly perceive attitudes or behaviors of peers to be

different from their own when in fact they are not. For example, college students may perceive

all students to partake in binge drinking, when in reality, this is not the case. This phenomenon is

known as "injunctive norms" which according to Rajiv and Real (2005) refers to the extent by

which individuals perceive that others expect them to behave in a certain way. This can also be

commonly known as "pluralistic ignorance" (Berkowitz, 2005). The social norms theory in

general contents that perceptions of peer behavior have a direct impact on individual behavior

regardless of how accurate the perceived friend or peer use is.

Injunctive Norms

Rimal and Real (2005) looked further into injunctive norms as a predictor for college

students' drinking habits. They surveyed over 1,300 incoming college students to test drinking,

drug use, alcohol use, and tobacco consumption. They examined three types of normative

behaviors which consisted of injunctive norms, outcome expectation, and group identity. The

results suggest that each mechanism was a significant predictor of the consumption of alcohol.

They were able to add to the literature the consistent finding that college students' alcohol

consumption is determined by their normative beliefs. In other words, the participants would

consume more alcohol when they believed others were consuming alcohol as well. There were

contrary results found in this study, which found that females have greater intention to consume

alcohol than males based on normative mechanisms (Rimal & Real, 2005).

Descriptive Norms

Rimal and Real (2005) also provided further insight into how "descriptive norms" which

refer to the individual's belief about the prevalence of a behavior affects the likelihood of

substance consumption. They asked students questions about the prevalence of perceptions of

which their peers consumed alcohol in ("goes to a bar," "has friends over to apartment for

drinks," "goes to a party"). Rimal and Real (2005) were interested in whether the environment in

which students predicted alcohol consumption affects how much they predicted their peers

would consume. This hypothesis was found to yield significant results based on the location or

environment, in that participants estimated greater amounts of alcohol consumption from peers,

which Cox, DiBello, Meisel, Ott, Kenney, Clark, and Barnett (2019) also found to be significant

throughout in a similar experiment. This provided further support to Rimal and Real's (2005)

findings stating that social norms specific to drinking reliability has shown that perceptions of

others drinking behavior are robust determinants for alcohol use.

Moreover, researchers Patrick, Kloska, Vasilenko, and Lanza (2016) provide further support

on how perceived social norms are linked to marijuana consumption. This longitudinal study

sampled about 16,000 high school seniors, to provide data on perceived friends use of marijuana

compared to individual use. Patrick et al. (2016) found that throughout young adulthood,

socializing with peers increased the influence of substance use. As participants age, they were

less likely to influence peers with use of substances. This could suggest that those who settle

within groups primarily choose friends with similar substance use habits. They were able to

conclude that those who are around their friends more often surrounded in an environment where

substance use is prevalent, are more likely to participate in substance use. Peers will be more

inclined to create this normative belief that what they are doing is justified.

Overestimation

Both injunctive and descriptive norms are known to be some of the stronger predictors of

alcohol consumption. According to Martens et al. (2006), individuals generally misperceive the

frequency with which their peers engage in unhealthy behavior and these misperceptions have a

causal effect on individual behavior. This suggests that the substance predictions that college

students are making are inaccurate perceptions of reality. Researchers from a variety of college

campuses have found that students generally overestimate the amount of alcohol consumed by a

typical student. This overestimation tends to be related to one's own drinking and increases the

risk for heavier alcohol consumption (Cox et al., 2019).

Furthermore, Ecker, Cohen, and Buckner (2017) examined whether the overestimation of close friend drinking problems is related to one's own drinking-related problems. College undergraduate students who were participating in the study were asked to refer to a close friend of the same sex to participate in the study. Those who denied their friend's consumption of alcohol were asked to leave the study. The sample consisted of 55 participant-friend pairs. By understanding the normative perceptions that college students overestimate the use of peer's substance consumption, it is important to understand if this same theory applies to friends. It was shown that undergraduate drinkers overestimate the degree to which their close friends experience alcohol-related problems (Ecker et al., 2017). This suggests that even close friends have inaccurate perceptions of their substance consumption, which can be extremely detrimental and could potentially lead to further binge drinking or the use of substances.

Group Identity

It can be argued that group identities can be one of the strong reasons for overestimation of peer substance use. Numerous studies have documented the role that individuals' social networks play a key role in initiating and reinforcing positive substance use (Rimel & Real, 2005). According to the social cognitive theory (Mcleoud, 2016), we are influenced by the actions in which we inspire to become. Therefore, we are not only influenced by the actions of others, but by those most similar to us, especially when we conform with in-group members is when we experience the most positive emotions.

Based on the idea that group identity fosters an environment which promotes higher rates of substance use, this can be applied to defined groups such as Greek life (fraternities and sororities) or sports teams in college. Research has consistently identified student athletes as an at-risk population for above average alcohol consumption (Dieterick, Stanley, Swaim, &

Beauvais, 2013). Student athletes take great pride in their identity. They spend considerable time

committing their life to sports-related activities (i.e. practice, competition, strength and agility

training) and do so consequently with their teammates. Based on both descriptive and injunctive

norms, student's perceptions of how much their peer drinks and their perceptions of how much

their friends approve of their behavior, may influence their actions as they strive to better fit in

during social situations. For example, students that are members of Greek life may think that

alcohol or nicotine consumption is excessive (demonstrating high descriptive norms) and they

themselves go out of their way to drink (showing high injunctive norms) in order to maintain

friendships (Dieterick et al., 2013). This is important since in fact as an entire group or team,

more people may feel these normative pressures rather than an individual college student who is

not in a defined group.

Substances

On almost all college campuses, substance use is prevalent whether or not it is legal.

Alcohol is easily the most common drug that is popular and prevalent on college campuses. As

mentioned earlier there are many factors that contribute to this drug being so prominent. This

field has been studied by researchers in depth. But it is very important to further understand why

students believe how much their peers and personal self actually consume alcohol.

One of the most noteworthy drugs that has had a significant increase in young adult users

is nicotine. Ever since the rise of the e-cigarette, teens have flocked to get their hands on this

sleek and appealing device. This mechanism operates by heating up liquid and other chemicals at

a very high temperature to an aerosol vapor that is then inhaled into the lungs (Truth initiative,

2019). These chemical solutions almost always contain nicotine and can even consist of various

fruitful flavors that are more appealing to the consumer. This has become especially attractive to

young adults because of the bright packaging and the tasteful puff that e-cigarette offers.

According to Jones (2019), vaping has had such an increase from there only being about seven

million users in 2011 to the rapid jump of 41 million in 2018 (Jones, 2019.). This puts students at

an even higher risk to not only continue vaping, but also to be more inclined to move towards

cigarettes as well. Even though over the past twenty years cigarette use among high school

students has gone down, there is a current rise in the nicotine use that is seen with students

vaping. Due to the fact that vaping is such a new and unstudied field, it is important to

understand how many college students actually partake in this activity or what is believed to be

the norm among students.

The present study also asked students about motives behind marijuana use. With the

current rise of vaping, many industries have also created ways to inhale vapor with THC, called a

dab pen. These pens are filled with concentrated THC, so when the consumer inhales the pen

heats up turning the liquid into a vapor resulting in a "high." The effects of the dab pen can be

more psychologically impairing compared to ingesting marijuana in the plant form (Just Think

Twice, n.d.). This enables users to be much more discrete with smoking marijuana. With the

uprising of these dab pens that makes smoking much more convenient and have more of a

"high." Similar to vaping there is very little information known about the effects of these dab

pens. Therefore, it is important to add to the literature if there has been a rise in marijuana use

with college students.

Although mentioned earlier that the gateway drug theory is erroneous, there is statistical

evidence that suggests marijuana can lead to the use of other drugs later in life. The Center on

Addiction and Substance Use at Columbia University released a study on teenagers which found

that those who are more likely to use marijuana are more likely to use other harder substances

(ie. cocaine or LSD). One statistic from the analysis of the study stated that those who use marijuana are 85 times more likely to use cocaine than the non-marijuana users (National Study Shows "Gateway" Drugs Lead to Cocaine Use, n.d.). This shows that those who are more likely to use marijuana may be more inclined to use harder substances if exposed to them. So although there can be a correlation between marijuana and hard drug use the gateway drug theory is not a plausible assumption for this correlation.

It is therefore important to look at students' use of hard drugs in college. There are many hard drugs that students' can be exposed to at any given time. There are some that are much more popular than others when it comes to a fun party. Some of the most commonly used hard drugs that will be tested are cocaine, ecstasy, prescription drugs (not medically prescribed), methamphetamine, LSD, and heroin. According to Biggar et al. (2017), the issue among adolescents trying heroin has increased over the past decade. They also state that there are issues linking prescription drugs with the increase rise of heroin use as well as the current opioid addiction crisis that is festering in the United States. There are currently an estimated 2.1 million people addicted to opioids (Biggar et al., 2017). This alarming statistics only highlights the importance of the substance use epidemic in the United State.

One of the most prominent hard drugs that is seen throughout college campuses is cocaine. There has been a decline in the use of it over the past twenty years however, there is a spike in the use of those in their early twenties (Rivermend Health, 2016). This drug is known as the "party" drug and can give a sense of euphoria and friendliness. In 2014, Rivermend health (2016) conducted a survey amongst college students to see the percentage use of this substance (Rivermend Health, 2016). They found that 4.4% of college students use cocaine or have tried it throughout their college career. These powerful and addictive drugs can easily put someone in

the hospital or rehabilitation center for the rest of their lives. The sooner someone receives help

for substance abuse as serious as hard drugs, the better chance they have of not receiving the

negative effects that come along with it.

Based on the ideas mentioned above it is abundantly clear that understanding the

substance use epidemic in the United States will be greatly beneficial to emerging adults. A

survey was created for this study in order to further understand the motivations for college

student substance use. This survey is asking how many students partake in hard drug use and

how much they perceive their peers to partake in substance use. Overall, substance use of college

students has been a widely studied field. The following substance's that will be assessed are:

alcohol, marijuana, nicotine, and the most common hard drugs. The personal use of these

substances will be compared to people's self-report of them as well as their perception of the

peer consumption of these substances.

Hypotheses

The following hypotheses have been developed for the present study:

Self-report and substance use of peers / Social Norms: Participants self-reported data for alcohol,

nicotine, marijuana, and hard drugs will be lower than their estimate of peer substance usage.

- Descriptive and injunctive norms will be a predictor as to why students overestimate their

  peer substance use compared to their own.

- Participants will predict that 75%-100% of Trinity College students have consumed

  alcohol in the past 30 days.

- Participants will predict that 50%-75% of Trinity College students have consumed

  nicotine in the past 30 days.

- Participants will predict that 50%-75% of Trinity College students have consumed marijuana in the past 30 days.

- Participants will predict that 25%-50% of Trinity College students have consumed hard drugs in the past 30 days.

Group Norms: Both male and female athletes and participants affiliated with Greek life will have greater self-reported alcohol, nicotine, marijuana, and hard drug use compared to non-athletes and non-Greek life affiliated participants in the past 30 days

Friend Influence: Participants are more likely to partake in alcohol, nicotine, marijuana, and hard drug use if their friends approve of this behavior or if over 50% of their friends partake in it as well.

Method

The present study investigated college students' motives towards substance use. The purpose of this study was to assess misperceptions of alcohol, drug, nicotine, and marijuana use among undergraduate students at a small liberal arts college. Should the literature findings be directly applicable to this particular setting it can be expected that students engaging in substance use to be more prone to overestimation than non-users. Moreover, the social norms theory can be applied to the exploration of the impact of prevention approaches.

Participants

An anonymous online survey was sent to 150 randomly selected students and 56 responded. Out of those participants, 4 of them did not fully complete the survey. Only the participants that fully completed the survey were included in the analysis. There were a total of 51 participants. All of the participants obtained informed consent before taking this survey. Out of the participants, 19 of them were first years (36.25%), 5 were sophomores (9.5%), 5 were juniors (9.5%) and 23 of them were seniors (44.75%). There were 7 males that participated in this survey (13.5%) and 45 females (86.5%). Of these participants, 27 are not varsity athletes (52%), 22 are varsity athletes (42%), and 3 of the participants had played on a varsity athletic team at one point in their collegiate career and then quit (6%). Out of these participants, only 4 of them are currently in Greek life (7%). These participants had a Grade Point Average breakdown which ranged from a 2.0-4.0. Only one participant had a GPA that ranged between a 2.1-2.5 (2%), 7 participants had a GPA which ranged from a 2.6-3.0 (13.5%), 23 participants had a GPA which ranged from a 3.1-3.5 (44.5%), and the highest GPA range consisted of 20 participants which was from a 3.6-4.0 (39%).

Measures

The participants completed a survey regarding how they perceived their peers to engage

in substance use, as well as the participant's own personal motives. A three-part survey was

administered online by email.

The initial portion of the survey asked participants demographic questions: age,

gender/identity, class year, approximate GPA, if they are a prospected athlete, or if they are

affiliated with Greek life.

The first section of the survey consisted of eight (8) questions which asked participants

various questions about their self-motivations behind substance use (see appendix A). There

were 4 questions which asked how many times in the past 30 days have they ingested either

alcohol, nicotine, marijuana or hard drugs. They had the option to answer with the following:

once a day, more than once a day, once a week, once in the 30 days, or never. It is specified in

the questionnaire all the different forms that can be ingested by the substances. The next 4

questions asked when the participant was most likely to ingest alcohol, nicotine, marijuana or

hard drugs. They had the opportunity to answer with the following: at a party, with your friends,

alone, all of the above, never, other.

The second part of the survey asked participants about their beliefs pertaining to their

peer's substance use behavior the past 30 days. This section consisted of nine (9) questions with

the first 4 asking the participants about how often they believed their peers to consume alcohol,

nicotine, marijuana, and hard drugs. They had the option to answer: "generally more than you,"

"generally less than you," "about the same as you," and "I don't know." The next 4 questions

asked if the percentage of their close friends' use of alcohol, nicotine, marijuana, and drug use.

They were able to choose which percentage they thought from 0-100%. The final question was

an open-ended question which asked participants their beliefs about the substance use culture at Trinity College overall.

The last section of the survey asked participants if their friends' substance use has a direct correlation to their substance intake in the past 30 days, whether or not the participant uses substances at all. This final part consisted of only five (5) questions and the first four asked if the participant's close friends support their decision in their personal substance use in the past 30 days. The had the option to choose between: "yes," "no," and "they do not have a preference." The final question in the survey asked when it comes to drug, alcohol, nicotine, and marijuana use if they want to follow what their close friends want them to do or if they do not have a preference.

This completed the survey for the participants. Afterwards they emailed the investigator to be entered into a survey where two people have the chance to win a $10.00 Peter B's gift card.

Procedure

The materials and instruments used were approved by the Trinity College Institutional Review Board (IRB). The survey described above was released to Trinity College students on November 14th 2019 using the online survey platform Qualtrics. Qualtrics is an online software and creation tool used to create surveys ([www.qualtrics.com)](www.qualtrics.com). The survey was created specifically for this experiment and was not based off of past experiments. The survey could be completed on a computer or mobile device. The link to the survey was distributed to students through email solicitation and administration from Psychology 101 professors. The Psychology 101 professors had the option to give their students research credit or the chance to enter a raffle for a Peter B's gift card as incentive to complete the survey. The emails sent out contained a brief description of the survey with a link. The message ensured students of the confidentiality of

the survey since the subject matter can be difficult for some to talk about. Once they clicked the

link on the email or from their professor, they were brought to the first page of the survey where

they gave their informed consent and were then able to continue on with the survey (see

appendix B).

Results

Group Norms

Greek Life

An independent means *t* test was conducted to determine whether there was a difference in the mean alcohol consumption in the past 30 days of participants in Greek life and participants not in Greek life. There was a significant difference: in the mean alcohol consumption in the past 30 days for those in Greek life versus those not in Greek life $t(45) = 4.91$, $p = 0.00$, 95% CI [0.33, 0.80]. Participants in Greek life that consumed alcohol in the past 30 days had a mean of 4.0 ($SD = 0.0$) and participants not in Greek life had a mean alcohol consumption in the past 30 days of 3.43 ($SD = 0.78$).

In addition to alcohol consumption for those in Greek life, an independent means *t* test was conducted to compare whether there was a difference in the mean nicotine, hard drug, and marijuana consumption in the past 30 days of participants in Greek life and participants not in Greek life. There was no significant difference in the mean nicotine consumption in the past 30 days for those in Greek life versus those not in Greek life $t(49) = -0.11$, $p = 0.91$, 95% CI [-1.56, 1.40]. Participants in Greek life that consumed nicotine in the past 30 days had a mean of 2.20 ($SD = 2.16$) and participants not in Greek life had a mean nicotine consumption in the past 30 days of 2.28 ($SD = 1.50$).

There was also no significant difference in the mean marijuana consumption in the past 30 days for those in Greek life versus those not in Greek life $t(49) = 1.15$, $p = 0.25$, 95% CI [-0.60, 2.25]. Participants in Greek life that consumed marijuana in the past 30 days had a mean of

2.80 (*SD* = 1.64) and participants not in Greek life had a mean marijuana consumption in the past 30 days of 1.97 (*SD* = 1.50).

There was no significant difference in the past 30 days regarding hard drug usage for those in Greek life versus those not in Greek life *t*(49) = 1.13, *p* = 0.26, 95% CI [-.30, 1.07]. Participants in Greek life that consumed hard drugs in the past 30 days had a mean of 1.80 (*SD* = .83) and participants not in Greek life had a mean hard drug use consumption in the past 30 days of 1.41 (*SD* = 0.72).

Figure 1: How often in the past 30 days' students in Greek life and not in Greek life consumed substances.
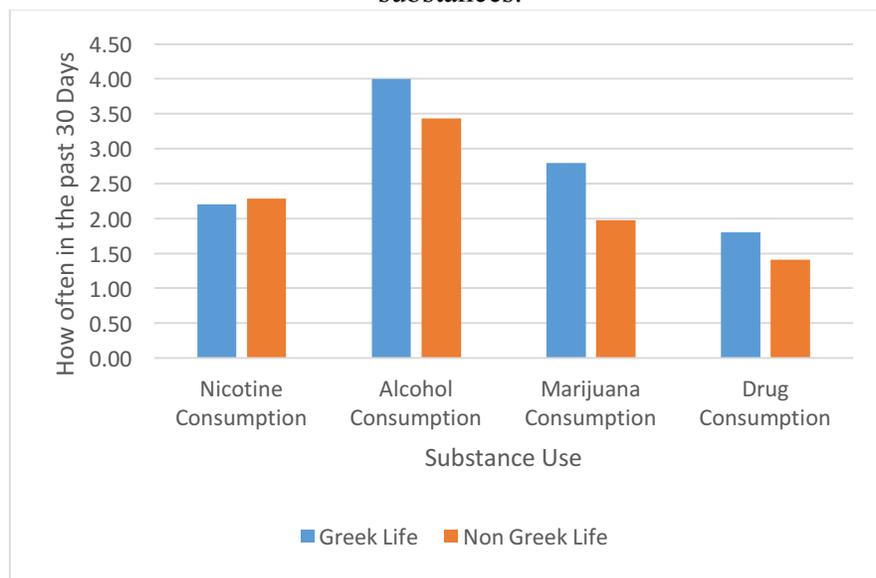
*Values on a scale: 1.0 (Never), 1.0 (Once in the past 30 days), 3.0 (Once a week), 4.0 (More than once a week), 5.0 (Once a day), 6.0 (More than once a day)

Athletes

An independent means *t* test was conducted to compare whether there was a difference in the mean alcohol, nicotine, marijuana, and hard drug consumption in the past 30 days of participants that are varsity athletes and participants that are not varsity athletes. There was no significant difference in the mean alcohol consumption in the past 30 days for the varsity athletes versus those not varsity athletes *t*(46) = 1.50, *p* = 0.14, 95% CI [-0.11, .77]. Participants that are

varsity athletes that consumed alcohol in the past 30 days had a mean of 3.66 (*SD* = 0.56) and

participants that are not varsity athletes had a mean alcohol consumption in the past 30 days of

3.33 (*SD* = 0.89).

There was no significant difference in the mean nicotine consumption in the past 30 days

for the varsity athletes versus those not varsity athletes $t(46) = 0.41$, $p = 0.69$, 95% CI [-0.73,

1.10]. Participants that are varsity athletes that consumed nicotine in the past 30 days had a mean

of 2.33 (*SD* = 1.60) and participants that are not varsity athletes had a mean nicotine

consumption in the past 30 days of 2.15 (*SD* = 1.50).

There was also no significant difference in the mean marijuana consumption in the past

30 days for the varsity athletes versus those that are not varsity athletes $t(46) = -0.84$, $p = 0.93$,

95% CI [-0.92, 0.84]. Participants that are varsity athletes that consumed marijuana in the past 30

days had a mean of 2.0 (*SD* = 1.45) and participants that are not varsity athletes had a mean

marijuana consumption in the past 30 days of 2.03 (*SD* = 1.55).

There was also no significant difference in the mean hard drug consumption in the past

30 days for the varsity athletes versus those that are not varsity athletes $t(46) = -0.60$, $p = 0.56$,

95% CI [-0.49, 0.27]. Participants that are varsity athletes that consumed hard drugs in the past

30 days had a mean of 1.33 (*SD* = 0.65) and participants that are not varsity athletes had a mean

hard drug consumption in the past 30 days of 1.44 (*SD* = 0.64).

Figure 2: How often in the past 30 days' students in varsity athletes and non-varsity athletes consumed substances.
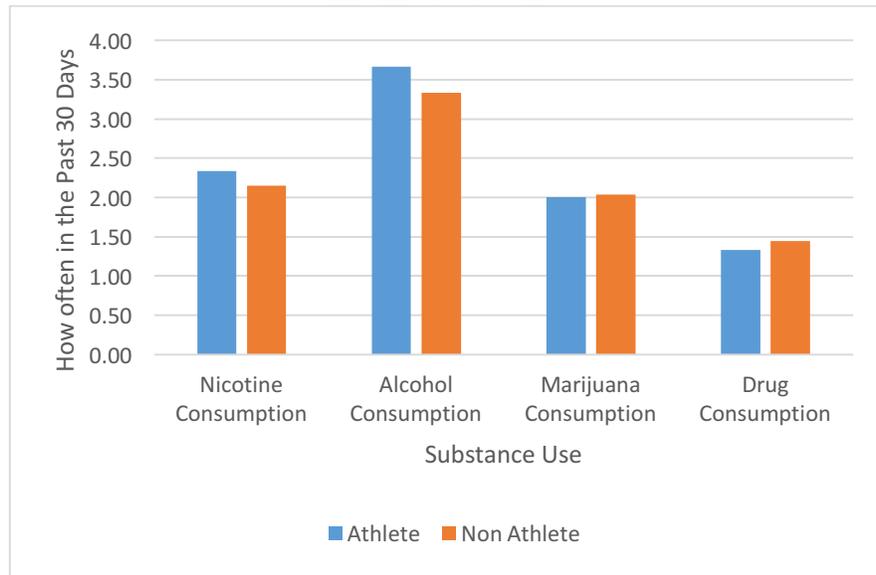

*Values on a scale: 1.0 (Never), 1.0 (Once in the past 30 days), 3.0 (Once a week), 4.0 (More than once a week), 5.0 (Once a day), 6.0 (More than once a day)

Self-report of Substance Use Compared to Peer Substance use / Social Norms

Alcohol Consumption

Participants were first asked how often in the past 30 days they consumed alcohol. Out of the 51 participants that completed the survey, 2 answered "never," 1 answered "once in the past 30 days," 19 answered "once a week," 28 participants said they consume alcohol "more than once a week," and 1 person said they consume alcohol "once a day."

Figure 3: Personal alcohol consumption in the past 30 days
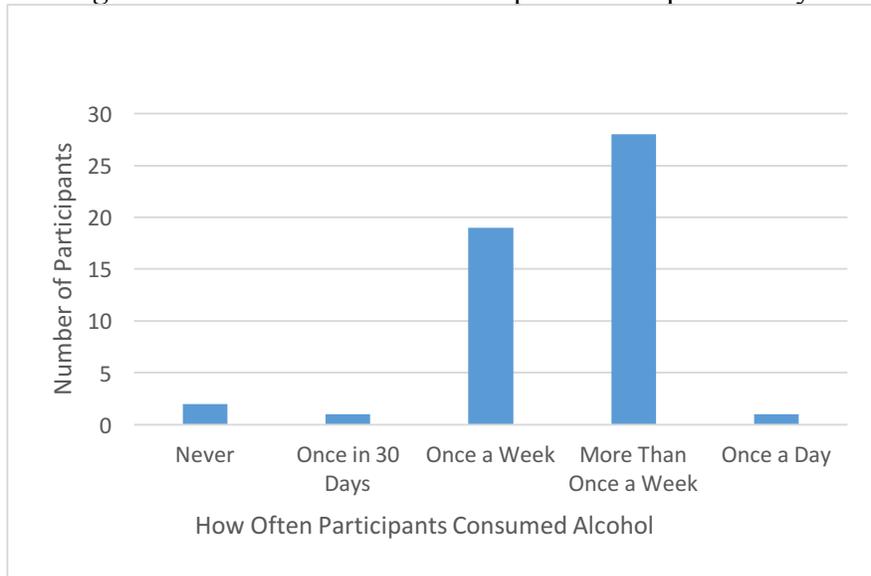
Participants were then asked what percentage of Trinity students they believe consumed alcohol in the past 30 days. Out of the participants, 1 believed that "0-25%," 1 believed that "25-50%" of students have consumed alcohol, 16 believed that "50-75%," and 33 participants believed that "75-100%" of students at Trinity have consumed alcohol in the past 30 days.
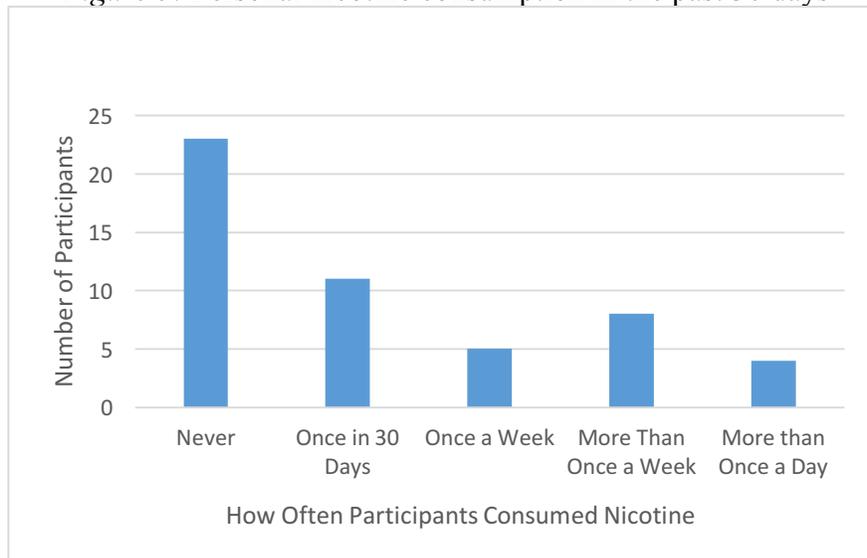
Figure 4: Peer prediction of alcohol consumption in the past 30 days.
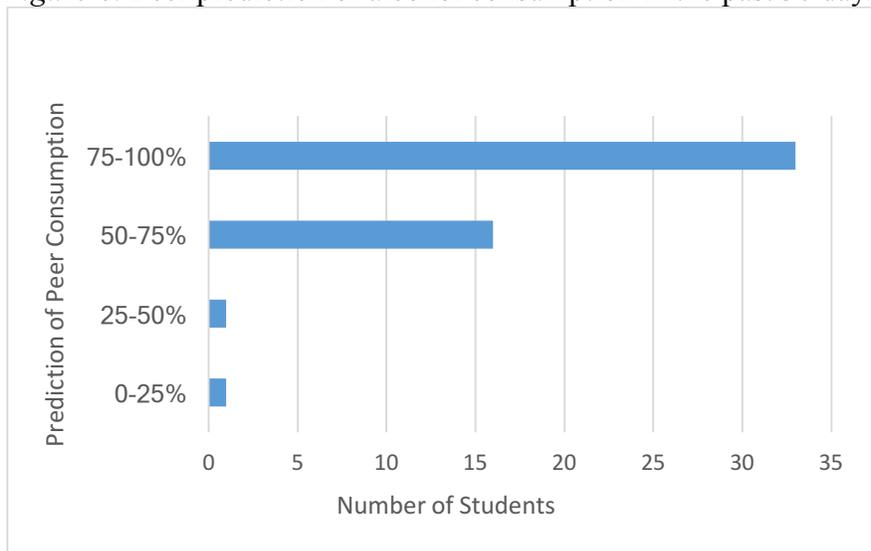
Nicotine Consumption

The participants were asked how often in the past 30 days they had consumed nicotine.

There were 23 participants that said "never," 11 participants said "once in the past 30 days," 5

participants said "once a week," 8 participants said "more than once a week, and 4 participants

said "more than once a day."

Figure 5: Personal nicotine consumption in the past 30 days

Participants were then asked what percentage of students at Trinity they believe have

ingested nicotine in the past 30 days. There were 2 participants that believed "0-25%" had

ingested nicotine, 15 participants believed "25-50%," 20 participants believed "50-75%," and 14

participants believed that "75-100%" of students had ingested nicotine in the past 30 days.

Figure 6: Peer prediction of nicotine consumption in the past 30 days
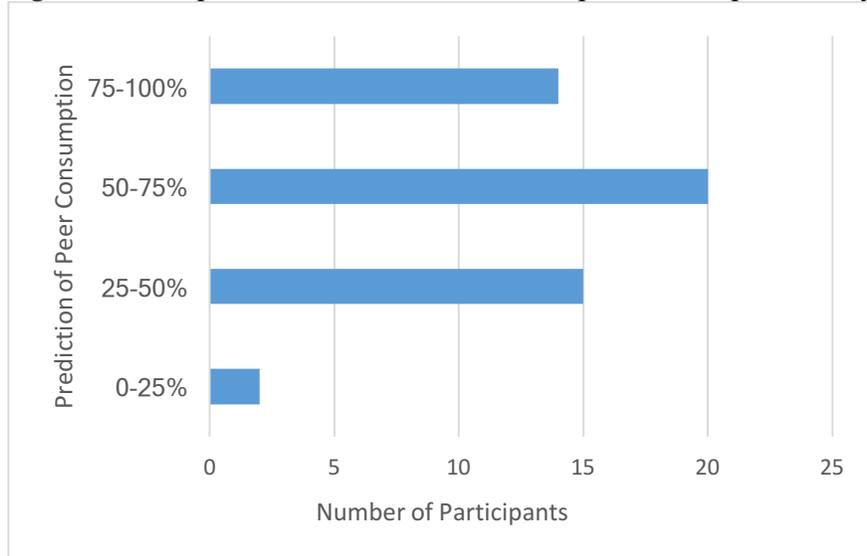
Marijuana Consumption

Participants were asked how often in the past 30 days they had consumed marijuana. There were 30 participants that said they "never" consumed marijuana, 6 participants sad "once in the past 30 days," 3 participants said "once a week," 8 participants said "more than once a week," 2 participants said "once a day," and 2 participants said "more than once a day."

Figure 7: Personal marijuana consumption in the past 30 days

The participants were then asked what percentage they believe students at Trinity have ingested marijuana in the past 30 days. There were 6 participants that believe "0-25%" of Trinity Students ingested marijuana, 20 participants believe "25-50%," 20 participants believe that "50-75%," and 5 participants believe that "75-100%" had ingested marijuana in the past 30 days.
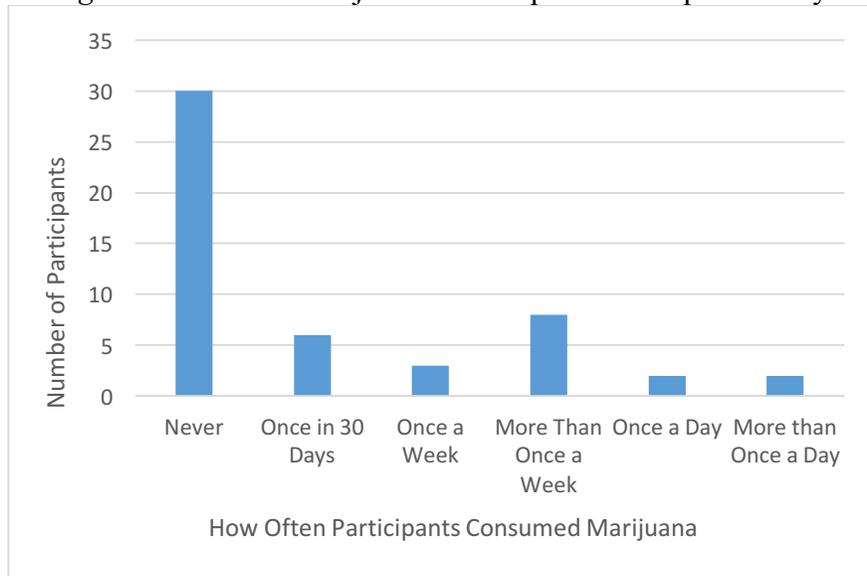
Figure 8: Peer prediction of marijuana consumption in the past 30 days
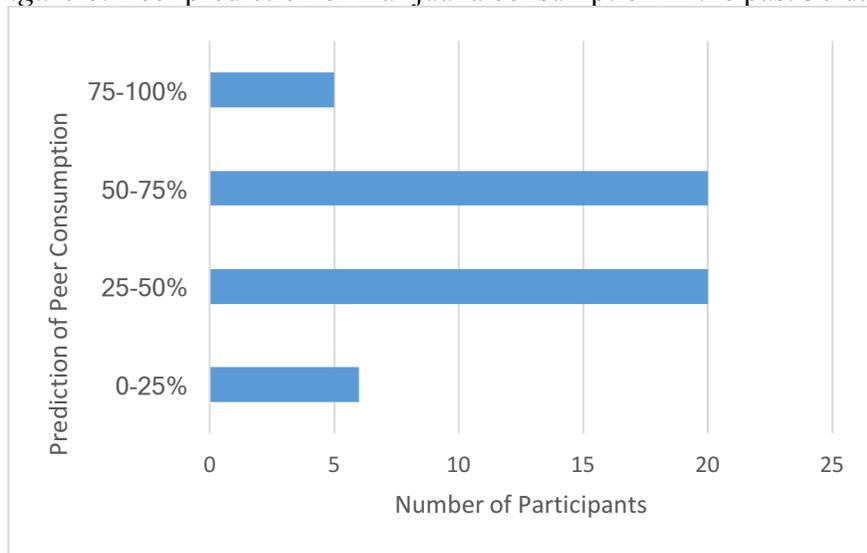
Hard Drug Consumption

Participants were asked how often in the past 30 days did they consume hard drugs. Out of the participants, 34 said they "never" had any hard drugs, 12 said they had "once in the past 30 days," 4 said "once a week," and 1 participant said they did hard drugs "more than once a week."

Figure 9: Participant consumption of hard drugs in the past 30 days
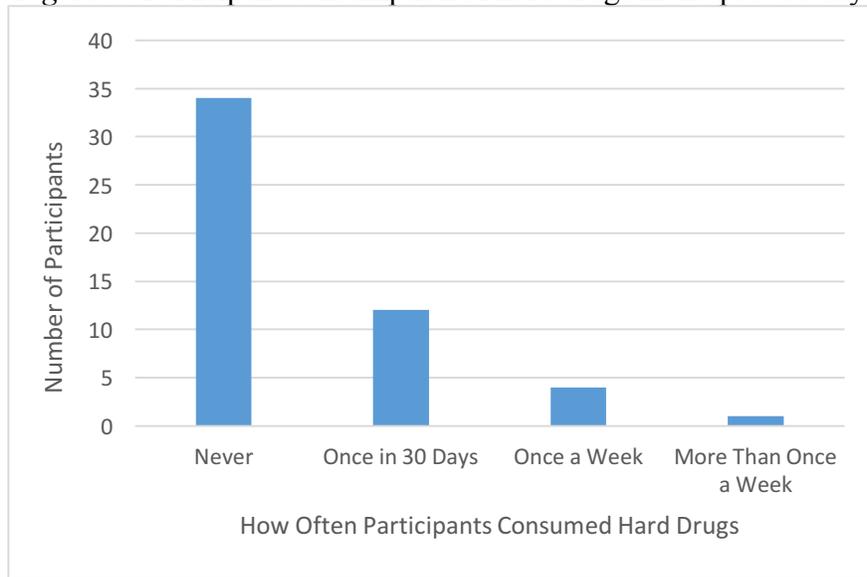
The participants were asked what percentage of students at Trinity they believe have used hard drugs in the past 30 days. There were 10 participants that predicted "0-25%," 22 participants predicted "25-50%", 18 predicted "50-75%," and 1 participant predicted "75-100%" of Trinity students used hard drugs.

Figure 10: Peer prediction of hard drug consumption in the past 30 days
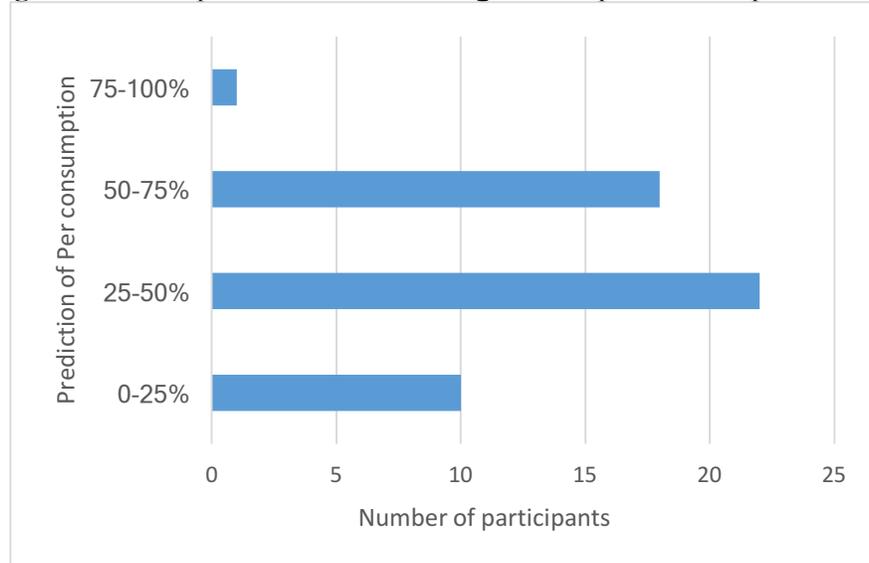
Assumptions about Personal vs. Peer Substance Use Summary

The descriptive statistics for the personal substance use consumption of the participants were compared to the percentage they believe their peers are consuming in the past 30 days. Out of the 51 participants, 96.08% consumed alcohol. There were 35.29% of the participants underestimated this consumption rate whereas 64.71% of the participants correctly assumed this consumption rate. But none of the participants overestimated the consumption rate of alcohol.

The descriptive statistics were also compared for the nicotine consumption rate in the past 30 days. Out of the participants, 54.90% of the participants had personally consumed nicotine. There were 33.33% of these participants that underestimated this, 39.22% correctly estimated this percentage, and 27.45% overestimated that the participants would consume this amount of nicotine in the past 30 days.

The descriptive statistics were compared for the marijuana consumption rate in the past 30 days. A total of 41.18% of the participants consumed marijuana in the past 30 days. Out of

these participants, 11.76% of them underestimated this, 39.22% of the participants correctly estimated this, and 49.02% of the participants overestimated that the participants would consume this amount of marijuana in the past 30 days.

The descriptive statistics were compared for the hard drug consumption in the past 30 days. A total of 33.33% of the participants consumed hard drugs in the past 30 days. Out of the participants, 19.61% underestimated this, 43.14% of the participants correctly estimated this, and 37.25% of the participants overestimated that the participants would consume this amount of hard drugs in the past 30 days.

Figure 11: Personal substance use compared to the percent of Trinity College students perceived to partake in that specific substance (alcohol, nicotine, marijuana, and hard drugs)

		Consumption in the Last 30 Days			
		Alcohol	Nicotine	Marijuana	Hard Drugs
Actual Percentage of Participant Consumption		96.08%	54.90%	41.18%	33.33%
Perceived Peer Consumption	**0-25%**	1.96%	3.92%	11.76%	19.61%
	25-50%	1.96%	29.41%	**39.22%**	**43.14%**
	50-75%	31.37%	**39.22%**	39.22%	35.29%
	75-100%	**64.71%**	27.45%	9.80%	1.96%

Figure 12: Personal substance use assumptions about how their peers were partaking in substance use

|		Consumption in the Last 30 Days			
		Alcohol	Nicotine	Marijuana	Hard Drugs
Actual Percentage of Participant Consumption		96.08%	54.90%	41.18%	33.33%
Perceived Peer Consumption	**Underestimated**	35.29%	33.33%	11.76%	19.61%
	Correctly Estimated	64.71%	39.22%	39.22%	43.14%
	Over Estimated	0.00%	27.45%	49.02%	37.25%

Friend Influence

Participants were asked if their friends' opinion about substance use affected their motivation to use substances. The participants who did not respond "never" in the survey were tested to see if their friend's support of their substance use affected their motivation. An independent means t test was conducted to compare whether the participants friend approval influenced the mean alcohol consumption in the past 30 days. There was a significant difference in the mean alcohol consumption in the past 30 days for those whose friends supported their decision to consume alcohol versus those whose friends did not support their decision $t(41) = 3.5$, $p = 0.00$, 95% CI [1.07, 3.96]. However, due to the sample size of the number of people who responded to having no support from their friends, it does not pass the Levene's Test for Equality of Variance so it is considered not significant. Participants whose friends supported their decision to consume alcohol in the past 30 days had a mean of 3.5 ($SD = 0.71$) and participants whose friends did not support their decision to consume alcohol in the past 30 days had a mean alcohol consumption in the past 30 days of 1.0 ($SD = 1.0$).

An independent means t test was conducted to compare whether the participants' friend approval influenced the mean hard drug consumption in the past 30 days. There was no significant difference in the mean hard drug consumption in the past 30 days for those whose friends supported their decision to consume hard drugs versus those whose friends did not support their decision $t(34) = -.05$, $p = 0.61$, 95% CI [-0.57, 0.54]. Participants whose friends supported their decision to consume hard drugs in the past 30 days had a mean of 1.4 ($SD = 0.62$) and participants whose friends did not support their decision to consume hard drugs in the past 30 days had a mean hard drug consumption of 1.42 ($SD = 0.78$).

There was no significant difference in the mean marijuana consumption in the past 30

days for those whose friends supported their decision to consume marijuana versus those whose

friends did not support their decision $t(36) = 0.94$, $p = 0.35$, 95% CI [-0.92, 2.50]. Participants

whose friends supported their decision to consume marijuana in the past 30 days had a mean of

2.29 ($SD = 1.64$) and participants whose friends did not support their decision to consume

marijuana in the past 30 days had a mean marijuana consumption of 1.50 ($SD = 1.0$).

Finally, there was a not significant difference in the mean nicotine consumption in the

past 30 days for those whose friends supported their decision to consume marijuana versus those

whose friends did not support their decision $t(37) = -0.12$, $p = 0.90$, 95% CI [-1.39, 1.24].

Participants whose friends supported their decision to consume nicotine in the past 30 days had a

mean of 2.41 ($SD = 1.57$) and participants whose friends did not support their decision to

consume nicotine in the past 30 days had a mean nicotine consumption of 2.50 ($SD = 1.93$).

Figure 11: Influence of participant friends on their personal substance use
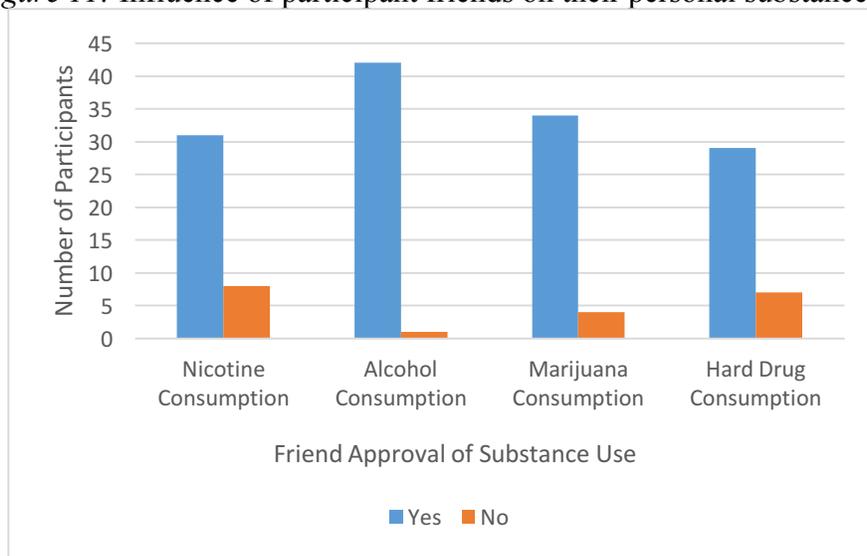
Discussion

This study was designed to determine the core influences as to why college students'

substance use behaviors are heightened. Past research has indicated that both direct and indirect

influences have a large impact on the personal consumption of alcohol, nicotine, hard drug, and

marijuana consumption of young adults in college. The social norms theory is one of the main

indirect influences in both personal consumptions of substances and peer predicted consumption

rates (Rimal and Real, 2005). This theory was explored in the present survey which was sent to

participants with the end goal to discover if they overestimate their peer's use of substances.

When students overestimate the use of alcohol, nicotine, marijuana, or other drugs by their peers,

they tend to be related to one's own substance habits and increases the risk for heavier

consumption (Cox et al., 2019).

This idea was also applied to nicotine, marijuana, and hard drug use. It was hypothesized

that all of the participants would predict higher substance use rates of their peers compared to

their self-consumption rates in the past 30 days. We asked participants what they believe the

percentage of their peers consumes alcohol, marijuana, hard drugs, and nicotine. The results of

this study indicated the social norms theory was not significant. The descriptive statistics indicate

that the participants did not overestimate the use of alcohol, hard drugs, and nicotine of their

peers. The only substance that the participants overestimated their peers to use was marijuana.

It was also hypothesized that group identity or group norms, would have an impact on

college student's personal substance use. As predicted, the participants that were in Greek life

had a higher mean consumption of alcohol in the past 30 days. This finding reflects the ideal that

group identities foster an environment for higher rates of substance use (Dieterick et al., 2013).

Due to the innate grouping together, there is a higher chance that everyone in the group will be

influenced by the people they are surrounded by. An independent *t* test found, that both male and female athletes did not consume more alcohol, hard drugs, nicotine, or marijuana. But an independent *t* test did find a significant difference for participants in Greek life having consumed more alcohol in the past 30 days compared to those not in Greek life. The independent *t* test did show no significant difference for the other substance testing (nicotine, marijuana and hard drugs) for the participants in Greek life.

The final hypotheses that was tested looked at the close friend influence on personal substance use consumption in the past 30 days. It was predicted that when close friends approve of the substance use, they are more likely to partake in the consumption. An independent *t* test did find a significant difference for alcohol consumption; however, due to the small sample size it did not pass the Levene's test of Equality so it is not considered to be a significant finding. The rest of the substances tested were not found significant as well.

To this investigator's knowledge, this is the first study to examine the social norms theory in an anonymous survey with college students who attend a small liberal arts college. This study is important because it is exposing the importance of people's assumptions on their own behavior. The anonymity of the questionnaire made participants feel more comfortable with being honest and share their personal information and opinions.

Social norms

There are many speculations from researchers as to why college students have some of the highest rates of substance use. The results we received did not fully align with our hypotheses. As previous research has suggested, alcohol was the most accurately predicted substance and the most commonly used by the participants. Alcohol, and binge drinking are seen as a rite of passage to college students. There is no reason to believe that the students at this

college would think any differently. As mentioned in the introduction, there are many direct

factors that play a significant role in the perception of alcohol use on a college campus.

According to Gold and Nguyen (2009) students in the United States see drinking as a rite of

passage. The CDC also came out with a survey which looked at almost every college in the

United States, and the majority of the students both overestimated their peer use and support for

their behavior (Gold & Nguyen, 2009). Based on this idea and given the importance of the social

norms theory in determining the drinking patterns of students in general, it makes sense why the

majority of the participants both used alcohol in the past 30 days and most accurately estimated

their peer consumption. The students that drink alcohol more often are more inclined to believe

their peers are also drinking just as often. Since it is one of the most commonly used substances

and there is little to no stigma with the use of this substance, it is definitely more widely

accepted.

Nicotine use had very similar results to alcohol consumption. Most participants correctly

assumed the percentage of peers that would consume nicotine. This was also one of the most

accurately predicted substance categories for peer use. The majority did not overestimate the use

of nicotine as predicted. This could be due to the increase of nicotine in the previous years. The

same idea can be applied to nicotine as alcohol consumption, there is little to no stigma with this

substance. As noted in the introduction, there is a current rise with vaping in today's society

Even though many statistics have begun to come out about the dangers of the vape, many college

students still continue to partake in the use of this substance.

The majority of the participants that consumed marijuana was less than half. Marijuana is

believed to be the most overestimated and least used by the participants because it has the

reputation that more males consume this drug than females. Since the majority of the participants

that took this survey were females, this is a potential reason why we got some of the answers that

we did. The perceptions of alcohol use were relatively accurate at the estimation of peer use.

Because of the growing popularity of e-cigarettes and the uncertainty regarding the physical

consequences, many college students are very attracted to them. In this survey, it was also not

specified what form of nicotine their peers had consumed in the past 30 days. So, by that logic,

they may have had a greater idea of what percentage their peers consume nicotine. People who

use drugs that are legal such as alcohol or nicotine, can hold specific prejudices towards those

who use other substances such as marijuana or hard drugs (Drugpolocy.org, 2020). Even those

that use "soft drugs" (marijuana) hold these prejudices towards those who use harder substances.

The final substance category is hard drugs. The participants had the least amount of

consumption in the past 30 days from this category. Almost forty percent of them overestimated

how often their peers had used hard drugs as well as about forty percent correctly estimated how

often their peers used. This indicates that the majority of the participants believe that hard drugs

were present more often than not. There is a greater stigma for hard drug use which could have

impacted how accurately the participants responded to their personal use. The stigma of hard

drugs can be a huge barrier in admitting how often one partakes in an activity. This goes back to

the social norms theory which is how we are comparing ourselves to the people we are

surrounded by at all times whether it is conscious or not.

Group Identity

Contrary to the findings in Rimal and Real (2005) this study did not find a significant

difference in the group identity motivations for the participants. In the present study, we

compared participant's personal substance consumption to their group identity and in this case it

was either athletics or Greek life. The main predictions for the findings in this study were not

supported by the hypotheses. Rimal and Real (2005) adhere to the similar viewpoints as the researchers mentioned above that also looked at the effects of group identity and motivations. Rimal and Real (2005) state the idea that when groups form, individuals aspire to be similar to one another. This can be expressed through an individual's personal behavior. Thus, this correlates between a group member's identification and the referent group member's intentions to engage in a specific behavior such as substance use. In this study, they found that group identity did contradict with the two other variables in their study. This same idea was applied to this current study. It is possible that we did not receive these same results due to the fact that the participants could have taken the survey without their group. If students are not interacting with their peer group, then that may affect their answers in how often they partake in substance use.

It is also possible we did not get the findings we predicted due to the lack of Greek life participants in the sample size. Out of the 51 participants, there were only 5 that indicated their participation with this organization. It is also likely that the participants that were on an athletic team had a strict commitment to their team, therefore did not have the flexibility for socializing. They could potentially not have been as accurate at telling their social lives within those 30 days if they were in the middle of their athletic season.

Friend Influence

The influence of others is known to have great motivations for specific actions. Similar to the group norms idea, the people that one is surrounded by heavily influence one's intentions or actions. This is not necessarily peer pressure but the unconscious brain interacting with surroundings consistently picking up cues from the people in the same environment (Park, 2019). There is an especially strong influence which comes from close friends and family. It is the

phenomenon that when we eat with people who eat a lot of food, we are more inclined to feel the

need to eat more. This same idea was applied to substance use.

Alcohol was the most approved by friends as well as the most used. As mentioned earlier,

this has to do with the stigma that alcohol has in a college setting. It is the most widely consumed

drug so it is understandable that the participants' friends would approve of it more. What was

surprising from the results of this test was the outcome of the hard drug use section. It can be

assumed that that there would be more disapproval from friends in this substance use section.

But only seven out of the 29 participants said they did hard drugs in the past 30 days had friends

that did not approve of this drug use. This indicates that friends do not have that much of an

impact on personal behavior. We could have received more accurate information if we directly

asked the friends of the survey participants. This would have helped us in our analysis to see if

both the direct friends and the participants influence one another's motivations to comply to

substance use.

Implications

Despite some of the limitations presented from this research study, all of the participants

were college students. The results from this study present the harmful effects that social norms

and friends have on the actual and the perceived substance use of college students. The present

findings combined with previous research show the significant relationship between drug

involvement and both the direct and indirect influences that contribute to the substance use of

college students. This research is also a strong indicator to the college itself to be more aware of

their student substance use. Although it is widely known that substance use is common on most

campuses, there is very little information known specifically about the personal consumption of

most college students. Hopefully by learning more information about their habits, it will put the

institution in a better prepared position to care and support students. In the introduction, it was

mentioned how educational programs have not made a large impact on the reduction of

substance use. So by exploring new efforts such as the motivations behind substance use for

emerging adults. This will hopefully give a better understanding on how to inform young adults

about how to properly handle substance use.

Limitations

The results of the survey cannot be generalized to the public due to the small sample size.

Due to the fact Trinity College is a small liberal arts college in northeast America. While the

participants were randomly sampled and not asked their socioeconomic status or their race, it can

be assumed that many of the participants were from a white, upper to middle class upbringing.

We did not get around to comparing gender differences as well as the effects of location

to substance use. We asked the participants in the study to answer specific questions about where

they are more likely to use a specific substance. But we did not test the significance of these

findings. We also planned on testing the effects of gender differences compared to substance use

but we did not do that as well. This study would have been beneficial to explore the results from

these specific fields but the results that were gained were beneficial to this study.

One of the primary limitations in this study was the process of data collection. The

methodology was chosen to be an anonymous survey rather than a focus group or interview. This

was to ensure anonymity to gain the most accurate answers from the participants because they

were sharing very personal information about their own lifestyle and habits. But using an online

survey also comes with drawbacks. There may have been reporting errors from the participants.

Another limitation this survey had were the limited choice options provided in the survey. There

was no way for respondents to be specific or elaborate when choosing an answer. A final

limitation pertains to the methodology of this study which has to do with the overestimation that

participants have at predicting their peer's alcohol, drug use, nicotine, and marijuana

consumption. Testing these specific explanations was beyond the scope of this study.

Furthermore, due to the COVID-19 pandemic in 2020, the stress of this time impacted the

distribution of information between faculty who did not prioritize this survey. We fortunately

were able to receive results from students, however it would have been much more beneficial to

this study to remain on campus and gain a greater sample size.

Future Research

The findings in this study show important lessons for other collegiate institutions

regarding student alcohol, nicotine, marijuana, and hard drug use. Despite the limitations in this

study, it provides important information to the literature pertaining to the social norms analysis

of college students drug use, motivations, and normative perceptions. This especially includes

the actual versus the perceived substance use of peers and the self. It is highly encouraged that

researchers continue to dive deeper into this line of inquiry. Another way this study could be

taken to the next level is to compare different age groups. It would be extremely interesting to

look at the substance use of college student's motivations and another sample size of participants

in ages 40 and above.

This study has the potential for expansion to learn more about this topic. By broadening

the sample size to larger institutions, there may be drastically different perceptions from the

students' substance use. The idea of the social norms theory can be applied to many experiences

and relationships in life. It would be interesting for researchers to explore if college students

overestimate other behaviors such as time on social media per day, eating disorders, athletic

performance, and even time spent studying for a test. We may see that students have different

ideas on how hard they perform; they can be misperceived quite easily which can lead to the

over working one's own behavior. This area of research is extremely interesting and has the

potential to allow us to learn more about motivations, decision making, and one's own behavior

in general. It is inherent that humans compare themselves to other humans in general. But the

question is, does this always affect our own behavior?

Conclusion

It is clear from the research that substance use and abuse are significant issues in modern

society. The interaction between substance use, personal values and behavior, and interpersonal

interaction are complex and multifaceted. They defy simple explanations, judgments, and

conclusions. There are no easy guidelines for individuals, no set of rules, laws, or proscriptions

that can be applied universally or even individually. But we must continue to study and try to

understand these complexities and the effect they have on all of us - college students and the

society we live in.

References

About: D.A.R.E. America. (n.d.). https://dare.org/about/

Arria, A. M., Caldeira, K. M., Allen, H. K., Bugbee, B. A., Vincent, K. B., & O'Grady, K. E.

(2017). Prevalence and incidence of drug use among college students: An 8-year

longitudinal analysis. *The American Journal of Drug and Alcohol Abuse*, *43*(6), 711–718.

https://doi.org/10.1080/00952990.2017.1310219

Arria, A. M., Garnier-Dykstra, L. M., Caldeira, K. M., Vincent, K. B., Winick, E. R., &

O'Grady, K. E. (2013). Drug use patterns and continuous enrollment in college: Results

from a longitudinal study. *Journal of Studies on Alcohol and Drugs*, *74*(1), 71–83.

https://doi.org/10.15288/jsad.2013.74.71

Berkowitz, A. D. (n.d.). *An Overview of the Social Norms Approach*. 29.

Biggar, R. W. Jr., Forsyth, C. J., Chen, J., & Burstein, K. (2017). The poly-drug user:

Examining associations between drugs used by adolescents. *Deviant Behavior*, *38*(10),

1186–1196. https://doi.org/10.1080/01639625.2016.1246022

Blake, K. D., Viswanath, K., Blendon, R. J., & Vallone, D. (2010). The role of reported tobacco-

specific media exposure on adult attitudes towards proposed policies to limit the portrayal

of smoking in movies. *Tobacco Control: An International Journal*, *19*(3), 191–196.

https://doi.org/10.1136/tc.2009.031260

Bustamante, I. V., Carvalho, A. M. P., de Oliveira, E. B., de Oliveira, H. P. Jr., Figueroa, S. D.

S., Vásquez, E. M. M., Cazenave, A., Chaname, E., Matallana, L. S. M., & Castillo, J. R.

(2009). University students' perceived norms of peers and drug use: A multicentric study

in five Latin American countries. *Revista Latino-Americana de Enfermagem*, *17* (Spec

Iss), 838–843. https://doi.org/10.1590/S0104-11692009000700013

Cocaine Use Highest Among College Students. (2016). *RiverMend Health.*

https://www.rivermendhealth.com/resources/cocaine-use-highest-among-college-

students/

Cox, M. J., DiBello, A. M., Meisel, M. K., Ott, M. Q., Kenney, S. R., Clark, M. A., & Barnett,

N. P. (2019). Do misperceptions of peer drinking influence personal drinking behavior?

Results from a complete social network of first-year college students. *Psychology of*

Addictive Behaviors, *33*(3), 297–303. https://doi.org/10.1037/adb0000455

Dieterich, S. E., Stanley, L. R., Swaim, R. C., & Beauvais, F. (2013). Outcome Expectancies,

Descriptive Norms, and Alcohol Use: American Indian and White Adolescents. *The*

Journal of Primary Prevention, *34*(4), 209–219. https://doi.org/10.1007/s10935-013-

0311-6

E-cigarettes: Facts, stats and regulations. (2019). *Truth Initiative*.

https://truthinitiative.org/research-resources/emerging-tobacco-products/e-cigarettes-

facts-stats-and-regulations

Ecker, A. H., Cohen, A. S., & Buckner, J. D. (2017). Overestimation of close friend drinking

problems in the prediction of one's own drinking problems. *Addictive Behaviors*, *64*,

107–110. https://doi.org/10.1016/j.addbeh.2016.08.038

Gold, G. J., & Nguyen, A. T. (2009). Comparing entering freshmen's perceptions of campus

marijuana and alcohol use to reported use. *Journal of Drug Education*, *39*(2), 133–

148. https://doi.org/10.2190/DE.39.2.b

Jones, L. (2019). Vaping: How popular are e-cigarettes? *BBC News*. Retrieved May 7, 2020,

From. https://www.bbc.com/news/business-44295336

Lewis, M. A., Litt, D. M., Blayney, J. A., Lostutter, T. W., Granato, H., Kilmer, J. R., & Lee, C.

M. (2011). They drink how much and where? Normative perceptions by drinking

contexts and their association to college students' alcohol consumption. *Journal of*

Studies on Alcohol and Drugs, *72*(5), 844–853.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3174028/

Ludwig, M. (2019). Goodbye DARE: More schools are embracing realistic drug education.

Truthout. https://truthout.org/articles/goodbye-dare-more-schools-are-embracing-

realistic-drug-education/

Martens, M. P., Page, J. C., Mowry, E. S., Damann, K. M., Taylor, K. K., & Cimini, M. D.

(2006). Differences between actual and perceived student norms: An examination of

alcohol use, drug use, and sexual behavior. *Journal of American College Health*, *54*(5),

295–300. https://doi.org/10.3200/JACH.54.5.295-300

National Study Shows "Gateway" Drugs Lead to Cocaine Use. (n.d.).

http://www.columbia.edu/cu/record/archives/vol20/vol20_iss10/record2010.24.html

Patrick, M. E., Kloska, D. D., Vasilenko, S. A., & Lanza, S. T. (2016). Perceived friends' use as

a risk factor for marijuana use across young adulthood. *Psychology of Addictive*

Behaviors: Journal of the Society of Psychologists in Addictive Behaviors, *30*(8), 904–

914. https://doi.org/10.1037/adb0000215

Park, W. (2019). How your friends change your habits: For better and worse. *BBC Future*.

Retrieved May 7, 2020, from https://www.bbc.com/future/article/20190520-how-your-

friends-change-your-habits---for-better-and-worse

Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A Test of

the theory of normative social behavior. *Communication Research*, *32*(3), 389–414.

https://doi.org/10.1177/0093650205275385

Shepherd, J., Meteyer, K., Bruzios, K., Pol, J., & Charpentier, M. (2016). Normative perceptions

of peer substance use and party-related behaviors. *Insight: River Academic Journal,* 12

(1).

Stigma and the people who use drugs (n.d). *Drugpolicy.org*, Retrieved May 7, 2020, From

https://www.drugpolicy.org/sites/default/files/DPA_Fact_Sheet_Stigma_and_People_Wh

o_Use_Drugs.pdf

The Facts About Marijuana Concentrates. *Just Think Twice*. Retrieved May 8th, 2020, From

https://www.justthinktwice.gov/facts-about-marijuana-concentrates

White, H. R., Labouvie, E. W., & Papadaratsakis, V. (2005). Changes in Substance Use During

the Transition to Adulthood: A Comparison of College Students and Their Noncollege

Age Peers. *Journal of Drug Issues*, *35*(2), 281–306.

https://doi.org/10.1177/002204260503500204

Appendix A

Survey Questions

Demographic Questions

- **What is your class year at Trinity College?**

  o First Year

  o Sophomore

  o Junior

  o Senior

- **What is your gender identity?**

  o Male

  o Female

  o Transgendered

  o Other

  o I wish to not disclose

- **What is your approximate GPA?**

  o 1.0-1.5

  o 1.6-2.0

  o 2.1-2.5

  o 2.6-3.0

  o 3.1-3.5

  o 3.6-4.0

- **Are you a Varsity Athlete at Trinity College?**

  o Yes

o No

o I was at one point but then I dropped

- **Do you participate in any Greek life at Trinity College?**

  o Yes

  o No

  o I was at one point but then I dropped

Questions regarding personal substance use

Please answer these questions as honest as you can in regards to the past 30 days.

- **How often in the past 30 days have you consumed alcohol** (beer, wine, hard liquor)**?**

  o Once a day

  o More than once a day

  o Once a week

  o More than once a week

  o Once in the 30 days

  o Never

- **How many times in the past 30 days have you ingested nicotine** (cigarettes, vaping,

  chewing tobacco, tobacco)**?**

  o Once a day

  o More than once a day

  o Once a week

  o More than once a week

  o Once in the 30 days

  o Never

- **How many times in the past 30 days have you ingested marijuana** (smoking,

  edibles)**?**

  - o Once a day

  - o More than once a day

  - o Once a week

  - o More than once a week

  - o Once in the 30 days

  - o Never

- **How many times in the past year have you smoked or taken any hard drugs** (eg,

  cocaine, ecstasy, prescription drugs (not medically prescribed), methamphetamine, LSD,

  heroin)?

  - o Once a day

  - o More than once a day

  - o Once a week

  - o More than once a week

  - o Once in the 30 days

  - o Never

- **When are you most likely to consume alcohol** (beer, wine, hard liquor)**?**

  - o At a party

  - o With your friends

  - o Alone

  - o All of the above

  - o Never

- o   other

- **When are you most likely ingest nicotine?**

  - o   At a party

  - o   With your friends

  - o   Alone

  - o   All of the above

  - o   Never

  - o   other

- **When are you most likely to ingest marijuana** (smoking, edibles)**?**

  - o   At a party

  - o   With your friends

  - o   Alone

  - o   All of the above

  - o   Never

  - o   other

- **When are you most likely to smoke or take any hard drug** (eg, cocaine, ecstasy,

  prescription drugs (not medically prescribed), methamphetamine, LSD, heroin)?**?**

  - o   At a party

  - o   With your friends

  - o   Alone

  - o   All of the above

  - o   Never

  - o   other

Normative Perceptions– expected use from others result in subjective norms

- **What percentage of students at Trinity do you think have used the hard drugs** (eg,

  cocaine, ecstasy, prescription drugs (not medically prescribed), methamphetamine, LSD,

  heroin) **this past 30 days?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage of students at Trinity do you think have drank alcohol** (beer, wine,

  hard liquor) **in the past 30 days?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage of students at Trinity do you think have smoked nicotine** (chewing,

  smoking, vaping) **in the past 30 days?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage of students at Trinity do you think have ingested marijuana**

  (edible, smoking) **in the past 30 days?**

  - o 0-25%

o   25-50%

o   50-75%

o   75-100%

- **Do you believe that people on campus use more hard drugs** (beer, wine, liquor) **than**

  you?

  o   generally, MORE than you

  o   generally, LESS than you

  o   about the same as you

  o   I do not know

- **Do you believe that people on campus drink more alcohol** (beer, wine, liquor) **than**

  you?

  o   generally, MORE than you

  o   generally, LESS than you

  o   about the same as you

  o   I do not know

- **Do you believe that people on campus use more nicotine** (chewing, smoking, vaping)

  than you?

  o   generally, MORE than you

  o   generally, LESS than you

  o   about the same as you

  o   I do not know

- **Do you think that people on campus use more marijuana than you?**

  o   generally, MORE than you

- o generally, LESS than you

- o about the same as you

- o I do not know

- **What do you think of the amount of drug use on Trinity College campus compared to your use?**

  - o _____

- **What percentage of your close friends use hard drugs?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage your close friends drink alcohol?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage your close friends use nicotine?**

  - o 0-25%

  - o 25-50%

  - o 50-75%

  - o 75-100%

- **What percentage of your close friends ingest marijuana?**

  - o 0-25%

  o 25-50%

  o 50-75%

  o 75-100%

Measuring Norms – Subjective norms – are the perceived opinions of important others

individuals or groups

- **Whether or not you use drugs and regardless of amount, do your friends support your decision about drug use in the past 30 days?**

  o Yes

  o No

  o They do not have a preference

- **Whether or not you use drugs and regardless of amount, do your friends support your decision about alcohol consumption in the past 30 days?**

  o Yes

  o No

  o They do not have a preference

- **Whether or not you use drugs and regardless of amount, do your friends support your decision nicotine consumption in the past 30 days?**

  o Yes

  o No

  o They do not have a preference

- **Whether or not you use drugs and regardless of amount, do your friends support your decision about marijuana consumption in the past 30 days?**

    o Yes

    o No

    o They do not have a preference

- **When it comes to drug use, alcohol consumption, marijuana use, or nicotine use, I want to do what my close friends want me to do?**

    o Strongly Agree

    o Agree

    o Neutral

    o Disagree

    o Strongly Disagree

Appendix B

Dear Participant,

You are invited to take part in a survey, Actual and Perceived Self-Reported Substance Use on a

College Campus, conducted as a part of the Honors Psychology Thesis at Trinity College. The

research is being conducted by Jordan Ragland under the supervision of Professor Randy Lee.

This research has been approved by the Trinity College Institutional Review Board (IRB). The

purpose of this study is to understand students' motivations behind substance use. If you choose

to participate in the study, you will answer a survey with various questions on the given topic.

Your participation will require approximately 20 minutes of your time. Understanding college

students' drug, alcohol, marijuana, and nicotine habits can eventually help colleges

----understand the actual and perceived motives of young adults.

Participants will be a part of a raffle with the chance to win a 20$ Peter B's gift card at the

conclusion of the questionnaire. Once you have completed the survey please email either me or

Professor Lee to have your name be placed in the raffle.

There are no foreseen risks in participating in this study. The information collected in the study

will be used for educational purposes only. Results from this research may be published or

presented at professional meetings, but identities of the individual participants will never be

revealed. Your information will be combined with information from other people taking part in

the study.

Your participation is completely voluntary. If you decide to participate in the study, you may

withdraw your consent and stop participating at any time, without penalty or loss of benefits to

which you are otherwise entitled. You must be at least 18 years of age in order to participate. If

you have any questions or concerns, please feel free to contact: Jordan Ragland at

Jordan.ragland@trincoll.edu or Randy Lee at Randolph.lee@trincoll.edu or an IRB

representative at irb@trincoll.edu.

I acknowledge that I have received and read the consent form explaining Actual and

Perceived Self-Reported Substance Use on a College Campus study. I understand that there are

no known risks to participants in the study, that I am free to withdraw from participation at any

time, and that any questions that I may have about the study will be answered fully by the

principal investigator. By clicking below, you consent to participate in the College Students

Substance Use Survey study.

- I consent, begin the study

- I do not consent, I do not wish to participate