

THE PREVALENCE OF PRESCRIPTION STIMULANT USE IN
A SAMPLE OF NURSING STUDENTS

by

SANDRA AMBROSE ESTES

MARIETTA STANTON, COMMITTEE CHAIR
BECKY ATKINSON
LORI DAVIS
GRAHAM MCDUGALL
DONNA PACKA

A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Educational Leadership, Policy, and Technology Studies
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2017

Copyright Sandra Ambrose Estes 2017
ALL RIGHTS RESERVED

ABSTRACT

Substance use and abuse has been studied for years and has been proven to be a problem among college students and there is a growing number of students who abuse prescription stimulants, despite increased campaigns to educate, raise awareness and prevent this health epidemic. The rate for prescription type drug abuse among nurses is more than twice that of the general population. Additionally, nurses have particular risk factors specific to the occupation. Despite these overwhelming statistics, prevalence studies for nursing students with legitimate prescriptions who use appropriately, or misuse their prescription are very scarce.

A quantitative approach was used to examine use and misuse of prescription stimulant medications among nursing students who were members of a professional nursing organization within Alabama. Investigate predictive risk factors and motives for any illicit use were examined as well. Of the 1,111 members, a response rate of 9.2% was obtained ($n = 102$). Of the 102 respondents, 3 were ineligible, 11 declined participation of did not progress past the informed consent document. There were 88 participants with usable data. This study found 54.5% who reported no use at all. Legitimate use was found to be 14.8%. Illicit use was found to be 30.7% of participants. There was a statistically significance ($p < 0.05$ in grade point averages between the groups that is consistent with prior findings. However, this study did not yield significant findings for age, time in extracurricular activities, or PanHellenic membership. Motivations for illicit prescription stimulant abuse were similar to those in previous studies.

These findings have importance in the field of nursing education and substance abuse prevention. By increasing our knowledge base, faculty can be better equipped to educate their

nursing students on the dangers of self-medication, diverting medications and the harm that eventually comes from this illegal activity.

LIST OF ABBREVIATIONS AND SYMBOLS

<i>a</i>	Cronbach's Alpha
AACN	American Association of Colleges of Nursing
ACHA	American College Health Association's
ADD	Attention Deficit Disorder
ADHD	Attention Deficit and Hyperactivity Disorder
BSN	Baccalaureate Science of Nursing
CDC	Centers for Disease Control
CI	Confidence Interval
GPA	Grade Point Average
IUPS	Illicit Use of Prescription Stimulants
IOM	Institute of Medicine
MTF	Monitoring the Future Study
MU	(Appropriate) Medical Use
MMU	Medical Misuse
NCHA	National College Health Assessment
NIDA	National Institute on Drug Abuse
NSDU	National Survey on Drug Use
NMU	Nonmedical Misuse

NSDUH	National Survey on Drug Use and Health
NU	Nonusers of Prescription Stimulants
OR	Odds Ratio
PBC	Perceived Behavioral Control
PS	Prescription Stimulant
PSMS	Prescription Stimulant Medication Survey
SAMHSA	Substance Abuse and Mental Health Services Administration
SUD	Substance Use Disorder
TPB	Theory of Planned Behavior
χ^2	Chi-square

ACKNOWLEDGMENTS

To my committee members:

Marietta Stanton, thank you for being my best mentor in education and nursing. Although many people brought me to your door, without your steadfast belief, professionalism, and unwavering dedication to your students, I would not be making these acknowledgments today. Thank you for the guidance and motivation you have spoken to me as no one else could have.

I appreciate Dr. Donna Packa for staying with me since the beginning of this process. Your insight and direction regarding what would work were instrumental in the making of a study that was the perfect size for where I am. I also agreed with other faculty that I was so fortunate to have an advantage of a great editor on my committee. Thank you also to Becky Atkinson who kept me focused on the effect of my study on the educational process and offering insight that addressed the gaps that were often overlooked. Graham McDougall has given me such additional education and resources for statistical analysis and data description that I cannot thank you enough. I further want to express gratitude to Dr. Rick Houser, Dr. Doug Mcknight, and Dr. Roy Sherrod for your assistance in helping me to articulate my initial ideas.

My personal committee members included Dr. Lori L. Davis and Dr. Jason Farley. Dr. Davis was my very first mentor, who taught me the love of research. I learned the importance of discovery and dissemination of the findings could be valuable to everyone. Dr. Farley was the first to encourage me to further my education because of his belief in me as an educator and researcher.

To my family, with love and appreciation:

Posthumous recognitions are warranted for Amy Kelly, whom I dedicated my initial degree to because you allowed me to focus on school knowing that my most precious gift from God, our son, was well cared for. I also want to salute Lillie Gilbert who planted the seed of belief that I would be our family's first college graduate and I could really graduate from The University of Alabama. From my first day on campus through this day, your presence is felt in each breeze.

Sharon Hopkins, my mother, a widow of five children less than eight years of age, you taught me to have the strength, stamina, and work ethic to accomplish things against all odds. To all of my sisters and brothers, I bestow my greatest admiration and appreciation for always allowing me to stand on your strong and steady shoulders so that I could see better things were ahead with your support. Martha Ban, the best friend and confidant anyone could ask for to keep hold of their sanity.

To my son, Allen Ambrose, you are the seed from which all my education has bloomed. It is the desire to provide a great example and a better life for you that fueled many long nights of studying and hard fought after accomplishments. Thank you for studying with me and critiquing so many presentations. I have often told you that you were my angel, now I can put it in writing.

Tim Estes, my husband, thank you for keeping our family so healthy and happy during these demanding years. I know I would not be here without you. You demonstrate the true meaning of love, sacrifice, support and selflessness. We are so fortunate to have you.

Finally, I want to thank God, from whom all blessings flow. My stubborn reliance on myself helped me realize I could do nothing without God in my life. Thank you for not giving up on me.

CONTENTS

ABSTRACT.....	ii
LIST OF ABBREVIATIONS AND SYMBOLS	iv
ACKNOWLEDGMENTS	vi
LIST OF TABLES	xii
CHAPTER 1: THE RESEARCH OBJECTIVE	1
Introduction.....	1
Statement of the Problem.....	4
Purpose of the Study	6
Significance of the Study	7
Research Questions	8
Definitions of Terms	9
CHAPTER 2: REVIEW OF LITERATURE.....	12
Prescription Stimulants	12
ADHD Diagnosis and Treatment of Choice	13
Faking ADHD for Prescription Stimulants.....	13
Prescription Stimulant Use and Abuse	15
Medical Use	16
Illicit Use of Prescription Stimulants on College Campuses	16
Prescription Stimulants as a Cognitive Enhancer	18
Cognitive Enhancer Use and Cheating	21

Prescription Stimulant’s Relationship to Substance Use Disorder	22
Prescription Stimulant Abuse among Students in Medical Professions	24
Substance Use Disorder	24
Substance Use Disorder in Nursing	25
Substance Use Disorder in Nursing Schools	26
Nursing School Challenges.....	27
Theoretical Framework.....	28
Denial of Responsibility	30
Denial of Injury.....	30
Denial of a Victim.....	31
The Condemnation of the Condemners	31
The Appeal to Higher Loyalties.....	31
Summary of Review of Literature	32
CHAPTER 3: METHODOLOGY	34
Purpose of the Study	34
Participants.....	35
Procedures.....	36
Instrumentation	37
Survey Development and Testing.....	37
Survey Sampled by Panel Review	39
Recruitment Procedures	41
Sample Size	42
Data Collection	42

Qualtrics	43
Protecting Anonymity	43
Survey Protection.....	43
Question Analysis	44
Categorizing.....	45
CHAPTER 4: RESULTS	49
Research Question 1	51
Research Question 2	52
Research Question 3	54
Research Question 4	55
CHAPTER 5: DISCUSSION AND RECOMMENDATIONS	58
Introduction.....	58
Discussion of Results	58
Relationship to Literature	60
Limitations	63
Implications for Nursing Education.....	66
Recommendations for Future Research	67
Conclusions.....	69
REFERENCES	70
APPENDIX A: IRB APPROVAL LETTER	76
APPENDIX B: SOLICITATION EMAIL AND SOLICITATION REMINDER EMAIL.....	78
APPENDIX C: DATA COLLECTION INSTRUMENT: PRESCRIPTION STIMULANT MEDICATION SURVEY	81
APPENDIX D: IRB APPROVED INFORMED CONSENT DOCUMENT	86

APPENDIX E: REVIEW OF LITERATURE --PREVALENCE FINDINGS90

LIST OF TABLES

Table 1 Statistical Methods for Research Questions48

Table 2 Sample Demographics.....50

Table 3 Extracurricular Activities among Legal and Illegal Groups54

Table 4 Extracurricular Activities among PS Use and No Use Groups55

Table 5 Illicit Prescription Stimulant Use Average Motivations56

Table 6 Illicit Prescription Stimulant Use Frequency Motivations57

CHAPTER 1:
THE RESEARCH OBJECTIVE

Introduction

Despite increased awareness and prevention programs directed at high school and college students, substance abuse continues to be a serious problem that affects many students during their educational years and beyond. Substance use disorder (SUD) cause more deaths and disabilities than any other preventable illness (National Institute of Drug Abuse [NIDA], 2012). When one considers the financial burdens associated with substance use disorder, including increased healthcare costs, lost productivity, and the high costs of drug enforcement to stop the flow of illegal substance, the results are staggering. Healthcare professionals are not immune to this disorder despite having received additional education on this subject. Although the rate of substance use disorder among nurses is similar to that of the general population (Baldwin, Scott, Agrawal, Bartek, Davis-Hall, Reardon, & DeSimone, 2006), the rate of prescription drug abuse is more than double for nurses compared to the general population. Prescription drug abuse is defined as using a substance without a legitimate prescription, using a prescription for a reason other than prescribed, or using a prescription more often or at higher doses than prescribed (Substance Abuse and Mental Health Services Administration [SAMHSA], 2009). Prescription Type Abuse (PTA) is often precedent to substance use disorder. The American Nurses Association (ANA) reports that 1 out of 10 nurses is currently dependent on a substance of abuse (Davis, Powers, Vuk, & Kennedy, 2014). Nurses who develop a substance use disorder and seek treatment for their disease, often report that their abuse began while in nursing school

(National Council of State Boards of Nursing [NCSBN, 2011]). Despite these overwhelming statistics, prevalence studies for nursing students with legitimate prescriptions who use or misuse their prescriptions while in school are nil.

Substance Abuse and Mental Health Services Administration (SAMHSA, 2009) reported that the illicit use of prescription stimulants was more than twice as high in full-time college students to adults within the same age group who were not attending college. In recent years, researchers have focused on this important public health concern. The prevalence of illicit use of prescription stimulants was found to range from 0-25% in the colleges surveyed (McCabe, Knight, Teter, & Wechsler, 2005). The predominant motive for stimulant use cited throughout the literature is the enhancement of cognitive performance to improve academic achievement, despite evidence to the contrary in the literature. Researchers continue to encourage educators to provide information regarding the risks of and the lack of benefits of stimulant use to incoming freshman during orientation. Highlighting consequences associated with illicit use of prescription stimulants has also been recommended. Regardless of the population, research indicates that successful outcomes are more likely earlier in the addiction process (National Institute on Drug Abuse [NIDA], 2012). Identifying substance use disorder in younger populations is essential so that early interventions can be made.

As mentioned, rate of prescription drug use among nurses is higher than the general population, coupled with nurses reporting that their abuse of substances began as nursing students, one can see the importance of investigating this aggregate. While the majority of risks associated with the illicit use of prescription stimulants tend to identify students who do not share the same characteristics as nursing students, there are some characteristics that may apply to this population. In particular, schools of nursing typically require very high grade point

averages (GPA) in order to qualify for the nursing program. Therefore, undergraduate nursing students must keep their GPA high enough to be a viable applicant for the seats available.

Rabiner (2013) has indicated that when students are faced with challenging competition for limited spots within a school, some students resort to illicitly using stimulants and taking other risks that they would not have otherwise considered. McCabe et al. (2005) agree that when students are faced with selective admission standards, an increasingly higher GPA requirement, and increasingly difficult programs of study, a departure from what a student would normally do is not out of the question.

Nurses share some of the same risk factors for substance use disorder as the general population, but they also have certain risk factors specific to their occupation that make them more susceptible. It is incumbent upon the profession and nurse educators to identify these risks and to educate students on the importance of addressing this public health problem with understanding and compassion so that early identification is possible and the chances of recovery are more likely.

A review of this literature provided information on the importance of identifying prevalence, motives, and risk factors in order to address and develop prevention strategies for students who illicitly use prescription stimulants. Prevalence rates for prescription stimulant use were examined among college students, as well as the effect these stimulants have on learning. The important relationship of stimulant use and drug dependence was examined. Finally prescription use, particularly among students in the medical profession and nursing, was explored.

This review can be used to demonstrate the significance and need for an initial evaluation of the use of prescription stimulants, and motives for use of prescription stimulants among

nursing students. Regardless if the use of prescription stimulants identified is appropriate or illicit, students who have legitimate prescriptions have an increased risk of abusing that substance. Coupled with nurses' high risk of prescription type abuse, this is reason enough to study the prevalence. A correlation was examined to determine whether a relationship exists between prescription stimulants use, nonuse, and misuse. Student motives may offer insight into program development for preventive models.

Of note, for the purposes of this paper, Attention Deficit Disorder (ADD) and Attention Deficit/Hyperactivity Disorder (ADHD) were viewed as the same type of disorder and ADHD was the term used because this is most often referred to in peer reviewed literature.

Statement of the Problem

The research into early risk indicators of substance use disorder among impaired nurses is plentiful, yet the population consists of nurses who are typically in the middle and late stages of addiction (NCSBN, 2011) Furthermore, some researchers hypothesize the number of impaired nurses who do seek treatment could be grossly underestimated and under reported because medical professionals are more capable of covering up their illness, have access to prescriptions and prescription wastes, and many times have colleagues that help to conceal their illness (McNiel, Muzzin, Dewald, McCann, Schneiderman, Scofield, & Campbell, 2011). Most of the studies examining risk factors within nursing stem from retrospective studies where nurses identify their history and motives after they seek treatment (Darbo, & Malliarakis, 2012; Griffith, 1999). It is within this research that nurses indicate the substance abuse began while they were nursing students. No large studies were found that examined early risk factors for substance use disorder among nursing students. Research within the population of nursing students' use and misuse of different types of drugs remains deficient, especially in the US.

Substance use and abuse has long been proven to be a problem among college students and there are a growing number of students who abuse prescription stimulants. Many students believe if they are provided a prescription by a healthcare provider, then they are innocent of wrongdoing (McCabe et al., 2005). They do not understand that feigning symptoms in an effort to get that prescription is illegal. Although it is widely reported that prescription stimulants are often used as academic enhancers, the literature does not support the efficacy of this (Stein, 2012; Swanson, Wigal, & Volkow, 2011). Additionally, prescription stimulants misuse more often is found to be a symptom of a larger problem of alcoholism or substance abuse or dependence and/or other mental health problems with these students (Underhill & Langdon, 2013). Although researchers have strongly demonstrated high rates of prescription stimulants use among college students, there have been no such studies to determine the prevalence among students enrolled in schools of nursing. Prevalence rates for prescription stimulants use differ in college students among geographical location, educational facility, and age (McCabe et al., 2005). Some have also found a link associated with Greek societies and affiliations (Dussault & Weyandt, 2013).

It is unknown if students use prescription stimulants while enrolled in nursing school. If the nursing students use prescription stimulants, it is unknown if the purpose of that use is for appropriate treatment of an illness such as ADHD, an academic advantage, for recreational use, or another reason. Of those students that misuse their prescription stimulants medication, the motives were consistently academic (Gallucci, 2011). Risk factors for illicit use of prescription stimulants include a lower GPA, abuse of other substances, membership to a fraternity or sorority, and recreational use (Gallucci, 2011).

Although the prevalence of prescription stimulant use among nursing students is not precisely known, the evidence that it is present represents a significant concern for the probability of future compromised patient care, consequences to the individual, and possibly a significant loss to the nursing profession. If early indicators of substance use disorder with nursing students could be established, faculty could rapidly identify and refer students into intervention programs. Considering the alarming finding of the NCSBN that the rate of prescription-type abuse by nurses was 6.9 % compared to 3.2 % of the general population, nursing students must be assessed for their prescription history and habits, at the very least.

Purpose of the Study

Primarily the purpose of this study was to examine students who are enrolled in nursing schools that are using or misusing prescription stimulants. This sample of students was limited to students who were members of a professional organization for nursing students within the state of Alabama. If students were using prescription stimulants, what were the rates of use and misuse and what did the students report as their primary motivations? In a quantitative approach using an online self-report survey, a cross-sectional examination surveyed the use of prescription stimulants in nursing students.

For this purpose, versions of other prevalence scales were considered in the creation of a new survey. The questions were developed to incorporate literature findings associated with prescription stimulants use and abuse and primary motivations. Variables such as demographics, gender, ethnicity, GPA, age, class, and type of degree were assessed to determine any relationship to the use of prescription and non-prescription stimulants. Because time management may be a risk factor in the use of prescription stimulants, the number of work hours, PanHellenic commitment hours, and study hours was assessed. If a positive association with

PanHellenic status was found, a regression analysis was used to determine if the number of hours spent in those activities increases the risk of misuse. This assessment included the time period and reason for the first prescribed prescription stimulants.

One purpose of this study was to determine the particular motivation for prescription stimulants use. Within the literature, misuse has been associated with various reasons. Some of these include improved alertness or focus for studying or taking examinations, staying awake to study for exams, reducing anxiety, making up for lost class time (because of absenteeism or ill related effects), and simple recreational use. This study allowed students to rate their reasons and select from a list of reasons found in previous studies as supported in the literature.

Significance of the Study

The epidemic of illicit use of prescription stimulants is particularly alarming given the negative impact on health and increased financial burden associated with use. The field of illicit use of prescription stimulants lacks existing instruments that would identify students who are at risk. Because the prevalence studies have such wide variations, patterns have not begun to emerge so that risk factors can be more clearly identified. There is a lack of longitudinal studies that would help identify these relationships because the majority of illicit use of prescription stimulants literature consists of cross-sectional studies. The findings from this research will provide a look into a small group of nursing students so that future research could expand to include a larger sample size with increased diversity. The findings may also make a contribution to the science of nursing education regarding substance abuse. This study will also be helpful to identify prescription use because of this population's future risks for prescription type abuse. The findings will provide prevalence rates that may contribute to future studies. Statistically significant findings will go a long way to support early intervention and early education for the

prevention of prescription stimulant misuse and vulnerabilities to prescription type abuse among nurses and nursing students. This would add to evidence-based practice for nurse educators to use in recognizing symptoms of the disease early so that interventions can be timely. Although many students see prescription stimulants as safer than illicit street drugs (DeSantis, Webb, & Noar, 2008), they may not recognize how this use can eventually lead to greater problems.

This study is also timely because of the current belief by students that use of prescription stimulants is a beneficial tool as an academic enhancer, despite evidence to the contrary, in peer reviewed journals. If illicit use of prescription stimulants proves to be low or nonexistent in this population of students, future research could examine why a difference exists in nursing school students versus the rest of the college population. If illicit use of prescription stimulants with nursing students is congruent with rates among college students, nurse educators and administrators would have an obligation to develop strong preventative and treatment program options. This prevalence study would support the direction for future research by determining if there is a problem, the reasons for the problem, and what solutions might be helpful to adopt as strategies to decrease the rates of illicit use of prescription stimulants and abuse.

Research questions are introduced below and explained in greater detail in Chapter 3.

Research Questions

Research Question 1: What is the prevalence of prescription stimulants use and illicit use of prescription stimulants for nursing students who are members of a professional organization in a southeastern US state?

Research Question 2: What is the relationship between key demographic variables with stimulant use?

Research Question 3: What is the relationship between hours spent in extracurricular activities and prescription stimulants use in this nursing student population?

Research Question 4: If stimulants are taken illicitly by nursing students, what do they report motivates them to engage in this behavior?

Definitions of Terms

Aggregate--The sum, total, composite of a particular population.

Attitude--An individuals' positive or negative evaluation of performing a particular behavior.

Binge Drinking--A pattern of drinking alcohol that brings blood alcohol concentration (BAC) to 0.08 gram percent or above. This pattern corresponds to consuming five or more drinks (male), or four or more drinks (female) in about 2 hours (Wechsler & Nelson)

Cognitive Performance Enhancement--refers to the perceived amplification of capacities of intelligence.

Diversion--refers to one's unlawful channeling, possession, selling, or giving away of prescription stimulants from a legal source to someone without a prescription.

Health Care Provider--for the purposes of this study, this term will be used to describe any provider of health care that has a Drug Enforcement Agency license number and the ability to prescribe medications. Health Care Provider and Medical Professional will be used interchangeably in this study.

Illicit drugs--Illegal substances that do not serve a medical purpose and are taken for recreational or other reasons. Illicit drugs include marijuana, cocaine, ecstasy, LSD, etc. (SAMHSA, 2012)

Medical Users--For the purposes of this study, a Medical Prescription Stimulants User (MPSU) refers to an individual who uses a stimulant medication that has been prescribed to them as it is prescribed and does not ever take for purposes other than what it is prescribed for or in larger quantities than is prescribed.

Misuse--For the purposes of this study, Medical Misuse (MMU) refers to an individual who misuses a stimulant medication that has been prescribed to them either for purposes other than what it is prescribed for or in larger quantities than is prescribed. Nonmedical Misuse refers to an individual who misuses a stimulant medication that has not been prescribed to them. Misuse may be referred to as nonmedical misuse, nonmedical use, recreational use, stimulant misuse, prescription stimulants misuse or prescription stimulants abuse.

Nonusers--For the purposes of this study, Nonusers refers to individuals who do not use Prescription Stimulants at all, neither medically (prescribed) or nonmedically (diversional)

Perceived Behavioral Control--an individual's perceived difficulty in performing a particular behavior (Ajzen, 1991).

Prescription Opioids--Medications encompassing the analgesic and opiate classifications prescribed to relieve pain at varying levels (NIDA, 2012).

Prescription Stimulants--The terms Prescription Stimulant, Psychostimulants, and stimulant medication are used interchangeably in this study. It refers to those medications that increase normal brain function, resulting in an elevated state of alertness, attention, and energy and requires a valid prescription from a licensed healthcare provider (NIDA, 2012).

Self-treatment--Prescription drug abuse motivated by the desire to alleviate symptoms consistent with the prescription drug's pharmaceutical main indication and which does not involve co-ingestion with alcohol or other drugs or non-therapeutic routes of administration.

Substance Abuse--A pattern of maladaptive substance use that is associated with recurrent and significant adverse consequences (NIDA, 2012).

Substance Dependence--A compulsive pattern of substance use characterized by a loss of control over substance use and continued use despite the significant substance-related problems (NIDA, 2012).

Survey--refers to the selection of a large sample of individuals from a pre-determined population. Questionnaire, Survey and Instrument are used interchangeably in this study.

CHAPTER 2: REVIEW OF LITERATURE

A review of literature was conducted searching a variety of databases and a selection of keywords. Databases that were searched included Education Resources Information Center (ERIC), Access Medicine, Cumulative Index to Nursing and Allied Health Literature (CINAHL), ProQuest Nursing & Allied Health Source, and PubMed. The following keywords were searched in a variety of combinations: nursing education, undergraduate nursing, amphetamine use and/or prescription stimulants abuse, substance use and/or abuse, stimulants. Articles were also obtained from the reference list in the articles under review as well as suggested links to similar articles during the searches. Many articles were reviewed when categories began to emerge. This review of literature will synthesize findings by categorizing and summarizing any key discoveries and conclusions that materialized.

Prescription Stimulants

Regulation, production, and distribution of medications is regulated by the Controlled Substances Act of 1970 (Mooney, 2013). The Drug Enforcement Administration categorizes drugs into five schedules. Prescription Stimulants are rated as a Schedule II, which signifies the high potential for abuse and the likelihood of physical dependence if the drug is abused (Mooney, 2013). Legitimate indications for prescription stimulants include treatment of ADHD, obesity, and narcolepsy.

ADHD Diagnosis and Treatment of Choice

The treatment of choice for ADHD is prescription stimulants (McCabe et al., 2005). Prescription stimulants have proven to be highly effective and safe for the majority of accurately diagnosed ADHD patients. Unfortunately, these prescriptions can be provided by any licensed practitioner who has prescription authority to write Schedule II medications. Prescriptions are not limited to psychiatrists who are specially trained in diagnosing mental health illnesses such as ADHD. There is also a lack of consensus on standards or tests used to diagnose this disorder and the interpretation of neuropsychological test results (Frazier, Frazier, Busch, Kerwood, & Demaree, 2008).

Faking ADHD for Prescription Stimulants

Because there is no clear algorithm for screening, diagnosis, and clinical treatment of ADHD, prescriptions are often distributed inconsistently and, at times, without adequate reason or cause. Again, as prescription stimulants can be prescribed by most medical providers with prescription privileges, the practice is not limited to those who have specialized training in diagnosing mental health disorders or the ability to administer and interpret cognitive functioning tests. The literature supports the use of cognitive functioning tests to eliminate patients who fake symptoms in order to obtain stimulant prescriptions.

Multiple studies indicate malingering is very likely if the adult students' diagnosis of ADHD is based primarily on a self-reported symptom or behavior checklists, which students can easily fabricate. A short review of symptom criteria prior to a visit with the health care provider can ensure students know what criteria to endorse upon examination (Harrison, Edwards & Parker, 2007; Quinn, 2003; Sansone & Sansone 2011). Harrison et al. (2007) report that when ADHD is diagnosed in childhood, rarely is malingering or faking an issue. However, a

requirement for a new adolescent or adult ADHD diagnosis is that the patient must have met the criteria for ADHD in childhood. Verification of this is often problematic for the clinician, because the teachers and other supporting witnesses from childhood are often unavailable or unable to provide an accurate recollection of the information needed (Harrison et al., 2007). Students fail to recognize that the act of faking symptoms to obtain a prescription is just as illegal as taking the medication without a prescription (Mooney, 2013).

Stein (2012) found that students frequently falsify symptoms of ADHD to obtain prescription stimulants. In his review, he points out that physicians estimate half of middle and high school students consider the use of prescription stimulants to be cheating. He warns that this increased motivation for the runaway use of prescription stimulants may stem from parental pressure and students' own expectations for success

Sansone and Sansone (2011) warn that a diagnosis of ADHD can provide students with academic benefits such as access to prescription stimulants and select accommodations. Prescription stimulants can be used or misused by the student, shared with friends, or sold for financial gain. Accommodations can include various subsidies: additional time allowances on tests and assignments, access to professors' or another students' notes, reduced homework assignments, and audio recordings of books and lectures, among other things. Students may be tempted to fake symptoms in order to obtain a diagnosis of ADHD for these secondary gains alone (Sansone & Sansone, 2011).

Many researchers have investigated methods of assessment and testing in an effort to differentiate adult students who are faking symptoms from those who truly have the disorder (Harrison et al., 2007; Quinn, 2003; Sansone & Sansone 2011). It is recommended that future research on the detection of malingering be a priority to replicate validity of neuropsychological

testing such as continuous performance testing and symptom validity tests so that criteria can be established and standards created, for the purpose of developing universal practice and consensus (Suhr, Hammers, Dobbins-Buckland, Zimak, & Hughes, 2008). Currently neuropsychological testing is used as an adjunct to the diagnostic process only. Quinn (2003) suggests that continuous performance testing be included so that malingerers can be identified and fraudulent claims minimized. He explains that when children are assessed, the provider obtains information from multiple sources for evaluation in distinct settings and malingering is not an issue with this population. With the heavy influx of adolescents and adults presenting as new evaluation cases for ADHD, collaborating data should be required from them as well. Sollman, Ranseen and Berry (2010) agree that continuous performance testing and symptom validity tests are useful in detecting feigned ADHD, but caution that “it is better to miss some who are feigning than to mislabel true clinical cases as feigning” (p. 333). Harrison et al. (2007) indicate that as long as the current detection errors continue to rate as high as 25%, it would be unethical to classify any student as malingerers until this number improves. The authors warn that as long as students profit from substantial gains when a diagnosis of ADHD is given, over-diagnosis will continue to be a legitimate concern.

Prescription Stimulant Use and Abuse

In recent years, many studies have been conducted to analyze characteristics of students who use stimulants appropriately (medical prescription stimulants users); those whose use is illicit (illicit use of prescription stimulants); and students who do not use stimulants at all (nonusers {NU}). The illicit use of prescription stimulants can include people who use prescription stimulants without a prescription (Nonmedical prescription stimulant user) or those who have a prescription and misuse it (Medical misusers).

Medical Use

The number of adolescents and adults being treated with prescription stimulants for ADHD has sustained an escalation in rates since 1990 (Kroutil, Van Brunt, Herman-Stahl, Heller, Bray, & Penne, 2005). These authors reviewed data from the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Survey on Drug Use and Health (HSDUH). Obesity and narcolepsy are also treated by appropriate use of prescription stimulants, although these disorders are not as easily feigned.

When used appropriately, prescription stimulants are found to be extremely beneficial to students with legitimate ADHD (Frazier et al., 2008). This is especially true when the student was diagnosed in childhood. These students face serious complications if their illness remains untreated, as untreated ADHD can be a risk factor for future substance use disorder because of the likelihood the students will try to self-medicate their untreated symptoms. When ADHD is treated, prescription stimulants are the treatment of choice.

Illicit Use of Prescription Stimulants on College Campuses

As noted earlier, the illicit use of prescription stimulants can include people who use prescription stimulants without a prescription (Nonmedical prescription stimulant user) or those who have a prescription and misuse it (Medical misusers). The potential for serious medical and mental problems exist with illicit use of prescription stimulants (Frazier et al., 2008). Kroutil, et al. (2006) found past year illicit use of prescription stimulants to be more prevalent among persons aged 25 and younger, and particularly among youth aged 12-17. The majority of illicit use of prescription stimulants was from nonmedical prescription stimulant use. Illicit users, whether medical or not, rarely limit their misuse to one drug, as there is a significant number of students who self-report misusing multiple substances (Jardin, Looby, & Earleywine, 2011).

Therefore, it is not surprising these users report more severe side effects and also score higher on sensation seeking when compared to NU and medical prescription stimulant users (Jardin et al., 2011). Rozenbroek and Rothstein (2011) and McCabe et al. (2005) found that this group frequently reports taking combinations of drugs, often done in social settings that involved sharing and combining drugs with friends. McCabe et al. (2005) analyzed a national study of 10,904 students in four-year universities and found common characteristics for nonmedical prescription stimulant use to include lower GPAs, as well as a membership to fraternities or sororities. The likelihood of lower GPA findings was validated by Dussault and Weyandt (2013) when they examined nonmedical prescription stimulant use among sorority and fraternity college populations. Other single university studies examined nonmedical prescription stimulant use to be related to recreational use, and also to positively correlate with illicit drug use as well (Sharp & Rosen, 2007; Sepulveda, Thomas, McCabe, Cranford, Boyd, & Teter 2011). Specifically, 40% of nonmedical prescription stimulant use endorsed the use of at least one other drug.

Four-year trends of nonmedical prescription stimulant use were examined between 2004 and 2009 for motives, sources, risk factors, and other items (Garnier-Dykstra, Caldeira, Vincent, O'Grady, & Arria, 2012). Relevantly, fraternity and sorority involvement did not demonstrate a positive correlation with these researchers. However, lower GPA and alcohol and/or cannabis use disorders did correlate with nonmedical prescription stimulant use, as found in other studies (Garnier-Dykstra et al., 2012). Notably, trends indicated that the motive for nonmedical prescription stimulant use in earlier college years was curiosity, while assistance in studying as a motive was often prevalent in later years. The authors point out that nonmedical prescription stimulant use, to stay awake to study for exams or to complete assignments, has not been shown to improve academic success. Crucially, by the fourth year, 61.8% of college students had been

offered nonmedical prescription stimulants at least once, and 31% had used them at least once in their lifetime. Furthermore, the most common source of nonmedical prescription stimulant use was a friend with a prescription (Garnier-Dykstra et al., 2012). Colleges and universities have an obligation to address this epidemic with strategies of prevention, recognition, and treatment programs.

Earlier, many of these same investigators conducted a study that examined persistent nonmedical prescription stimulant use related to untreated ADHD symptoms (Arria, Garnier-Dykstra, Caldeira, Vincent, O'Grady, & Wish, 2010). The authors concede this population commonly has a lower GPA, a history of illicit drug involvement, and a likelihood of absenteeism in class, all of which can lead to academic struggles. Although a positive correlation was found between nonmedical prescription stimulant use and inattention symptoms of ADHD, the authors do appreciate the possibility that these symptoms could be the result of illicit drug use. However, they deem the symptoms are most likely from a multifarious composite of conditions (Arria et al., 2010).

Rabiner (2013) researched illicit use of prescription stimulants and malingering and found the rates of prescription stimulants use to be highest at schools that had more competitive admission criteria. He found nonmedical prescription stimulant users had consistently lower GPAs and were more likely to abuse alcohol and other drugs. He cautions that once prescription stimulants are used, students will find they actually develop symptoms that mimic ADHD because of the way they react to prescription stimulants (Rabiner, 2013).

Prescription Stimulants as a Cognitive Enhancer

Many researchers are viewing the illicit use of prescription stimulants for an academic advantage as cheating (Dodge, Williams, Marzell, & Turrisi, 2012). Once a student is found to

be misusing prescription stimulants, these researchers charge the academic community to address the consequences and treat as the illegal act that it is. Also, consider the student who fails out of the program after choosing not to use prescription stimulants as a means of keeping up with the long clinical hours or other rigorous demands of school. Dodge and colleagues (2012) question if the character and merit of a student not using prescription stimulants would demonstrate more stability, maturity, responsibility, and a healthier mental status than the classmate who endorsed illicit use of prescription stimulants to meet the demands of a competitive program.

Arria, Wilcox, Caldeira, Vincent, Garnier-Dykstra, and O'Grady (2013) challenged the use of the so-called "smart drugs" and found that substance use problems are predictors for absenteeism in classes and declines in academic performance. Once academic performance drops, then students were likely to abuse prescription stimulants as a result. Despite evidence that substance use tends to increase during adolescence and peak by age 18, college students remain at risk for illicit drug use (Arria et al., 2013). The findings clearly demonstrated that as alcohol and cannabis use problems escalated, students experienced increased rates of absenteeism in class and decreases in GPA. When students endure this chain of events, they have a higher likelihood of using nonmedical prescription stimulants for study purposes. Even infrequent nonmedical prescription stimulants were associated with a chain of underlying events. They found that students who engage in nonmedical prescription stimulants for study purposes are not necessarily preoccupied with achieving scholastically, but appear to be struggling academically. Often this has been found to be related to alcohol abuse and other drug involvement. It is suggested that future studies include aspects with criteria such as sleep and study hours as well as class attendance, for associated factors of nonmedical prescription stimulant use. This research clearly suggests that the pathways to nonmedical prescription stimulant use is often preceded by

use and abuse of other substances, and rarely are prescription stimulants the first drug a student will abuse (Arria et al., 2013).

Advokat and Scheithauer (2013) found that prescription stimulants may or may not enhance cognition, but they do not improve attention or produce better academic outcomes in ADHD diagnosed students. These authors indicate that because the use is not primarily recreational, but is instead used as a cognitive enhancer (CE), it is wrongly considered less problematic. Fourteen million prescriptions for ADHD were written for Americans ages 20-39 in 2011; this represented an increase of about 2.5 times that written 4 years prior. When looking at the effects of prescription stimulants use, these researchers report prescription stimulants did reduce impulsivity, as well as decrease anxiety and frustration, which allowed ADHD patients to select the correct answer, but it did not improve cognition among control or ADHD groups. In other words, prescription stimulants helped them perform better, but not learn more or recall information more effectively.

Elliott and Elliott (2011) indicate a resounding no, prescription stimulants are not smart pills. They report that enhancements are hard to demonstrate in the literature and research and may not be any better than caffeine or energy drinks, which are legal substances. They hypothesize that prescription stimulants are more likely to affect an individual's perception of increased ability, rather than any objective improvement of function.

In Smith and Farah's (2011) literature review, the authors point out the ambiguities and mixed opinions within the literature. When enhancement was narrowly found, impairment was reported as well. In fact, they more often found cases where students performed worse on prescription stimulants than when taking a placebo. Further, they warn that it is very likely those type studies are considered null results and they often are not even published. Therefore,

mountains of evidence may exist that prescription stimulants do nothing, and may even result in harm to students' cognitive ability (Smith & Farah, 2011).

Cognitive Enhancer Use and Cheating

Dodge et al. (2012) surveyed and compared college students' perception of whether drug use is considered cheating by using a scenario of an athlete who used anabolic steroids versus a college student who misused Adderall to help succeed on exams. The researchers found that more students felt the athlete was cheating. This feeling was felt strongest by those who had previously misused prescription stimulants themselves, and there was a correlation that grew as the rate of illicit use of prescription stimulants became more frequent.

Sparks and Duncan (2012) poses that the use of prescription stimulants is the ethical equivalent of athletes taking steroids to get an unfair competitive advantage--particularly since wealthier parents may be better able to pay for the drugs and the medical evaluations to prescribe them. She suggests that it may be a social-justice issue and asks why it is that someone with money can hire a personal tutor to do better on a standardized test, but taking a drug to improve cognitive performance for five hours just before the test is wrong? Her research found some prescription stimulants improved working and spatial memory but not improvement in overall learning. Surprisingly, this study points out that with those participants, the parents' top concerns for their children were getting good grades and getting into college. The parents had little regard to the behavior being illegal as they saw the prescription as legitimate because it was obtained from a healthcare provider. Their concern over using prescription stimulants drugs to be more alert or study harder barely made the list. There is little evidence so far that drugs actually improve permanent intelligence. Even if prescription stimulants use fails to be proven effective as an academic enhancer, researchers have failed to find whether students are using prescription

stimulants to provide the increased energy needed to keep up with rigorous demands of long clinical hours and other academic demands.

Arria and DuPont (2010) suggest that schools begin treating prescription stimulants abuse as it is, illicit drug use. They report that most often policies are outlined within the student handbook on diversion and nonmedical use of prescribed medications. They point out that the action is illegal and that conduct should not be tolerated. They believe once this epidemic is treated as improper assistance through the honor code, more students will recognize it for what it truly is.

Varga (2012) agrees and challenges educators and administrators to protect the academic integrity of the institution and take actions to protect the student. He points out that when students are caught cheating, they suffer consequences of academic dishonor and many times are expelled, not admitted to other institutions, and have their grades are repudiate. He also points out that by not addressing those who are abusing prescription stimulants, we may consequently be denying admission to a non-user who declined the illegal assistance and found admission criteria to be too daunting (Varga, 2012).

Prescription Stimulant's Relationship to Substance Use Disorder

Evidence in the literature supports the assertion that when used appropriately, prescription stimulants do not cause substance use disorder. But when ADHD is left untreated, the likelihood increases for substance use disorder. The risks for a later development of substance use disorder for patients who have been appropriately using stimulants medication for the treatment of ADHD reveal very low rates of substance use disorder (Heal, Smith, Gosden, & Nutt, 2013). In fact, substance use disorder is more likely for ADHD patients who go untreated because of the likelihood of self-medicating their symptoms (Heal et al., 2013). Furthermore,

Wilens, Faraone, Biederman, and Gunawarden (2003) found stimulant therapy in childhood to be associated with a decline in risk for substance use disorder. When reviewing a national survey on drug patterns for 443,041 respondents from 2002-2009, researchers found that illicit use of prescription stimulants was a later development with individuals that had a history of drug abuse (Sweeney, Sembower, Ertischek, Shiffman, & Schnoll (2013). They also found prescription stimulants were not commonly the first drug that people decided to abuse. Many had already experimented with one or multiple drugs prior to using prescription stimulants.

Swanson et al. (2011) agree somewhat and report in their findings that although the risk for addiction is unclear, historical experiences suggest nonmedical prescription stimulant use is a small but significant percentage. They summarize that the supply of stimulants have been increasing for decades and suggest a 30% diversion rate for nonmedical use. The authors found that illicit use of prescription stimulants will escalate to abuse and cause dependence on the prescription stimulants, but if used medically for the treatment of ADHD, the transition to abuse and dependence is negligible. These researchers also found in literature reviews that with ADHD patient's attention was improved. The less symptomatic the patient was, the less effect they received from prescription stimulants. The more severe manifestations of ADHD symptoms, the more helpful prescription stimulants were. In both ADHD and non-ADHD, prescription stimulants increased motivation and attention as well as offered subjective salience. For adults, the medical prescription stimulant misuse did not promote learning or academic achievement. Benefits on specific tasks may appear to be small because individuals did not have beneficial effects on all tasks, and the greatest cognitive enhancement may occur in individuals with the greatest severity of behaviors that underlie symptoms of ADHD (Swanson et al., 2011).

Prescription Stimulant Abuse among Students in Medical Professions

Herman, Shtayermman, Aksnes, Anzalone, Cormerais, and Liodice (2011) looked at prescription stimulants use among college students enrolled in different types of healthcare programs. The researchers found an increasing trend of drug use from first- to second- to third-year of the healthcare program. They found many students to be coping with stress in a maladaptive fashion. They were able to demonstrate that, in at least some instances, prescription stimulants were used to improve academic achievement, and alcohol or drug de-stressors were the drug of choice during free time. This was found to be particularly alarming because of the additional and specialized pharmacological training received by this population involving the risk of substance abuse. Incredibly, they found 10.4% of those surveyed had either used or were currently using prescription stimulants illegally, with the most common intention being to increase focus and concentration during studying.

Substance Use Disorder

Although many individuals may believe substance use disorder is found only in blighted areas, The National Council of State Boards of Nursing (NCSBN, 2011) found a nurse with substance use disorder is more often both high-functioning and high-achieving. They define Substance Use Disorder as a disease that encompasses a range of problems that begins with abuse, progresses to dependency, and finally transposes to addiction. An individual may be physically dependent on a chemical and not yet be addicted to it. Addiction occurs when the individual's brain chemistry has changed to the point where they use the substance compulsively despite negative consequences (NCSBN, 2011). When an individual is in active addiction, they will use the substance in a feeble attempt to feel "normal," as their tolerance has often increased so much that they no longer get the high feeling they had when they initially began use, and they

no longer feel normal without using the substance (NCSBN, 2011). Addiction and substance use disorder is considered a disease by the American Medical Association (AMA) and is treatable with positive outcomes (NCSBN, 2011). Addiction develops over many years with adults; however, the younger the person is when they begin abusing, the more rapidly the addiction develops (Baldwin et al., 2009). Literature also suggests that the earlier treatment has begun in the progression of the disease, the better the chances of sobriety are (Darbo & Malliarakis, 2012; Keena & Lewis, 2008). The negative consequences of substance use disorder affect the person who abuses drugs, their family and friends, and society (NCSBN, 2011). Society shoulders the burden of costs associated with increased health care, lost productivity, premature deaths, crime, and automobile accidents, not to mention the emotional burden. Of course, the larger impact on society occurs when one's healthcare provider poses a threat to their patient's safety because of their substance use disorder while functioning in the professional capacity (Davis et al., 2014).

Substance Use Disorder in Nursing

Nurses are faced with particular risk factors that cause them to be at an increased risk for substance use disorder (NCSBN, 2011). The top risk factors for nurses include access, attitude, stress, lack of education, role strain, and enabling peers (Bettinardi-Angres, Pickett, & Patrick, 2012). Access can include working in an environment where addictive substances are frequently distributed, but also includes having access to healthcare providers without professional workups. Attitudes that may increase the odds of substance use disorder include development of too much faith in pharmaceuticals as an acceptable means of coping with problems, rationalizing substance use because they feel needed on the job, or feeling invulnerable to illnesses; feeling that it is acceptable to self-diagnose and self-treat physical pain or stress (Bettinardi-Angres et al., 2012). Baldwin et al., also found high risks associated with substance use disorder in nursing

to include coping behaviors or avoidance of withdrawal and self-medicating. Unfortunately, once the abuse begins for a nurse, there is a rapid progression to addiction because of these increased risk factors (NCSBN, 2011). Many nurses are unaware of the help, support, and non-disciplinary advocacy that is available. Nursing schools should focus on including this information in their curriculum (NCSBN, 2011). Staff members should also be reminded of their obligation to report suspected substance use disorder or suspected drug diversion from a coworker (New, 2014). Unfortunately, healthcare providers have been denied the same non-punitive approach offered to lay people until more recent years. The stigma associated with substance use disorder in general, but especially with healthcare providers, can be a deterrent for individuals to seek help even when they recognize they need it. However, Bettinardi-Angres and Angres (2011) point out that when appropriately treated and monitored, a nurse's addiction can remain in remission and nurses also demonstrate a greater chance of long-term sobriety. The majority of information about risk factors and the nurse's history of substance use disorder is obtained once the nurse enters treatment for addiction. Clark (1999) found that the majority of nurses who receive treatment for problems associated with substance use disorder were addicted as students, and many were in the top third of their class.

Substance Use Disorder in Nursing Schools

Within the literature review, most prevalent studies were completed among schools, colleges, or universities. There were a few studies on substance or alcohol abuse that focused on nursing, but very few that focused on nursing students' use. This researcher found statewide or national studies to be nonexistent in the nursing student population. However, the one study that was found specific to this population found 3.9% of nursing students had cared for patients under the influence! They also found that about half of the BSN students felt their substance abuse

education was inadequate (Baldwin, Bartek, Scott, Davis-Hall, & DeSimone, 2009). Hensel, Middleton, and Engs (2013) found drinking patterns to be associated with lower grades because of absenteeism in class or coming to class after consuming alcohol. Harling and Turner (2011) looked at nursing students' attitudes toward illicit drugs and found a need existed to develop education to teach the students, because of their negative attitude towards substance use disorder. Cleary, Horsfall, Baines, and Happell (2012) clearly recommended steps toward referral and early intervention, because of the increased rates of mental health issues that included substance use disorder among nursing students. They suggest the importance of ascertaining what nurse academics actually believe and do when faced with students having mental health issues. Many of these researchers suggest additional research in this area would help to develop recommendations to guide nursing programs in education, prevention, and treatment strategies.

Nursing School Challenges

Students competing for placement in nursing schools with a limited number of admissions face unprecedented competition. Recent data indicate over half of undergraduate applicants for schools of nursing are turned away because of a lack of seats available as well as a shortage of nursing faculty to teach courses in those programs (American Association of Colleges of Nursing [AACN], 2014). Once accepted, the student will encounter a change in the way their learning is assessed. It is no longer sufficient to memorize and repeat information, but students must now access and apply that information to different situations. Nursing students must have the ability to store and readily recall knowledge that is constantly being built on. Once recalled, they must synthesize that information to demonstrate an ability to critically process that knowledge. Due to the limited admissions to schools of nursing and the difficulty completing the program, one can easily see how students would be tempted to gain every advantage possible

when trying to succeed. Some schools report an acceptance rate of less than 50% and point out that the competition has driven the Grade Point Average (GPA) higher and higher. Those with the highest GPA are accepted while the others are turned away even though they are qualified to be admitted.

The Institute of Medicine (IOM) has called for funding to assist more nurses to become nurse educators so that nursing schools can offer placement for all qualified applicants who apply. Increased funding would go a long way to decrease the number of qualified applicants turned away due to lack of positions or lack of qualified educators to train them (IOM, 2013). However, until the time comes when any qualifying student can begin a nursing program, schools of nursing need to determine if the entrance criteria of unusually high grade point averages (GPA) are the best assessment of placement opportunities. Additionally, once admitted, students find programs difficult to complete. This could be due to the massive amount of new material that must be learned, changes in testing procedures that assess for critical thinking skills, or the rigorous demands of clinical placement settings and responsibilities within them. Schools of nursing must address if the population is best served when competition creates such high demands on students.

Theoretical Framework

Combating substance use disorder for the general population has included many approaches that primarily involve prevention models for the promotion of education as a means to decrease the rates of and prevent the development of substance use disorder. The federal government invests billions of dollars to study risks and protective factors to combat this disorder within many different aggregates (SAMSHA, 2015). Research has found nurses to have risk factors unique to their career field. The prevention model of recognizing and addressing

protective factors has done little to help decrease the rate of substance use disorder (NCSBN, 2011). Even when a nurse possesses a legitimate prescription, if that medication is taken for a reason other than it was prescribed, or in greater quantities than is prescribed, the nurse is guilty of prescription type abuse. Prescription type abuse is illegal and will often lead to substance use disorder. The National Council of State Boards of Nursing found the rate of abuse with prescription-type drugs to be 6.9% among nurses when compared to 3.2% with their counterparts in the National Household Survey on Drug Abuse (as cited in Darbo & Malliarakis, 2012). Considering this astonishing statistic, one can easily see that another approach may be up for consideration. For the purposes of theory consideration, this theory will make the assumption that students who engage in illicit use of prescription stimulants are doing so with the idea that it will lead to their success, although this is unlikely and is yet to be proven in the literature.

Sykes and Matza's (1957) Techniques of Neutralization Theory builds on prior theoretical frameworks of differential association and delinquent subculture theory. It utilizes five thought processes individuals will use in order to justify their decision to participate in illegal behavior. These five techniques include a denial of responsibility, denial of injury, denial of a victim, the condemnation of the condemners, and the appeal to higher loyalties (Priest & McGrath, 1970). This theory originally addressed juvenile delinquents and social deviants, but more recently has been applied to individuals that engage in illegal behavior but who are found otherwise considered high-performing and law-abiding citizens. Examples of these individuals include competitive and professional athletes who use performance-enhancing drugs, attorneys who represent known criminals, and medical professionals who self-medicate (Sefiha, 2012). These individuals have the respect of society because of the discipline and hard work required to accomplish positions reserved for the highest of achievers. The theory applies the five techniques

to demonstrate how individuals will allow themselves to commit acts of delinquency by detaching from their bond of conventional values.

Denial of Responsibility

Sometimes individuals have circumstances in their life that puts them at a disadvantage among their peers. Within the nursing student population, one could easily find that some students have the additional burden of providing for families while attending school and some students do not have those obligations; some students have to pay for their education and expenses while others may have a family member that finances their expenses. It is easy to see how a student may believe the circumstances are unfair because they feel they are disadvantaged in some way while other students have it much easier. Stimulant use may hold an answer which makes them believe they are leveling the playing field. Because they feel this would make things fair, the illicit use of prescription stimulants would be okay because they are using for the right reasons. They often say, "If everyone else is doing this, why should I be held to a higher moral standard."

Denial of Injury

In this case, an individual is influenced by others around them who fail to take responsibility for their actions. Therefore, it is easier to justify their deviant acts. Using this technique, students will often rationalize that, although participating in an illegal act, they ascribe to the belief that those actions cause no harm. When students are not held accountable for buying, selling, or sharing prescription medication, a contradictory message reaffirms the idea that some things are acceptable even if they are illegal.

Denial of a Victim

When an individual makes a choice to do something that is illegal many factors are considered. For this third technique, if the student feels there is no victim because no one is hurt by those actions, they are better able to justify their behavior to themselves. A student who misuses their own prescription often has difficulty understanding how this action affects other individuals. It is not until they witness prescription stimulants causing a serious adverse reaction or death that a victim is obvious.

The Condemnation of the Condemners

This technique attempts to neutralize the deviant acts by putting the focus on those in power or authority and pointing out their shortcomings. For these individuals they assume they are unable to be successful through legal means and believe that society should not be allowed to place judgment on them for finding an alternative, although illegal, means to succeed. By attacking others, they are able to repress their own wrongdoing by changing the focus to what they perceive as injustices. For nursing students, many could blame the nursing schools for not having a big enough school with enough resources to serve all of the qualified applicants. Because so many qualified applicants are turned away, the student is able to change the focus to the limitations and inadequacies of the school, and the system in general, instead of honestly critiquing their own conduct. This decreases the legitimacy of law-abiding students.

The Appeal to Higher Loyalties

For this final technique, one must choose between adhering to the norms of society in addition to a school's code of conduct, and trying to accomplish things that will support the needs of their family. When students are faced with family expectations and needs for them to succeed, they may feel this is more important than following the letter of the law. Some students

will feel their families have made an incredible investment and sacrifices in their education and therefore they are willing to deviate from their otherwise lawful behavior in order to obtain an advantage that they believe will help them succeed. Again, illicit use of prescription stimulants have not been proven to be beneficial to students, but if a student believes it will help them succeed, they may change their behavior because of this belief.

These five techniques of neutralization were easily applied to the nursing student population. Most of the knowledge regarding substance use disorder comes from retrospective studies among nurses because there is so little research with nursing students. However, one could just as easily apply these five techniques to nurses. Recalling that once these students graduate, they will enter a career that puts additional risk factors into play, one can see why this needs to be addressed early in their training. This researcher believes by implementing this theory with this population, one might be able to provide better education to improve prevention models for nurses and nursing students.

Summary of Review of Literature

A review of literature finds an increase in substance use disorder prevalence rates over the many years that it has been studied. This plentiful area of investigation yields important findings for risk and protective factors. The important work in the development and implementation of educational programs based on prevention models have failed to slow the pervasiveness of this national epidemic. Healthcare providers, particularly nurses, have a number of risk factors unique to their profession that increases their vulnerability. Therefore, it is important that research begins to look at the time period, as students prepare for a career in nursing, to determine prevalence rates of prescription use and identification of illegal substance use.

The cause of substance use disorder is not related to a lack of education, and providing education about substance use disorder does little to prevent one from becoming addicted to substances. Sykes and Matza's (1957) *Techniques of Neutralization* will offer a chance to understand how an individual's position could move from being a top-of-class honors student to a professional nurse with substance use disorder. Despite the education received regarding risk and protective factors, these intelligent individuals succumb to this preventable mental health illness at astoundingly high rates.

CHAPTER 3: METHODOLOGY

The review of literature indicates many studies use a quantitative design employing self-report survey methodology and have found this to be useful and reliable information. The self-report boasts a higher degree of honesty when asking participants about illegal substance use due to the anonymous nature and perceived confidentiality. The quantitative data collection is useful to obtain a numeric description of trends and attitudes. Experimental research with quantitative designs helps isolate user status and predictors that have been hypothesized.

This study used descriptive, cross-sectional design that involved members of a state nursing student organization in Alabama. In a quantitative approach using an online self-report survey, a cross-sectional examination surveyed students to determine descriptive and inferential statistics. Descriptive statistics provided information about characteristics of the particular groups. Inferential processes were utilized to make probabilistic arguments once findings were generalized from particular categories. The objective was to make meaningful inferences about the findings as the information was provided by the participants. Collection of basic demographic data included type of education program, level in the program, age, gender, and race.

Purpose of the Study

The primary purpose of this study was threefold: (a) to identify the use and misuse of prescription stimulants; (b) to investigate predictive risk factors, including gender, grade point average (GPA), and hours spent in extracurricular activities; and (c) to determine motives for

illicit use of prescription stimulants among nursing students who currently were members of a professional organization in a state in the southeastern United States.

Although many researchers have investigated the prevalence of drug use, prescription stimulants use, and illicit use of prescription stimulants, in particular, the undergraduate nursing student population has rarely been studied despite increased risks for substance use disorder that nurses face throughout their career. The previous studies among the college population indicate a major motive for illicit use of prescription stimulants is to improve academic achievement or compensate for failing GPAs (DeSantis & Hane). Considering that prenursing students must maintain incredibly high GPAs, it is reasonable to assume their rates for misuse would be lower than that of other undergraduate students. Intentions were to reveal if the rates and motives for illicit use of prescription stimulants among nursing students were congruent with earlier studies among undergraduate populations. There is little cause to suspect that prescription stimulant use was different to that found in other populations.

Participants

The research participants consisted of a convenience sample of members who were students that have joined the Alabama Association of Nursing Students (AANS). The Alabama Association of Nursing Students constitutes a part of the greater National Student Nursing Association (NSNA). Currently, there are 1,119 members of AANS who attend Alabama schools.

To obtain membership to the NSNA, one can apply at any level of their educational endeavor. Some become members while taking prerequisite courses for nursing school even without having been accepted into a nursing program. Undergraduate nursing student memberships include Associate, Diploma, Baccalaureate, and RN to BSN completion programs.

Graduate nursing students consist of those enrolled in generic Masters and generic Doctoral programs. Only members who are equal to or greater than 18 years of age were allowed to participate, although AANS may have some members who were younger than 18.

There are approximately 60,000 nursing students, nationwide in the NSNA. These students have advantages to many programs, services, product discounts, and leadership opportunities, offered by NSNA. Many members join to meet fellow students who also aspire to enter into the nursing profession. They also receive benefits of professional collaboration at meetings, study guides, job-seeking skill programs, workshops, and attendance to specialty nursing panel presentations. The NSNA also maintains alliance with several organizations that offer discounted products to nursing students such as study tools, health and liability insurance, school and nursing supplies, as well as hotel and office supply discounts. This professional organization prepares students for the important role of membership within professional organizations once they complete their education. They offer awards and recognition as well as leadership opportunities that can help build and strengthen resumes for the student nurse. Finally, NSNA partners with many nursing organizations that enable them to transition into active and vital roles in the nursing profession following graduation.

Procedures

Initial good faith effort was sought from the State Consultant with AANS who agreed to allow members of this organization to be solicited for participation in this study. Conditional permission was provided as long as this organization would be allowed to review the final questionnaire and Institutional Review Board (IRB) approval was obtained. The following items were submitted to the IRB when seeking approval for the study: IRB approval (Appendix A), Email invitation and email follow-up solicitation (Appendix B), Qualtrics survey with the

submission for approval (Appendix C), Qualtrics security information and Informed Consent (Appendix D). Once IRB approval was obtained, verification was provided to the AANS State Consultant, as requested.

Instrumentation

Survey Development and Testing

An instrument, Prescription Stimulant Medication Survey (PSMS) was created that incorporated questions that had been previously established as reliable and valid by several national surveys, such as the National Survey on Drug Use and Health (NSDUH), Monitoring the Future (MTF) Panel Study, American College Health Association's (ACHA) National College Health Assessment (NCHA), Harvard's College Alcohol Study, and National Survey on Drug Use (NSDU).

The PSMS was developed based on previous prevalence research studies in similar populations. The questionnaire utilized evidence-based practice for the symptomatology associated with identifying ADHD symptoms and rates of abuse. The panel of questions used was based on similar research from the literature review as well as some demographic information that was necessary to answer the research questions posed.

This survey was developed to answer the main research questions. In particular, the tool helped to determine if gender, GPA, or PanHellenic status played a factor in the use or misuse of prescription stimulants. Variables such as demographics, age, gender, race, year of education, employment, and GPA were included in the survey instrument. Because time management can influence prescription stimulants use, number of work hours, PanHellenic commitment hours, and study hours were assessed. Assessment also included the age and reason for the first prescribed prescription stimulant occasion. The survey was developed in a manner which

allowed a regression analysis to be performed if a positive association with PanHellenic status was identified.

An additional purpose of this study was to determine particular motivations for illicit prescription stimulants use. Only participants that fell into the category of illicit use of prescription stimulants were questioned about their motivations. The survey allowed them to rate their reasons for taking the prescription stimulants in a way it was not prescribed. The options allowed were framed by the previous literature findings of the most common motivations for illicit use of prescription stimulants. The option of gaining a competitive edge for school admission was included because of the relevance of the limited number of available seats. Participants rated their reasons on a Likert-type scale ranging from Never (1) to Always (5).

Motivations include to study longer; to increase concentration; to improve interest in academic material; to increase retention of academic knowledge base; to make up for missed classes or being hung over during class; to increase academic advantage against the competition; to reduce restlessness during classes; and to increase energy following long hours working, studying, or hanging out with friends. This survey allowed students to choose from a list of these reasons for use and rate each motive.

Participants were not asked to provide their source for obtaining the prescription stimulants; however, all participants, regardless of their category, were asked their opinion regarding the availability of prescription stimulants on campus. This inquiry allowed participants to select from five options: easily available, somewhat available, somewhat unavailable, completely unavailable, and I'm not sure.

Once the questions were narrowed down, a table was developed outlining the question and the rationale for using that particular question, in the way it was asked, and the answer

options that were allowed. This table was then reviewed by the dissertation committee members and feedback was requested. Valuable information and insight was provided to help streamline questions and eliminate any redundancies. The survey was then adjusted to reflect these suggestions. The survey was then developed using tools created and marketed by Qualtrics. An initial panel review was necessary to ensure the accuracy of security settings and the ability to capture data for the purpose of this inquiry. Qualtrics settings were constructed to obtain demographics and ratings for self-reports and survey type data as well as to ensure confidentiality. The convenience of skip-logic was utilized to lessen the burden of a lengthy survey. Following final edits, invitations to participate in the panel review were sent out by email to 30 colleagues.

Survey Sampled by Panel Review

Once the instrument was finalized and critiqued with information technology specialists for security and accuracy, a panel of colleagues was recruited to sample the survey. This sample review was necessary to determine the amount of time it would take to complete the survey and to ensure all data could be captured correctly with the questions that were posed and with the skip logic that functioned properly. Thirty colleagues who specialize in nurse education, mental health, or substance abuse were recruited to sample the survey and offer feedback. Of those 30 colleagues, 4 were asked to complete the survey based on a fictitious history provided to them by the researcher to ensure this information could be captured adequately with minimum burden to the participant. All other colleagues were instructed to answer the questions as if they were actual participants in the survey. The four scenarios used for fictitious histories included the following: one who had never used PS; one who had only used PS as it was prescribed for ADHD, had never misused, and used the PS only as it was prescribed; one scenario included

someone who was prescribed PS but occasionally took more than was prescribed to them; and the final scenario included someone who was not prescribed PS, but used the PS to help them study longer and help them be more competitive. These particular scenarios ensured that research questions for this study included all possible outcomes examined for this investigation. It also ensured both a minimum and maximum number of questions would be taken by at least one person in the sample panel.

Because of the skip logic use in the survey, the average time to take the survey varied based on the answers a participant provides. As the surveys were completed, the time to complete was obtained. Each colleague only took the survey one time so an accurate estimation of time could be obtained that would be similar to participants seeing the survey for the first time. Completion times were captured so that a minimum, maximum, and average time commitment could be ascertained. The panel review allowed additional scrutiny for the wording of particular questions to be examined, ambiguities or mistakes to be explored, and the average burden of time commitment to be ascertained. This panel review indicated no additional edits were necessary. Following the closure of the panel review survey, security settings and data collection were examined. Confirmation was provided by information technologists that security was set up so that participants' anonymity was ensured. Statistical analyses were conducted with expert faculty and researchers who substantiated the data collected would allow the research questions to be scrutinized and explored extensively. Based on this feedback, the final version of this survey was submitted to the IRB for approval to send out to the individuals selected for recruitment. The final survey instrument that was approved by the IRB can be found in Appendix C.

The AANS consultant was provided an update on changes that had taken place since the original good faith agreement regarding survey development, panel survey completion times, and progress of the investigation.

Recruitment Procedures

The AANS consultant selected to provide the email solicitation through the distribution list held by their organization. It was felt that by not providing a distribution list to the researcher, an additional wall of security and anonymity would be afforded. This process allowed the secondary reminder emails to go to all individuals, not just those who had not yet taken the survey. The solicitation email directed willing participants via a link contained within the mail to an informed consent and an online Qualtrics survey that contained the survey questions. Participants were informed of the purpose of the study and the voluntary nature of the study participation within the email. Contact information for any emotional support that might be needed was provided in the email, for the unlikely circumstance that a student had concerns or needed debriefing. This was considered unlikely because of the nature of the survey. Because of the minimal risks associated with the survey questions, this study was allowed to be submitted under expedited review. Institutional Review Board approval was obtained and the letter of approval can be found under Appendix A.

Research participants were able to complete the survey at their convenience over a total period of three weeks' time. Following the initial solicitation, a reminder email was sent because the minimum sample size had not yet been obtained. The reminder email indicated the date in which the survey was set to close (one additional week). The email solicitation and reminder email was approved by the IRB and can be found under Appendix B.

Confidentiality was maintained as this researcher had no knowledge of which members participated in the survey and did not inquire personally with the participants. The data were collected utilizing the online survey system, Qualtrics. Anonymity was ensured as no identifying information, including IP addresses, were collected during the survey process while utilizing Qualtrics. Results obtained, such as demographic data were viewed only by the researcher and the dissertation committee members. Data from the study were stored in a secure database accessible only by the researcher. Once the survey ended, data collection was stopped by closing the Qualtrics survey from further data collection.

Sample Size

A power analysis was calculated based on using a logistic regression analysis. A power of 0.95 was found to yield a minimum sample size of 82.

Data Collection

Students who participated in the study did so voluntarily. A copy of the informed consent document was printable from the link supplied. The informed consent document included the purpose of the study, contact information of this researcher and chair of this dissertation committee, confidentiality and data storage procedures, potential risks and who to contact in cases of emotional distress, the right to decline participation, stop participation, contact information for The University of Alabama Research Compliance Officer, and IRB Outreach Website.

Completion of the survey provided informed consent to participate. Data collection was originally opened for a period of two weeks. When it was determined the response rate was insufficient to meet sample size criteria, this researcher sent an additional email and left the survey open for another week.

Data collection procedures, analysis, and interpretation plans were completed by this author independently.

Qualtrics

The following information was obtained from Qualtrics Security White Paper and Qualtrics website to address several features of security (Qualtrics, 2015). These statements offer direct quotes from these sources. Qualtrics is an Application Service Provider with a Software-as-a Service (SaaS) platform for creating and distributing online surveys and related research services. The platform records response data, performs analysis, and reports on the data. Surveys are usually taken online within a web browser, but SMS surveys are also available. All Qualtrics products enable customers (researchers) to control individual permissions of their accounts and surveys. There is also an option to prevent surveys from being sent without an approval from a user. All Qualtrics accounts are password protected and all data are replicated in real-time. Passwords are specially protected to make them unknown to any Qualtrics employee. Customers own and control all data entered in or collected by Qualtrics Services. Automated Vulnerability scans are performed regularly with a commercial security provider (Qualtrics, 2015).

Protecting anonymity. (Researchers can) anonymize responses that will allow all responses from participants to be anonymous (Qualtrics, 2015). When using distribution lists for emailing, a researcher can have the option to set up the survey to automatically send a reminder to those who have not replied by including a link to that user's unique survey session (each person emailed would have a unique identification code. Otherwise, the researcher may choose to send a reminder email out to the entire distribution list again (Qualtrics, 2015).

Survey protection. (Researchers can) restrict access to only those who have received the individual link in an email invitation, a single, general password can be set (Qualtrics, 2015).

Respondents must enter the password to access the survey. Survey protection also allows the researcher to specify a date and time for the respondent to start and stop accessing the survey. To prevent respondents from taking the survey more than once, the researcher can select an option that places a *cookie* on their browser when they submit. The next time they click on the survey link, Qualtrics sees this cookie and does not permit them to take the survey. The researcher can further use an *End of Survey Element* which will cause automatic termination of the survey. This could be used when a respondent does not qualify to participate (Qualtrics, 2015).

In this study, the *End of Survey Element* was placed to terminate any participant who was less than 18 years old.

Question Analysis

Research questions are listed below with an explanation of the statistical method that was used to analyze the findings.

Research Question 1: What is the prevalence of prescription stimulants use and illicit use of prescription stimulants for nursing students who are members of a professional organization in a southeastern US state?

To determine the prevalence of prescription stimulants use and illicit use of prescription stimulants, students were first placed into the appropriate category of amphetamine usage. Responses from inquiries of prescription stimulants use (Question # 13) and misuse (Question # 16) were used to categorize the respondents. These categories were listed as nonuse; those who had *never* used prescription stimulants; medical use of prescription stimulants; those who used prescription stimulants as prescribed and who had indicated they *never* misused the prescription stimulants for a different reason or in greater quantities than was prescribed; and finally illicit use of prescription stimulants; those who use prescription stimulants without a prescription or

those who had a prescription and indicated they had misused the prescription at some point in time.

Categorizing

Stimulant use was categorized by students' responses to how and if they used. Time frames included lifetime and use in the previous 30 days. If they reported prescription stimulants use or illicit use of prescription stimulants it was ascertained if this was from a prescription and was it taken according to the instructions.

Nonusers were categorized by participants' denial of any use of stimulants. Participants were asked if they had a current prescription for stimulant medication. If they indicated they did, a follow-up question was asked to determine if illicit use of prescription stimulants occurred during the 30 days prior to participation or ever in their lifetime. Medical users were categorized if participants indicated they were prescribed stimulants and took the prescription as it is directed and do not use stimulants for any reason other than for which it was prescribed. If they had not ever abused prescription stimulants or used prescription stimulants illicitly, these participants were categorized as appropriate medical users.

Affirmative response for any illicit use of prescription stimulants placed the student in that category. These participants were further categorized if needed into medical illicit use of prescription stimulants (also called medical misuser) or nonmedical illicit use of prescription stimulants. Medical illicit use of prescription stimulants are categorized by participants that are prescribed stimulants but who may take the prescription in a different manner than they have been directed such as using the stimulant for a different reason or different amounts than prescribed (i.e., studying, to stay awake, to lose weight, etc.). Nonmedical illicit use of

prescription stimulants were participants who admitted to using prescription stimulants but they were not prescribed the medication.

Once students were categorized, prevalence rates were determined. A percentage was derived by dividing the number of students in each category by the total number of eligible respondents.

Research Question 2: What is the relationship between key demographic variables with stimulant use?

To determine if a relationship exists between age and GPA when compared to the use, a one way repeated measures ANOVA was performed. This allows a comparison of mean scores on a continuous variable with the three groups. If groups were found to have significant differences, post-hoc comparisons were assessed to find out if the differences were statistically significant. A one-way between-groups analysis of covariance (ANCOVA) was conducted to statistically control for possible effects of the other variable. This helped to find if the groups were different on a variable that may influence the effect the independent variable has on the dependent variable. By removing the effect of the covariate, one is able to determine if the independent variable is causing the influence (Pallant, 2016). Logistic regression calculates the odds of one particular outcome occurring rather than other possible outcomes. Also, since the dependent variable contains two categories (ever abused versus never abused) binary logistic regression may help to further clarify this data.

Responses for age and GPA were recorded in exact numerical form so they could be analyzed on a continuous spectrum. For the assessment of age (Question # 1), if the response given was less than 18 years old, the subject was eliminated as they were ineligible to participate. For GPA data (Question #10), respondents recorded their last known overall GPA for their

nursing degree by sliding a bar between 0 and 4.33. Respondents were instructed to only submit their most recent GPA if that was the only semester they had taken.

Research Question 3: What is the relationship between hours spent in extracurricular activities and prescription stimulants use in this nursing student population?

Average hours per week spent in PanHellenic activities (Question # 7) or for employment obligations (Question # 8) were assimilated. This analysis was attained by utilizing the direct multinomial logistical regression model. This discriminant type of analysis is designed to allow a determination of characteristics associated with particular group membership (Burns & Grove, 2007). This will help illuminate if an increase in the number of hours one spends in extracurricular activities causes an increase in the likelihood or prediction of a group for prescription stimulants use or misuse.

Research Question 4: If stimulants are taken illicitly by nursing students, what do they report motivates them to engage in this behavior?

Descriptive Analysis can be used to examine characteristics of a single group. Considering the respondents who were answering this question were only the illicit use of prescription stimulants group, a descriptive analysis can provide a picture of characteristics as it naturally happens. Because this researcher sought only to learn more about the characteristics of this group and offers no hypothesis, a descriptive analysis was the most appropriate tool. Causality can later be examined once a clearer picture of the phenomenon is obtained.

If respondents indicated they had currently, or ever, illicitly used prescription stimulants, they were asked to rate the motivations for the misuse (Question # 17). They were offered eight options, which have been framed by motivations found in previous literature findings. Respondents could then rate their own motivations for misuse on a five-point Likert-type scale.

Although there were five options, there were three descriptors. The first column was labeled as “Weak.” The middle column was labeled as “Moderate.” The last column was labeled as “Very Strong.” The second and fifth columns were not labeled.

Table 1

Statistical Methods for Research Questions

Research Question	Analysis Method
<i>Research Question 1:</i> What is the prevalence of prescription stimulants use and illicit use of prescription stimulants for nursing students who are members of a professional organization in a southeastern US state?	Categorize data, and then obtain percentage from total number of respondents.
<i>Research Question 2:</i> What is the relationship between key demographic variables (i.e., Age and GPA) with stimulant use?	ANOVA, MANCOVA
<i>Research Question 3:</i> What is the relationship between hours spent in extracurricular activities and prescription stimulants use in this nursing student population?	Logistical Regression
<i>Research Question 4:</i> If stimulants are taken illicitly by nursing students, what do they report motivates them to engage in this behavior?	Descriptive Statistics

CHAPTER 4:

RESULTS

The purpose of this study was to determine if students who were members of a professional nursing student organization in Alabama were using or misusing prescription stimulants. Risk factors and motivations were examined for anyone who reported misuse. This chapter will present information captured within the survey completed by those responding to an email solicitation. Demographic data of the participants, data significance, and statistical analysis of the data will be explored and reported.

Respondents completed the Prescription Stimulant Survey through a Qualtrics survey. Results were downloaded and entered into the Statistical Package for Social Sciences (SPSS) software analyses program. Respondents were categorized within SPSS according to their reported use of prescription stimulants. This allowed a calculation of mean scores and standard deviations for each group. An analysis of Variance (ANOVA) was utilized to determine relationships between age and grade point average (GPA), and stimulant medication use. Direct, binary logistic regression was then performed to assess the impact of hours spent in extracurricular activities and stimulant medication use. Logistic regression allowed for an additional comparison of extracurricular activity hours when data were re-categorized into “use” and “no use” to determine if this could yield significant findings. Finally, respondents were allowed to select from a list of most frequently reported motivations found in previous studies, then rate motivations for illicit use based on their own experiences. The descriptive analysis of

motivations for illicit use allowed for a summary of frequencies and means for the selected motivations.

Table 2

Sample Demographics

	Category	Total (N)	No use	Medical Use	Illicit Use
Total Participants	Total Valid	88	48 (54.5%)	13 (14.8%)	27 (30.7%)
	Total Missing	11			
	Ineligible	3			
Total Response		102			
Sex					
	Male (17%)	15	3 (20.0%)	4 (26.7%)	8 (53.3%)
	Female (83%)	73	45 (61.6%)	9 (12.3%)	19 (26%)
Mean Age					
	Minimum		20	19	18
	Maximum		51	35	52
	Total (25.9773)	88	26.3125 (n=48)	27 (n=13)	24.8889 (n=27)
Ethnicity					
	Caucasian (62.5%)	55	27 (49.1%)	10 (18.2%)	18 (32.7%)
	African-American (23.9%)	21	14 (66.7%)	2(9.5%)	5 (23.8%)
	Asian/Pacific Islander (11.4%)	10	6 (60.0%)	1(10.0%)	3 (30%)
	Other (2.3%)	2	1 (50.0%)	0	1 (50.0%)
Year in School					
	Freshman (5.7%)	5	3 (60.0%)	0	2 (40.0%)
	Sophomore (48.9%)	43	21 (48.8%)	10 (23.3%)	12 (27.9%)
	Junior (23.9%)	21	11 (52.4%)	2 (9.5%)	8 (38.1%)
	Senior (16%)	14	10 (71.4%)	0	4 (28.6%)
	Post-Baccalaureate (5.7%)	5	3 (60.0%)	1 (20.0%)	1 (20.0%)
Type of Degree					
	Associates (52.3%)	46	24 (52.2%)	10 (21.7%)	12 (26.1%)
	Diploma (5.7%)	5	2 (40.0%)	0	3 (60.0%)
	Baccalaureate (37.5%)	33	20 (60.6%)	2 (6.1%)	11(33.3%)
	Masters (2.3%)	2	1 (50.0%)	0	1 (50.0%)
	Doctoral (2.3%)	2	1 (50.0%)	1 (50.0%)	0
PanHellenic Status					
	No (83%)	73	49 (67.0%)	9 (12.0%)	15 (20.5%)
	Yes (17%)	15	2 (13.3%)	1 (6.7%)	12 (80.0%)

Research Question 1

What is the prevalence of prescription stimulants use and illicit use of prescription stimulants for nursing students who are members of a professional organization in a southeastern US state? There were a total of 88 participants. Of those, 48 (54.5%) had never taken prescription stimulants in their lifetime, a total of 13 (14.8%) who were prescribed stimulant medication for treatment of a medical or psychiatric illness; and a total of 27 (27.3%) who reported illicit use of prescription medication.

A total of 102 respondents were received from the email solicitation. Three respondents were eliminated for failure to meet the minimum age criteria of at least 18 years old. Eleven of the 99 declined participation after reviewing the informed consent document. The remaining 88 participants were placed into three categories, based on the response to THE survey questions described in Chapter 3. The mean age of each group is described in Table 1.

In summary, of the 99 respondents who participated, 83% were female, 17% were male. The mean age of respondents was 25.97 with a standard deviation of 7.85 years. The ethnicity of respondents was Caucasian at 62.5 %; African-American at 23.9%; Asian/Pacific Islander at 11.4%, and Other was listed at 0.2%. Respondents who took part who were seeking a variety of different types of degrees in nursing. There were 52.3% (n = 46) seeking an Associate's degree in nursing. Diploma-seeking nurses were found to be 5.7% (n = 5) of the respondents. There were 37.5% (n = 33) of respondents seeking a Baccalaureate degree in nursing. Finally, students seeking a Masters and Doctoral degree in nursing were at 2.3% (n = 2) each. The majority of students who responded were in their sophomore year 48.9% (n = 43). There were 5.7% (n = 5) Freshman, 23.9% (n = 21) Juniors, and 16% (n = 14) in their senior year. Post-Baccalaureate students made up 5.7% (n = 5). Although only four students indicated they were seeking a

masters or doctoral degree, this extra person could account for someone who was a second degree student.

There were a total of 48 (54.5%) students who had never taken prescription stimulants in their lifetime, a total of 13 (14.8%) who were prescribed stimulant medication for treatment of a medical or psychiatric illness, and a total of 27 (27.3%) who reported illicit use of prescription medication. The illicit use was categorized if an individual misused their own prescription or used stimulant medication that was not prescribed to them. A breakdown of how the demographics were found in each category is illustrated in the Sample Demographics Table.

The majority of respondents (83%) did not identify as members of PanHellenic society. Of these, 67% (n = 49) reported no use, 12% (n = 9) reported appropriate use, and 20.5% reported misuse. Compared with the respondents who indicated they were members of a PanHellenic society, 80% (n = 12) reported misuse of prescription stimulants, while only 13.3% (n = 2) reported no use, and 6.7% (n = 1) reported appropriate use. This indicates a rate almost 4 times higher for respondents who are PanHellenic society members.

Research Question 2

What is the relationship between key demographic variables with stimulant use?

Although no difference was found between groups based on the age of the participant, there was a difference found in GPA. The only statistically significant difference was found for GPA. Similar to research findings, the lower the GPA, the more likely the illicit use of prescription stimulants. In post-hoc comparisons, the trend demonstrated that as the GPA decreased, the likelihood of IUPS increased.

To answer this question, a one way repeated measures ANOVA was conducted to compare age and GPA with usage groups. To further compare the effect between these two

different variables, a one-way between-groups analysis of covariance (ANCOVA) was conducted in two different examinations. For the first test, the independent variable was age and the dependent variable consisted of usage groups and GPA was used as the covariate in the first analysis. For the next test, the independent variable was GPA and the dependent variable consisted of usage groups; age was used as the covariate in the first analysis.

Preliminary checks were conducted for the first test to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. After adjusting for age, there was no significant difference between usage groups on GPA, $F(1, 84) = 0.296, p = 0.75$.

Preliminary checks were conducted for the second test to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. After adjusting for GPA, there was a small significant difference between usage groups on age, $F(1, 84) = 0.68, p = 0.496$.

Participants remained categorized based on usage. Post-hoc comparisons for GPA using the Tukey HSD test indicated that the mean score was not statistically significant between groups and did not differ significantly from either of the other groups: no use ($M = 3.22, SD = 0.688$); medical use ($M = 3.44, SD = 0.481$); illicit Use ($M = 2.9163, SD = 0.663$). There was a significant effect for GPA, Tukey = 0.319, $p < 0.05$. There was no significant effect found for age.

The investigator correlated age and GPA use with the different categories of no use, medical use, and illicit use. The interaction effect comparing ages was not statistically significant, $F(2, 85) = 0.514$. Therefore the only statistically significant main effect was found for GPA, $F(2, 85) = 0.029$.

Research Question 3

What is the relationship between hours spent in extracurricular activities and prescription stimulants use in this nursing student population? The data for this study found no relationship between groups and the hours spent in extracurricular activities.

To answer this question, direct logistic regression was performed to assess the impact of a number of factors on prescription stimulant use. The first examination was to determine if these factors would change the likelihood that respondents would report that they had taken prescription stimulants illicitly (i.e., illegal use compared to legal medical use and no use). The second examination was evaluated to determine if these factors would change based on any use when compared to no use. The model contained three independent variables: hours spent employed, hours spent in Panhellenic obligations, and hours spent studying.

Table 3

Extracurricular Activities among Legal and Illegal Groups

Variables	Legal vs. Illegal						Chi-square
	B	S.E.	Wald	df	Sig.	Exp (B)	
Work hours	0.003	0.035	0.009	1	0.924	1.003	0.009
Constant	-1.059	0.908	1.359	1	0.244	0.347	
Panhellenic hours	0.81	0.111	0.532	1	0.466	1.084	0.568
Constant	0.432	1.378	0.098	1	0.754	1.540	
Study hours	-0.011	0.018	0.398	1	0.528	0.989	0.412
Constant	-0.615	0.327	3.528	1	0.060	0.541	

Table 4

Extracurricular Activities among PS Use and No Use Groups

Variables	Prescription Stimulant Use vs. No Use						
	B	S.E.	Wald	df	Sig.	Exp (B)	Chi-square
Work hours	0.026	0.032	0.653	1	0.419	1.026	0.667
Constant	-0.661	0.821	0.648	1	0.421	0.516	
Panhellenic hours	16.078	1847.942	0.00	1	0.993	9607595.281	11.78
Constant	-64.762	7801.374	0.00	1	0.993	0	
Study hours	-0.016	0.016	0.967	1	0.326	0.984	0.998
Constant	0.007	0.309	0.00	1	0.983	1.007	

The full model for legal versus illegal containing all predictors was not statistically significant, $\chi^2 = 5.750$, $p < 0.056$. The model as a whole explained between 6.3% (Cox & Snell R square) and 8.9% (Nagelkerke R Square) of the variance. Unfortunately, none of the variables was able to predict the legal or illegal use of prescription stimulants. Table 4 demonstrates a failure to find a statistically significant difference between hours spent for any extracurricular activity to predict the use of prescription stimulants.

Research Question 4

Research Question 4: If stimulants are taken illicitly by nursing students, what do they report motivates them to engage in this behavior? Similar to other studies, the results indicated illicit use was most often motivated by a desire to increase their energy or to study longer.

Descriptive data were examined and a comparison of mean, median, and mode for each group was made. The chart below represents the descriptive data for the motivations for illicit use. Respondents were provided a list of eight common motivations for illicit use that were identified in the literature. Only the 27 (30.7%) respondents who were categorized into the illicit use category were given this question. Respondents could choose between options identified as Never, Sometimes, About half the time, Most of the time, and Always. Nursing students who

admitted to illicit use did so most commonly to increase energy following a late night of activities ($M = 5.07$). This is followed by a desire to study longer ($M = 4.04$), increase academic edge ($M = 3.81$), increase concentration ($M = 3.67$), make up for alcohol use the evening before, or missing class ($M = 3.63$). This was followed by to improve interest in material ($M = 3.52$), and increase retention of knowledge ($M = 3.48$). They were least motivated to reduce restlessness during classes ($M = 1.96$).

Table 5

Illicit Prescription Stimulant Use Average Motivations

Reason	Mean	Median	Mode
To Study Longer	4.04	5	5
To increase concentration	3.67	4	3
To improve interest in academic material	3.52	4	1
To increase retention of academic knowledge base	3.48	4	1
To make up for missed classes or for being hung over during class	3.63	5	1
To increase academic edge against the competition	3.81	5	6
To reduce restlessness during classes	1.96	1	1
To increase energy following a late night working, studying or hanging out with friends	5.07	6	6

Table 6

Illicit Prescription Stimulant Use Frequency Motivations

Frequency	Never	Sometimes	About half the time	Most of the time	Always
To study longer	5 (18.5%)	4 (14.8%)	4 (14.8%)	8 (29.6%)	6 (22.2%)
To increase concentration	6 (22.2%)	7 (25.9%)	3 (11.1%)	6 (22.2%)	5 (18.5%)
To improve interest in academic material	10 (37%)	0 (0.0%)	5 (18.5%)	7 (25.9%)	5 (18.5%)
To increase retention of academic knowledge base	9 (33.3%)	3 (11.1%)	4 (14.8%)	6 (22.2%)	5 (18.5%)
To make up for missed classes or for being hung over during class	11 (40.7%)	1 (3.7%)	0 (0.0%)	6 (22.2%)	9 (33.3%)
To increase academic edge against the competition	8 (29.6%)	5 (18.5%)	0 (0.0%)	4 (14.8%)	10 (37%)
To reduce restlessness during classes	20 (74.1%)	1 (3.7%)	1 (3.7%)	4 (14.8%)	1 (3.7%)
To increase energy following a late night working, studying or hanging out with friends	2 (7.4%)	1 (3.7%)	3 (11.1%)	6 (22.2%)	15 (55.6%)

CHAPTER 5:
DISCUSSIONS AND RECOMMENDATIONS

Introduction

The primary purpose of this study was to identify the use and misuse of prescription stimulants among nursing students, investigate predictive risk factors, and determine motives for those nursing students who illicitly use prescription stimulants. The literature review demonstrated an abundance of studies focused on stimulant abuse in the general population and in the college population. However, there was a notable absence in data related to stimulant use or abuse specific to healthcare workers, despite the increased risk for substance abuse faced by these individuals, particularly for prescription type abuse.

This study examined four research questions: 1) What is the prevalence of prescription stimulants use and illicit use of prescription stimulants for nursing students, 2) What is the relationship between age and GPA to stimulant use, 3) What is the relationship between hours in extracurricular activities to stimulant use, and 4) What motivates the nursing students who illicitly use prescription stimulants. This chapter will discuss the conclusions based upon the results of this study, the relationship of this study to previous findings, limitations of the study, and implications for nurse educators. Finally, this chapter will suggest areas to focus on for future research.

Discussion of Results

A descriptive cross-sectional sample of nursing students who were members of a state nursing student organization provided an opportunity for a quantitative approach for an online

self-report survey. In this study of the 1,111 members, there was a response rate of 102, yielding a rate of 9.2%. Although this rate is less than that of some previous studies, it is similar enough to make a legitimate comparison. The majority of respondents reported they were seeking an Associate degree, which was closely followed by a Baccalaureate degree. Diploma, Master's and Doctoral degrees were minimally represented. Most respondents were female (62%). The nursing profession has inherently been known to have more females than males, although the trend in nursing indicates a vast change in gender for this profession.

This study found 54.5% of respondents reported no use of prescription stimulants at all, while 14.8% of respondents reported legitimate use, defined as those who were prescribed prescription stimulants, took the medication as prescribed and did not take more than was prescribed or for any reason other than was prescribed. This survey found 30.7% of respondents who either misused their prescriptions or took prescription stimulants without it being prescribed to them.

The data from this survey revealed a statistically significant difference at the $p < 0.05$ level in GPA for the three different prescription stimulants usage groups. Despite reaching statistical significance, the actual difference in mean scores between groups was quite small. Post-hoc comparisons using the Tukey HSD test indicated that the mean score did not differ significantly between any of the groups. There was no statistically significant difference at the $p < 0.05$ level for age between the three different prescription stimulants usage groups. Furthermore, when comparing the effect between age and GPA, after adjusting for the other variable, no difference was found in this representation either.

There was no statistically significant difference demonstrated in a relationship between hours spent in extracurricular activities and prescription stimulants use according to the

responses submitted. The variables for hours spent in extracurricular activities were unable to accurately predict the use or misuse of prescription stimulants. However, the trends indicated that as the number of hours for Panhellenic service increased, the more likely the respondent was to fall into the illegal use category, although these differences were not significant. This is further supported by the raw data indicating illicit use of prescription stimulants was found in 80% of those who were in the Panhellenic society as compared with a rate of 20.5% for those who were not members. Also trending, were the more hours spent studying, the more likely their use was legal (i.e., no use or medical use). Although the survey used for this research did not explore why the rate for IPSU was higher in PanHellenic groups, the literature supports this as an increased risk factor (McCabe et al., 2005).

For those respondents who admitted to misusing their prescriptions or using prescription stimulants without a prescription, the motivations for this behavior were similar to those found in previous studies. The most common motivation was found to be an effort to increase energy following a late night working, studying, or hanging out with friends, followed closely by an effort to study longer and an effort to increase academic edge against the competition. An effort to decrease restlessness during class was found to be the least motivating factor.

Relationship to Literature

The literature review revealed a wide range of prescription stimulants use on college campuses, as demonstrated in the appendix. The findings of this study were consistent with several of those listed. The data in this study revealed similar findings and rates of use when compared with rates from previous studies. Although data for nursing students could not be substantiated in the literature review, among the medical profession, illicit use was found to be 10.4%. Overall, this study discovered a self-report rate of medical prescription stimulants use of

14.8% and illicit use to be 30.7%. The rate of illicit use in previous studies on college campuses has been found to be between zero and 55%. Illicit use found to be occurring more often in members of PanHellenic societies was repeated in this study as well. Just as many other studies found the likelihood of illicit use to be more prevalent in those students with a lower GPA, this outcome was supported in the findings from this study as well.

The motivations for illicit use of prescription stimulants were found to be very similar to motivations for misuse in other studies. Four of the top five most prevalent motivations found in this research were substantiated from other studies (Dussault & Weyandt, 2011; Gallucci, 2011; McCabe et al., 2005). Also, similar findings illustrated that very few respondents were motivated to decrease restlessness during class. This is not surprising, as that is a symptom of ADHD and these motivations were selected by students who had either misused their own prescriptions or were using prescription stimulants without a prescription. The motivation to increase the academic edge against competition was found to be the third highest motivation in this population, while other studies only found a small percentage of students who were motivated by this factor.

There were some additional findings that were not congruent with previous studies. Although the literature findings support illicit use to be more prevalent among persons younger than age 26, this study found no difference in age between those who do not use, those who use appropriately, and those whose use is illicit. Additionally, these results demonstrated the highest rate of illicit use to be from those students who were in their freshman and junior year, with the rate declining the more years they were in school. This may suggest that as they approach employment drug screens and professional consequences, they were either less likely to use or to report their use.

The theoretical background for this study is consistent with the results of this study. Upon inspection of the challenges faced by nursing schools and in the nursing profession, the perception is supported that those who portray values and ideas consistent with Sykes and Matza's (1957) techniques of neutralization are more likely to engage in illicit prescription stimulant drug use than those who do not. Unfortunately, as the National Council of State Boards of Nursing (NCSBN) found, one's attitude, access, lack of education, and enabling peers continue to be top risk factors. Often students and nurses fail to see the harm when they manipulate providers for prescriptions that they would otherwise not be entitled to. This fits with the denial of injury described with this theory. Because the primary motivation found in this study was to increase their energy following a late night working, studying, or hanging out with friends, one can easily conclude this association and their lack of understanding for anyone being hurt by those actions. The thought process of condemn the condemners is related to those who were motivated by a desire to study longer, the second highest motivation. Finally, the motivation that was found to be more prevalent in this population than others was the desire to increase academic edge. Even though nursing students realize the importance of not breaking laws, they see this as appropriate use of medication and justify their actions as legal because the prescription has their name on it. They also fail to see the harm to themselves or anyone else when they are dishonest with providers to obtain a prescription that has their name on it. The failure to be held to the same standards as other patients who have to go through the steps of making appointments with providers and being truthful to their providers, allows students and nurses to avoid responsibility. It also, reinforces their lack of accountability to anyone but themselves.

Recent studies published after the review of literature for this study was conducted confirmed the need to improve education for nursing students regarding substance abuse. Although not an undergraduate nursing student study, Bozimowski, Groh, Rouen, and Dosch (2014) assessed the prevalence of substance abuse among nurse anesthesia students. They found the rate among students at 1% to be less than that of certified registered nurse anesthetists. They made a point to suggest that educational programs be proactive in assessing for substance abuse and determine if wellness promotion might help to improve risk reduction.

Two other studies focused on improving the educational format for those who are vulnerable to prescription type abuse. One, in particular, found students who were recovering from substance abuse could offer expertise to nurses, faculty, and students (Embrey, 2012). The author points out the importance of the nurse's role in the education of students, staff, parents, and the community. Another recent quasi-experimental study explored the perceptions of student nurses toward chemically dependent nurses. Helping students know how to identify substance abuse, how to help someone suspected of practicing while impaired, and improved perception of prevalence and risk factors substance use were all identified as knowledge deficits within this population of students (Boulton & Nosek, 2014). There were several indicators that those in the profession, in the field of education, and some administrators are reluctant, even after implementing stronger educational programs, to deal with the illness appropriately.

Limitations

There are a number of identified limitations that may have affected validity associated with this study. Although this sample included students from different types of nursing schools and at different educational levels, the representation of male students and ethnic minorities in the sample were smaller than samples with other studies. Because males have been shown to be

more likely to report illicit use, this underrepresentation may cause a sample bias. Because the study participants were mainly Caucasian and female, the homogeneity of the study sample may cause the results to not be generalized to a more diverse population of students. The findings of this study cannot be generalized to a broader population until more research is done across multiple populations of student nurses.

There are several reasons to raise the possibility that the self-report rate is an underestimate of the actual prevalence rate reported. Although this method is widely adopted by researchers, the validity must be scrutinized. The results may have been limited to what the respondents were willing to report their use as and not actual drug usage. Many steps were taken to assure participants of confidentiality, but the possibility of exaggeration or minimization is a reasonable possibility considering the sensitivity of the questions. Although many studies utilize the self-report online survey, the response rate may have caused survey nonresponse bias. Additionally, respondents were asked to recall use over their lifetime and within the previous 12 months; therefore, the true prevalence of misuse of prescribed stimulant medication may have been underestimated. However, this strategy has been helpful when respondents are willing to admit past usage more readily than current usage because of the legal implications of admitting to current illegal activity (DeSantis et al., 2008).

This was a convenience sample of individuals who were current members of AANS of one particular state. Convenience samples are often difficult to replicate on a larger scale when populations offer more differences in demographics.

The cross-sectional design limits information to one point in time. When possible to study individuals' use over time, trends and patterns can be established. Additionally, the timing of the survey may have proven to occur at a less likely time of abuse. Many research findings

illustrate the rate for illicit prescription stimulants use increases during exam weeks or as the semester comes to a close. Data collection was conducted at the end of summer when many baccalaureate students were out of school. However, respondents of associates and baccalaureate degree students were both represented.

The response rate by 40% of freshman represented a sample size of only five students. Therefore, it is unlikely to be an accurate representation of this group. Also of note, is that many students do not even learn about membership to AANS until they get into their upper division classes and therefore freshman, as a whole, may be underrepresented in the entire population. Post-baccalaureate or second degree students could account for the extra number of those respondents indicating they had more education than a baccalaureate degree. Also of note is the fact that senior nursing students in an associate degree program occurs when the students are in fact in their sophomore year.

Interestingly, the study found that 40 respondents rated the availability of prescription stimulant medication as easily available or somewhat available and an equal number indicated they were not sure. Only eight students felt it was somewhat or completely unavailable. This would have been interesting to further investigate to see if there could be some potential disparity between the use and the availability. Similarly, the small number of students who reported legitimate prescription use was found to be far less than college students in other disciplines and may suggest the use is more prevalent than indicated.

The survey itself was a compilation of questions used in previous, similar research studies. After the instrument was created, it was subjected to a panel review. This resulted in edits to remove any redundancies and focus on prescription stimulant use only. Once the instrument was edited, it was pilot tested with volunteers from faculty, peers, and those familiar

with substance abuse. Time for completion and an analysis of this data revealed the primary purpose of this study and the research questions could be answered with the instrument. However, the instrument itself has not been researched and studied for reliability and validity. The research study and survey was reviewed and approved by The University of Alabama, Institutional Review Board in the spring of 2016 (see Appendix A).

Implications for Nursing Education

Nurse educators should provide their students with the vital information that prescription type abuse is illicit use and can lead to substance abuse and addiction. As indicated earlier, just because one has a prescription with their name on it, it does not make it a legitimate prescription. If an individual fabricates symptoms to receive a prescription they want, this is just as illegal. This is also one of the main pitfalls of nurses into the slippery slope of addiction. So, just as important as the rate of illicit prescription stimulants use, this study has preliminary findings of 14.8% of legitimate use of prescription stimulants. If these individuals could be followed over time, it would be helpful to determine if they have an increased rate of substance use.

Despite limitations, the results of this study demonstrated members within PanHellenic organizations have an increased risk for illicit use of prescription stimulants. Additionally, the risk for illicit use increases for those who have lower GPAs and those who study less hours, although only the GPA was a significant finding. Outcomes of this study, with the literature review, can help faculty and administrators develop health models of prevention and wellness promotion as well as education to lower the inherent risks.

Of particular importance is for faculty to educate nursing students on how many nurses get caught up in the cycle of abuse and addiction even when they begin with the best of intentions. Perhaps they abuse PS in an effort to learn more (despite evidence to the contrary) or

to work longer hours because their employer needs to fill those hours. Students also need to be taught how to recognize illicit drug use of all substances and work toward reducing the stigma associated with it. Although some continue to see rehabilitation as controversial, improved education can illustrate how treatment can help the nurse return to a career of choice while, at the same time, protecting the population in which they serve. This could also increase the number of individuals who seek treatment needed to overcome their addiction.

It is of utmost importance that faculty educate their nursing students on the dangers of self-medication and diverting their own medications to their friends. When this occurs, proper treatment could lead to harm, opportunities for medication education are missed, and victims can become addicted or even die as a result. Schools should also focus on providing education to incoming freshmen and incoming students into nursing schools to present evidenced-based data demonstrating the lack of effect PS have on learning as well as the dangers associated with misuse.

Recommendations for Future Research

Despite the large number of research studies examining the prevalence and trends of substance use and abuse on college campuses, there continues to be a great need for additional research in this area. In particular, an industry standard needs to include the development of an instrument for widespread use that can be tested for reliability and validity. Although the self-report method is an industry standard, research should continue to explore methods that will increase response rates and help participants feel more confident in the anonymity that is afforded to them.

Considering the timeliness of this research with the increased scrutiny of clinicians regarding all prescriptions with the potential for abuse, industry patterns should be examined

closely. Uniform criteria for the assessment and treatment of disorders that require treatment with substances that are highly addictive and commonly abused should be established. Industry standards for treatment of these disorders should also include periodic screening for increased risks of abuse potential and the use of pharmaceuticals that limit abuse, such as those that cannot be snorted or broken down and manipulated for alternate routes of administration. Other medication alternatives that carry less risk for abuse should be considered for treatment use. Caution should be exercised by periodically monitoring individuals with medication counts and drug screening.

Large scale research studies should allow for the separation of students from different disciplines. The information gained in this study should be expanded to include an examination of additional substances and then replicated on a larger scale to include a national study.

Considering the limitations of a cross-sectional investigation, future research should explore opportunities for following individuals over time, especially in this more vulnerable population. A longitudinal study would allow for an exploration of individuals who have prescriptions over time to determine if PTA develops at the same rate for those prescribed PS as those who are not.

Prevention models and wellness promotion strategies could be examined by other investigators. This could lead to development of best practice models that can be adopted across nurse education programs. Researchers could solicit the assistance of those who are in recovery from substance abuse to develop and test future models.

Finally, educators should continue to examine student perceptions in substance abuse and be sure to include it in their educational curriculum. This will help provide referral information for the future nurses as they face this increasingly prevalent health care problem.

Conclusions

Undergraduate nursing students face an enduring compilation of grueling challenges that are more difficult than those disciplines with less competition for limited number of places in the program. Additionally, medical professionals have particular risk factors for substance abuse that are unique to the profession. The results of this study support that prevalence rates among nursing students are similar to or greater than that of the general population and peers. Rates of medical PS use were no more prevalent for this population, although PTA is a large risk factor that quickly leads to addiction. Students, with special attention to those in PanHellenic societies, should be educated about the risks of abuse, the hazards of sharing medication, and the illegal nature of this common practice. Prevention models can be created that focus on alternative actions to combat the motivations for illicit use, which would include better time management and dispelling common misconceptions. Although this study was limited in significant findings, the continued exploration of a more inclusive education model is warranted. This model should include information on recognizing risk factors, symptoms of substance abuse, referral information, and the need for compassion.

REFERENCES

- Advokat, C., & Scheithauer, M. (2013). Attention-deficit hyperactivity disorder (ADHD) stimulant medications as cognitive enhancers. *Frontiers in Evolutionary Neuroscience*, 7, 1.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- American Association of Colleges of Nursing [AACN]. (2014). Washington, DC: Author.
- Arria, A. M., & Dupont, R. L. (2010). Nonmedical prescription stimulant use among college students: Why we need to do something and what we need to do. *Journal of Addictive Diseases*, 29(4), 417-426.
- Arria, A. M., Garnier-Dykstra, L. M., Caldeira, K. M., Vincent, K. B., O'Grady, K. E., & Wish, E. D. (2011). Persistent nonmedical use of prescription stimulants among college students: Possible association with ADHD symptoms. *Journal of Attention Disorders* 15(5), 347-356. doi: 10.1177/1087054710367621
- Arria, A. M., Wilcox, H. C., Caldeira, K. M., Vincent, K. B., Garnier-Dykstra, L. M., & O'Grady, K. E. (2013). Dispelling the myth of "smart drugs": Cannabis and alcohol use problems predict nonmedical use of prescription stimulants for studying. *Addictive Behaviors*, 38(3), 1643-1650.
- Baldwin, J. N., Bartek, J. K., Scott, D. M., Davis-Hall, R., & DeSimone II, E. M. (2009). Survey of alcohol and other drug use attitudes and behaviors in nursing students. *Substance Abuse*, 30(3), 230-238. doi:10.1080/08897070903040964
- Baldwin, J. N., Scott, D. M., Agrawal, S., Bartek, J. K., Davis-Hall, R., Reardon, T. P., & DeSimone II, E. M. (2006). Assessment of alcohol and other drug use behaviors in health professions students. *Substance Abuse*, 27(3), 27-37. doi:10.1300/J465v27n03_05
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Bettinardi-Angres, K., & Angres, D. H. (2011). Understanding the disease of addiction. *Journal of Nursing Regulation* 1(2), 31-35. Retrieved from www.journalofnursingregulation.com
- Bettinardi-Angres, K., Pickett, J., & Patrick, D. (2012). Substance use disorders and accessing alternative-to-discipline programs. *Journal of Nursing Regulation* 3(2), 16-23. Retrieved from www.journalofnursingregulation.com

- Boulton, M. A., & Nosek, L. J. (2014). How do nursing students perceive substance abusing nurses? *Archives of Psychiatric Nursing*, 28(1), 29-34. doi:10.1016/j.apnu.2013.10.005
- Bozimowski, G., Groh, C., Rouen, P., & Dosch, M. (2014). The prevalence and patterns of substance abuse among nurse anesthesia students. *AANA Journal*, 82(4), 277-283.
- Burns, N., & Grove, S. (2007). Understanding statistics in research. *Understanding Nursing Research: Building an Evidence-Based Practice*. 400-443.
- Clark, C. M., (1999). Substance abuse among nursing students: Establishing a comprehensive policy and procedure for faculty intervention. *Nurse Educator*. 24(2), 16-19.
- Cleary, M., Horsfall, J., Baines, J., & Happell, B. (2012). Mental health behaviours among undergraduate nursing students: Issues for consideration. *Nurse Education Today*, 32(8), 951-955. doi:http://dx.doi.org.libdata.lib.ua.edu/10.1016/j.nedt.2011.11.016
- Darbro, N., & Malliarakis, K. D., (2012). Substance abuse: Risks factors and protective factors. *Journal of Nursing Regulation*, 3(1), 44-48. Retrieved from www.journalofnursingregulation.com
- Davis, K., Powers, Vuk, C., & Kennedy, J. R. (2014). Predictors of substance use recidivism among Arkansas nurses. *Journal of Nursing Regulation*, 5(2), 39-44. Retrieved from journalofnursingregulation.com
- DeSantis, A., Webb, E., & Noar, S. (2008). Illicit use of prescription ADHD medications on a college campus: A multimethodological approach. *Journal of American College Health*, 57(3), 315-323.
- Dodge, T., Williams, K. J., Marzell, M., & Turrisi, R. (2012). Judging cheaters: Is substance misuse viewed similarly in the athletic and academic domains? *Psychology of Addictive Behaviors*, 26(3), 678-682. doi:10.1037/a0027872
- DuPont, R. L., Coleman, J. J., Bucher, R. H., & Wilford, B. B. (2008). Characteristics and motives of college students who engage in nonmedical use of methylphenidate. *American Journal on Addictions*, 17(3), 167-171.
- Dussault, C. L., & Weyandt, L. L. (2013). An examination of prescription stimulant misuse and psychological variables among sorority and fraternity college populations. *Journal of Attention Disorders*, 17(2), 87-97. doi:10.1177/1087054711428740
- Elliott, G. R., & Elliott, M. D. (2011). Pharmacological cognitive enhancers: Comment on Smith and Farah (2011). *Psychological Bulletin*, 137(5), 749-750. doi:10.1037/a0024119
- Embrey, M. L. (2012). Gaining insights from students in recovery from prescription drug abuse: did school nurses report an influence on their practice? Outcomes results from a live symposium. *NASN School Nurse*, 27(3), 166-169.

- Ford, J. (2008). Nonmedical prescription drug use among college students: A comparison between athletes and nonathletes. *Journal of American College Health, 57*, 211-219.
- Ford, J. A., & Schroeder, R. D. (2009). Academic strain and non-medical use of prescription stimulants among college students. *Deviant Behavior, 30*, 26-53.
- Frazier, T. W., Frazier, A. R., Busch, R. M., Kerwood, M. A., & Demaree, H. A. (2008). Detection of simulated ADHD and reading disorder using symptom validity measures. *Archives of Clinical Neuropsychology, 23*(5), 501-509. doi:10.1016/j.acn.2008.04.001
- Gallucci, A. R. (2011). *A survey examining the nonmedical use and diversion of prescription stimulant medications among college students using the theory of planned behavior* (Order No. 3461047). Available from Dissertations & Theses @ University of Alabama. (879548053). Retrieved from <https://search.proquest.com/docview/879548053?accountid=14472>
- Garnier-Dykstra, L., Caldeira, K. M., Vincent, K. B., O'Grady, K. E., & Arria, A. M. (2012). Nonmedical use of amphetamines during college: Four-year trends in exposure opportunity, use, motives, and sources. *Journal of American College Health, 60*(3), 226-234.
- Griffith, J. (1999). Substance abuse disorders in nurses. *Nursing Forum, 34*(4), 19-28. doi:10.1111/j.1744-6198.1999.tb01167.x
- Harling, M. R., & Turner, W. (2011). Student nurses' attitudes to illicit drugs: A grounded theory study. *Nurse Education Today, 32*(3), 235-240. doi:http://dx.doi.org.libdata.lib.ua.edu/10.1016/j.nedt.2011.05.002
- Harrison, A. G., Edwards, M. J., & Parker, K. C. H. (2007). Identifying students faking ADHD: Preliminary findings and strategies for detection. *Archives of Clinical Neuropsychology, 22*(5), 577-588. doi:/10.1016/j.acn.2007.03.008
- Heal, D. J., Smith, S. L., Gosden, J., & Nutt, D. (2013). Amphetamine, past and present--a pharmacological and clinical perspective. *Journal of Psychopharmacology, 27*(6), 479-496. doi: 10.1177/0269881113482532
- Hensel, D., Middleton, M. J., & Engs, R. C. (2013). A cross-sectional study of drinking patterns, prelicensure nursing education, and professional identity formation. *Nurse Education Today, (0)* doi:http://dx.doi.org.libdata.lib.ua.edu/10.1016/j.nedt.2013.08.018
- Herman, L., Shtayermman, O., Aksnes, B., Anzalone, M., Cormerais, A., & Liodice, C. (2011). The use of prescription stimulants to enhance academic performance among college students in health care programs. *Journal of Physician Assistant Education, 22*(4), 15-22.
- Herman-Stahl, M. A., Krebs, C. P., Kroutil, L. A., & Heller, D. C. (2007). Risk and protective factors for methamphetamine use and nonmedical use of prescription stimulants among young adults aged 18 to 25. *Addictive Behaviors, 32*, 1003-1015.

- Institute of Medicine. (2013). *The future of nursing: Leading change, advancing health*. Washington, DC: Author.
- Jardin, B., Looby, A., & Earleywine, M. (2011). Characteristics of college students with attention-deficit hyperactivity disorder symptoms who misuse their medications. *Journal of American College Health, 59*(5), 373-377. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=60040853&site=eds-live&scope=site>
- Judson, R., & Langdon, S. W. (2009). Illicit use of prescription stimulants among college students: Prescription status, motives, theory of planned behaviour, knowledge and self-diagnostic tendencies. *Psychology, Health & Medicine, 14*(1), 97-104.
- Kenna, G. A., & Lewis, D. C. (2008). Risk factors for alcohol and other drug use by healthcare professionals. *Substance Abuse Treatment Prevention and Policy, 3*, 3. doi:10.1186/1747-597X-3-3
- Kroutil, L. A., Van Brunt, D., Herman-Stahl, M., Heller, D. C., Bray, R. M., & Penne, M. A. (2006). Nonmedical use of prescription stimulants in the United States. *Drug & Alcohol Dependence, 84*(2), 135-143.
- McCabe, S. E., Knight, J. R., Teter, C. J., & Wechsler, H. (2005). Non-medical use of prescription stimulants among US college students: Prevalence and correlates from a national survey. *Addiction, 100*(1), 96-106.
- McNiel, A. D., Muzzin, K. B., Dewald, J. P., McCann, A. L., Schneiderman, E. D., Scofield, J., & Campbell, P. R. (2011). The nonmedical use of prescription stimulants among dental and dental hygiene students. *Journal of Dental Education, 75*(3), 365-376.
- Mooney, D. H. (2013). Investigating and making a case for drug diversion. *Journal of Nursing Regulation, 4*(1), 9-13. Retrieved from www.journalofnursingregulation.com
- National Council of State Boards of Nursing. (2011). Substance use disorder in nursing: A resource manual and guidelines for alternative and disciplinary monitoring programs. Retrieved from www.ncsbn.org/SUDN_11.pdf
- National Institute on Drug Abuse. (NIDA) (2012). Washington, DC: National Institute on Drug Abuse.
- New, K. (2014). Preventing, detecting, and investigating drug diversion in healthcare facilities. *Journal of Nursing Regulation, 5*(1), 18-25. Retrieved from www.journalofnursingregulation.com
- Pallant, J. (2016). *SPSS survival manual*. New York, NY: McGraw Hill.
- Priest, T. B., & McGrath, J. H. (1970). Techniques of neutralization: Young adult marijuana smokers. *Criminology, 8*, 185-194. doi:10.1111/j.1745-9125.1970.tb00739.x

- Qualtrics. (2015). Qualtrics security white paper. Retrieved from www.qualtrics.com.
- Quinn, C. A. (2003). Detection of malingering in assessment of adult ADHD. *Archives of Clinical Neuropsychology*, *18*(4), 379-395. doi: 10.1016/S0887-6177(02)00150-6
- Rabiner, D. (2013). Stimulant prescription cautions: Addressing misuse, diversion, and malingering. *Current Psychiatry Reports*, *15*(7), 1-8. doi: 10.1007/s11920-013-0375-2
- Rabiner, D. L., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., McCabe, S. E., & Swartzwelder, H. S. (2009). The misuse and diversion of prescribed ADHD medications by college students. *Journal of Attention Disorders*, *13*(2), 144-153. doi: 10.1177/1087054708320414
- Rozenbroek, K., & Rothstein, W. G. (2011). Medical and nonmedical users of prescription drugs among college students. *Journal of American College Health*, *59*(5), 358-363.
- Sansone, R. A., & Sansone, L. A. (2011). Faking attention deficit hyperactivity disorder. *Innovations in Clinical Neuroscience*, *8*(8), 10-13.
- Sefiah, O. (2012). Bike racing, neutralization, and the social construction of performance-enhancing drug use. *Contemporary Drug Problems*, *39* Summer, 213-245.
- Sepúlveda, D. R., Thomas, L. M., McCabe, S. E., Cranford, J. A., Boyd, C. J., & Teter, C. J. (2011). Misuse of prescribed stimulant medication for ADHD and associated patterns of substance use: Preliminary analysis among college students. *Journal of Pharmacy Practice*, *24*(6), 551-560. doi:10.1177/0897190011426558
- Sharp, J. T., & Rosén, L. (2007). Recreational stimulant use among college students. *Journal of Substance Use*, *12*(2), 71-82.
- Smith, M. E., & Farah, M. J. (2011). Are prescription stimulants “smart pills”? The epidemiology and cognitive neuroscience of prescription stimulant use by normal healthy individuals. *Psychological Bulletin*, *137*(5), 717-741. doi:10.1037/a0023825
- Sollman, M., Ranssen, J., & Berry, D. (2010). Detection of feigned ADHD in college students. *Psychological Assessment*, *22*(2), 325-335. doi:10.1037/a0018857
- Sparks, J., & Duncan, B. (2008). Do no harm: A critical risk/benefit analysis of child psychotropic medication. *Journal of Family Psychotherapy*, *19*(1), 1-19.
- Stein, M. T. (2012). Stimulants to enhance academic achievement. *Journal of Developmental and Behavioral Pediatrics*, *33*(7), 589. doi:10.1097/DBP.0b013e31826745ad
- Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (2009). The NSDUH Report: Nonmedical use of Adderall among full-time college students. Rockville, MD: Author.

- Suhr, J., Hammers, D., Dobbins-Buckland, K., Zimak, E., & Hughes, C. (2008). The relationship of malingering test failure to self-reported symptoms and neuropsychological findings in adults referred for ADHD evaluation. *Archives of Clinical Neuropsychology*, *23*(5), 521-530. doi:10.1016/j.acn.2008.05.003
- Swanson, J. M., Wigal, T. L., & Volkow, N. D. (2011). Contrast of medical and nonmedical use of stimulant drugs, basis for the distinction, and risk of addiction: Comment on Smith and Farah (2011). *Psychological Bulletin*, *137*(5), 742-748. doi: 10.1037/a0024898
- Sweeney, C. T., Sembower, M. A., Ertischek, M. D., Shiffman, S., & Schnoll, S. H. (2013). Nonmedical use of prescription ADHD stimulants and preexisting patterns of drug abuse. *Journal of Addictive Diseases*, *32*(1), 1-10.
- Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. *American Sociological Review*, *22*(6), 664-670.
- Tuttle, J. P., Scheurich, N. E., Ranseen, J. (2010). Prevalence of ADHD diagnosis and nonmedical prescription stimulant use in medical students. *Academic Psychiatry*, *34*, 220-223.
- Underhill, B., & Langdon, S. (2013). Licit and illicit use of prescription psychostimulants in upperclassmen and alumni. *Journal of Alcohol & Drug Education*, *57*(2), 7-26.
- Varga, M. D. (2012). Adderall abuse on college campuses: A comprehensive literature review. *Journal of Evidence-Based Social Work*, *9*(3), 293-313. doi: 10.1080/15433714.2010.525402
- Wechsler, H., & Nelson, T. F. (2001). Binge drinking and the American college students: What's five drinks? *Psychology of Addictive Behaviors*, *15*(4), 287-291. doi:10.1037/0893-164X.15.4.287
- Weyandt, L. L., Janusis, G., Wilson, K. G., Verdi, G., Paquin, G., Lopes, J., Varejao, M., Dussault, C. (2009). Nonmedical prescription stimulant use among a sample of college students: Relationship with psychological variables. *Journal of Attention Disorders*, *13*, 284-296.
- Weyandt, L. L., Marraccini, M. E., Gudmundsdottir, B. G., Zavras, B. M., Turcotte, K. D., Munro, B. A., & Amoroso, A. J. (2013). Misuse of prescription stimulants among college students: A review of the literature and implications for morphological and cognitive effects on brain functioning. *Experimental and Clinical Psychopharmacology*, *21*(5), 385-407. doi: 10.1037/a0034013
- Wilens, T. E., Faraone, S. V., Biederman, J., & Gunawarden, S. (2003). Does stimulant therapy of attention-deficit/hyperactivity disorder beget later substance abuse? A meta-analytic review of the literature. *Pediatrics*, *111*(1), 179.

APPENDIX A:
IRB APPROVAL LETTER

ALABAMA

Institutional Review Board for the Protection of Human Subjects

May 26, 2016

Sandra Estes, MSN, RN
Capstone College of Nursing
The University of Alabama
Box 870358

Re: IRB # 16-OR-202-ME: "The Prevalence of Prescription Stimulant Use in a Sample of Nursing Students"

Dear Ms. Estes,

The University of Alabama Institutional Review Board has granted approval for your proposed research. Your application has been given expedited approval according to 45 CFR part 46. You have also been granted a waiver of written documentation of informed consent for the online survey. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your approval will expire on May 25, 2017. If the study continues beyond that date, you must complete and submit the Renewal Form within e-Protocol. If you modify the application, please submit the Revision Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Final Report Form. Please use the IRB-approved (stamped) consent language.

Should you need to submit any further correspondence regarding this application, please include the assigned IRB approval number.

Good luck with your research.

Sincerely,



Carpentito T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance

cc: Dr. Marietta Stanton

APPENDIX B:
SOLICITATION EMAIL AND SOLICITATION REMINDER EMAIL

Hello (Name):

Nursing students who are members of the Alabama Association of Nursing Students are being asked to participate in an anonymous online survey. The point of the survey is to learn about the number of nursing students that use stimulant medication. If you agree to take part in the study, you will be asked about your use or not of this kind of medicine either now or in the past. You can indicate if you have ever used it at all, if you take it as your doctor says to or you use it for other reasons. You can select from a list of common reasons other students use it for. I hope to compare use of the medicine with background information and with hours spent things other than schoolwork. The time needed to finish the survey is 5-10 minutes. You may skip any questions that you do not want to answer.

Your answers on this survey will remain secret and no one can link a person's answers back to them. No personally detectible information will be asked of you. Taking this survey is your choice and there is no problem if you decide not to. You must be at least 18 years old to participate. Before, during or after the survey, you can contact me if you have questions. I can be reached at sestes@ua.edu. You can find out more about the study on the first page of the link before you are asked any survey questions.

Here is a link to the survey.

https://universityofalabama.az1.qualtrics.com/SE/?SID=SV_cwLBJTHrYIJ5C4I

Thank you for thinking about taking part in this research!

Sandra Estes,

Hello (Name):

My name is Sandra Estes. I am a doctoral student of nursing education. A couple of weeks ago, you were emailed a request to take part in a survey about stimulant medicine use because you are a nursing student. The survey will close soon so I wanted to send you a reminder in case you have not looked at the survey yet. You must be at least 18 years old to participate. It takes about 5-10 minutes. You can skip any questions that you want to. The results will help us learn if there are differences in your group and other college students. Follow the link below if you want to learn more about this survey. Please consider giving a few minutes of your time to contribute to our understanding of a nursing student population.

Thank you for your consideration! Here is a link to the survey.

https://universityofalabama.az1.qualtrics.com/SE/?SID=SV_cwLBJTHrYIJJsC4l

Sandra Estes

Doctoral Candidate, Instructional Leadership for Nurse Educators

The University of Alabama

College of Education

APPENDIX C:
DATA COLLECTION INSTRUMENT: PRESCRIPTION STIMULANT
MEDICATION SURVEY

PRESCRIPTION STIMULANT MEDICATION SURVEY

Demographics: Please select the answer that most accurately describes you:

1. What is your age?

a. < 18 years old;

NOTE: If <18 years old is selected, subject will be informed they are ineligible to participate and will be automatically ejected from the survey.

b. At least 18 years old.

2. Please type your age in numerical form (using numbers) below:

3. What is your gender?

a. Male

b. Female

c. Transgender

d. Decline

4. What is your race?

a. Caucasian

b. Black/African-American

c. Asian/Pacific Islander

d. American Indian/Native American

e. Other

5. Ethnicity: Do you consider yourself Hispanic or Latino?

a. Yes

b. No

6. Are you currently employed (including work study)?

a. Yes. Please indicate the number of hours per week that you work in numerical form (using numbers).

b. No

7. Are you currently an active member of a social fraternity or sorority?

a. Yes. Please indicate the number of hours per week that you work in numerical form (using numbers).

b. No

8. Which of the following types of degrees are you currently pursuing in nursing?

a. Associates

b. Diploma

c. Baccalaureate

- d. Masters
 - e. Doctoral
9. How many hours ON AVERAGE (not just during exam weeks) do you study per week?
- a. Please indicate the number of hours per week that you study in numerical form (using numbers).
10. What year of college are you currently enrolled in?
- a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Post-Baccalaureate

Academics: Please select the option that most accurately reflects your situation

11. What is your most recent overall Grade Point Average (GPA) for your current degree? In other words, when grades were last posted, what was your overall GPA for your nursing degree? We are not asking for your GPA for the most recent semester unless you only have had one semester of college. Respondents will using a sliding bar with a minimum value of zero and a maximum value of 4.33

Prescription Stimulants: Please select the option that best reflects your experience.

12. Have you ever, even once, in your lifetime, taken prescription stimulants such as Adderall, Concerta, Dexedrine, Metadate, Ritalin, Vyvanse or others?

Please reply yes or no

Yes

No

If subject selects “No” they will skip forward to Question # 19

Prescription Stimulants: Please select the option that best reflects your experience.

13. In the last 12 months, have you taken prescription stimulants such as Adderall, Concerta, Dexedrine, Metadate, Ritalin, Vyvanse or others?

Yes

No

14. Do you have now or did you previously have a prescription for a medication listed above? Please select all that apply.
- a. Yes, I was previously prescribed prescription stimulant medication at some time in my life, but not presently. (If selected, subject continues to # 15)
 - b. Yes, I am currently prescribed stimulant medication (If selected, subject continues to # 15)
 - c. No, I have never been prescribed stimulant medication (If selected, subject skips to #18)

15. At what age were you first given a prescription for this medication?

- a. Please provide your answer in numerical form (with numbers)

16. For what reason were you prescribed this medication?

- a. Treatment for Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD)
- b. Treatment of Obesity
- c. Treatment for Narcolepsy
- d. Other: _____ Please specify

17. Please answer the following questions related to the time frame given in the respective column.

- a. Have you taken stimulant medication in greater amounts than was prescribed for you?
 - i. Within your lifetime?
 - 1. Yes
 - 2. No (If no, skip to 17 b)
 - ii. Within the last 12 months?
 - 1. Yes
 - 2. No
- b. Have you taken stimulant medication for any reason other than what it was prescribed for?
 - i. Within your lifetime?
 - 1. Yes
 - 2. No (If not, skip to question #19)

ii. Within the last 12 months?

1. Yes
2. No

If No to both #17 a i. and #17 b i. skip to # 19.

18. Rate the reasons of taking the stimulant medication in a way it was not prescribed – Five point likert-type with “Never” “Sometimes” “About half the time” “Most of the time” and “Always” as options.

- a. To study longer
- b. To increase concentration
- c. To improve interest in academic material
- d. To increase retention of academic knowledge base
- e. To make up for missed classes or for being hung over during class
- f. To increase academic edge against the competition
- g. To reduce restlessness during classes
- h. To increase energy following a late night working, studying or hanging out with friends

19. How would you rate the availability of prescription stimulant medication among students at your University?

- a. Easily available
- b. Somewhat available
- c. Somewhat unavailable
- d. Completely unavailable
- e. I'm not sure

APPENDIX D:
IRB APPROVED INFORMED CONSENT DOCUMENT

APPENDIX A
INFORMED CONSENT
UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM
INFORMED CONSENT FORM FOR NONMEDICAL INTERVIEW STUDY
UNIVERSITY OF ALABAMA
Individual's Consent to be in a Research Study

Study title: The Prevalence of Prescription Stimulant Use in a Sample of Nursing Students

Investigator's Name, Position, Faculty or Student Status: Sandra Estes, doctoral candidate.

Institution: The University of Alabama

You are being asked to be in a research study. This study is being done by Sandra Estes, a doctoral candidate at The University of Alabama. Mrs. Estes is the researcher. She is being overseen by Professor of Nursing, Marietta Stanton, at the Capstone College of Nursing at the University of Alabama.

Is the researcher being paid for this study? No.

Is this research developing a product that will be sold, and if so, will the investigator profit from it? No.

Does the investigator have any conflict of interest in this study? Some of the respondents may know the researcher as a faculty member from one of the nursing schools in the state. The researcher will not know who participated in the study.

What is this study about?

Nursing students, who are members of the Alabama Association of Nursing Students, will be asked to participate in this study. The number of members that use stimulant medicine will be explored. This study wants to learn if the members are using stimulant medicines as told by the prescriber or illicitly. If not as told, why? And are there links between this and other factors?

Why is this study important—What good will the results do?

Results will help researchers understand if there are differences between nursing students and other college students.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 5/26/2016
EXPIRATION DATE: 5/25/2017

Why have I been asked to take part in this study?

You have been asked to take part because you are a member of the Alabama Association of Nursing Students.

How many other people will be in this study?

The researcher hopes at least 82 members will take to the survey.

What will I be asked to do in this study?

If you agree to be in this study, you will click on the link below. You will be asked to complete the online survey at that link. You will be asked to answer questions about your background, current grade point average and program of study, and the number of hours you participate in additional activities. Questions include data about being prescribed or taking stimulant medicine and for what reasons.

How much time will I spend being in this study?

The survey will take 5-10 minutes of your time. The time investment depends on the responses to the questions. **You may skip any questions that you choose not to answer.**

Will being in this study cost me anything?

The only cost to you from this study is your time.

Will I be compensated for being in this study?

You will not be compensated for your participation in this study.

Can the investigator take me out of this study?

The researcher can take you out of this study if you do not meet study criteria.

What are the risks (problems or dangers) from being this study?

There is little to no risk foreseen in answering questions on this survey. **At any time you may choose not to participate in this survey, to skip questions, or not to complete the survey.** We can also advise a therapist if you want. Seeing a therapist would be at your own cost.

What are the benefits of being in this study?

There are no direct benefits to you. Although, you may feel good knowing that you have helped researchers understand about stimulant medicine use in a group such as yours.

How will my privacy be protected?

You are free to decide where you wish to complete this online survey. Your privacy will be protected by having you complete the survey in the privacy of your own home or at a place you feel comfortable.

UNIVERSITY OF ALABAMA IRB
CONSENT FORM APPROVED: 5/26/2016
EXPIRATION DATE: 5/25/2017

How will my confidentiality be protected?

You will not be asked to enter recognizing data as a part of this study. All data gathered from this study will remain anonymous. Data will be kept on a secure, password protected hard drive located in a locked office that is accessible only to the researcher and the dissertation chair. Information will come from a large area so that people will be recognizable based on responses. This survey uses software that protects your privacy so that your responses cannot be linked back to you. This software allows data to be secured on a password protected site. The software removes computer addresses, restricts access to the survey, and encrypts data so that only the researcher can access the information. Your identity and computer address will not be available to anyone, including the researcher, and will not be available in the data or published.

What are the alternatives to being in this study? Do I have other choices?

The only alternative to being in this study is not to join in.

What are my rights as a participant?

Being in this study is totally voluntary. It is your free choice. You may choose not to be in it at all. If you start the study, you can stop at any time. There will be no effect on your relations with the University of Alabama, The Alabama Association of Nursing Students, or the researcher.

The University of Alabama Institutional Review Board ("the IRB") is a committee that looks out for the ethical treatment of people in research studies. They may review the study records if they wish. This is to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?

If you have questions about this study right now or later on, please contact the researcher and ask them. The researcher is Mrs. Sandra Estes, at 205-348-1029 or Dr. Marietta Stanton at 205-348-5729. If you have questions or complaints about your rights as a research participant, call Ms. Tanta Myles, the Research Compliance Officer of the University at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

I have read this consent form. I have had a chance to ask questions. I agree to take part in this research study by clicking on the link below.

UNIVERSITY OF ALABAMA IRB
 CONSENT FORM APPROVED: 5/26/2016
 EXPIRATION DATE: 5/25/2017

APPENDIX E:
REVIEW OF LITERATURE--PREVALENCE FINDINGS

REVIEW OF LITERATURE--PREVALENCE FINDINGS

Prevalence Studies

Aggregate	Methods	Final N	Prevalence Findings	Reference
Undergraduate males in a fraternity	Cross-sectional study, 25 item questionnaire, convenience sample	307	Nonmedical use was 55%	DeSantis et al., 2010
College students	Cross-sectional study, 25 item questionnaire and qualitative interview, convenience sample	1,811	Illegal use of PS was 34%	DeSantis et al., 2008
U.S. Residents age 18-24, currently enrolled in college	Cross-sectional study, Internet survey, stratified random sample	2,087	Lifetime prevalence of nonmedical use of methylphenidate was 5.3%	DuPont et al., 2008
College population in 119 U.S. Colleges and Universities	Cross-sectional study, Harvard's College of Alcohol Study, secondary data analysis	10,904	Lifetime prevalence of self-reported nonmedical use of Ritalin, Dexadrine, and/or Adderall was 7%	Ford, 2008
College population in 119 U.S. Colleges and Universities	Cross-sectional study, Harvard's College of Alcohol Study, secondary data analysis	10,904	Past year prevalence of self-reported nonmedical use of Ritalin, Dexadrine, and/or Adderall was 3.6%	Ford & Schroeder, 2009
US civilian population (all 50 states) aged 18-25	Cross-sectional study, secondary data analysis on National Survey on Drug Use	17,352	Past year prevalence nonmedical use of PS was 2.1%	Herman-Stahl et al., 2007
Undergraduate college students	Cross-sectional study, web survey, convenience sample	333	Prevalence of illicit use of PS was 20%	Judson & Langdon, 2009
Population 119 colleges & universities in 39 states	Cross-sectional study, secondary analysis of Harvard's College Alcohol Study	10,904	Lifetime prevalence of self-reported nonmedical use of Ritalin, Dexadrine, and/or Adderall was 6.9% with past year rates from 0-25% at individual colleges	McCabe et al., 2005

Undergraduate students from one public and one private university with ADHD medication prescription	Cross-sectional study, web based survey, purposive sampling	115	Prevalence of PS misuse among students with a prescription for medical was 31%	Rabiner et al., 2009
Students from one large public university	Cross-sectional study, 33-item questionnaire, convenience sample	448	Recreational stimulant use was reported by 18% of the students surveyed	Sharp & Rosen, 2007
Persons 18-22 years old in the US	Two cross-sectional studies, face-to-face interviews, representative sample	28,027	Prevalence of past-year nonmedical Adderall use among full-time college students was 6.4%	SAMHSA, 2009
Medical School Students	Cross-sectional study, survey, convenience sample	388	Lifetime prevalence of nonmedical use of PS was 10%	Tuttle et al., 2010
College students from one university	Cross-sectional study, five questionnaires, convenience sample with multiple recruitment strategies	363	Prevalence of past 30-day use of prescription stimulants without a prescription was 7.5%	Weyandt et al., 2009