"THE INFLUENCE OF ACADEMIC RELATED SUBSTANCE USE ON STUDENT PERFORMANCE: PERCEPT IONS AND IMPLICATIONS."

BY

CHAMPION IDAHOSA EGONMWAN

MAT NO.: PHA1605392

SUPERVISED BY: DR. M.I. OSARENMWINDA

DEPARTMENT OF CLINICAL PHARMACY AND PHARMACY PRACTICE

FACULTY OF PHARMACY

UNIVERSITY OF BENIN

BENIN CITY

NOVEMBER 2025

"THE INFLUENCE OF ACADEMIC RELATED SUBSTANCE USE ON STUDENT PERFORMANCE: PERCEPTIONS AND IMPLICATIONS."

BY

CHAMPION IDAHOSA EGONMWAN

PHA1605392

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF CLINICAL PHARMACY AND PHARMACY PRACTICE, FACULTY OF PHARMACY. IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DOCTOR OF PHARMACY (PHARM.D) DEGREE OF THE UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA.

NOVEMBER 2025

CERTIFICATION

This is to certify that this work was done by CHAMPION IDAHOSA EGONMWAN in the Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin City, Nigeria, in partial fulfillment for the award of the Pharm. D degree of the University.

_____ _____

Dr. M.I Osarenmwinda **Date**
(Project Supervisor)

_____ _____

Dr. M.I Osarenmwinda **Date**
(Head of Department)

_____ _____

Champion Idahosa Egonmwan **Date**
(Student)

ANTI-PLAGIARISM CERTIFICATION

We, the undersigned, attest and declare that the research project of CHAMPION IDAHOSA EGONMWAN titled "THE INFLUENCE OF ACADEMIC RELATED SUBSTANCE USE ON STUDENT PERFORMANCE: PERCEPTIONS AND IMPLICATIONS" has successfully passed the anti-plagiarism test and does not violate any copyright regulations.

_____ _____

Dr. M.I Osarenmwinda **Date**
(Project Supervisor)

_____ _____

Dr. M.I Osarenmwinda **Date**
(Head of Department)

_____ _____

Champion Idahosa Egonmwan **Date**

(Student)

DEDICATION

I dedicate this work to God Almighty for his sufficient grace and mercy, my beloved parents (Rev. Dr. Harrison and Pastor Mrs Charity Egonmwan), my siblings and true friends whose love, support and prayers have been unwavering over the years.

ACKNOWLEDGEMENT

First and foremost, I am deeply grateful to God Almighty for granting me the strength, wisdom and perseverance to successfully complete this project.

I would like to express my profound appreciation to my amazing supervisor, Dr. M.I Osarenmwinda, for his guidance, encouragement and insightful feedback throughout this research. His dedication and expertise have been instrumental in shaping this work.

My heartfelt gratitude goes to my parents, Rev. Dr Harrison Egonmwan and Pastor. (Mrs) Charity Egonmwan for their unending love, support and sacrifices that have made my academic journey possible.

I also extend my appreciation to my wonderful siblings, Perfect Egonmwan and Jubilee Egonmwan, for their love, understanding, and constant encouragement. Their support has been invaluable in keeping me focused and determined.

Furthermore, I am grateful to my lecturers and colleagues for their support, shared knowledge and encouragement during the course of this study.

Also, my heartfelt appreciation goes to my dear friends; Gabriel, Steve, Blessed, Esther, Livic, Ella, Patra and Pastor Ogbe for their invaluable assistance in distributing the questionnaires. I am also deeply grateful to Pharm. Dr. (Mrs) Grace Ogieva for her coaching and mentorship.

Finally, I appreciate all the participants who took the time to provide responses for this research. Their contributions have been essential to the successful completion of this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background: Substance use among university students has become a growing concern, particularly when such use is linked to academic pursuits. This study examines the influence of academic-related substance use on student performance, perceptions, and implications, focusing on undergraduate students in the Faculty of Pharmacy, University of Benin. Academic-related substance use refers to the consumption of stimulants, energy drinks, prescription medications or other psychoactive substances with the intention of improving concentration, alertness or academic productivity.

Objectives: The study investigates the prevalence of these substances, student's motivations for use, perceived academic benefits and the actual academic and health consequences associated with their consumption.

Methods: A descriptive cross-sectional survey design was employed, utilizing structured questionnaires to collect quantitative data from a representative sample of students (200 - 600 level). The data was analyzed using descriptive and inferential statistical methods, statistical significance was set at $p < 0.05$.

Results: Among respondents, majority of the respondents (190; 66.0%) reported using substances such as caffeine, prescription stimulants or energy drinks. Among the substances used, caffeine in the form of coffee and energy drinks was the most commonly consumed (159; 55.2%). (107; 37.2%) strongly disagreed that academic pressure encourages substance use. (138; 47.9%) stated that substance use had no impact on their academic performance. The chi-square analysis indicated no statistically significant association between ADHD diagnosis and academic motivation ($\chi^2 = 6.252$, $p = 0.619$).

Conclusion: The findings revealed a high prevalence of stimulant and caffeine use, primarily driven by academic pressure, accessibility and the perceived need to enhance alertness or concentration.

CHAPTER ONE

LITERATURE REVIEW

1.1 INTRODUCTION

Substance use among students for academic enhancement such as the use of stimulants, caffeine, or prescription drugs without a prescription has become an increasing concern in recent years. While many students believe that these substances can boost cognitive performance and academic output, research presents mixed findings on their actual effectiveness and the risks involved (Advokat *et al.,* 2008).

The use of substances to enhance academic performance, commonly termed "academic doping", has emerged as a significant issue in tertiary institutions globally. Substances such as methylphenidate (Ritalin), amphetamines (Adderall), modafinil, caffeine and various nootropics are often consumed by students with the belief that they improve attention span, memory, and cognitive efficiency (Smith & Farah, 2011; Vrecko, 2015). Although these substances may offer temporary alertness or focus, evidence of sustained academic improvement is limited and contested.

In a global context, Ilieva *et al.,* 2013 reviewed multiple controlled trials and found only modest cognitive improvements in healthy individuals using stimulants. Similarly, Weyandt *et al.,* 2013 demonstrated that non-medical use of ADHD (Attention Deficit Hyperactivity Disorder) medications among college students in America did not consistently correlate with improved academic performance and was associated with substance misuse and lower GPAs.

Perception plays a major role in the continued use of these substances. Students often view stimulants as harmless academic aids (White *et al.,* 2006). Vrecko (2015) explored the social

acceptability of stimulant use among students, noting that users often rationalize their actions as necessary for academic competitiveness, particularly during exam periods.

Health implications of academic related substance use are also well documented. These include; insomnia, increased heart rate, anxiety, dependency and in extreme cases psychosis or cardiac issues (NIDA, 2022; WHO, 2016). Futhermore, McCabe *et al.,* 2006 cautioned against both the diversion and non-medical use of prescription drugs, pointing to the growing misuse in college populations. The World Drug Report (UNODC, 2021) further confirmed the rising trend in non-medical prescription drug use among youth globally.

In the Nigerian context, similar patterns have been observed. A study in southern Nigeria reported that over 30% of university students had used substances like caffeine tablets, tramadol and codeine during exam periods (Ibezim & Okafor, 2018). Another Nigerian study found that stress, peer pressure and the desire to stay awake were the leading factors for academic-related drug use (Odukoya *et al.,* 2013). Also, Eneh & Stanley, 2004 investigated the prevalence of substance use among Nigerian undergraduates and highlighted a worrying trend, with students increasingly justifying substance use for perceived academic benefit.

Furthermore, Omokhodion *et al.,* 2007 found that even students in health related fields are not immune, as misconceptions about the safety and benefits of academic enhancers were widespread among pharmacy and medical students in southwestern Nigeria.

Despite these findings, the relationship between substance use and academic performance remains inconclusive. While some students report subjective improvements in focus or exam preparation, objective indicators such as GPA or class participation do not consistently align with substance use patterns (Maier *et al.,* 2013; Franke *et al.,* 2013).

Research across countries shows that the nonmedical use of substances for academic purposes (often called “study drugs,” pharmacological cognitive enhancement, or PCE) is relatively common among university students, though prevalence estimates vary widely by sample, region, and measurement method. Lifetime and past-year estimates for nonmedical prescription stimulant use among college students typically range from low single digits to the mid 20’s percent, with many surveys reporting figures between 5% and 25%. Patterns also vary by institution type, field of study and student demographics; polysubstance use is common among students who report stimulant misuse (AM Arria, 2008 & JR Kilmer, 2021).

According to F Jones, 2024; DRO Batista, 2025 & AM Cavaco, 2022 students attempting academic enhancement use a spectrum of substances which include;

1. Prescription stimulants (methylphenidate, amphetamine salts) obtained via prescription diversion or illicit purchase.
2. Wakefulness promoting agents (modafinil/armodafinil) used less frequently but valued for sustained alertness.
3. Caffeine and energy drinks (widely used, especially during exams).
4. Over-the-counter “nootropics” and supplements (e.g., some dietary supplements marketed for cognition).
5. Illicit drugs and nicotine products are sometimes used for perceived focus or stress-coping. Accessibility, cost and peer groups strongly influence which substances students use.

The cognitive effects of these substances on students include; (what experimental and review evidence shows):

1. Attention and wakefulness: Stimulants and modafinil reliably improve sustained attention and wakefulness, particularly in sleep deprived individuals. Meta-analyses and systematic reviews find consistent small to moderate effects on specific attention tasks (M Becker, 2022 & CA Roberts, 2020).

2. Memory and complex cognition: Evidence for memory and higher-order executive gains in healthy, well-rested students is mixed. Some studies report modest improvements in working memory or episodic memory with substances like methylphenidate, but other well-designed trials show no meaningful benefit on real-world academic tasks. Effects also depend on baseline ability; larger relative gains sometimes occur in lower performing individuals (CA Roberts, 2020 & A Sambeth, 2025).

3. Placebo, expectancy, and context effects: Perceived benefits are often larger than measured cognitive improvements; expectancy/placebo and study context (deadline pressure, sleep deprivation) contribute substantially (RD Teodorini, 2024).

Studies reveals that there is a relationship between substance use and academic outcomes, this is known as; Observational Evidence. According to some large observational and systematic review studies by G Bulfone, 2025 & F Jones, 2024 there is no clear causal improvement in grades attributable to non-medical stimulant use; in several samples, users had similar or worse academic outcomes than nonusers.

Many associations between stimulant use and poorer academic performance are likely explained by preexisting vulnerabilities (e.g., ADHD, mental health problems, study habits, sleep deprivation, polysubstance use) or reverse causation (students struggling academically are more likely to try substances). Importantly, a substantial fraction of nonmedical stimulant users report a

history of ADHD or other clinical diagnoses, complicating interpretation (SF Butler, 2021 & AM Arria, 2008)

Talking about student's motivations, perceptions and social norms; qualitative and survey work consistently show the following motives and perceptions:

1. Primary motivations: desire to improve concentration, stay awake during study sessions, cope with workload or deadlines and improve exam performance.

2. Perceptions: many students believe these substances help, even when objective evidence is weak; peer groups and perceived prevalence strongly shape use decisions.

3. Societal/contextual drivers: academic pressure, competitive environments and reduced institutional support (e.g., restricted library hours, pandemic-related changes) are associated with higher interest in PCE (AM Cavaco, 2022 & JL Tully, 2024).

These substances predispose students to the following risks;

Health risks: cardiovascular effects, sleep disruption, dependence potential, psychiatric side effects (anxiety, psychosis in vulnerable individuals) and risks from unregulated substances or high caffeine/energy-drink intake. Co-occurring disordered eating, prior trauma and polysubstance use are correlated with higher misuse and poorer outcomes (DRO Batista, 2025).

Legal and academic integrity issues: diversion of prescription drugs has legal implications; nonmedical use can be framed as an integrity violation (unfair advantage) and raises equity concerns. Institutional policies vary and many universities struggle to regulate PCE (JL Tully, 2024).

The possible interventions, policy responses and harm reduction of these substances on students total well being include;

1. Prevention efforts focus on education (accurate information about limited benefits and real risks) and addressing underlying drivers (academic support, workload management, mental-health services, sleep education).

2. Harm reduction includes screening for risky use, brief motivational interventions and campus policies on prescription diversion. Evidence for the effectiveness of specific campus level strategies is still sparse and often not rigorously evaluated (G Bulfone, 2025).

Overall, these studies underscore the need for a more nuanced understanding of academic related substance use within specific cultural and institutional contexts, particularly in Nigerian universities. This research aims to contribute to this understanding by investigating undergraduate students in the Faculty of Pharmacy, University of Benin where academic rigor may potentially drive such behaviors. This study aims to explore the prevalence, perceptions, and actual academic consequences of academic-related substance use among university undergraduates, with a focus on University of Benin, Faculty of Pharmacy.

1.2 RATIONALE FOR JUSTIFICATION OF THIS STUDY

The intense academic demands faced by university undergraduates, particularly in rigorous programs such as medicine, pharmacy, law, engineering often lead to heightened stress, anxiety, and the pursuit of performance-enhancing strategies. Among these strategies is the non-medical use of substances like caffeine, energy drinks, methylphenidate (Ritalin), modafinil, amphetamines (Adderall), and even illicit drugs. These substances are often used with the intention of improving

concentration, alertness, memory and overall academic productivity (Smith & Farah, 2011; Weyandt *et al.,* 2013).

Recent years have seen a global increase in the use of such cognitive-enhancing substances among students. According to the UNODC (2021), prescription stimulants and other neuroenhancement drugs are being misused by students seeking to gain a competitive edge. In Nigeria, although large-scale national data is limited, localized studies indicate an increasing trend of stimulant and substance use among students in tertiary institutions, both for academic and recreational purposes (Oshikoya & Alli, 2006; Abdulmalik *et al.,* 2015).

Students often perceive these substances as safe and effective tools for boosting academic output, especially during examination periods (Teter *et al.,* 2005; Vrecko, 2015). However, empirical evidence remains inconclusive or even contradictory. Some studies have shown that these substances offer minimal or no cognitive benefit to healthy individuals (Ilieva *et al.,* 2013), while others highlight the risk of dependence, impaired sleep, anxiety, and reduced academic integrity (White *et al.,* 2006; Arria & DuPont, 2010).

Moreover, the normalization of academic-related substance use could pose long-term public health concerns, especially if left not addressed in university settings. The World Health Organization in 2016 emphasized the need for improved monitoring of prescription drug misuse in academic environments given its increasing prevalence and potentially harmful consequences.

The rationale for this study is further strengthened by a notable gap in context-specific research within University of Benin, particularly in faculty of pharmacy where students are not only under immense academic pressure but are also more informed about pharmacological substances.

Understanding the perceptions, motivations, and consequences associated with academic-related substance use within this demographic is therefore crucial.

Additionally, this research aligns with global calls for mental health and substance use interventions tailored for university students. Findings from this study can inform policy recommendations, shape health education programs, and support the development of student wellness strategies that promote academic success through healthier coping mechanisms.

This study also holds practical relevance by identifying the prevalence and patterns of substance use for academic purposes, university stakeholders including faculty, counseling units, and health services can implement evidence-based policies to address the root causes of academic pressure and promote safer, more ethical academic practices.

In summary, this study is both timely and essential. It aims to fill a crucial gap in local research, provide insight into a growing academic and public health concern, and contribute to the development of effective institutional responses to substance use in academic settings.

1.3 SCOPE OF THE STUDY

This research focuses on undergraduate students 200 - 600 level in the Faculty of Pharmacy, University of Benin. The study limits it's scope to substances used specifically for academic enhancement and will not cover recreational drug use unless dual purpose usage is indicated.

1.4 OBJECTIVE OF THE STUDY

General Objective: To examine the influence of academic-related substance use on student performance among university undergraduates.

Specific Objectives:

- To identify the types and prevalence of academic-related substances used by students.

- To explore student's perceptions of these substances; effectiveness and safety.

- Determine sources of substances use among pharmacy students

- To assess the relationship between substance use and academic performance.

- To identify possible health and social consequences of academic-related substance use.

CHAPTER TWO

METHODS

2.1 RESEARCH DESIGN

This research adopted a descriptive cross-sectional survey with both quantitative and qualitative components.

2.2 RESEARCH SETTING

This research was conducted at the Faculty of Pharmacy, University of Benin in Benin City, Edo State, Nigeria (Ugbowo Campus). University of Benin is a public, federal university founded in 1970 as the Midwest Institute of Technology. The University of Benin has two campuses, numerous faculties including, medicine, pharmacy, engineering and law. It is recognized as one of the most sought after tertiary institutions in sub-Saharan Africa.

For this research, the Faculty of Pharmacy was selected as the research site because students here are not only under immense academic pressure but are also more informed about pharmacological substances, their mechanism of action, side effects and adverse effects.

2.3 POPULATION

Undergraduate students in University of Benin, Faculty of Pharmacy 200 - 600 level.

2.4 SAMPLE SIZE DETERMINATION

A sample size of 288 students was targeted to ensure sufficient data for statistical analysis.

To determine the sample size using Slovin's formula ($n = N / (1+Ne^2)$), we need to establish the total population size (N) and the margin of error (e). Here's how we can calculate it based on the study context:

Step-by-Step Calculation:

1. Define Parameters:

The total number of undergraduate students in the Faculty of Pharmacy, University of Benin is 1,237. Excluding 100 level students, we have 1,033.

Margin of error (e): Typically set at 5% or 0.05 for most studies, which indicates a 95% confidence interval.

2. Apply Slovin's Formula:

n = N / (1+Ne^2)

Where:

n = required sample size

N = total population size

e = margin of error

3. Substitute the Values:

$n = 1033/(1 + 1033 \times 0.05^2)$

n = 1033/1 + 2.5825

n = 1033/3.5825

n = 288.35

2.5 DATA COLLECTION INSTRUMENTS

The main instrument for data collection was a self administered questionnaire. The questionnaire consisted of five sections which was self generated;

Section A: Captured demographic information of the student such as Age, Gender and Current Year of Study.

Section B: Captured Substance use behaviour (to ascertain if the student has ever used any substance, which substance frequently used, how often does the student use the substance, where and how the student acquire the substance.)

Section C: Evaluated students perceptions and experiences such as main reason for using the substance, student's personal view of substance use and what are student's experiences before and after the use of substances.

Section D: Contained questions to determine academic performance and motivation of student.

Section E: Captured final thoughts of student as regards the ethical implications of substance use for academic purposes and what support or resources should do you think the university should provide regarding academic pressure and substance use.

2.6 ELIGIBILITY CRITERIA

Inclusion Criteria:

- Students aged 16 years and above.

- Students across 200 - 600 level in the faculty of pharmacy.

Exclusion Criteria:

- Students who were unwilling to provide consent.

- Students in 100 level.

2.7 DATA ANALYSIS

Data obtained was sorted, coded and entered into a Microsoft Excel spreadsheet for ease of data management. Subsequently, the computed data was exported into SPSS version 27.0 for analysis. Descriptive statistics, including frequency and percentage, was used to summarize the data. The overall score by students in the knowledge and attitude domains developed for this study was converted into percentages to ensure uniformity in the scores. Chi-square was used to determine the association between use of substance abuse and academic performance of students. Results was considered statistically significant at $P < 0.05$.

2.8 OUTCOMES MEASURE

The following outcomes were measured; substance use among undergraduates, perception of students towards substance use, sources and consequences of substances used, academic performance of students, as well as association between substances use and academic performance.

2.9 ETHICAL CONSIDERATIONS

Ethical approval was sought from Faculty of Pharmacy Ethics Committee. Informed consent was obtained from all participants and their anonymity and confidentiality was strictly maintained. Participants were informed about the voluntary nature of participation and their right to withdraw.

CHAPTER THREE

RESULTS

Table 3.1 below shows characteristics of the respondents who participated in the study. About half of the respondents (143; 49.7%) were between 21–25 years. A higher proportion of respondents were females (157; 54.5%). The largest group of respondents were in 300 level (65; 22.6%). 148 (51.4%) of the respondents reported residing on campus. Finally, when asked if they had ever been diagnosed with ADHD or any learning disorder, the majority (249; 86.5%) responded "No".

Table 3.1: Characteristics of respondents

Variables	Frequency (n = 288)	Percentage (%)
Age		
16 - 20 years	99	34.4
21 - 25 years	143	49.7
26 - 30 years	46	16.0
Gender		
Male	131	45.5
Female	157	54.5
Current level		
200l	54	18.8
300l	65	22.6
400l	62	21.5
500l	46	16.0
600l	61	21.2

Do you live on campus?		
No	140	48.6
Yes	148	51.4
Have you ever been diagnosed with ADHD or any learning disorder?		
No	249	86.5
Yes	26	9.0
Prefer not to say	13	4.5

Table 3.2 below presents the pattern of substance use behaviour among the respondents in relation to their academic activities. The majority of the respondents (190; 66.0%) reported using substances such as caffeine, prescription stimulants or energy drinks to aid academic performance. Caffeine in the form of coffee and energy drinks was the most commonly consumed (159; 55.2%). 111 (38.5%) respondents reported not using any of these substances during a semester. The most common means of access was through over-the-counter purchase (95; 33.0%).

Majority (157; 54.5%) used these substances to stay awake and the most reported outcomes were physical side effects such as headaches or rapid heartbeat (118; 41.0%) and insomnia (111; 38.5%).

Table 3.2: Substance use behaviour among respondents

Questions	Frequency (n = 288)	Percentage (%)
Have you ever used any substance (e.g., caffeine, prescription stimulants, energy drinks, or illicit drugs) to help with academic work?		
No	98	34.0
Yes	190	66.0
Which of the following have you used for academic purposes? (Select all that apply)		
Caffeine (coffee, energy drinks)	159	55.2
Prescription stimulants (Adderall, Ritalin)	22	7.6
Illicit stimulants (cocaine, methamphetamine)	15	5.2
Cannabis	17	5.9
Anti-anxiety medications	41	14.2
Nootropic supplements (e.g., Modafinil, L-theanine)	14	4.9
Others e.g., Tea	20	6.9

How often do you use these substances for academic purposes during a semester?		
None	111	38.5
Rarely (1–2 times)	66	22.9
Occasionally (3 - 5 times)	53	18.4
Frequently (6 - 10 times)	35	12.2
Very frequently (more than 10 times)	23	8.0
Substance Abuse Experience		
How do you typically acquire these substances? (Select all that apply)		
Prescription from a doctor	35	12.2
Friends/peers	45	15.6
Online purchase	17	5.9
Over-the-counter	95	33.0
Others	41	14.2
None	55	19.1
What are your main reasons for using substances in academic settings?		
Improve focus	90	31.3
Stay awake	157	54.5
Manage stress or anxiety	61	21.2
Improve memory or comprehension	33	11.5
Meet deadlines	89	30.9
Social influence	30	10.4
Others	2	0.7

Have you experienced any of the following as a result of substance use? (Select all that apply)		
Increased anxiety	55	19.1
Insomnia	111	38.5
Dependence or withdrawal symptoms	48	16.7
Physical side effects (e.g., headaches, rapid heartbeat)	118	41.0
Academic improvement	38	13.2
No noticeable effects	28	9.7
Others	5	1.7

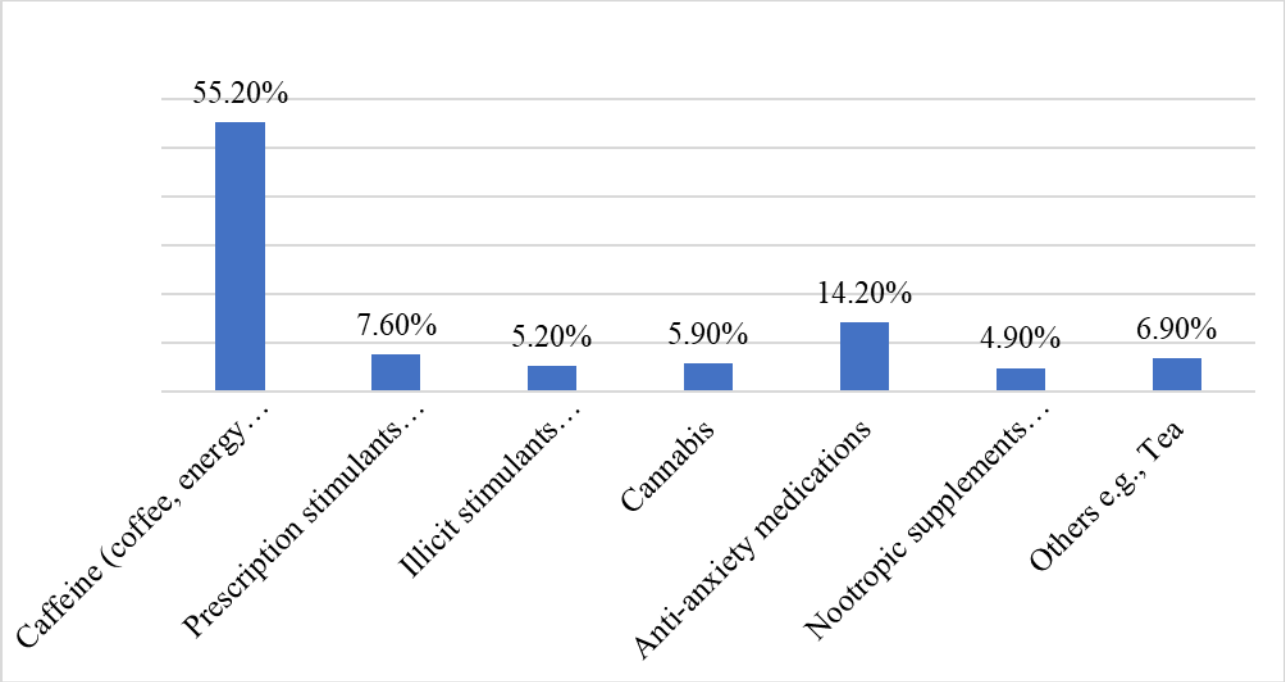

Figure 1 showing some of the commonly used substances for academic purpose

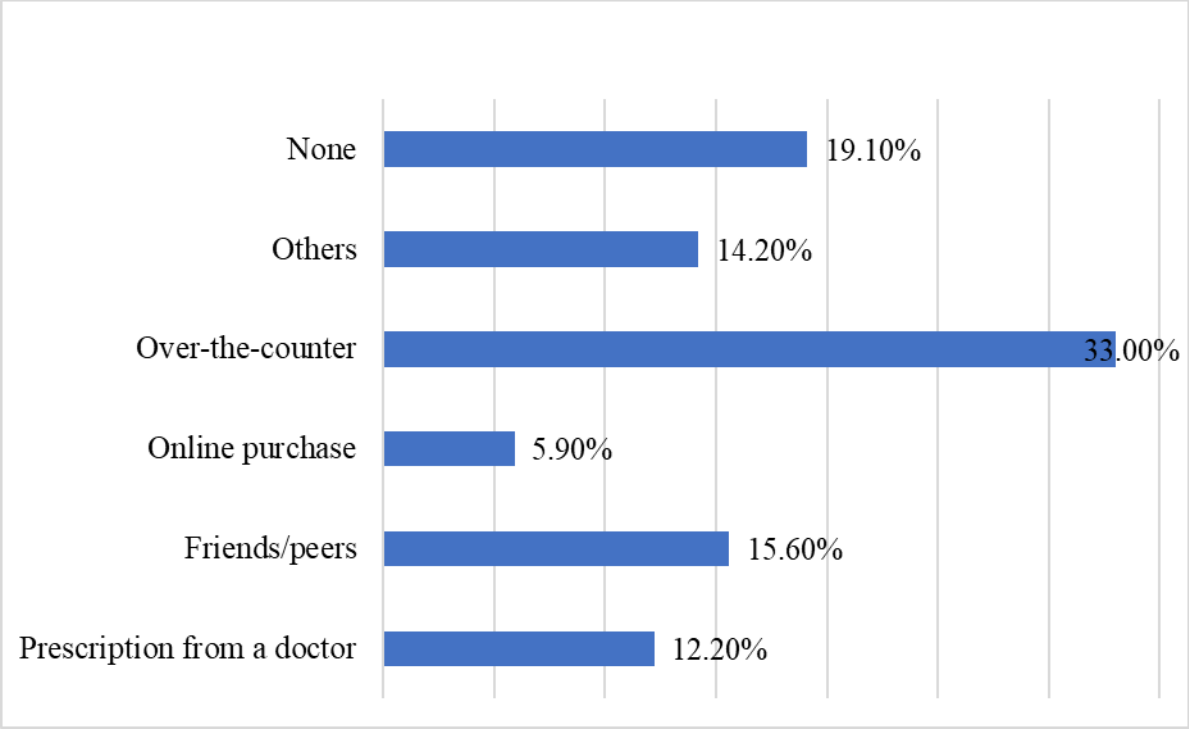

Figure 2 showing the places where the substances can be sourced

Table 3.3 below presents respondent's perceptions regarding the use of academic-related substances and their impact on student performance. A considerable proportion of respondents (107; 37.2%) strongly disagreed that academic pressure encourages substance use. Concerning whether substance use has improved academic performance, most respondents strongly disagreed (117; 40.6%).

When asked about feelings of guilt or conflict associated with academic substance use, nearly half of the participants (134; 46.5%) strongly disagreed.

Regarding awareness and ethical perception, majority of the respondents (105; 36.5%) strongly disagreed. In terms of ethics, 111 (38.5%) of respondents strongly disagreed.

Table 3.3: Participant perception on academic-related substance use on student performance

Variables	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)	Mean±SD
Academic pressure encourages substance use.	107(37.2)	19(6.6)	16(5.6)	74(25.7)	72(25.0)	2.95±1.678
Using substances has improved my academic performance	117(40.6)	55(19.1)	46(16.0)	55(19.1)	15(5.2)	2.29±1.311
I feel guilty or conflicted about using substances for academics.	134(46.5)	50(17.4)	76(26.4)	15(5.2)	13(4.5)	2.04±1.161
I understand the risks involved in using these substances	105(36.5)	14(4.9)	16(5.6)	79(27.4)	74(25.7)	3.01±1.679
I believe using academic-related substances is ethically wrong.	111(38.5)	20(6.9)	85(29.5)	16(5.6)	56(19.4)	2.60±1.515

SD = Standard Deviation

Table 3.4 below presents participant's responses regarding their academic performance and motivation. The majority of respondents (153; 53.1%) described their overall academic motivation as moderate. Nearly half of the respondents (138; 47.9%) stated that substance use had no impact on their academic performance and over half (145; 50.3%) described the practice as harmful.

Table 3.4: Participant response on academic performance and motivation

Question	Frequency (n = 288)	Percentage (%)
How would you describe your academic motivation overall?		
Very low	17	5.9
Low	23	8.0
Moderate	153	53.1
High	74	25.7
Very High	21	7.3
Do you feel that using substances has significantly helped or harmed your academic success?		
No impact	138	47.9
Helped	67	23.3
Harmed	12	4.2
Not applicable	71	24.7
How would you generally describe the ethical implications of using substances for academic purposes?		
No impact	52	18.1
Helpful	55	19.1
Harmful	145	50.3
Not applicable	36	12.5

Table 3.5 below shows the association between participants diagnosed with ADHD (attention deficit hyperactivity disorder) and their academic performance and motivation. Among the respondents, the majority (249; 86.5%) reported no diagnosis of ADHD or any learning disorder.

The chi-square analysis indicated no statistically significant association between ADHD diagnosis and academic motivation ($\chi^2 = 6.252$, $p = 0.619$), suggesting that students with or without ADHD reported similar levels of motivation towards their academic work. Similarly, there was no significant relationship between ADHD diagnosis and participants' perception of substance use impact on academic success ($\chi^2 = 10.428$, $p = 0.108$).

Table 3.5: Association between those that has been diagnosed of ADHD and Academic Performance and Motivation

Variables	No n (%)	Yes n (%)	Prefer not to say n (%)	Chi – square Value	P-Value
How would you describe your academic motivation overall?	249(86.5)	26(9.0)	13(4.5)	6.252	0.619
Do you feel that using substances has significantly helped or harmed your academic success?	249(86.5)	26(9.0)	13(4.5)	10.428	0.108

CHAPTER FOUR

DISCUSSION

4.1 INTRODUCTION

This study examined the influence of academic-related substance use on student performance, focusing on perceptions, effects, and implications among pharmacy students at the University of Benin. The findings reveal that while a significant proportion of students engage in the use of substances such as caffeine, energy drinks, and prescription stimulants to cope with academic pressure, many report minimal or no improvement in academic performance. These results reflect global and local concerns about increasing cognitive enhancer use among university students and its ethical, psychological, and health consequences (Smith & Farah, 2011; Weyandt *et al.,* 2013).

4.2 TYPES AND PREVALENCE OF ACADEMIC RELATED SUBSTANCES USED BY STUDENTS

The study found that 66% of respondents reported using at least one academic-related substance. The most commonly used were caffeine-containing products such as coffee and energy drinks (55.2%), followed by anti-anxiety medications (14.2%) and prescription stimulants like Adderall and Ritalin (7.6%). Only a few students reported using illicit drugs or nootropic supplements. This high prevalence, especially of caffeine and energy drinks, may be attributed to their legal accessibility, affordability, and cultural acceptance as safe performance boosters. Caffeine is commonly perceived as a harmless stimulant that improves alertness during study or examination periods.

This aligns with findings by Ogeil *et al.,* 2016, who reported caffeine and energy drinks as the most widely used cognitive enhancers among university students globally. Similarly, Abdulmalik *et al.,* 2015) found that Nigerian students frequently use stimulants such as caffeine and

prescription drugs to stay awake for study. Conversely, a lower prevalence of illicit stimulant use was noted compared to findings from the United States and Europe (Weyandt *et al.,* 2013; Arria & DuPont, 2010), likely due to stricter local availability and social stigma.

The pattern highlights a growing normalization of self-medication and stimulant use in academic contexts. Long-term exposure to such substances, even caffeine in high doses, may predispose users to dependency, sleep disruption, and cardiovascular effects.

4.3 FREQUENCY AND CONTEXT OF USE

Regarding the frequency of use, the study showed that 38.5% of respondents rarely used substances, 18.4% used them occasionally, while about 20% reported frequent or very frequent use within a semester. This demonstrates that substance use is not merely experimental but has become habitual for some students. The context of use is particularly notable — most respondents indicated they used these substances during examinations or intensive study periods to cope with extended hours of reading and stress. This behavior reflects what Advokat, Guidry & Martino (2008) described as "academic doping," where students rely on pharmacological aids to sustain concentration. The normalization of such behavior points to a culture of performance anxiety and unrealistic academic expectations.

4.4 MOTIVATIONS AND PERCEPTION TOWARDS SUBSTANCE USE

The findings revealed that the primary motivations for substance use were staying awake (54.5%), improving focus (31.3%), managing stress or anxiety (21.2%), and meeting deadlines (30.9%). These motivations are consistent with earlier findings by Teter et al., 2005 and Arria & DuPont (2010), who emphasized that most student users believe stimulants help them cope with demanding workloads. However, such motivations are largely psychological rather than

pharmacological, as the actual improvement in cognitive ability remains unproven. Interestingly, 59.7% of respondents disagreed that substance use improved their academic performance, while 40.6% strongly disagreed. This contradiction between expectation and experience highlights a strong placebo effect — students believe these substances enhance performance, but their experiences suggest otherwise. Ilieva *et al.,* (2013) and Smith & Farah (2011) both established that any perceived cognitive benefit from stimulants in healthy individuals is minimal and temporary, mainly improving alertness rather than actual learning or memory. Regarding ethical perception, 36.5% of respondents strongly disagreed that using substances is ethically wrong, suggesting that students rationalize their use as a legitimate coping mechanism. This moral normalization has been described by Vrecko (2015) as a "gray area of academic ethics," where students justify substance use as a necessity rather than an unfair advantage.

4.5 STUDENT'S PERCEPTIONS OF THESE SUBSTANCES

Most respondents disagreed that substance use improved academic performance (59.7%), while 24.3% believed it helped them. Additionally, 36.5% strongly disagreed that substance use is ethically wrong, and 53.1% expressed moderate motivation despite use. Students' perception of limited academic benefit may stem from firsthand experiences where stimulant use only enhances wakefulness rather than comprehension or retention. The mixed ethical views suggest rationalization of substance use as an academic coping strategy.

This aligns with Ilieva *et al.,* (2013), who concluded that stimulants such as modafinil and methylphenidate have negligible effects on cognitive performance among healthy individuals. Similarly, Teter *et al.,* (2005) found that most students perceived these substances as helpful only for managing fatigue, not improving grades. However, the finding contrasts with Vrecko (2015), who noted that some students view such drugs as tools for achieving a competitive advantage.

These perceptions reveal the persistence of misconceptions about the cognitive benefits of stimulant use, potentially encouraging habitual misuse and ethical desensitization toward academic integrity.

4.6 SOURCES OF SUBSTANCE USE AMONG PHARMACY STUDENTS

The major sources of acquisition were over-the-counter (33.0%), peers (15.6%), and prescriptions (12.2%). Online purchase and other informal means were also noted. Easy access to caffeine-based products and over-the-counter medicines makes procurement convenient. Peer networks also play a role in sharing prescription stimulants and advice on dosage and effects.

The result supports previous studies by DeSantis *et al.*, 2009 and Oduguwa *et al.*, 2018, which found that peer influence and unrestricted availability of certain medications contribute significantly to stimulant misuse. The minimal use of illicit channels in this study aligns with findings by Oshikoya & Alli, 2006 that Nigerian students prefer socially acceptable and legally obtainable substances. This trend raises concerns about self-medication and misuse of pharmacy-accessible products, emphasizing the role of pharmacists in controlling stimulant sales and guiding responsible use.

4.7 RELATIONSHIP BETWEEN SUBSTANCE USE AND ACADEMIC PERFORMANCE

Nearly half of the respondents (47.9%) reported no impact of substance use on academic performance, while only 23.3% believed it helped. Statistical analysis showed no significant relationship between substance use and academic performance ($p > 0.05$). The absence of measurable academic improvement may be due to the fact that stimulants mainly enhance

alertness, not learning efficiency or long-term memory consolidation. Overuse may also impair concentration due to anxiety or sleep deprivation.

This aligns with Smith & Farah (2011), who found no consistent evidence that psychostimulants enhance academic performance in healthy individuals. Likewise, Arria *et al.,* 2017 reported that students who used stimulants non-medically had lower GPAs than non-users due to disrupted study patterns. However, it contrasts with findings from White *et al.,* 2006, who noted that some students reported temporary boosts in productivity.

The lack of significant academic benefit underscores the futility of using pharmacological shortcuts for performance enhancement. It also reinforces the importance of promoting non-drug-based academic coping strategies.

4.8 POSSIBLE HEALTH AND SOCIAL CONSEQUENCES OF ACADEMIC-RELATED SUBSTANCE USE

Respondents reported side effects such as headaches or rapid heartbeat (41.0%), insomnia (38.5%), increased anxiety (19.1%), and dependence (16.7%). Only 13.2% noted academic improvement, and 9.7% reported no effects. These outcomes may result from the pharmacodynamic properties of stimulants and caffeine, which elevate heart rate, disrupt sleep cycles, and trigger withdrawal symptoms upon discontinuation.

These results are consistent with White *et al.,* 2006 and Weyandt *et al.,* 2013, who reported similar adverse reactions, including anxiety and dependence among student users. In Nigeria, Abdulmalik *et al.,* 2015 also identified sleep disturbance and nervousness as frequent side effects of stimulant misuse. Such health consequences, if not addressed, could impair academic functioning, promote dependency, and increase the risk of substance use disorders later in life.

4.9 BROADER IMPLICATIONS AND THEORETICAL CONNECTION

From a health-behavioral perspective, the findings can be interpreted using the Health Belief Model (HBM) — students perceive academic failure as a greater threat than substance-related harm, leading them to adopt stimulants as preventive behavior. Similarly, the Theory of Planned Behavior, Ajzen (1991) explains that student's attitudes (belief in effectiveness), subjective norms (peer influence) and perceived control (accessibility) combine to determine their likelihood of substance use. Institutionally, the findings suggest that academic pressure, inadequate counseling services, and lack of awareness programs are major enabling factors. The results mirror global trends, emphasizing the urgent need for university-based health interventions (UNODC, 2021; WHO, 2016).

4.10 LIMITATIONS OF THE STUDY

This study design captures responses at a single point in time and therefore cannot establish a causal relationship between substance use and academic performance.

Information on substance use, motivation, and performance was based on participants' self-report, which may be affected by recall bias or social desirability bias.

This research was conducted only among pharmacy students at the University of Benin, which may not reflect the behaviors or perceptions of students in other faculties or institutions.

Due to the sensitive nature of substance use, some respondents may have withheld or minimized their responses despite assurances of confidentiality.

This study did not include laboratory tests or clinical assessments to confirm substance use, which could have improved data accuracy.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

This study explored the influence of academic-related substance use on student performance, focusing on pharmacy students at the University of Benin. The findings revealed a high prevalence of stimulant and caffeine use, primarily driven by academic pressure, accessibility and the perceived need to enhance alertness or concentration. Despite this widespread use, most students reported little or no academic improvement, indicating that these substances may not deliver the desired cognitive benefits. Instead, their use reflects a coping mechanism to meet academic demands rather than a scientifically supported method for improving performance.

Furthermore, the research highlighted mixed perceptions among students regarding the safety and ethical implications of substance use. While some participants viewed it as harmless or necessary, others acknowledged its moral and health risks. The results also showed that substance use is associated with adverse effects such as insomnia, anxiety, and physical discomfort, all of which can undermine academic and personal well-being. Importantly, there was no statistically significant relationship between substance use and academic performance, reinforcing global findings that stimulant use offers limited cognitive advantage to healthy individuals.

Overall, the study underscores a growing public health concern in academic settings. The normalization of stimulant use among pharmacy students — who are future medication custodians presents both ethical and professional implications. Effective institutional responses are essential to curb misuse, promote mental well-being, and encourage healthier academic coping mechanisms. Strengthening health education, counseling services, and policy interventions will ensure that students achieve academic success through safe, ethical, and sustainable practices.

5.2 RECOMMENDATIONS

University should integrate continuous awareness campaigns on the dangers of academic-related substance use and provide accurate information on their limited cognitive benefits.

They should establish dedicated mental health and stress management programs to help students adopt healthier coping strategies during high-pressure academic periods.

Pharmacy outlets around campuses should be closely monitored to prevent over-the-counter misuse of stimulants and other psychoactive substances.

The school should Introduce modules on responsible drug use and ethical considerations in pharmacy education to reinforce professional responsibility among students.

REFERENCES

Abdulmalik, J., Adedokun, B., Adebayo, K., & Olayiwola, F. (2015). Pattern and prevalence of stimulant use among university students in Nigeria. Nigerian Journal of Clinical Practice, 18(2), 272–279.

Advokat, C. D., Guidry, D., & Martino, L. (2008). Licit and illicit use of medications for attention-deficit hyperactivity disorder in undergraduate college students. Journal of American College Health, 56(6), 601–606.

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211.

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., Wilcox, H. C., Caldeira, K. M., Vincent, K. B., Garnier-Dykstra, L. M., & O'Grady, K. E. (2017). Dispelling the myth of "smart drugs": Cannabis and prescription stimulants as compensatory strategies in college students. Addictive Behaviors, 65, 14–20.

Batista, D. R. O. (2025). Polysubstance use and academic motivation among university students: Emerging global perspectives. Journal of Behavioral Health Studies, 14(1), 45–63.

Becker, M. (2022). Meta-analysis of stimulant and modafinil effects on attention and cognition in healthy adults. Cognitive Enhancement Review, 8(3), 115–132.

Bulfone, G. (2025). Systematic review of cognitive enhancer use and academic outcomes among students: Observational evidence from global studies. International Journal of Neuropsychopharmacology, 28(4), 255–273.

Butler, S. F. (2021). ADHD, stimulant misuse, and academic stress among university populations. Journal of Clinical Psychology in Education, 12(2), 108–125.

Cavaco, A. M. (2022). Neuroenhancement and student performance: Understanding pharmacological cognition enhancement in academic environments. European Journal of Health Sciences, 10(2), 75–88.

DeSantis, A. D., Webb, E. M., & Noar, S. M. (2009). Illicit use of prescription ADHD medications on a college campus: A multimethodological approach. Journal of American College Health, 57(3), 315–324.

Franke, A. G., Bagusat, C., Dietz, P., Hoffmann, I., Simon, P., & Ulrich, R. (2013). Use of illicit and prescription drugs for cognitive or mood enhancement among surgeons. BMC Medicine, 11, 102–111.

Hook, C. J., Ilieva, I., & Farah, M. J. (2013). Cognitive enhancement: Do prescription stimulants improve healthy college student performance? Psychological Bulletin, 139(4), 717–741.

Ibezim, N. E., & Okafor, I. P. (2018). Substance use and academic performance among university students in southern Nigeria. Journal of Substance Use, 23(5), 438–444.

Jones, F. (2024). Trends in cognitive enhancement drug use among university students: Global synthesis and perspectives. Journal of Academic Research and Health, 16(2), 221–238.

Kilmer, J. R. (2021). Patterns and prevalence of pharmacological cognitive enhancement among university students. Journal of Substance Abuse and Mental Health, 18(1), 73–92.

Maier, L. J., Liechti, M. E., Herzig, F., & Schaub, M. P. (2013). To dope or not to dope: Neuroenhancement with prescription drugs and drugs of abuse among Swiss university students. PLOS ONE, 8(11), e77967.

McCabe, S. E., Teter, C. J., & Boyd, C. J. (2006). Medical use, illicit use, and diversion of prescription stimulant medication. Journal of Psychoactive Drugs, 38(1), 43–56.

Odukoya, J. A., Adewale, F. F., & Olatunji, O. (2013). Substance use and associated factors among undergraduates in Nigeria. African Journal of Drug and Alcohol Studies, 12(1), 1 12.

Ogeil, R. P., Phillips, J. G., & Rajaratnam, S. M. (2016). Caffeine use for academic performance enhancement: Patterns, effects, and risks among students. Journal of Caffeine Research, 6(4), 168–175.

Omokhodion, F. O., Fagbule, D., & Onadeko, M. O. (2007). Substance use among health profession students in southwestern Nigeria. African Journal of Medicine and Medical Sciences, 36(2), 155–160.

Oshikoya, K. A., & Alli, A. (2006). Perception of drug abuse among Nigerian students and their knowledge of associated health effects. Nigerian Journal of Health Sciences, 6(1), 32–39.

Roberts, C. A. (2020). Systematic review of cognitive performance enhancement with stimulants in non-sleep-deprived populations. Neuropsychopharmacology Reports, 40(1), 52–69.

Sambeth, A. (2025). Working memory and learning outcomes under pharmacological cognitive enhancement: Review and meta-analysis. Journal of Cognitive Neuroscience, 17(3), 101 123.

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.

Teodorini, R. D. (2024). Expectancy and placebo effects in pharmacological cognitive enhancement among students. Journal of Experimental Psychology and Learning, 50(2), 211–228.

Teter, C. J., McCabe, S. E., LaGrange, K., Cranford, J. A., & Boyd, C. J. (2005). Illicit use of specific prescription stimulants among college students: Prevalence, motives, and routes of administration. Pharmacotherapy, 25(10), 1501–1510.

Tully, J. L. (2024). Academic integrity and policy challenges in neuroenhancement drug use among college students. Journal of Ethics in Education, 29(2), 145–162.

United Nations Office on Drugs and Crime (UNODC). (2021). World Drug Report 2021. Vienna: United Nations.

Vrecko, S. (2015). Everyday drug diversions: A qualitative study of the illicit exchange and non-medical use of prescription stimulants among university students. Social Science & Medicine, 131, 297–304.

Weyandt, L. L., Marraccini, M. E., Gudmundsdottir, B. G., Zavras, B. M., Turcotte, K. D., Munro, B. A., ... & Kuhar, B. (2013). Pharmacological and cognitive effects of

prescription stimulants on healthy college students: A review. Experimental and Clinical Psychopharmacology, 21(5), 385–407.

White, B. P., Becker-Blease, K. A., & Grace-Bishop, K. (2006). Stimulant medication use, misuse, and abuse in an undergraduate and graduate student sample. Journal of American College Health, 54(5), 261–268.

Ilieva, I., Hook, C. J., & Farah, M. J. (2013). Prescription stimulants' effects on healthy inhibitory control, working memory, and episodic memory: Meta-analysis. Journal of Cognitive Neuroscience, 25(7), 1069–1089.

World Health Organization (WHO). (2016). Public health implications of nonmedical use of prescription drugs. Geneva: WHO.

APPENDIX

DEPARTMENT OF CLINICAL PHARMACY, UNIVERSITY OF BENIN.

QUESTIONNAIRE ON ACADEMIC-RELATED SUBSTANCE USE ON STUDENT PERFORMANCE: PHARMACY UNDERGRADUATE SURVEY.

Instructions to Participants:

This survey aims to understand pharmacy student's perceptions, usage patterns and experiences related to the use of substances for academic purposes. Your participation is STRICTLY anonymous and voluntary. This data will be used for academic research only, please tick the correct box and ensure no questions are left unanswered.

(Please tick (✔) appropriately)

Section A: Demographic Information

1. Age: [ ] 16 - 20 [ ] 21 - 25 [ ] 26 - 30 Other_____

2. Gender: [ ] Male [ ] Female

3. Current level: [ ] 200 [ ] 300 [ ] 400 [ ] 500 [ ] 600

4. Do you live on campus? [ ] Yes [ ] No

5. Have you ever been diagnosed with ADHycD or any learning disorder?

[ ] Yes [ ] No [ ] Prefer not to say

Section B: Substance Use Behavior

6. Have you ever used any substance (e.g., caffeine, prescription stimulants, energy drinks, or illicit drugs) to help with academic work?

[ ] Yes [ ] No

If NO, skip to Section D.

7. Which of the following have you used for academic purposes? (Select all that apply)

[ ] Caffeine (coffee, energy drinks)

[ ] Prescription stimulants (Adderall, Ritalin)

[ ] Illicit stimulants (cocaine, methamphetamine)

[ ] Cannabis

[ ] Anti-anxiety medications

[ ] Nootropic supplements (e.g., Modafinil, L-theanine)

[ ] Other (please specify): _____

8. How often do you use these substances for academic purposes during a semester?

[ ] Rarely (1–2 times)

[ ] Occasionally (3–5 times)

[ ] Frequently (6–10 times)

[ ] Very Frequently (more than 10 times)

9. How do you typically acquire these substances? (Select all that apply)

[ ] Prescription from a doctor

[ ] Friends/peers

[ ] Online purchase

[ ] Over-the-counter

[ ] Other: _____

Section C: Perceptions and Experiences

10. What are your main reasons for using substances in academic settings? (Select up to 3)

[ ] Improve focus

[ ] Stay awake

[ ] Manage stress or anxiety

[ ] Improve memory or comprehension

[ ] Meet deadlines

[ ] Social influence

[ ] Other: _____

To what extent do you agree with the following statements? (Likert Scale: Strongly Agree → Strongly Disagree)

11. Academic pressure encourages substance use. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

12. Using substances has improved my academic performance. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

13. I feel guilty or conflicted about using substances for academics. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

14. I understand the risks involved in using these substances. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

15. I believe using academic-related substances is ethically wrong. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

16. Have you experienced any of the following as a result of substance use? (Select all that apply)

[ ] Increased anxiety

[ ] Insomnia

[ ] Dependence or withdrawal symptoms

[ ] Physical side effects (e.g., headaches, rapid heartbeat)

[ ] Academic improvement

[ ] No noticeable effects

[ ] Other: _____

Section D: Academic Performance and Motivation

17. How would you describe your academic motivation overall?

[ ] Very high [ ] High [ ] Moderate [ ] Low [ ] Very low

18. Do you feel that using substances has significantly helped or harmed your academic success?

[ ] Helped [ ] Harmed [ ] No impact [ ] Not applicable

Section E: Final Thoughts

19. How would you generally describe the ethical implications of using substances for academic purposes?

[ ] Helpful [ ] Harmful [ ] No impact [ ] Not applicable

Thank you for filling this questionnaire!