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Demographic Characteristics, Level of Drug Use, and Self-Esteem Among Female Students in Kaduna, Nigeria

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Walden University
2021

Abstract

Demographic Characteristics, Level of Drug Use, and Self-Esteem Among Female

Students in Kaduna, Nigeria

by

Gladys John

MA, University of South Carolina, 1987

BSc, Ahmadu Bello University, 1984

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Human Services

Walden University

March 2021

Abstract

Starting the early 1990s, the prevalence of nonmedical prescription drug use in Nigeria

has been increased, especially among college students. Potential adverse effects such as

poor academic performance and low self-esteem are known, but it is not understood

whether demographic factors, level of drug use, and self-esteem are related to drug use

for female college students. The purpose of this quantitative correlational study of a

cross-sectional nature was to determine if there were predictive relationships between

demographics (age, socioeconomic level, educational level, and history of mental illness),

level of drug use (as measured by the Drug Abuse Screening Test [DAST], and self-

esteem (as measured by the Modified Rosenberg Self-Esteem Scale [MRSES] in female

students in Kaduna in Nigeria. The theoretical framework was provided by the

psychology of self-esteem theory, social learning theory, and identity theory. Primary

data from a purposeful convenience and snowball sample of 300 female undergraduates

(age 18-25) enrolled in three colleges was used to analyze data. The results of the

multiple linear regression indicated that history of mental illness ($p = .012$) and DAST

score ($p = .000$) were related to the MRSES score at statistically significant levels.

Because the independent variables (age, socioeconomic levels, and educational level)

were not related to the dependent variable (self-esteem) at a statistically significant level,

the null hypothesis was not rejected. The results from this study could provide

justification for college administrators to plan appropriate social, health, educational

programs, and policies that could assist college students at risk of nonmedical

prescription drug use and guide students in making right health choices and decisions.

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Dedication

I dedicate this work to Almighty God, my parents, Rev. Col. Zemo Audu (rtd.)

and Mrs. Emily Audu, and my daughter Sandra John for their love, support, patience, and

encouragement throughout the entire doctoral study.

Acknowledgments

First and foremost, I thank Almighty God for the wisdom, knowledge, strength, and resilience given to me throughout this doctoral study. To my exceptional committee chair, Dr. Shari Jorissen, I am sincerely grateful for your excellent mentorship displayed in the timely, detailed, constructive, and useful edits and feedback pointing me always in the right direction when I seemed lost and for patiently guiding me throughout this dissertation process. You encouraged and gave me hope that my goal of completing my dissertation was achievable. I appreciate the valuable lessons I have learned from you; your commitment, mentorship style, and work ethic challenge me to always strive to excel and be a caring mentor to others, too. To my second committee member, Dr. Scott Hershberger, I cannot thank you enough for your eagle eye always making sure the "Is" are dotted and "Ts" are crossed, and a quality quantitative research study was achieved. I am also grateful for your contribution and support during the course work and dissertation process. Many thanks to my university research reviewer (URR), Jeffrey Harlow; your assistance and timely feedback in helping me to organize information and to present it in a clear and concise way is highly appreciated. I am most grateful to Dr. Eric Riedel for being a practical example of a positive social change agent (while you were the chief academic officer) when I visited the Walden University office on my way to attend my third residency in Anahiem in 2016. And to Dr. Rochelle Gilbert, Dr. Maleka Ingram and Caitlin Levno-Lamont, I thank you all for ensuring that I made it on schedule to all four Walden residencies I attended. I sincerely appreciate the entire Walden management team, faculty and support team.

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Chapter 1: Introduction to the Study

Drug use is a global problem and affects many individuals, including students. Johnston et al. (2012) indicated, for instance, that 49% of full-time college students in the United States had consumed an illicit drug at least once in their lifetime and 21% had done so in the last 30 days (see also Bennett & Holloway, 2015). The United Nations Office of Drugs and Crime (UNODC, 2015) reported that drug abuse is a rapidly growing global problem that is a threat in all nations, with students in primary, secondary, and tertiary institutions vulnerable to drug use and/or abuse (see also Mammon et al., 2014). According to the World Health Organization (WHO, 2016), one out of 20 persons between the ages of 15 and 65 years (approximately 246 million) has used an illegal drug.

Drugs that are abused include those that are legal such as alcohol and nicotine as well as those that are not legal such as cocaine, heroin, and cannabis (American Psychiatric Association [APA], 2013; Weiss, 2016). College students who use/abuse nonmedical prescription drugs (NMPD) are in most cases not aware of the adverse health effects such as paranoia, suicidal ideation, induced psychosis, and cardiovascular complications (Aikins, 2011; Bennett & Holloway, 2015; Ragan et al., 2013; Reisinger et al., 2016; Ritalin, 2010; Setlik et al., 2009). Recent researchers have found the use of NMPD to be hazardous to health and related to college students' negative academic performance (Allen & Holder, 2014; Bennett & Holloway, 2015; Denham, 2014; Johnston et al., 2012; Schwinn et al., 2016). I conducted this study to better understand how strategic channels of information might be used to stem the development of drug use

at tertiary institutions. The social change implications of the study include raising campus stakeholders' awareness of the harmful consequences of NMPD. The management in the tertiary institutions may be able to use the study findings to develop programs to help those at risk of nonmedical prescription drug use (NMPDU) and to ultimately prevent indiscriminate use of drugs on campuses.

In this chapter, I highlight the issues related to the abuse of nonmedical prescription substances by female college students. The chapter includes the background and statement of the problem, purpose of this study, research question and hypotheses, theoretical framework, nature of the study, and definitions of terminologies used within the study. The assumptions, scope and delimitations, limitations, and significance of the study are also provided. The chapter concludes with a summary of key points.

Background

A drug is a "chemical substance used in the treatment, cure, prevention, or diagnosis of disease or used to otherwise enhance physical or mental well-being" (Dictionary.com, 2007, para. 1; see also UNODC, 2003). Any drug (legal or illegal) can be abused when used to excess or not for the purpose it was intended for (Mamman et al., 2014; Oluremi, 2012). People of all ages use and/or abuse drugs for a variety of reasons including sensation seeking and also peer group pressure, a broken home/poor parental background, emotional stress, cognitive enhancement, and the desire to relieve depression (Baghurst & Kelley, 2013; Barnett, 2017; Cho et al., 2015; Cutler, 2013; Ford, 2014; Bennett & Holloway, 2015; Johnston et al., 2014; Martins et al., 2014; O'Connor, 2016; Reckdenwald & Marquardt, 2014). There are certain factors that have consistently

been associated with drug abuse such as peer group pressure; the urge to achieve in life; and emotional disturbances such as anxiety, psycho-social stress, physical illness, and exposure to negative electronic media advertisements (Denham, 2014; Dussault & Weyandt, 2013; Ford et al., 2014; Popovici et al., 2014; Suerken et al., 2014; Usman, 2015).

In Kaduna State, located in the North West zone of Nigeria (with a population slightly above 7,102,900), approximately 21.9% of college students use and/or abuse of drugs (Usman, 2015). Usman (2015) found that 37.47% of youths (15-24years) in the zone abused drugs and that the negative impact had far-reaching negative health effects on the user. For female students, these negative health effects may include anxiety disorder, depression, stress disorder, schizophrenia, bipolar disorder, attention deficit disorder, and obesity (Babalola et al., 2014; Cutler, 2013; Denham, 2014; Dussault & Weyandt, 2013; Ford, 2014; Bennett & Holloway, 2015; Johnston et al., 2014). Other consequences include the spread of sexually transmitted diseases and unwanted pregnancies (Chia, 2016; Ekpo et al., 1995; Usman, 2015). In addition, researchers have found that users are involved in crimes or other unwanted activities related to sustaining their drug use such as indiscriminate sex (Attah et al., 2016; Chia, 2016; Kanafani, 2014; Usman, 2015).

College students' inability to cope and manage academic challenges and the quality of peer relationships seems to be affected by their level of self-esteem (Kanafani, 2014). This makes them vulnerable to the indiscriminate use of drugs. Moreover, researchers have found that many students on college campuses have greater access to

prescription drugs than their counterparts in the home and work environment (Cutler, 2013). College students also socially learn the benefits of using these drugs and receive both social (praise and encouragement from peers) and nonsocial reinforcements (the feelings that the drugs provide) which lead to the continued use of these drugs (Cutler, 2013, Peralta & Steele, 2010; Varela & Pritchard, 2011). In addition, college students use varying techniques to justify nonmedical use of prescription drugs (Cutler, 2013).

Lower self-esteem may be a factor in female college students' drug use. Previous researchers have suggested that female substance users exhibit similar characteristics that lead to depression; anxiety; lack of self-confidence, self-image, and self-esteem; and issues with identity formation (Aebi et al., 2014; Miller et al., 2012; O'Connor, 2016; Oluremi, 2012; Telzer, 2014). Self-esteem as a concept has been an area of interest for some researchers who have indicated that college students with low self-esteem experience increased levels of stress (Attah et al., 2016; Chia, 2016; Klepfer, 2015), anxiety (Babalola et al., 2014; Chia, 2016), and depression (Bickman, 2015; Klepfer, 2015). Klepfer (2015) also found that there is a relationship between self-esteem, motivation, and ability and a need to identify how these variables might be related to academic and social success. Such research may provide insight on female college students' drug use behaviors and academic outcomes.

Problem Statement

The negative impact of NMPDU encompasses the critical aspects of individual lives such as social, health, and psychological well-being (Dussault & Weyandt, 2013; Gallucci et al., 2015; King et al., 2013). There has been a steady increase since 1992 in

the prevalence of NMPDU and its consequences in Nigeria and globally, especially among college students (Adelekan et al., 1992; Babalola et al., 2013; Dussault & Weyandt, 2013; Gallucci et al., 2015; Gureje et al., 2006; King et al., 2013; Makanjuaola et al., 2007; Odejide, 2006). Lack of proper parental care, attention, and monitoring of students away of home and the negative effects of peer pressure have been identified as contributory factors to drug use (Essien, 2010; Omage & Omage, 2012). Yunusa et al. (2011) reported a 52.6% lifetime prevalence of any drug use among college students in northwestern Nigeria and stated that students are more affected and have potential adverse effects such as poor academic performance and low self-esteem. According to Reisinger et al. (2016), other frequent side effects of NMPDs include insomnia; nausea; loss of appetite; headaches; dry mouth; dizziness; irritability; mood changes; and decreased quality cognitive performance, poor family, and social functioning, which ultimately leads to declining grades, absenteeism from school, and the likelihood of dropping out of school. Therefore, the problem that was addressed in this study was the high level of drug use affecting health quality of life and level of self-esteem of female students in Nigerian college students (Attah et al., 2016; Babalola et al., 2013, 2014; Chia 2016; Schwinn et al., 2016; Suerken, 2014; Usman, 2015).

Although these research findings regarding poor cognitive and academic performance, self-esteem, and quality of relationships among students involved in substance are illuminating, I have found no research on demographic factors and the relationship to level of drug use in female college students (as measured by the Drug Abuse Screening Test-DAST) and self-esteem (as measured by the Modified Rosenberg

Self-Esteem Scale [MRSES]). As such, I concluded that further research was warranted. In particular, I wanted to examine the relationship between drug use and decreased health quality of life, and self-esteem among female college students.

Purpose of the Study

I quantitatively examined the predictive relationships between demographic factors age, socioeconomic level, educational level, history of mental illness, level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female college students Kaduna in Nigeria. The independent variables included age, socioeconomic level, educational level, history of mental illness, and level of drug use, the latter of which was measured by using the Drug Abuse Screening Test-DAST. I examined the relationships of these variables to one another and the dependent variable. The dependent variable for this study was self-esteem in female students (as measured by the MRSES). I used the variable to determine female college students' general feeling about their selves and the extent to which self-esteem affects and is affected by the independent demographic variables.

Research Question and Hypotheses

Research Question: What are the predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria?

Null Hypothesis (H_0): There are no statistically significant predictive relationships between demographics (age, socioeconomic level, educational level, and history

of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna. in Nigeria.

*Alternative Hypothesis (H*a): There are statistically significant predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna in Nigeria.

Theoretical Framework

For the theoretical framework, I drew from the psychology of self-esteem theory, social learning theory, and identity theory.

Psychology of Self-Esteem theory

Self-esteem is a distinct psychological construct that originated from the works of William James, a philosopher psychologist, geologist, and anthropologist. James (1892) identified the multiple dimensions of the self with two levels of hierarchy: processes of knowing which he called the "I-self" and the knowledge about the self which is the result of the "Me-self." The early theorists on psychology of self-esteem focused on the preservation of the concept of the self as the underlying motive of human behavior and the notion that society also plays a role in shaping human behavior (Adler, 1927; Cooley, 1902; James, 1892; Mead, 1934; Rosenberg, 1965; Steffenhagen, 1974). James explained that the observation made about the self and the storage of those observations by the I-self creates three types of knowledge, which collectively account for the Me-self: the

material self, spiritual self, and social self. The material self consists of representations of the body and possessions, the spiritual self-is comprised of descriptive representations and evaluative dispositions regarding the self, and the social self is comprised of all characteristics recognized by others and is close to what is viewed as self-esteem (i.e., the collection of an individual's attitudes toward oneself).

The construct self-esteem is a key psychological phenomenon in human behavior that relates to this study and is helpful in the understanding of individual personality and psychology. I used self-esteem theory to explain the relationship of self-esteem to drug abuse and other demographic factors. The application of the theory of self-esteem gave more insight and knowledge of female college students, first as humans and then as social beings with varied personality. It is also potentially an important covariate in the study as a portion of those with low levels of esteem may choose to self-medicate (Bennett & Holloway, 2015; Britt, 2016; Cutler, 2013; Denham, 2014; Giovazolias & Themeli, 2014). According to self-esteem theory, a human being is inherently a social being whose cooperative activity reveals individual social interest (Rosenberg, 1986). Related literature findings on drug use/abuse explain that the psychodynamic mechanism underlying drug abuse is low self-esteem developed as a result of individuals' experiences and that low self-esteem may result in either setting goals too high or not achieving realistic goals because individuals lack the required confidence needed to attain the goals (Bennett & Holloway, 2015; Blascovich & Joseph, 1993; Britt, 2016; Cutler, 2013; Giovazolias & Themeli, 2014; Mead, 1934; Rosenberg, 1986; Steffenhagen, 1974).

I used self-esteem theory to explain the relationship of self-esteem to drug abuse and other demographic factors.

Social Learning Theory

The social learning theory postulated by Bandura (1977) holds that people learn by observing others. The ability to learn is central to individual personality, as behavior observed can change the way a person thinks; also, the behavior of individuals may be influenced by environmental factors (Bandura, 1977). The main tenet of the theory is that an observed behavior is influenced and reproduced by the interaction of the following determinants: whether an individual has a high or low self-efficacy toward the behavior, whether an individual is able to respond to behavior observed/performed, whether the observed behavior is positive or negative, and whether the environmental factors affect individuals' ability to cognitively complete a behavior successfully or not (Bandura, 1986). This means that learning can occur to change a person's thinking without necessarily resulting in a change in behavior. The general principles of social learning state that, while a visible change in behavior is the most common proof of learning, it is not absolutely necessary at all times (Bandura, 1986). Social learning theorists contend that people can learn through observation and store information cognitively to act in the future and that their learning may not necessarily be shown in their performance (Akers, 1998; Bandura, 1986).

The version of social learning propounded by Akers (1998) involves the components peer association, definitions, imitation, and reinforcement. Peer association involves the exposure to behavior and attitudes through one's association with others,

definitions refers to individuals' attitudes toward behavior, imitation occurs when individuals model their behavior after the performance of others, and reinforcement is the use of rewards to continue any behavior (Akers, 1998). Researchers have found peer association appropriate for the study of drug use and social learning, especially because findings indicate that involvement with peers who approve drug use increases the chances of using drugs (Akers, 1998; Miller, 2009; Pratt et al., 2010; Steele et al., 2011). People may learn from belief systems (i.e., the behaviors of individuals learned from role models such as family members, close acquaintances, friends, or peer groups) and as a result of external influences in the environment may change their behavior (Bandura, 1979, 1986). According to Bandura (1986), the four meditational processing elements in social learning: attention, retention, reproduction and motivation, can illuminate understanding of human behavior. Like the learning theories of classical and operant conditioning, mediating processes occur between stimuli and responses, and behavior that is learned from the environment through the process of observational learning could help in answering the question asked in this study, especially as thought processes play an important role in determining if a behavior is imitated or not.

In summary, social learning theory acknowledges and explains the role of cognitive thought factors in the individual decision-making processes (whether a behavior is to be imitated or not). The social learning theory could help in the understanding of cognitive thought processes, the motivations and justifications for involvement in NMPDU. And knowing the influences the female college students are exposed to individually.

Identity Theory

The interest in identity theory started with Erik Erickson a psychologist in 1902-1994, to investigate the process of identity formation across a lifespan in terms of series of stages in which 'identity' is formed in response to increasing life challenges experienced (Weinreich & Saunderson, 2003). Erickson argued that the distinction among individuals is the psychological sense of continuity called 'the self', and that the personal differences separating one person from the next is the personal identity (Weinreich & Saunderson, 2003). This means, the process of forming an identity is conceptualized early in adolescence and those who do not manage a synthesis of individual childhood, adolescence and adulthood identifications are seen as being in a state of 'identity diffusion' while those who retain their initially given identities unquestioned have 'foreclosed' identities (Weinreich & Saunderson, 2003). According to Erickson (1972), the development of a strong identity with proper integration into a society generally leads to a stronger sense of identity (Weinreich & Saunderson, 2003). While the reverse is the case when there is a deficiency in identity development then, there is increased chance of identity crisis (Cote & Levine, 2002; Weinreich & Saunderson, 2003).

Mead (1934) also advanced the idea of identity theory that focused on individual interactions, exploration, commitment and categorization which central idea is that, any individual's sense of identity is determined in large part by the explorations and commitments individuals make regarding certain personal and social traits, and not as something belonging to the individual as a set of fixed traits, but rather something that

emerges out of an interaction between individuals and the situation around them (Burke & Stets, 2007). Identity is perceived as individual personal and social trait made up of different components that are 'identified' and interpreted by individuals; and the development of individual sense of self is achieved by personal choices regarding who and what to associate with (Dresler-Hawke & Liu, 2006). Dresler-Hawke and Liu (2006) further explained that in identity categorization, individuals have a reservoir of self-categorizations that positions them within different in-groups on how to respond to other people, this is activated by socially shared norms that allow individuals conform to situations and behavior in the appropriate group.

The process of identification is therefore, the interplay between individual self-concept, the situation, the social forces that emanate from other people and institutions that direct individuals on how to think, feel, and behave (Burke & Stets, 2007; Oakes et al., 1994; Reicher & Hopkins, 2001). This process of social identification provides a threshold for understanding the relationship between individuals and the happenings in the environment. Viewed through the lens of the five-factor theoretical model (extraversion, agreeableness, conscientiousness, neuroticism, and openness) of personality found in identity theory, Harold and Ben (2017) argued that identity is a process that is produced as individuals develop cognitively and interact with others in the environment. Identity building is a dialogical process grounded in the social construction of meaning, not restricted to individual cognitive development only; therefore, it can be used in this study to understand the demographic relationships to the level of drug use

and self-esteem (Bekerman & Zembylas, 2012; Hermans & Dimaggio, 2007; Liu & László, 2007; O'Connor, 2016).

Although, social learning theory provides a comprehensive explanation of human developmental behavior through the meditational processes, it is limited to only some aspects of human behavior, which describe behavior in terms of either nature or nurture, thereby undermining the complexity of human behavior (Bandura, 1986). Behavior could be due to an interaction between nature and nurture (Bandura, 1986; Bennett & Holloway, 2015; Ford et al., 2013; Kaynak et al., 2013). And because of the cognitive control over behavior exhibited by individuals, social learning theory alone may not adequately explain how a whole range of behavior as drug use/abuse, and individual thoughts and feelings as self-esteem is developed.

Nature of the Study

This study was a quantitative, correlational study of a cross-sectional nature. Because the focus was in determining the degree of relationship between two or more variables therefore it is considered a correlational research design (Sheperis et al., 2010). Correlational research designs are used to examine relationships between variables and to describe patterns of relationships without drawing conclusions of causation in those relationships (Frankfort-Nachmias et al., 2015). These designs also do not involve interventions or manipulation of the variables while determining relationships between variables (Campbell & Stanley, 1963; Frankfort-Nachmias et al., 2015).

The advantages of a correlational research design include ease of data collection and recording in the natural setting. Researchers are able to either support or refute the

hypothesis of the study and make descriptions of the pattern of relationships between variables (Field, 2013; Koppoe, 2018; Sheperis et al., 2010). The disadvantage for this research design is that, it cannot establish causation for the observed patterns in its analysis (Campbell & Stanley, 1963). According to Frankfort-Nachmias and Nachmias (2008), correlation research designs have been established as a highly effective method of establishing relationships between variables, and understanding of each variable being studied, and can improve external validity because it enables a researcher conduct study in a natural setting (Frankfort-Nachmias & Nachmias, 2008).

Cross-sectional designs enable researchers to study one group at one point in time therefore, it is commonly used within social science research especially when collecting data via surveys (Frankfort-Nachmias & Nachmias, 2008; Sheperis et al., 2010). The benefit of using a cross-sectional design include increased validity because the research is conducted in a natural setting, and the description of relationships and patterns between variables can be done with ease (Frankfort-Nachmias & Nachmias, 2008). The process does not require random assignment of subjects (Creswell, 2009). The main disadvantage of cross-sectional method is that data collected about participants can only provide information on present-day attitudes, opinions, beliefs, and behaviors to understand current situations and cannot be used for in-depth analysis as in longitudinal research designs and analysis which allows manipulations and observed changes over time on the dependent variable (Sheperis et al., 2010). These methods will be fully described in Chapter 3.

Definitions

College student: Students in higher education who are studying for different qualifications (Bennett & Holloway, 2014). In this study the term is used to include students in higher education such as university, polytechnic, and midwifery (American Association of Community Colleges, 2012; Bennett & Holloway, 2014; Calcagno et al., 2008).

Drug/Substance abuse: A disorder (also called *chemical abuse*) that is characterized by a destructive pattern of using substance(s) that lead to significant problems or distress (UNODC, 2003; WHO, 1993). It is the inappropriate use of any substance in the composition of medicine that alters mood, perception, or consciousness and/or results in significant vision impairment with or without prescription or medical diagnosis from a qualified health practitioner (Mamman et al., 2014; Oluremi, 2012; UNODC, 2003; WHO, 1993).

Drug use: Any chemical agent that alters the biochemical or physiological processes of tissues or organisms (UNODC, 2003). For this study, to measure female college students' drug use, I used the DAST-20 (Skinner, 1982) self-report items to yield a quantitative index of problems related to the level of drug misuse. The DAST-20 overall score is 20, and the level of abuse was scored according to categories and risk level as 0 = no drug use (having no risk), 1-5 = low level (having low risk), 6-10 = intermediate level (having moderate risk), 11-15 = substantial level (having substantial risk), and 16-20 = severe level (having severe risk).

History of mental illness: The history of mental health problems in individuals such as depression, personality disorders, conduct problems, developmental lags, apathy, and other psychosocial dysfunctions frequently linked to substance abuse among adolescents and college students such as interference with short-term memory learning and psychomotor skills and academic performance (Bureau of Justice Statistics, 1992; WHO, 1993).

Legal drugs: Those drugs that can be controlled, prescribed, and accessed from an appropriate authority like a health facility--for example, codeine, trammol, over-the-counter medications, and tobacco for individuals 18 or 21years depending on the country (APA, 2013).

Illegal drugs: Those substances that have been deemed illegal by government that are often abused, not prescribed, and taken in the wrong way such as cocaine, heroin, and cannabis (APA, 2013; National Agency for Food and Drug Administration and Control [NAFDAC], 2000; Weiss, 2016).

Nonmedical prescription drug use (NMPDU): The use of any prescription drug without a prescription acquired from a doctor or medical professional by that specific individual or the use of prescription drugs taken in amounts not intended by a doctor or taken by someone other than the person for whom they are prescribed to experience the feeling of that drug, according to the National Survey on Drug Use and Health (McGabe & Boyd, 2012; Substance Abuse and Mental Health Services Administration [SAMHSA], 2015). Examples of prescription drugs most commonly misused include

opioids, stimulants, and depressants (National Institute on Drug Abuse [NIDA], 2014;

Oluwoye, 2016; SAMHSA, 2015).

Self-esteem: The type of confidence and respect an individual has for oneself

(Rosenberg, 1986). Each of the Rosenberg (1986) items for measurement are rated on a

4-point Likert scale; items scored positively are scored in ascending order (1, 2, 3, 4), and

items scored negatively are scored in descending order (4, 3, 2, 1). For items 1, 2, 4, 6, 7,

strongly agree = 3, *agree* = 2, *disagree* = 1, and *strongly disagree* = 0. For items 3, 5, 8,

9, and 10 (which are reversed in valence), the scale is *strongly agree* = 0, *agree* = 1,

disagree = 2, and *strongly disagree* = 3. Rosenberg (1965) recommended that the

numerical scores from all items be summed to calculate a total score, which is used as a

measure of self-esteem. That self-esteem score is calculated after reversing the positively

worded Items 3, 5, 8, 9, and 10 before analysis (Rosenberg, 1965). The scale ranges from

0 to 30, with 30 indicating the highest score possible (Rosenberg, 1965).

Socioeconomic status: In this study, the sociological and economic combination

of individual students' family and social position in comparison to others based on

income. By implication, this means the quality of social standing/class status in the

family that may influence or deter involvement in the use or abuse of drugs.

Assumptions

According to recent literature review and findings on college student poor

academic performance, and well-being influenced by illegal use and abuse of NMPD in

this study assumed that many female college students 18-25years old in Nigeria are at

risk and vulnerable, because they are more likely to respond to strain, depression and to

inappropriate use of drugs than the male counterparts (Attah et al., 2016; Babalola et al., 2013; Babalola et al., 2014; Chia, 2016; Reisinger et al., 2016; Schwinn et al., 2016; Suerken, 2014; Usman, 2015). To understand this NMPD phenomenon, the demographic variables related to this behavior will be used to understand the predictive relationships with self-esteem (as measured by the MRSES). Because the responses expected are personal and lived experiences I assumed that the female college students will provide honest and accurate information to the self-administered questions; to address this assumption, I ensured participants anonymity and confidentiality were preserved in the consent form stating that participation was voluntary and participants may withdraw from the study at any time with no inhibitions, and respond to only questions they were comfortable with (Creswell, 2013). In addition, I assumed that based on previous research investigations established in literature reviews, the tools of analysis are valid instruments in the measurement of social and behavioral sciences based on the validity and reliability of the instruments DAST-20 Skinner, 1982 and Modified Self-Esteem Scale - Rosenberg, 1965 (Hagborg, 1993; Johnston, 2015; Rosenberg, 1986; Tiet et al., 2017; Yudko et al., 2007; Zimprich et al., 2005).

Scope and Delimitations

This study was focused on the analyses of primary data collected from undergraduate female students 18-25 years in University A, University B, and University C in Nigeria. The data was to determine the predictive relationships between demographic factors- age, socio-economic level, educational level, and history of mental illness, drug use/abuse and self–esteem in female college students. And because of the

sensitive and personal nature of the inquiry, this study used self-administered and not interview method for data collection.

The delimitation for this study was that self-report surveys might be biased due to certain cultural or other demographic factors inherent in lived experiences. By delimiting the participants of this study to a specific geographical location, the results of this study might not be generalizable to other geographic areas which may differ in demographic factors such as socioeconomic patterns of livelihood except to those that are similar. Therefore, generalizability might be of concern because of potential micro-cultures in existence in colleges different from the ones under study.

Limitations

This study was limited to the female college students in Kaduna, Nigeria, thereby excluding other female college students outside Nigeria, and potentially females not enrolled in college or are dropouts and within the age range 18-25years. Because female college students within the research settings (University A, University B and University C) may differ and may be exposed to micro cultures/group dynamics that exist in the colleges. The micro cultures/group dynamics might also influence drug use and the relationships to different demographics.

Another limitation in this study was using cross-sectional design and convenience sample, rather than randomized samples; this meant there may not be good representation of the sampled population (Creswell, 2013). This lack of randomization of participant samples could affect the internal and external validity in this study (Creswell, 2013). Therefore, the findings of this study may only be limited to Kaduna state and not the

entire female college population in Nigeria. Another limitation in this study was the difficulty in validating self-administered data, as criticized by some researchers especially when the instruments contain questions that are sensitive, embarrassing, or potentially incriminating (Akers, Massey, Clarke, & Lauer, 1983; Kanafani, 2014). Although, some researchers argue that self-reports are reliable and valid enough to draw conclusions (Del Boca & Darkes, 2003; Frankfort-Nachmias et al., 2015). To address this limitation, I ensured the confidentiality of data and the importance of truthful response for this study was clearly stated in the consent form and adhered to by participants.

In addition, although the use of convenience sampling technique in the selection of participants might have affected validity, reliability, and generalizability as only students whose conduct are impeccable might choose to answer the questions, and those at risk might be afraid to participate (if they suspect there are any legal consequences for participation). To address this issue, I ensured that all responses remained anonymous in the invitation to participate and that the informed consent form clearly stated the provisions for anonymity. The study was also limited to Kaduna state located in the northwestern region of Nigeria, thus potentially limiting its generalizability to other populations in different regions of Nigeria, and globally that may differ in micro cultures, social/group dynamics existing in colleges influencing drug use and demographic factors. Notwithstanding these potential limitations this research process was deemed appropriate because of the importance of examining the predictive relationships between demographic variables age, socio-economic level, educational level, history of mental illness, level of drug use and self-esteem among female college students.

Significance

The findings from this study may assist researchers on NMPD by providing

information on the pattern of relationships between demographics, and level of drug use

and self-esteem. This study would help the management of the colleges and other similar

tertiary institutions to plan programs that match the needs of the students and that would

help students manage and cope with the challenges of academic life on campus. Findings

from this study would offer researchers more information and understanding of the

predictive relationships between demographic factors age, socio-economic level,

educational level, history of mental self-esteem in female students, and provide

information to the college management that would help in proffering solutions to manage

female college students through counseling them on how to cope with the challenging

campus life. It is hoped that the knowledge and information generated in this study may

be used by similar tertiary institutions in the region for the prevention of NMPDU and

drug abuse generally. It may also help in the improvement of existing programs in place

(if they are not active or functional) at the college campuses.

The findings may add to the body of knowledge and literature on NMPDs, and

may offer scholars more understanding of the pattern of relationships of demographic

variables, level of drug use and self-esteem in female college students. A major social

change impact this study may have is that in general, female college students and people

in and around the colleges would be sensitized enough to understand the need not to self-

medicate especially on NMPDs, and to potentially make better health choices. This study

may encourage more research about NMPDs as well as other illicit drugs among the

college student population; and may encourage college authorities to put effective mechanisms in place to raise the level of awareness among students, school officials and parents on NMPDU; and the potential hazards of ingesting drugs (such as stimulants, tranquilizers and opioids) on cognitive functioning. It is anticipated that this study may show that demographic factors are related to level of drug use, and self-esteem in female college students.

Summary

The use of nonmedical prescription substances among college students has been a growing problem globally. More recently, researchers have noted with great concern the increased NMPDU among college students, and more especially among female college students (Cutler, 2013; O'Connor, 2016; Oluwoye, 2016). It has also been observed that many students lack specific accessible information on campuses to guide them in making right health choices and decisions (Chia, 2016; Cutler, 2013; Johnston et al., 2015; Mamman et al., 2014; Mulvihill, 2013; O'Connor, 2016; Oluwoye, 2016; Popovici et al., 2014). Therefore, there is need to study the NMPDU phenomena from different theoretical perspectives, research design and methods in order to understand the NMPDU problem and to arrest the growing scourge with developed effective coping strategies and prevention programs targeted at the at-risk populations (Carey et al., 2015; Johnston, 2015; Mamman, et al., 2014; Oluwoye, 2016; Popovici et al., 2014; Wachtel, 2015; Watkins, 2016). While self-esteem, social learning and identity theories are considered appropriate to guide this study. The assumptions, delimitations, and limitations were assessed and taken into account in the data collection process and analysis.

Some of the side effects of NMPDs college students experience include insomnia, nausea, loss of appetite, headaches, dry mouth, dizziness, irritability, mood changes and generally decrease in the quality of social relationships among peers and poor cognitive functioning (Reisinger et al., 2016). These effects often lead users to experience gradual decline in grades, absenteeism from school and the likelihood of dropping out of school (Reisinger et al., 2016). This study therefore, sought to address the predictive relationships between demographics (age, socio-economic level, educational level, and history of mental illness), drug use/abuse (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria (Attah et al., 2016; Babalola et al., 2013; Babalola et al., 2014; Chia, 2016; Schwinn et al., 2016; Suerken, 2014; Usman, 2015). Chapter 2 includes this study's literature search strategy, theoretical foundation and literature review related to the key variables.

Chapter 2: Literature Review

Introduction

Substance abuse includes the use and misuse of legal and illegal drugs by individuals at work, school, and home, with negative consequences to their health and potentially leading to their death or breaking the law (APA, 2013; Weiss, 2016). Examples of substances/drugs abused include alcohol, amphetamines, cocaine, inhalants, marijuana, prescription drugs, tranquilizers, sedatives, hallucinogens, and stimulants (Johnston et al., 2012; Ogbueghu & Ugwu, 2016). The abuse of nonmedical and prescribed drugs negatively cut across many age groups and social statuses and impacts many lives. Such as when individuals involved in abuse engage in street fights, criminal acts like stealing to sustain the behavior, or personal harm or experience health problems like depression, anxiety, alienation from other people, hyperactivity, and stress, and many negative health problems (Bennett & Holloway, 2015; Dussault & Weyandt, 2013; Gallucci et al., 2015; Johnston et al., 2012; Kenzig, 2013; King et al., 2013; Ogbueghu & Ugwu, 2016; Schulz et al., 2016; Suerken et al., 2014; Tsvetkova & Antonova, 2013; Usman, 2015). The consequences of substance abuse include negative impacts to individuals, families, and communities.

The 2011 U.S. Monitoring the Future Survey indicated that almost half (49%) of full-time college students had consumed an illicit drug at least once in their lifetime and one fifth (21%) had done so in the last 30 days (Bennett & Holloway, 2015; Johnston et al., 2012). Youth ages 19-22 have maintained relatively high levels consumption of illicit drugs, tobacco, and alcohol with increases in marijuana, amphetamine, and ecstasy use

over the past decade (Barnett, 2017; Johnston et al., 2014). Usman (2015) reported that

21.9% of Nigerian youth in the north western zone had abused drugs, and that this

development was increasing at an alarming rate in Nigeria.

In this chapter, I discuss the literature search strategy for the study and its

theoretical foundations. The literature review that follows includes summaries and

conclusions of past studies related to this study. The review may assist in understanding

the relationships between demographic characteristics, drug abuse, and self-esteem and

how such factors relate to and affect the well-being of female college students.

Literature Search Strategy

I searched for scholarly articles using Walden University Library databases

including Dissertations and Theses at Walden University, PsycINFO, MEDLINE with

Full Text, CINAHL Plus with Full Text, Health and Psychosocial Instruments (HaPI),

Science Direct, SocINDEX with Full Text, Eric, Education, Social Work, Tests and

Measures in the Social Sciences, and SAGE Full Text, as well as Google databases.

Keyword, phrases, and terms used to retrieve articles included *drug abuse, drug use,*

substance use/abuse, self-esteem, personality trait, self-concept, female college students,

female university students, self-regard, self-value, self –worth, and *self-respect.* Google

searches produced information from documents in different institutes and organizations

and sources including WHO, UNODC, SAMHSA, National Survey of Drug Use and

Health, NIDA, Monitoring the Future (MTF) and the National Drug Law Enforcement

Agency (NDLEA) Nigeria. These provided past and current information that are reliable

and relevant to the study. Approximately 200 resources were reviewed based on the

different perspective they brought to the understanding of college drug abuse and self-esteem. The authors of these materials focused on, and discussed, different types of NMPD abuse as well as other factors related to the impact of psychosocial, psychological, and socioeconomic variables on drug abuse and self-esteem studies in different parts of the world--for example, the United States, Canada, United Kingdom, Nigeria, South Africa, Asia, Europe, and Australia.

Theoretical Foundation

The theories used for this study included the theory of the psychology of self-esteem, the theory of social learning, and identity theory.

Theory of Psychology of Self-Esteem

The main theoretical framework for this study was the theory of the psychology of self-esteem because the theory illuminates the preservation of the concept of the self as the underlying motive of human behavior (Adler, 1927). The theory explains that the psychodynamic mechanism underlying drug abuse is low self-esteem developed through one's experiential behavior and the ability to master situations to achieve one's goals (Adler, 1927). Low self-esteem may result either from setting goals too high or from not achieving realistic goals because of a lack of confidence in the ability to attain them (Steffenhagen, 1974).

According to Adler (1927), humans are first motivated as social beings to engage in activities and form social institutions so they can cooperate with others. He stated that human beings do not act without reasons, and central to their action is the consciousness which controls and determines reasons for certain behavior and style of life; this includes

what is inferior and superior and the necessary ability to achieve set goals. Researchers

have used the concepts striving for superiority, inferiority feeling and compensations,

social interest, creative self, and style of life to understand Adler's theory of personality

(Holloway & Bennett, 2012; Johnston et al., 2014; Kaynak et al., 2013; Lewis, 2013;

Wachtel, 2015; Wright & Palfai, 2012). These concepts are key psychological

phenomena that help in understanding individual psychology (Adler, 1927).

Striving for Superiority

Adler (1927) explained that striving for superiority is inborn, and individuals have

capacity to determine and motivate themselves for self-actualization, which is the final

goal of an individual in life to attain unity and consistency in personality development.

Adler stated that neurotic and normal persons go through three different stages in their

experience to achieve the final goal in life; these stages include the need to be aggressive,

powerful, and to be superior. Neurotic individuals manifest this in striving for self-

esteem, power, and selfish goals, and normal persons strive to attain unity in personality

development. Wright and Palfai (2012) stated that relationships between self-image,

achievement goals, and drug use exist, and they reported that nomothetic (i.e., goals

based on normative, developmental life tasks; specific self-image goals as achieving good

grades and socializing with new friends) and idiographic (participant self-generated life

goals across different dimensions that are most important to them different from

normative life goals) approaches could be used to understand individual goal assessment

and predict marijuana use behavior. Consistent with motivational perspectives on

substance use, students who experience higher levels of meaning related to both

normative and idiographic goal pursuit are less likely to use marijuana than those who experience lower levels. This finding led the researchers to conclude that a life pursuit could be a protective factor that helps in decision-making about drug abuse.

Social Interest

According to Adler (1929) "social interest is the true and inevitable compensation for all the natural weaknesses of individual human beings" (p. 31). He explained that through social justice and democracy, cooperation, and interpersonal relationship, the individual compensates for weaknesses and the final goals and social interests are achieved for a perfect society. Parents' interpersonal relationship in the nuclear family uniquely positions them to serve as a protective factor through parental monitoring (i.e. the degree to which parents keep track of their children's friends, whereabouts, and social plans while growing up, by positively influencing their sensation and pleasure-seeking activities and preventing involvement in substance abuse behavior) (Kaynak et al., 2013). High parental monitoring was more beneficial to college students and reduced the risk for alcohol and cannabis dependence than low parental monitoring (Kaynak et al., 2013).

Style of Life

The style of life of an individual is determined by one's inferiorities, experienced or imagined, and is a compensation for feelings of inferiority (Adler, 1927). This is formed between the ages of four to five when a child has experienced and assimilated various attitudes, feelings, and perceptions that determine the inferiorities that individuals experience influencing the approach to different life tasks (Lewis, 2013; Wachtel, 2015). These can result in things like the inability to cope with life tasks including weak

informal social control which can put the individual at risk for abusing drugs to
compensate for these shortcomings (Holloway & Bennett, 2012; Johnston et al., 2014;
Ogbueghu & Ugwu, 2016; Tsvetkova & Antonova, 2013; Wachtel, 2015). Holloway and
Bennett (2014) found adolescents who live away from home without parental supervision
may become involved in other social activities that expose them to harm. This is due to
experiencing sudden freedom that may result in engaging in behaviors that they may not
engage in when under the supervision of their parents.

Creative Self

Creative self is the part of us that interacts with the stimuli that we encounter and
creates a personality (Adler, 1927). The creative self can be further described as the
individual's subjective goals, means to the goals, and ultimately meaning to life goals
(Adler, 1927). Marlatt's Relapse Prevention model holds a similar construct of individual
thought patterning surrounding abstaining, quitting, and perceived success at quitting
(Ramo et al., 2014). This construct of individual thought pattern could help in the
understanding of drug abuse because of the interaction between individuals and stimuli
that results in the difficulty in quitting and abstinence goals; as thought and abstinence
items assessing desire to quit, perceived success, anticipated difficulty, and abstinence
goals are correlated significantly with frequency of marijuana use (Ramo et al., 2012;
Popovici et al., 2014; Ramo et al., 2014). This is also consistent with other views about
relationships between thought, patterns and motivations to act that create individual
personality (Holloway & Bennett, 2014; Kaynak et al., 2013; Wright & Palfai, 2012).

Differences exist in motivation and thoughts about abstinence from substance use (Ramo et al., 2013).

Social Learning Theory/Social Cognitive Theory

Bandura (1977) explained that people learn from belief systems and the behaviors of individuals are learned from role models such as family members, of close acquaintances, friends, or peer groups. He further explained that change in behavior is made through feedback systems which result from internal processing systems determined by influences in the environment. Using the four meditational processing elements (attention, retention, reproduction and motivation), Bandura's (1977) explanation of social learning theory helps to shed more light on the study especially as thought processes play an important role in determining if a behavior is imitated or not. The following are the elements of social learning theory:

Attention

Through thought processes, attention plays an extremely important role in determining if behavior is to be imitated or not. This means that before behavior is imitated or has influence on others, it is important that it grabs attention of the individual being exposed to the behavior to the extent that it is noticed, to elicit a decision to imitate it.

Retention

A vital process for learning is retention. The individual's memory needs to remember behavior that has been noticed for imitation to take place. This means imitation

is a social learning process that is not immediate, but depends on how well behavior is remembered through memory after seeing an exhibition that can be referred to.

Reproduction

The ability to physically perform behavior that has been demonstrated is called reproduction. The physical ability influences individuals' decisions to try to or not imitate behavior.

Motivation

Motivation involves consideration of the rewards, punishment and will to perform the behavior. If the reward outweighs the perceived costs, then it is likely behavior will be imitated.

If the anticipated cost of the behavior outweighs the reward, then behavior will not be imitated. Enhanced motives (where perceived reward outweighs costs) especially among women, have been found to be related to increased alcohol consumption. Merrill et al. (2013) and Zaso et al. (2016) determined that individuals' decisions to moderate or change their drinking habits are based on their experiences of the negative or positive personal consequences from drinking. If the individual perceives the consequences of alcohol drinking as positive, then the drinking of alcohol may continue and potentially be escalated to the point of abuse. The behavior may decline if the alcohol consequences are negative (hangovers, waking up in an unknown location). However, these consequences are not frequently perceived as negative by college age young adults when compared to what they perceive as the benefits of the alcohol consumption (Merrill et al., 2013). Other researchers have explained that environmental and social factors influence friends to

drink more or to reduce drinking as they are important sources of influence that increase

and/or decrease drinking among college students (Ford, 2014; Merrill et al., 2013; Merrill

et al., 2013; Schwinn et al., 2016; Zaso et al., 2016). Astudillo et al. (2013) found peer

relationships to be an important factor for the development of social cognitive skills as

peers are a source of information on what is considered more acceptable and appropriate

in each social context.

Merrill et al. (2013) determined that norms and experience with positive and

negative consequences are associated with substantive evaluations and that more negative

evaluations predict lower levels of future alcohol use. Young adults in college

environment struggle with personal, academic, social, and moral pressures during the first

year of college (Barnett, 2017). These struggles result in the increase of stress related

problems that may lead to psychosocial, mental health concerns such as anxiety,

depression, suicide and negative health problems such as drug and alcohol abuse as

coping mechanism (Baghurst & Kelley, 2013; Barnett, 2017). Approximately 17% of

students reported non-medical use of the prescription stimulants for academic reasons

instead of medical reasons (Ford, 2014).

Other authors suggested partial support for the use of Akers' (1985) social

learning theory on the influence of groups like the family and friends on behavior (Cutler,

2013; Bennett & Holloway, 2015; Reid et al., 2015; Wachtel, 2015; Watkins, 2016). The

major components that have been found to be related to prescription drug misuse in

college students include: differential association, imitation, definitions, and differential

reinforcement (Akers, 1985; Cutler, 2013; Ford, 2014).

Differential Association

Differential association happens with significant others in social reference groups like friends, peers and family where social learning is obvious because of proximity and nearness to each other during interaction (Akers, 1985). The same occurs with college students in the daily and frequent communication and interaction.

Imitation

Imitation is the modeling of behavior of persons considered important or significant in groups. Akers (1985) believed that college students imitate peers based on keen observation of benefit or non-benefit of perceived academic performance. The perceived subjective academic improvement may override the negative consequences of psycho-stimulant misuse and so determine if the behavior will be imitated or not among peers in college (Akers, 1985; Bandura, 1986).

Definitions

Definitions are meanings and attitudes people connect to behavior they exhibit and their outcome or benefits to the attached meanings and attitudes; for example, among college students the perceived improved academic performance could be used to explain peer interest in drug misuse (Akers, 1985). Mulvilhill (2016) further explained an excess of positive definitions about the benefits of stimulant use such as improved concentrations or greater interest in the subject matter, can be used to predict illicit behavior.

Differential Reinforcement

Differential reinforcement is the realization that punishment is less than the anticipated positive consequences; it is then that the reinforcement (anticipated consequences) becomes more dominant than the punishment (Akers, 1985). Mulvihill (2013) explained that the lack of stricter punishment for illegal possession or distribution of schedule II controlled psycho-stimulants contributes to differential reinforcement for college student involvement in drug misuse

Identity Theory

Identities and personalities are made up of complex characteristics. The five-factor theoretical model of personality found in identity theory assists in the understanding of personality in terms of extraversion, agreeableness, conscientiousness, neuroticism, and openness (Costa & McCrae, 1992; Harold & Ben, 2017; O'Connor, 2016).

Extraversion

This domain is used to explain extraverted individuals as highly assertive and sociable, they interact freely and can be described as action oriented people full of energy and who want to be noticed as opposed to introverts who have lower social engagement and energy levels, involved less in social activities, more reserved, independent, and need less stimulation to get involved in their social world, not out of shyness or depression or unfriendliness, but because they are reserved in social settings (Costa & McCrae, 1992; Digman, 1990; O'Connor, 2016).

Agreeableness

This is a characteristic that reflects individual differences promoting harmonious relationships (Digman, 1990; O'Connor, 2016). Individuals who are agreeable are also polite, considerate, trustworthy, kind, generous, helpful, willing and ready to compromise their interest and sacrifice for others; they view life with high optimism. Disagreeable individuals are often antagonistic, impolite, place their interest above others; are less concerned about other people's well-being, more unfriendly, uncooperative, suspicious and skeptical about other people's motives around them (Costa & McCrae, 1992)**.** Kanafani (2014) corroborated this view of differences in personality traits and found agreeableness to be the only statistically significant predictor of alcohol consumption from personality traits while scores on agreeableness was found to have a weak correlation with the amount of alcohol consumption.

Conscientiousness

Conscientious individuals work to achieve beyond expectations, they are not distractible, but self-disciplined, orderly and focused individuals (Costa & McCrae, 1992). This is often seen in the way such individuals control, direct, and regulate their emotions. Costa and McCrae (1992) explained that high scores on conscientiousness indicate that the individual is more coordinated and planned than spontaneous.

Neuroticism

Digman (1990) described neurotic people as emotionally unstable, and that they often experience negative emotions, are easily irritable, depressed and anxious. Neurotic individuals are emotionally vulnerable and so experience low stress tolerance levels.

Because they lack emotional resilience, they easily interpret minor situations as life threatening. The neurotic vulnerability makes the individual more likely to fall into depression because of negative life experiences (Digman, 1990).

Sejud (2013) found that there is strong association between neuroticism and substance addictions while Coleman and Trunzo (2015) maintained that neuroticism is a trait that correlates with stress and predicts drug abuse. This suggests that psychostimulant use increases during higher stress times at college as a reaction to stressors typical of college students (Moore et al., 2014). Neuroticism and negative affect may be more predictive of addictive patterns in those with greater levels of co-morbid mental illness (Sejud, 2013). Other researchers have argued that the negative affective states of depression are more closely related to substance use (Dussault & Weyandt, 2013; Ford & Hill, 2012; Ford et al., 2014; Verdi et al., 2016).

Openness

This trait is also called openness to experience and it means having a broad minded rather than narrow range of interests. The openness to make individuals more imaginative, adventurous and curious, therefore aware of their feelings and creative compared to individuals who are closed (Digman, 1990).

O'Connor (2016) applied the five-factor theoretical model in understanding human personality and stated that substance abuse is strongly related to higher levels of neuroticism and openness and lower levels of extraversion, agreeableness, and conscientiousness. Substance use in college students are more related to stress and neuroticism and stress were predictive of drug use (Coleman & Trunzo, 2015). In Cho et

al. (2015) there were more similarities affecting males and females than differences in risk factors, results were consistent with previous studies, and showed important roles cognitive and situational factors play in personality development.

<div align="center">Literature Review Related to Key Variables and Concepts</div>

In this section I used supporting literature to discuss the key variables and concepts related to the study as follows: Definitions and overview of substance abuse, types of substance abuse, differences between substance use and abuse, substance abuse risk factors, prevalence of substance use and abuse, prevalence in Nigeria, universities interventions (i.e. global group positioning on substance abuse; and university programs to combat substance abuse), and summary.

Overview of Substances

A substance (drug) is any constituent or ingredient that is not considered food but chemical taken to change mood, feelings, behavior and or the psychological state of the individual (MOH, 2003; WHO, 2006). Substance abuse is the inappropriate use of substances that impair functioning in such areas as health, social, legal and employment resulting in problems in day to day functioning (WHO, 2006; Nkyi, 2014). The problems related to the use (and overuse) of alcohol, marijuana, opioids, prescription and non-prescription medications, and illicit drugs are well documented (Clapp, Isom, & Thomas, 2016; Dussault & Weyandt, 2013; Ford et al., 2014; Gallucci et al., 2015; Bennett & Holloway & 2015; Kaynak et al., 2013; King et al., 2013; McElroy, 2016; NIH, 2014; O'Connor, 2016; Ogbueghu & Ugwu, 2016; Schulz et al., 2016; Suerken et al., 2016; Tella, 2012; Tsvetkova & Antonova, 2013; Ventola, 2014; Wright & Palfai, 2012). The

terms substance use and substance abuse are often used interchangeably to explain the continued use of substances like alcohol and illicit drugs such as amphetamines, cocaine, inhalants, LSD, marijuana and PCP, and the misuse of prescriptive drugs with negative consequences (APA, 2013; Britt, 2016; Johnston et al., 2014; NAFDAC, 2000; UNODC, 2013; Weiss, 2016). Substance abuse is when you take drugs that are not legal. It is also when you use alcohol, prescription medicine, and other legal substances too much or in the wrong way.

Substances are categorized as legal and illegal, the legal substances are those that can be controlled, prescribed, and accessed from appropriate authority like health facilities for example codeine, trammol, over-the-counter medications, and tobacco for individuals 18 or 21years depending on the country (APA, 2013). Illegal substances are those substances that have been deemed illegal by government, often abused, not prescribed and taken in the wrong way such as cocaine, heroin, and cannabis (APA, 2013; NAFDAC, 2000; Weiss,2016).

Alcohol

Alcohol is the ingredient in many drinks that results in drunkenness (NIH, 2017). This is the most abused drug among youth and alcohol is classified as a depressant because it slows the function of the brain. This can make learning difficult and can result in many negative consequences such as stroke, and death and has been found to be the cause of diseases such as cancer, and diseases of the liver (NAFDAC, 2000; Piwana & Haggai, 2007). Alcohol primarily impairs mental and emotional well-being, academic performance, and relationships (Champion et al., 2015). Alcohol use is socially

considered an acceptable drink in some groups and is used in colleges by students to

socialize with peers while others use alcohol as a coping strategy to manage emotional

stress and deal with adjustment problems to their new educational and social environment

(Champion et al., 2015; Nakashyan, 2015; Piwana & Haggai, 2007; SAMHSA, 2013).

Tobacco

Tobacco plant is a leafy drug dried, prepared and smoked or ingested for

nonmedicinal reasons (NIH, 2017). The nicotine in tobacco gives mild pleasures that

soon wears out and make the user crave for more leading to addiction with mind altering

effects (NAFDAC, 2000; NIH, 2017; Ogbueghu &Ugwu, 2016). Tobacco affects the

nervous system as it is a stimulant and it weakens the immunity of the habitual user

(Piwana & Haggai, 2007). Health implications of tobacco use include lung diseases with

associated symptoms such as coughing up blood, poor appetite, weight loss, shortness of

breath, fatigue, chest pain, and painful breathing diseases like emphysema, stained teeth,

bad breath, damage to unborn babies, and heart attack or stroke (NAFDAC, 2000; NIH,

2017; Ogbueghu &Ugwu, 2016).

Cannabis

This plant is found in many locations around the world and is called many names

including marijuana, grass, weed, pot, dope, ganja, reefer, and jive, (NAFDAC, 2000;

NIH, 2017; Piwana & Haggai, 2007). Cannabis is used as a pain killer, to prevent nausea,

and to improve appetite in cancer and AIDS patients. When used in small or moderate

doses it brings euphoria and pleasurable physical sensations to the user and it is

considered a less harmful than other drugs (Pedersen & Von Soest, 2015; Piwana &

Haggai, 2007). The negative short term effects of use include dizziness, dry mouth, shallow breathing, red eyes, dilated pupils, increased appetite, and slowed reaction times. Long term effects include impaired thinking, memory loss, and he risk of lung diseases and heart attack (NIDA, 2014). The withdrawal syndrome users experience includes cravings for the drug, irritability, lowered appetite, and sleeplessness (NIDA, 2014).

Heroin

This drug is derived from the opium poppy and serves as a pain killer when eaten or smoked (Kinch, 2005; Piwana & Haggai, 2007). Opium use can result in lethargy and deep sleep. It is the raw material used in the legal production of medicinal drugs such as morphine, codeine, and oxycontin which can also be abused (Kinch, 2005; Piwana & Haggai, 2007). The short term symptoms of drug use include shallow breathing, clouded mental functioning, and uncontrolled itchy feelings that results in picking at skin and compulsive scratching. The long term effects include infection of the heart lining and valves, pulmonary diseases, chronic pneumonia, collapsed veins, blood clots, liver disease, arthritis and other bacterial infections, and seizures. There is also a tendency of users to overdose, be addicted, and be afflicted by the diseases mentioned above which directly or indirectly may lead to death (Piwana & Haggai, 2007). In addition, when the drug is used intravenously using non-sterile shared needles, users can be infected with diseases such as Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) and hepatitis B and C (NAFDAC, 2000; NIDA, 2014; NIH, 2017).

Cocaine

This is a stimulant which increases physical and mental stamina while suppressing appetite (NIDA, 2014; Piwana & Haggai, 2007). Cocaine has a high potential for causing both psychological and physical dependence. Short term effects include experience of intense high followed by intense depression, edginess and a craving for more of the drug, paranoia, anger, anxiety, less eating and sleep, increased heart rate, muscle spasms and convulsions (NIH, 2017). The long term effects of use include increased tolerance of the drug and other negative effects such as hallucinations (NIDA, 2014; NIH, 2017). The user also stands the increased risk of experiencing heart attack, stroke, seizure or breathing problems which may cause sudden death (NAFDAC, 2000; NIDA, 2014; NIH, 2017).

Valium

This is a depressant that slows the mental functions of the individual. It is often used to treat anxiety disorders, alcohol withdrawal symptoms, muscle spasms, and sometimes used with other medications to treat seizures (NIDA, 2014). If valium is used with other opioids, alcohol and drugs which cause drowsiness or slow breathing, it could have fatal side effects (NIH, 2017). The other side effects include drowsiness, tiredness, muscle weakness, loss of coordination, and accidental falls (NIDA, 2014). The misuse of valium can cause overdose, addiction or even death (NIDA, 2014).

Amphetamines

These are psycho-stimulants which affect the functions of the body and mind and cause extreme excitement (NIDA, 2014). Heavy use causes personality and behavior

changes that may include aggression, irritability and hyperactivity and it may lead to the

user becoming paranoid, psychotic, or experiencing hallucinations (NIDA, 2014).

Examples of amphetamines include ecstasy, methamphetamine, salt formulations of D-

amphetamine (DextroStat and Dexedrin), L-amphetamine (Desoxyn), and mixed D- and

L-amphetamine (Berman et al., 2009). The long term effect of amphetamine use includes

the increased chance of contracting infectious diseases such as HIV/AIDs, Hepatitis B

and C because of the risky behaviors of users such as unprotected sex (NIDA, 2014).

Differences Between Substance Use and Abuse

Substance abuse is the act of using illegal drugs or using legal drugs

inappropriately in ways that they are not recommended and/or to the point that activities

of daily living are being negatively impacted (Adeyemo et al., 2016; Chia, 2016;

Johnston et al., 2014; NAFDAC, 2000; NIDA, 2014; UNODC, 2013; Usman, 2015;

Weiss, 2016; WHO, 2006). What is considered abuse of legal drugs is when such drugs

are consumed inappropriately and lead to negative health and social consequences such

as infectious diseases, poor judgment, and addiction (NIH, 2014, UNODC, 2013; WHO,

2006). Therefore, substance abuse simply refers to the arbitrary use of both legal and

illegal substances inappropriately (Johnston et al., 2014; NIDA, 2014; UNODC, 2013;

Weiss, 2016; WHO, 2006). The abuse of drugs is a contributory factor that negatively

affects many college students' health and well-being given their susceptibility to

influences such as college social norms and other psychological concepts such as self-

efficacy, self-esteem, and perceived parental support (Champion et al., 2015; Clapp et al.,

2016; Schwinn et al., 2016).

Social Use of Drugs

Many college students' social experiences on campuses expose them to drug abuse because they want to change or alter the way they feel and behave, and to relieve stress (Cho et al., 2015; Johnston et al., 2014). At this stage they are more imaginative, adventurous, and curious and more open to try drugs (Johnston et al., 2014; O'Connor, 2016). College students with greater neuroticism and openness to substance abuse and lower levels of extraversion, agreeableness and conscientiousness are more likely to use drugs during this period of their lives (Cho et al., 2015; Coleman &Trunzo, 2015; Moore et al., 2014; O'Connor, 2016; Popovici et al., 2014). The availability and use of drugs at social gatherings is accepted as part of the social culture on campuses among college students; and because they are away from home with little or no parental control/guidance they are more vulnerable and likely to abuse drugs (Johnston et al., 2014; O'Connor, 2016).

Sex Differences in Substance Abuse

Substance abuse is a complex phenomenon that may involve social factors (social injustice, social isolation, unresolved conflicts, failed relationships, and peer pressure), psychological factors (anxiety from family conflicts, depression and frustration from unmet basic needs), economic factors (poverty, lack of resources, unemployment), the availability of the substances and other pre-disposing factors in the college campus environment such as the desire for enhance academic performance, for sporting and recreational purposes, gratify social norms, health beliefs, and to satisfy the dynamics of a fraternity (Champion et al., 2015; Hassan et al., 2014; Mulvihill, 2013; Popovici et al.,

2014). Researchers agree that sex differences exist among college students' substance abusers, although this is especially witnessed in the abuse of nonmedical prescription stimulant drugs, and the growing trend among college students (Cutler, 2013; Denham 2014; Ekpenyong, 2012; Grucza et al., 2009; Hassan et al., 2014; Hensel et al., 2014; Kim, 2018; Popovici et al., 2014; White & Hingson, 2013).

The concern for the growing prevalence of female abuse of nonmedical prescriptive stimulants is because of the unique effect of such abuse on females such as the vulnerability to gender-specific public health concerns like liver disease, irregular menstruation, and serious problems for unborn baby (Kim, 2018). Ingestion of drugs by those who are pregnant could lead to handicap or deformity, mental retardation, and addiction in the child in addition to circulatory disorders, breast cancer, fertility issues, early menopause, and higher death rates for the mother (Hassan et al., 2014; Kelly-Weeder, 2008; Kim, 2018).

Females may be more apt to conforming to the peer group behaviors and lack of coping mechanism to escape the realities of life may be used more by females (Kim, 2018). The National Surveys on Substance Use (NSUH, 2008) reported that males and females 18-25 years old reported comparable prevalence rates among those abusing prescription drugs. This finding differed from earlier and current researchers who studied substance abuse that found drugs such as cocaine, ecstasy, and heroin and alcohol abuse rates were higher among males than females (Cutler, 2013; Denham 2014; Ekpenyong, 2012; Grucza et al., 2009; Hassan et al., 2014; Kelly-Weeder, 2008; Kim, 2018; Mulvihill, 2013; Popovici et al., 2014; White & Hingson, 2013). This calls for more

research in this area to understand the dynamics of the gender relationships in substance abuse prevalence rates.

Substance Abuse Risk Factors

The risk factors are those determinants associated with the increase, spread, and effect of substance abuse among populations including college students. Many researchers have tried to explain college student drug abuse through the lenses of social norms, social learning, social control, social cognitive, identity, general strain, and social bond development (Champion et al., 2015; McElroy, 2016; Roberts, 2014; Popovici et al., 2014; Schwinn et al., 2016; Vito & Higgins, 2013; Zaso et al., 2016). Others have explained student drug abuse through factors such as poor social support, stress, depression, college student attitude and self-esteem (Astudillo et al., 2013; Champion et al., 2015; Lookatch et al., 2014; Merrill et al., 2013; Nkashyan, 2015; Ord, 2016; Popovici et al., 2014; Roberts, 2014; SAMHSA, 2014; Schwinn et al., 2016; Stoltzfus & Farkas, 2012; Zaso et al., 2016). These risk factors have been found to negatively affect individual health and well-being because of the addiction, overdose, suicidal effects, proneness to accidents and other health risks like being vulnerable to sexually transmitted diseases, unwanted pregnancies, and birth defects in the case of females who abuse alcohol and other substances and have history of addiction (Clapp et al., 2016; Ramo & Prochaska, 2012; SAMHSA, 2013; Schwinn et al., 2016; Suerken et al., 2016). The multifaceted traits such as neuroticism, extraversion, openness, agreeableness and conscientiousness interplay and help to determine motives, actions, and involvement of college students in substance abuse (Bandura, 1969; Costa & McCrae, 1987/1992;

Digman, 1990; Marshall et al., 2005; O'Connor, 2016). The social well-being of college students includes the effect of home and family life, education, employment, and financial and legal issues (Bandura, 1986; Clapp et al., 2016; Kenzig, 2013; King et al., 2013; Lange, 2015; Larm et al., 2010; O'Connor, 2016; Ogbueghu & Ugwu, 2016; Ramo & Prochaska, 2012; Schwinn et al., 2016; Suerken et al., 2016; Briggs-Vaughn, 2016; Verdi et al., 2016).

Social Support and Social Norms

Social support is a broad construct that includes support types from others such as parents, mentors, and friends (Roberts, 2014). The expected closeness to others may be lacking or infrequent and can put individuals at risk for self-medicating to alleviate the depression and loneliness experienced in these situations (Akers, 1985; Eldeleklioğlu, 2006; Hirsh, 1980; Roberts, 2014). Authors agree that the timely and quality social support from parents, mentors, and peers can be protective factors from drug use (Akers, 1985; Eldeleklioğlu, 2006; Hirsh, 1980; Nkashyan, 2015; Roberts, 2014).

Researchers have also observed that college student social norms and health beliefs on campuses often impact students' perceptions; through 'descriptive social norms' or 'injunctive social norms' (Borsari & Carey, 2003; Champion et al., 2015; Clapp et al., 2016; SAMHSA, 2014). The descriptive social norms constitute perceptions of others about the quantity and frequency of drinking based largely on observations of how people consume alcohol in discrete drinking situations (Borsari & Carey, 2003; Champion et al., 2015). And the injunctive social norms relate to perceived approval of drinking of the peer group (Borsari & Carey, 2003; Champion et al., 2015). The

descriptive social norms have been found to influence heavy drinking because of the closeness of peers as opposed to the perceived moral values held of the peer group for example the more the student perceives others as drinking heavily, or approving of heavy use, the higher the personal consumption will be (Borsari & Carey, 2003; Champion et al., 2015; Clapp et al., 2016; SAMHSA, 2014; Schwinn et al., 2016).

Peer relationships and norms are vital to the interactions and decisions or likelihood of substance use (Clapp et al., 2016). Peer relationships also impact the development of social cognitive skills negatively and positively, as they are a source of information on what is to be considered as more acceptable or appropriate behavior in any social context (Clapp et al., 2016; SAMHSA, 2014; Schwinn et al., 2016; Zaso et al., 2016). Students' peer relationships, health beliefs and motives to drink alcohol could be made after weighing benefits against risks about drinking and the acceptability by peers (Champion et al., 2015). When such specific and personal thoughts about consequences and risks to health and well-being are not positively processed college students experience negative impacts and need help on taking a recommended health action (Astudillo et al., 2013; Champion et al., 2015; Lookatch, Moore, & Katz, 2014; Merrill et al., 2013; SAMHSA, 2014; Schwinn et al., 2016; Zaso et al., 2016). Therefore, the improper development of peer relationships, norms and health beliefs puts students at-risk for substance abuse.

The most affected area for college students is the abuse of substances that have been found to be prevalent in campuses, encompassing their mental and emotional well-being and adversely impacting students' ability to achieve academic excellence and to

perceive dangers. This is especially true for prescription medications since it is at these stage college students engage in risky behaviors such as experimenting with drugs and alcohol; and at this stage of self-discovery, and often attribute motivations of misuse of such substances as non-medical prescription stimulants for both academic and social reasons (Lange, 2015; SAMHSA, 2013; Schwinn et al., 2016; Verdi et al., 2016).

Stress

Stress is the outcome from stressful events in life that affect the mental and emotional well-being of an individual. In a bid to achieve academic excellence, college students are adversely impacted by stress through a combination of rigorous academic deadlines and requirements, social relationships, and developmental stressors. The inability of students to adjust to independent campus life, being exposed to a different environment from home, unable to cope with new responsibilities as ensuring tuitions are paid on due dates, and meeting datelines for assignments are common stressors among college students (Stoltzfus & Farkas, 2012; White & Rabiner, 2012). Stress is a major risk factor college students experience when faced with problems such as absence from classes, performing poorly on examination, being unable to meet academic deadlines, and poor concentration (Hutchinson et al., 1998; Ord, 2016; Park et al., 2004).

The academic problems associated with substance abuse among college students results from reduced negative emotional states which could lead to other general psychological health problems (Ord, 2016). College students experience moderate to high levels of stress and may be overwhelmed by the demands of college life (CASA, 2007). Many authors concluded that, dealing with the stressors alone can be challenging and a

combination of these factors even more challenging, leading some students to use substances to cope with the stress (Aldridge-Gerry et al., 2011; McCormack, 1996; Nakashyan, 2015; O'Hare, 2001; Ord, 2016; Park et al., 2004; Stoltzfus & Farkas, 2012). The importance and impact of psychosocial and cognitive factors is therefore critical in the analysis of college substance abuse to improve academic performance (Briggs-Vaughn, 2016; Lange, 2015; NIH, 2017; Schwinn et al., 2016; Verdi et al., 2016).

Depression

Depression is a state of sadness, sorrow, and anxieties over situations individuals are unable to solve or help themselves (Lindsey et al., 2009; Nakashyan, 2015; Reckdenwald & Marquardt, 2014). The symptoms associated with depression include persistent sadness, loss of interest in activities, poor sleeping patterns, low appetite, weight loss or weight gain, agitation, poor concentration, poor self-esteem, and worthlessness. Individuals may be emotionally vulnerable to depression because they lack the emotional resilience to cope with negative experiences in life and stressful situations (Digman, 1990; Sejud, 2013). Depression can also be triggered by external factors such as bereavement and illness (Nakashyan, 2015; Sejud, 2013). Some researchers have suggested that depression is a problem many college students experience and the situations that are stress related are capable of causing depression and general strain (Lindsey et al., 2009; Ford et al., 2014; Kessler et al., 2005; Nakashyan, 2015).

Self-Esteem

Many researchers have identified self-esteem as a distinctive personality trait and risk factor for drug use (Jenson, 2011; Parker & Benson, 2004; Roberts, 2014). Self-esteem involves emotions, beliefs, and behaviors that form the overall personal self-worth or personal value of an individual (Rosenberg, 1965). Those with poor self-esteem have been found to be more likely to engage in dangerous or destructive behaviors such as drug use (Denham, 2014; O'Connor, 2016; Wild, et al., 2004). Genetic factors like level of neuroticism, extraversion, agreeableness, conscientiousness, and openness also play a role in shaping self-esteem forming the basis for overall self-esteem (Harold & Ben, 2017; O'Connor, 2016; Rosenberg, 1965). Bolognini et al. (1996) found females tend to have lower levels of self-esteem than their male counterparts.

The quality of interpersonal relationship in the family has been known to affect the behavior of college students and propensity to involve in drug abuse (King et al., 2013; Schwinn et al., 2016; Suerken et al., 2016; Tella, 2012). Students who had high levels of involvement in pro-social behaviors, had significant others like parents and peers and teachers who disapproved of substance use (Clapp et al., 2016). And were involved in frequent discussion over the potential harm of substance abuse; and subjected to enforced substance use rules in the schools (Clapp et al., 2016). In addition, college students who were at decreased risk of over-the-counter drug abuse had mothers who exercised support and warmth in parenting (King et al., 2013; Clapp et al., 2016; Schwinn et al., 2016). On the other hand, the effect of low level social support from significant others (like the mother at home) may result in college students being more vulnerable and

prone to substance abuse, perform poorly on academics, and incapable to handle social challenges (King et al., 2013; Clapp et al., 2016; Schwinn et al., 2016). The symptoms exhibited by students with such challenges may include violent outburst, mood swings, secrecy, self-centeredness, irrational behavior, paranoia, and involvement in criminal behavior. These actions could lead to disharmony in families and homes, poor academic performance, and other social and health problems (Ogbuegbu & Ugwu, 2016; Popovici et al., 2014; Tella, 2011; UNODC, 2013).

Researchers have also found youthful and stressful events like being bullied and victimized by peers and not receiving support from significant others like parents and friends can lead to low self-esteem (Orth et al., 2014; Rosenberg, 1965). The effect and vulnerability of low self-esteem is more pronounced when college students experience stressful events internally and externally and when victimized by their peers. Conversely, the concept of self-worth may be a primary buffer against the use of drugs (Carbonell et al., 1998; Roberts, 2014; Sowislo & Orth, 2013).

Researchers on college campuses have indicated that both male and females are involved in the abuse of substances although they have primarily focused on males (Charalampous et al., 1976; Gross & Adler, 1970; Strom & Barone, 1993; Stepanyan, 2016). Corbin et al. (1996) found significant differences in consumption of alcohol of males and females. They found that female drinkers had lower self-esteem and that self-esteem was found to be lower in those that drank more. However, there were no statistically significant differences between male groups. When comparing males to females, male heavy drinkers had higher self-esteem scores than the females (Corbin et

al., 1996). In general, male and female college students are at risk of substance abuse (Arria et al., 2008; Boyd & McCabe, 2008; Chiauzzi et al., 2013; DuPont et al., 2008; Hall et al., 2005; Kim, 2018; McCabe et al., 2005; Teter, et al., 2012).

Researchers have explained that those who abuse alcohol have lower self-esteem than those who do not use substances (Charalampous et al., 1976; Gross & Adler, 1970). Strom and Barone (1993) stated that a considerable number of those who abuse alcohol exhibit relatively high self-esteem and this may be as a result of their need to justify their behavior or the need for social acceptance of their behavior. Gender differences in the prevalence rates reported by researchers may be a result of the 'motives' for the abuse such as negative feelings or internal moods (anxiety, depression) (Kelly-Weeder, 2008; LaBrie et al., 2007); social motives (conformity, or fear of alienation) (Cooper, 1994), and positive expectancies for example courage during or after the use of substance (Fromme et al., 1993). Kim (2018) found that female college students may abuse substances for reasons different from males and also suffer consequences unique to females. The identified predictive risks factors influencing abuse that were seen primarily in females included maladaptive coping behaviors (i.e. when abuse of substance is regarded positively as a coping means, and used to socialize with peers) and positive expectancy (courage before or after the abuse of substances) this finding is consistent with other findings in relations to gender differences in substance abuse (Cooper, 1994; Fromme et al., 1993; LaBrie et al., 2007; Strano, 2004).

Prevalence of Substance Use and Abuse

The WHO estimated 315 million about 7% of individuals between the ages of 15-64 use and abuse drugs (WHO, 2014). The UNODC also estimated that of a total of 246 million people, about 5% of those aged 15 to 64 years worldwide used some type of drug (UNODC, 2015). These estimates are alarming and demand attention to address the social, psychological and health problems that result from drug abuse (Nakashyan, 2015; O'Connor-Merrigan, 2013; Ola & Akinola, 2015; Popovici et al.,2014; Suerken, et al., 2014; UNODC, 2015; WHO, 2014). The prevalence of substance abuse has far- reaching effects and implications on people especially students who could spend at least $100 per month the equivalent of ₦36, 000.00 in Nigerian currency (Suerken et al., 2016). The financial damage is not limited to family or friends but the entire society because, the abusers degenerate to stealing or other criminal acts to fund the habit and maintain the habit (Champion et al., 2015; Denham, 2014; Nakashyan, 2015; SAMHSA, 2013; Popovici et al., 2014; Schwinn et al., 2016; Suerken et al., 2016).

Researchers have reported that the prevalent substances abused on college campuses are alcohol, marijuana, tobacco (cigarettes) and more recently, the misuse of prescription drugs (Clapp et al., 2016; Ramo & Prochaska, 2012; SAMHSA, 2013; Schwinn et al., 2016; Suerken et al., 2016). Other drugs abused on college campuses include caffeine, heroin, cocaine, and amphetamines (Clapp et al., 2016; Kenzig, 2013; Schwinn et al., 2016; Suerken et al., 2016). The long-term health-risks and consequences include tendencies of abusers to addiction, overdose, suicidal effects, proneness to accidents; and other dire health consequences like infection with/vulnerability to sexually

transmitted diseases, HIV/AIDS, unwanted pregnancies and birth defects in the case of female alcohol abusers with addiction history (Briggs-Vaughn, 2016; Lange, 2015; NIH, 2017; Schwinn et al., 2016; Verdi et al., 2016).

The most popular substances used in Nigeria include cannabis, cocaine, opioids (like vicodin, oxycontin), heroin, and amphetamines (Chia, 2016; NDLEA, 2014; Onifade et al., 2014; Popovici et al., 2014; UNODC, 2007; Usman, 2015). Gurege et al. (2006) reported that in the south-western and central parts of Nigeria, substance use disorders and alcohol abuse were relatively common at 0.5%. However, the overall rates of 12.1% for lifetime disorder and 5.8% for 12-month disorder were lower than the respective rates of 25.0% and 9.6% reported for the six European countries in which identical ascertainment procedures were used (Alonso et al., 2004; Gurege et al., 2006).

Usman (2015) reported higher rates of drug abuse in the northern parts of Nigeria in comparison to the south where the percentage of youth aged 10-29 years including college students who use drugs in Nigeria ranged from 8.54% (North-East zone) to 37.47% from the North-West zone of the country (Usman, 2015). The NDLEA also reported that the most consumed illicit substance is cannabis (marijuana) with approximately 10.8% of users, followed by psychotropic substances such as benzodiapines and amphetamine-type stimulants 10.6 %, heroin 1.6 %, and cocaine 1.4% (NDLEA, 2014).

The drugs used and abused among college students include such substances as amphetamines, stimulants (e.g. coffee), pain relief prescription drugs, and alcohol (Chia, 2016; NDLEA, 2014). Chia (2016) reported that 61% of those aged 18-25 are involved in

one or more type of drug use and more youth are reported to be involved in the use of inject able drugs such as heroine, pentazocine, cocaine, ketamine, and methamphetamine in Nigeria. In the past, more males were involved in the abuse of drugs at 94.2% in comparison to females at 5.8%; however, Chia (2016) reported that more females are getting involved in drug use and abuse; this calls for more empirical research to ascertain the reason for such development. In 2014 the lifetime prevalence of stimulant drug apart from amphetamines use among college students aged 18-25 in Nigeria was reported to be greater than 53.4%; followed by alcohol 35.8% and other drugs 25.1%, tranquilizers 12% Opiates 11.9 and cigarettes 11.3%% and lifetime prevalence of the illicit drugs like marijuana 7.2%, cocaine and heroin 2.1% (Onifade et al., 2014). In many of the cases the end result from drug use was poor mental health problems with negative effects on academic performance and negative impacts to relationships with others (Mamman et al., 2014; NDLEA, 2014; Onifade et al., 2014; Popovici et al., 2014; Usman, 2015). The most frequently and commonly abused substances among college students in Nigeria are alcohol and marijuana (Adeyemo et al., 2016; Chia, 2016; NDLEA, 2014; Usman, 2015; Ogbueghu &Ugwu, 2016). Female college students who abused substances are more likely to exhibit the following symptoms (violent outburst, mood swings, secrecy, self-centeredness, irrational behavior, paranoia, involvement in criminal behavior this leads to disharmony in families and homes, and poor academic performance) and most probably have participated in the following risky health behaviors- specifically, cigarette smoking, illicit drug use, binge drinking, unsafe sex behaviors, disordered eating, gambling, and self-injury (Ahmed, 2014; Briggs-Vaughn, 2016; Cho et al., 2015; Coleman, 2010;

Cutler, 2013; Denham, 2014; Dumbili, 2015; Gallucci, et al., 2015; Gureje et al., 2006; Kaynak, et al., 2013; Kim, 2018; Lange, 2015; O'Connor, 2016; Schwinn et al., 2016; Travis, 2018; Verdi, et al., 2016; 2016; Chia, 2016; Mamman et al., 2014; Popovici et al., 2014; Suerken, 2014)

University Interventions

University and college interventions are critical steps taken to address students' substance abuse problems and to stem the substance abuse tide using contemporary proactive and globally acceptable approaches (Rosen field et al., 2011). Different universities have recommended strategies that seem to work. For example Rosenfield et al. (2011) focused on health education and substance reduction campaigns that debunk myths and expose students to risks like the anti smoking campaigns, identifying root causes of stimulant abuse (for example unhealthy competition among students, high academic expectations) and addressing the issue of peer mentorship, and additional resources. These researchers prescribed better and more structured academic environment that encourage proper study habits, tutoring and counseling programs, and reliable information and resource programs that assist in the integration of students living away from home. To stem the tide of substance abuse in Nigeria, the national law enforcement agency (NDLEA) established in 1989 initially focused on demand -reduction targeting the control of the cultivation and distribution of substances abused. Subsequently, attempts such as the 2011 stakeholders' forum on substance abuse focused on the planning, implementation and evaluation of substance abuse interventions by government and relevant agencies and non-governmental organizations including a community

sensitization and advocacy, collaboration amongst stakeholders, research, policy development and implementation (Azuike & Dirisu, 2012). In 2017, the school based mental health program (SBMHP) was prescribed to be replicated in Nigeria (Ola & Atilola, 2017). Although novel in Nigeria, this program utilizes a needs-based and context appropriate paradigm to be operationalized and implemented in schools and colleges (Ola & Atilola, 2017).

Other attempts at intervention are through research studies in the area of drug abuse among college students in Nigeria which merely have produced and developed substance abuse policy guidelines and recommendations for interventions, and treatment programs for the federal, state governments, higher education institutions, and the non-governmental organizations (Anyanwu et al., 2016; Azuike & Rapu , 2011; Azuike & Dirisu, 2012; Dumbili, 2015; Kobiowu, 2006; NDLEA, 2014; Ola & Atilola, 2017; Onifade et al., 2014; Oye-Adeniran et al., 2014; Popovici et al., 2014). The need still remains for these recommended program and policies to be fully operationalized, established, and/or implemented within the identified and specific settings (in the universities and colleges) and reviewed for cultural adaptation. Research results on college student's substance abuse has chiefly served as framework for making decisions on issues related to the development of substance abuse interventions, treatment, and for conducting future studies. In many instances the results were limited only to the proffered recommendations for substance abuse interventions and do not include the establishment and effective implementation, regular monitoring, and evaluation of the recommended

program on the campuses (Anyanwu et al., 2016; Ola & Atilola, 2017; Azuike & Rapu , 2011; Azuike & Dirisu, 2012; Oye-Adeniran et al., 2014).

The Nigerian government drug control agencies NAFDAC and NDLEA set up with initial well- defined comprehensive and realistic policies need to be regularly reviewed and updated to meet certain substance abuse contemporary global standards, policies and best practices that include establishing/replicate in Nigeria a federal drug control center/department relevant to higher education (e.g. as obtains in the guide for universities and administrators U.S. Department of Education's Drug Free Schools and Campuses Regulations) under the auspices of the federal ministry of health and internal affairs, which collate information on drug use, and liaise with similar smaller units based in each state and higher institutions of learning. The public substance abuse education should target students in universities and colleges because they are part of the vulnerable in the societies. The educational measures should be carefully presented through methods/strategies that avoid threats to college students well-being such as stigmatization, dramatization and should be adaptable and culturally friendly. In addition, ensure the political will to establish a national Monitoring Survey Data for a more robust national surveillance of substance abuse is entrenched in the system (Eddy et al., 1992; Maier et al., n.d; Popovici et al., 2014; Strohman et al., 2014; USDE, 1990). Finally, collaborate with school authorities and ensure multidisciplinary deliberation and pragmatic approaches involving psychologists, psychiatrists, social workers, educators (USDE, 1990). Because any law designed to control substance abuse behavior must

embrace suggestions from relevant stakeholders and professional bodies (Kobiowu, 2006; Onifade et al., 2014; Popovici et al., 2014; USDE, 1990).

Summary

In this chapter I discussed the abuse of substances and the negative impact they have on individual lives. Some of the substances abused are legal, some illicit and also non-medically prescribed drugs, while others are medically prescribed substance that are used inappropriately in ways not recommended. Previous researchers have noted that, self-evaluation affects thinking, emotions, desires, values, and goals and may increase the risk of abuse of non-medical prescription stimulants and other illicit substances (Johnston et al., 2012; Kanafani, 2014; Mulvihill, 2013; Teter et al., 2012). The possibility of psycho-social and psychological and personality developments such as the nature and degree of self-esteem is also critical to the understanding of individual behavior (Kim, 2018; Lange, 2015; NIH, 2017; O'Connor, 2016; Briggs-Vaughn, 2016; Schwinn et al., 2016; Verdi, et al., 2016).

There is need for more research in the area of female college student's drug abuse, and that there is a gap in the literature for how improving self-esteem in female college students will reduce drug abuse. This researcher sought to examine impact of specifically non-medical/prescription drugs used for illicit purposes by female college students. The focus was on finding the relationship between the independent variables (demographic factors such as age, socioeconomic level, educational level, and history of mental illness) to drug abuse and dependent variable self-esteem in female college students in the geographical location of Kaduna, Nigeria.

In chapter 3 the methodological aspects of the study like the design, methodology, sampling technique, instruments used, measurements and other statistical techniques are discussed. The geographical area in which data was collected. The statistical tools that were used to collect the data, and data analysis.

Chapter 3: Research Method

Introduction

The use and abuse of substances is a growing global problem in many countries among people between 15 and 64 years of age (UNODC, 2015). Although males have been found to be more likely to use illicit substances like cannabis, cocaine, and amphetamines, females have been found more likely to misuse prescription opioids, stimulants, and tranquilizers (UNODC, 2013). The motive for substance use and abuse vary, and many researchers have found drug abuse (especially among the college students) to be attributable to peer pressure, poor parental background, and a need for improved academic enhancement (Cho et al., 2015; Cutler, 2013; Fareo, 2012; Ford, 2014; Bennett & Holloway, 2015; Johnston et al., 2014; Martins et al., 2014; O'Connor, 2016). Previous researchers have suggested that female substance abusers exhibit similar characteristics that lead to depression, lack of self–confidence, negative self-image, and low self-esteem (Aebi et al., 2014; Miller et al., 2012; Oluremi, 2012; Telzer, 2014). However, they do not fully understand the relationships of some demographic factors to the level of drug abuse, and to the level of self-esteem. The purpose of this study was therefore to determine if there were predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria.

In this chapter, I present the research design and rationale; methodology, including the population, sampling procedure, recruitment and participation procedure,

data collection procedure, instrumentation, and data analysis methods; validity and reliability; and ethical considerations related to the study. I also discuss the use of multiple linear regression analysis as a valid means to analyze the possibility of a relationship between demographic characteristics, substance abuse, and self-esteem among female college students. The chapter concludes with a summary section.

<div align="center">**Research Design and Rationale**</div>

The independent variables in this study included demographics (age, socioeconomic level, educational level, and history of mental illness) and level of drug use/abuse as measured by the Drug Abuse Screening Test-DAST (Skinner, 1982). The dependent variable was self-esteem as measured by the MRSES (Rosenberg, 1965). I sought to determine if there were statistically significant relationships between the independent and dependent variables.

Research Design

The research design for this study was a correlational research design of a cross-sectional nature. Correlational designs are used in research when the focus is on determining the degree of relationship between two or more variables (Sheperis et al., 2010). When a relationship is observed between variables, then they are correlated, and this forms the basis for almost all predictive designs (Sheparis et al., 2010). Researchers use correlational research designs to examine relationships between variables and to describe patterns of relationships without drawing conclusions of causation in those relationships (Frankfort-Nachmias et al., 2015). These designs also do not involve an

intervention or manipulation of variables (Campbell & Stanley, 1963; Frankfort-Nachmias et al., 2015).

The advantage of a correlational research design is that it allows data collection and recording in the natural setting. Use of the design also enables the researcher to either support or refute the hypothesis of the study and make descriptions of the pattern of relationships between variables (Field, 2013; Koppoe, 2018; Sheperis et al., 2010). The disadvantage of this design is that, although the process will identify patterns in the data concerning lived experiences, patterns, background, and behaviors, it cannot establish causation for the observed patterns (Campbell & Stanley, 1963). However, correlation research design was appropriate for this study because the aim was to determine the extent of the relationship between two or more variables (see Creswell, 2013). According to Frankfort-Nachmias and Nachmias (2008), correlational designs have been established as a highly effective method of establishing relationships between variables and understanding emerging patterns of each variable studied. Frankfort-Nachmias and Nachmias also noted that the use of this design enables a researcher to conduct a study in a natural setting, which can improve external validity.

Cross-sectional designs are designs that enable researchers to study one group at one point in time (Sheperis et al., 2010). Cross-sectional designs are therefore commonly used within social science research especially when collecting data via surveys (Frankfort-Nachmias & Nachmias, 2008). It also does not require random assignment of subjects (Creswell, 2009). The main disadvantage of cross-sectional method is that data collected about participants can only provide information on present-day attitudes,

opinions, beliefs, and behaviors to understand current situations and cannot be used for in-depth analysis as in longitudinal research designs and analysis, which allow manipulations and observed changes over time on the dependent variable (Sheperis et al., 2010).

Methodology

Population

My target population consisted of the female undergraduate students (age 18-25) enrolled in three colleges (referred to as University A, University B, and University C) in Kaduna State, Nigeria. I chose the institutions as data collection sites because of their large female population and diversity in academic discipline and campus types. The national estimated female college population in Nigeria was approximately 11,270,000 in 2018 with an estimated 10,000 in Kaduna State (*Bureau of Statistics Report*, 2018). Therefore, these data collection sites should provide data that can be generalized to other female college age students in Nigeria.

Sampling and Sampling Procedures

Sampling Strategy

I used purposeful convenience and snowball sampling to recruit female college students who met the stated inclusion criteria (see Frankfort-Nachmias et al., 2015). The main characteristic of a purposeful sample is that participants are those selected who meet the inclusion criteria of the study and are able to answer the questions or provide the needed answers for the study as they have the appropriate experiences and knowledge to provide that information (Cunningham, & McCrum-Gardner, 2007; Devane et al., 2004;

Frankfort-Nachmias et al., 2015; Stanley & Campbell, 1963). Convenience sampling is a

process that involves samples obtained simply based on convenience and accessibility

(Frankfort-Nachmias et al., 2015). The benefit of convenience sampling strategy within

the research plan was simply its convenience as it availed easy access to female

participants on campus within a geographic location. Furthermore, the population sample

within the research plan was one group (female college students). It was also reasonably

cost effective and saved time (see Frankfort-Nachmias et al., 2015). However, the

subjective nature of the sampling strategy can constitute a disadvantage, as the

probability of inclusion of a particular sampling unit that appears to be representative of

the population can be difficult to determine (Frankfort-Nachmias et al., 2015).

I used snowball sampling in combination with the purposeful convenience

sampling as a way to find others who met the criteria to participate in the study who may

not have seen the recruitment materials. The benefits of snowball sampling include its

cost effectiveness and time-saving aspects (Trochim, 2006). A disadvantage of snowball

sample strategy is that it can only be generalized to similar groups or populations in

similar cities (Trochim, 2006).

Random sampling was an alternative sampling strategy I considered but decided

not to employ in this study. It is a probability sampling strategy used in research when

there are two or more subgroups in a population that are likely to differ substantially in

their responses; and used if the population is to be divided into groups, and/or a

proportion of the sample with similar characteristics (Frankfort- Nachmias et al., 2015;

Trochim, 2006). The benefit of random sampling is that it allows random selection of

group samples that are equal in size and have the necessary independent variable

characteristics; and findings can be generalized to other populations (Frankfort-Nachmias

et al., 2015). A disadvantage is that the process can be time-consuming and expensive

(Frankfort-Nachmias et al., 2015; Trochim, 2006). The random sampling strategy was

inappropriate for this study as it could have involved the use of random assignment to

groups which was not possible in this study due to access to potential participants as well

as cost and time constraints (Frankfort-Nachmias et al., 2015)

Inclusion and Exclusion Criteria

I recruited female undergraduate students enrolled at the three selected colleges

(University A, University B and University C) who voluntarily indicated interest through

phone, e-mail, or physical contact to participate in the paper and pencil or electronic

version of the survey and were between the age of 18 to 25. Potential participants were

excluded from participation if they did not meet the inclusion criteria.

Sample Size Calculation

The sample size is an important factor related to validity and reliability of the

study results as well as possible generalizability (Frankfort –Nachmias et al., 2015). I

used G*Power to calculate statistical power and the necessary related sample size

(Buchner et al., n.d.; Faul et al., 2009). G*Power is a software tool used to compute

statistical power analyses for many different *t* tests, *F* tests, *y2* tests, *z* tests and some

exact tests. G*Power program can be used to compute effect sizes, and to graphically

display the results of power analyses (Faul et al., 2009). I chose the default of .15 for the

medium size effect in order to have an appropriate sample size and avoid the problem of

too small or too large sample size (Faul et al., 2009). The alpha level was at .05 and

power level at .80 (i.e. 80% chance of rejecting the null hypothesis if it is false instead of

the default of .95 default) which is acceptable levels in Cohen's F (Faul et al., 2009). I

calculated using five predictor variables for this study (age, socio-economic level,

educational level, history of mental illness, and level of drug use). The calculations

indicated that a minimum sample size of 92 was needed for this study. The sample size

calculation using G*Power was as follows:

F tests - Linear multiple regression: Fixed model, R² increase

Analysis: A priori: Compute required sample size

Input: Effect size f²   =   0.15

α err prob   =   0.05

Power (1-β err prob)   =   .80

Number of tested predictors   =   5

Total number of predictors   =   5

Output: Noncentrality parameter λ   =   13.8000000

Critical F   =   2.3205293

Numerator df =   5

Denominator df   =   86

Total sample size   =   92

Actual power =   0.8041921

Procedures for Recruitment, Participation, and Data Collection

Recruitment

I posted flyers (see Appendix A) on campus bulletin boards 2 weeks before the

dates I conducted data collection meetings with potential participants. The flyer included

information about the study, inclusion criteria, and where I would be collecting data

including location, date, and time. Individuals who were interested in participating came

to that location at the given time to ask me any questions and filled out the paper and

pencil version of the data collection instruments. In addition, I included information on

the posted flyers that potential participants had the option to instead fill out the data

collection instruments electronically. Potential participants could take a paper copy of the

link to the survey so they could fill out the instruments electronically at their

convenience. The electronic version of the data collection instruments was made open

starting the day before I posted the flyers so that the electronic version was available as

soon as potential participants could see the recruitment flyers. The electronic surveys

were closed once I had collected at least the sample size calculated (92) and after the in-

person data collection had been completed on the dates indicated on the flyer.

Data Collection

The data collection process followed the following face-to-face and also the

internet data collection.

Face-to-Face Data Collection. Potential participants who came to a face-to-face

data collection session were welcomed on an individual basis and asked if they had any

questions. They were verbally told the inclusion criteria and also instructed that this

information was in the packet as well. They were provided a packet in a manila envelope which included the informed consent form, demographic form, Drug Abuse Screening Test-DAST, and the MRSES. Instructions were given verbally and in an instruction form included in the packet, that they should first read the informed consent form and keep that informed consent form. Instructions indicated that if they wished to continue their participation after reviewing the informed consent form that they should complete the other forms and surveys in the packet and completion of the materials will designate that they have agreed to the informed consent. The instructions also indicated that once they have completed the demographic form and surveys that they should return those documents to the manila envelope that they got the materials in, keep the informed consent form, and drop the envelope in the box at the front of the room where data collection was being conducted. No identifying information was required on any of the forms or surveys in the packet to ensure confidentiality. Drug and alcohol support service information was also provided in the packet (see Appendix B).

Electronic data collection. For those who decided to complete the survey electronically, they accessed the link provided in the flyer. The first screen contained the inclusion criteria and the potential participants were asked if they meet each of the inclusion criteria. If the answer to any of the items was "no" then they were exited from the survey and thanked for their time. If they answered "yes" to all of the inclusion criteria they were taken to a page containing the informed consent form. Participants were instructed to save or print a copy of the informed consent form for future reference. At the end of the form they were asked if they consent to participate in the study after

reviewing the informed consent. If they answered "no" they were exited from the survey and thanked for their time. If they answered "yes" they were then being taken through the demographic form, Drug Abuse Screening Test-DAST, and the MRSES. At the end of the survey, drug and alcohol support service information were provided.

Instrumentation and Operationalization of Constructs

Instrumentation

Demographic Form. I used a demographic form I created to collect participants' demographic information including age, education level, socio-economic level, and history of mental illness. A copy of the demographic form can be found in Appendix C.

Drug Abuse Screening Test. The Drug Abuse Screening Test (DAST) was designed as a 28-item instrument for clinical screening to measure levels of drug use in clients seeking treatment at an addiction foundation (Skinner, 1982). Originally, the DAST was a 28-item assessment and later modified to DAST-10 and DAST-20 item and instrument used for current drug use testing. The DAST-20 will be used for this study. The DAST-20 self-report items yield a quantitative index of problems related to drug misuse. The overall score is 20 and the level of abuse are scored according to categories as 0= No drug use (having no risk); 1-5=Low level (having low risk); 6-10=Intermediate level (having moderate risk); 11-15=Substantial level (having substantial risk) and 16-20=Severe level (having severe risk). Researchers have used the DAST to measure drug use levels within college populations with calculated Cronbach's alpha of .92 which have been consistent over studies (Bennett & Holloway, 2012; Britt, 2016). Permission to use

the DAST instrument can be found in Appendix D. The questionnaire can be found in Appendix E.

      Modified Rosenberg Self-Esteem Scale. The adapted MRSES is a 10-item assessment scale used to measure self-esteem (Rosenberg, 1965; Zimprich et al., 2005). Each of the 10 items is rated on a 4-point Likert scale ranging from 1 = "strongly agree" to 4 = "strongly disagree". The MRSES was created as a Gutman scale where half of the items are reverse-coded. Items scored positively are scored in ascending order 1,2,3,4 and items scored negatively are scored 4,3,2,1. Zimprich et al. (2005) explained that to score the items, a value should be assigned to each of the 10 items as follows: For items 1, 2, 4, 6, 7: Strongly Agree =3, Agree =2, Disagree =1, and Strongly Disagree =0. And for items 3, 5, 8,9,10 (which are reversed in valence): Strongly Agree = 0, Agree = 1, Disagree = 2, and Strongly Disagree =3. Rosenberg (1965) recommended that the numerical scores from all items be summed to calculate a total score and the total score is used as a measure of self-esteem. That self-esteem score is calculated after reversing the positively worded items 3, 5, 8, 9, and 10 before analysis (Rosenberg, 1965). The scale ranges from 0-30, with 30 indicating the highest score possible (Rosenberg, 1965; Zimprich et al., 2005). Researchers have used the MRSES and found it to be a reliable measure of self-esteem in college student populations. The test-retest correlations typically are in the range of .82 to .88 and Cronbach's alpha for various samples are in the range of .77 to .88 (Blascovich & Tomaka, 1993; Hagborg, 1993; Johnston et al., 2009; Rosenberg, 1986). Permission to use the MRSES instrument can be found in Appendix F. The instrument can be found in Appendix G.

Operationalization

The variables that were used in this study and their subcategories and values are

listed in Tables 2 and 3

Independent Variables

Table 1 and 2

Data collection instrument	Variable Name	Values within variable	Variable level
Demographic Form	Age Annual family income (socio-economic level)	Actual age in year 1=N18,000 - 50,000 2=N50,000 -100.000 3=N100,000-200,000 4=N200,000- 400,000 5=N400,000	Nominal Scale Categorical
	Education level	0=Freshman 1=Sophomore 2=Junior 3=Senior	Ordinal Scale
	History of mental illness	Do you have a diagnosis of any type of mental illness (such as depression)? 0=No 1=Yes	Nominal Scale
DAST	Level of drug use	0= No drug use 1-5=Low level 6-10=Intermediate 11-15=Substantial 16-20=Severe level	Ordinal Scale

Dependent variable
Table 3

Data collection instrument	Variable name	Values within Variable	Variable level
Modified Rosenberg Self-Esteem Scale	Self-Esteem	*Range = 0-30* Overall score = 30	Ordinal Scale

Data Analysis Plan

I used the Statistical Package for Social Sciences (SPSS) software version 25 for analysis of the data. I checked the data to ensure the surveys collected from the research sites were accurately downloaded and proofread with a view to catching any of the human errors and any inconsistent codes and/or outliers. Outliers are extreme values at one or both ends of a sample distribution caused by data entry errors, or participants who are not part of the target population (Tabachnick & Fidell, 2007). I produced scatter plots (H) to get some idea of whether the assumption of linearity was met and also looked for outliers. I kept cases in the data if they contain data in 75% or more of the variables but treated the missing answers as missing values and exclude the specific "missing values" from analysis of that particular variable (Mertler & Vannatta, (2013; Tabachnick & Fidell, 2007).

Research Question: What are the predictive relationships between demographics (age, socio-economic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna in Nigeria?

Null Hypothesis (H0): There are no statistically significant predictive relationships between demographics (age, socio-economic level, educational level, and

history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test—DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna in Nigeria.

Alternative Hypothesis (HA): There are statistically significant predictive relationships between demographics (age, socio-economic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test—DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna in Nigeria.

Descriptives

I used data entered into the SPSS software version 25 to conduct Univariate descriptive statistics. This was done in order to describe the demographic data that provided general information regarding the sample. The statistics included the frequency distribution and percentages, mean, standard deviation and measures of relationship.

t-Test Analyses

Although not used to answer the research question, I conducted t-Test analysis results to determine if there were any statistically significant differences between independent variable groups in relation to scores on the DAST and the MRSES in order to add additional sample descriptive information. This was done to compare underclassmen (freshmen and sophomore) to upperclassmen (juniors and seniors) and also those who indicated that they have a history of mental illness and those who do not. This analysis was used to provide additional information about the overall sample only.

Multiple Linear Regression

Multicollinearity. According to Mertler and Vannatta (2013), if there are two or more variables that are highly correlated then one or more of them is removed/replaced in order to avoid multicollinearity. Multicollinearity occurs when one or more independent variables used in a regression analysis can interact with each other in a way that their relationship to the dependent variable can be magnified in a way that the results of the analysis are skewed. In order to test for this, I conducted a multiple correlation analysis and variance inflator factor (VIF) to determine if any variables were highly correlated or not (Mertler &Vannatta, 2013). Because the level of intercorrelation I was looking for was the complete independence among variables for best linear combination and better results prediction at 0.8 and higher.

Variance inflator factor is a measure of the extent to which there exist multicollinear relationships for given predictor IVs (Mertler & Vannatta, 2013). I looked at values for the VIF for each predictor, to see if values of VIF were greater than 10, then there was cause for concern (i.e. there is multicollinearity) according to Mertler and Vannatta (2013) and Stevens (2001). Therefore, the problematic variable from the analysis would be deleted because the information from one variable was being captured by another and no information was really lost (Stevens, 2001). According to Mertler and Vannatta (2013) the VIF can be calculated using the formula $1/(1-Rj^2)$.

Data entry method and model choice. I used a stepwise multiple regression modelling for my analysis (Mertler & Vannatta, 2013). The stepwise method was used to enable me to remove and replace the IV that were not contributing at a high percentage to

the DV, and determine the level of contribution of each IV already in the equation as if it were to enter last (Mertler & Vannatta, 2013; Pedhazur, 1982). The backward deletion was also used to ensure that only significant predictors remain in the equation (Mertler & Vannatta, 2013; Stevens, 2001). I first computed using SPSS the equation Female Self-Esteem $= \beta_0 + \beta_{age} X_{age} + \beta_{socio\text{-}economic} X_{socio\text{-}economic} + \beta_{education} X_{education} + \beta_{hist\ of\ Mental\ illness} X_{hist\ of\ mental\ illness} + \beta_{dast} X_{dast} + e_i.$ with all predictors included, then a significant test (a partial F test) was conducted for every predictor, as if each were entered last in order to determine the level of contribution to the overall prediction (Mertler & Vannatta, 2013).

Threats to Validity

Validity is the credibility and accuracy of conclusions drawn after testing a hypothesis. The basic types of validity are internal, external, content, construct, and criterion validity (Frankfort- Nachmais et al., 2015; Sheperis et al., 2010). For this study the validity threats were likely to be in internal and external validity. Internal threat to validity may be as a result of respondents not taking the survey seriously, responding honestly to the questionnaire, and not understanding the meanings of the questions. These were not a threat in this study because of the use of relevant test instruments that are reputable, with high reliability and validity such as DAST (Skinner, 1982) and MRSES (Rosenberg, 1965), which are easy to understand. And being a cross-sectional design method, time parameters will address the history or maturation threat issues. There were likely to be issues due to selection bias because of the use of convenience and snowball sampling which are non-probability sampling techniques (Frankfort-Nachmias et al., 2015). Such threat to internal validity was addressed by the use of insight of research

process, and my subjective judgment to select participants who met inclusion criteria for

the face-to-face data collection; and for the electronic data collection the first screen

contained the inclusion criteria that either accepted or rejected the potential participants.

The use of statistical regression analysis and Cronbach's alpha analysis also was applied

to measure reliability and to ensure that the errors associated with such internal threats

associated with the sampling strategy were put in check and properly managed

The external threats to validity was not an issue in this research because the study

was conducted in a natural setting, which increased external validity and enabled

appropriate analysis of descriptive relationship and patterns between variables, using

primary data. The results may be generalizable to other similar populations and settings,

but generalizability will still need to be approached with caution due to the threats to

validity and reliability when using convenience and snowball sampling methods

(Frankfort-Nachmias et al., 2015; George et al., 2003).

Ethical Procedures

I obtained permissions from the institutions where participants were recruited and

collected data in alignment to the ethical requirements of these institutions boards and

administrations. Before posting flyers or collecting any data, I obtained Institutional

Review Board approval to conduct the study from Walden University. I provided

informed consent information to those who participated in person and online. I did not

collect signatures and names on informed consent forms to ensure anonymity and that

there would not be any way I could connect the individual to their provided data. The

informed consent form included that the potential participant was able to discontinue

their participation at any time and that the information they provide would be kept

confidential. Information about support services for drug and alcohol use was provided

for participants in the paper packet provided to those who participated in the face-to face

data collection. For those who participated online this information was also provided and

they were encouraged in the directions to save or print out copies of the informed consent

and drug support service information. The paper data will be stored in a fireproof safe

before and after entering them into SPSS software for a period of three years, after which

I will destroy both raw data and SPSS files as required by the federal law and research

guidelines (United States Department of Human Services, 1978).

The electronic data collected on SurveyMonkey will also be stored and kept safe

on the SurveyMonkey as the company is a trusted and leading provider in web-based

survey solutions that does not track the Internet Protocol (IP) address and would not

compromise user confidentiality. All data collected will be kept securely on my personal

computer with a password required to not only to log on to the computer; but, with

another password required to access the collected data for security reasons

(www.surveymonkey.com). The information and details of the survey results will be

destroyed following the (statistical analysis) and final approval for the doctoral degree

Summary

In this study I used correlation, cross-sectional research design in nature to

measure the predictive relationships between (age, socio-economic level, educational

level, and history of mental illness), and level of drug use, and self-esteem in female

college students in Kaduna, Nigeria. The sampling techniques used were the

convenience, and snowball sampling techniques. The instruments for data collection

included Drug Abuse Screening Test DAST-20 (Skinner, 1982) and MRSES (Rosenberg,

1965) and a demographic form that I developed. In Chapter 4, I will focus on the results

for the research question and hypotheses and the outcome of the various statistical tests

among the variables.

Chapter 4: Results

Introduction

The purpose of this study was to determine if there are predictive relationships between demographic variables (age, socioeconomic level, educational level, and history of mental illness) and level of drug use (as measured by the Drug Abuse Screening Test-DAST), both of which were independent variables, and the dependent variable self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria. I obtained the data used for this analysis from a face-to-face survey at three institutions that contained a demographic questionnaire, the DAST-20, and MRSES. The research question and hypotheses formulated to guide this study were the following:

Research Question: What are the predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test-DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria?

Null Hypothesis (H_0): There are no statistically significant predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse Screening Test—DAST), and self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria.

Alternative Hypothesis (H_A): There are statistically significant predictive relationships between demographics (age, socioeconomic level, educational level, and history of mental illness), level of drug use (as measured by the Drug Abuse

Screening Test-DAST), and self-esteem (as measured by the MRSES) in female

students in Kaduna, in Nigeria.

In this chapter, I discuss the organization and collection of data, explain the

demographics of the sample, and present the data analysis results.

Data Collection

I obtained Walden University Institutional Review Board approval on October 31,

2019 (no. 0-31-19-0384356). Data collection occurred on campuses between November

25, 2019, and December 12, 2019, following the data collection process outlined in

Chapter 3. From the three data collection sites, 300 participants were recruited (100 from

each site). I recalculated the statistical power using the parameters discussed in Chapter

3, and the statistical power was 0.84, which is an acceptable level (Faul et al., 2009). I did

not invite a specific group or list of individuals to participate in this study. Therefore, I

did not have a response rate as participation was open to anyone who wanted to

participate. The sample was representative of the population of interest as the estimated

population of female college students in Kaduna state is 10,000, and the sample was 300,

which indicates that one out of 10 female students from each of the three colleges

participated.

Results

In this section, I present and discuss the results of statistical analyses conducted

according to the type of analyses. I used descriptive statistics to analyze the

demographics of the study participants. I also performed correlational analysis and linear

regression. The results from these analyses are also discussed.

Descriptive Statistics

Table 4 contains the frequency data for each of the demographic categories of the sample. The age range of participants was 18 to 25 years, and participants who were 20 years old recorded the highest percentage in the sample (26.7%). The highest percentage (26.3%) of participants had a family socioeconomic level that was between N50,000 and 100,000 The majority of the sample were freshmen (32.3%), and 59.7% indicated that they had a history of mental illness. The majority of the participants reported information on the DAST that indicated low-level drug use (80.7%) (see Appendix I for the frequencies for each item on the DAST).

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Table 4

*Sample Demographics/Independent Variables (*N = *300)*

Variable	Category	N	Percent
Age	18	54	18.0
	19	45	15.0
	20	80	26.7
	21	35	11.7
	22	25	8.3
	23	22	7.3
	24	14	4.7
	25	25	8.3
Socioeconomic level	N18,000-50,000	62	20.7
	N50,000-100.000	79	26.3
	N100,000-200,000	77	25.7
	N200,000-400,000	49	16.3
	N400,000+	33	11.0
Educational level	Freshman (100 level)	97	32.3
	Sophomore (200 level)	96	32.0
	Junior (300 level)	72	24.0
	Senior (400 level)	35	11.7
History of mental illness	Yes	179	59.7
	No	120	40.0
Level of drug use (DAST) (range 0-20)	No drug use (0)	18	6.0
	Low level (1-5)	242	80.7
	Intermediate (6-10)	29	9.7
	Substantial (11-15)	10	3.3
	Severe (16-20)	1	0.3

I used the MRSES to measure the dependent variable of self-esteem. Scores are continuous between 0-30 with a higher score indicating lower self-esteem. The majority of participants had a score that was in the 21-25 range (47.3%) (see Table 5). The frequencies for each item on the MRSES are available in Appendix J.

Table 5

Modified Rosenberg Self-Esteem Scale (Dependent Variable) Distribution

Score	N	Percent
Zero	0	0.0
1-5	0	0.0
6-10	2	0.7
11-15	20	6.7
16-20	88	29.3
21-25	142	47.3
26-30	48	16.0

Independent t-Test Analyses

DAST

I conducted an independent t-Test analysis to determine if there were statistically significant differences in the Drug Abuse Screening Test (DAST) score between groups for the independent variables of education level (lowerclassmen and upperclassmen) and history of mental illness (with or without a history of mental illness). There was no statistically significant difference on the DAST score between upper- and lowerclassmen ($p = .454$), but there was a statistically significant difference ($p = .000$) in DAST scores between those with ($M = 3.76$) and without ($M = 2.73$) a history of mental illness (see Table 6). Appendix K includes other group statistics for the DAST.

Table 6

Result of Independent Sample t Test: Drug Abuse Screening Test (DAST)

Demographic	Groups	N	Mean	Std. Deviation	P-value
Education level	Lower classman	192	3.2708	2.56427	.454
	Upper classman	108	3.5093	2.78345	
History of MI	Without MI	120	2.7250	1.69012	.000
	With MI	175	3.7598	3.05260	

MRSES

I conducted an independent sample t-Test analysis to determine if there were statistically significant differences in the MRSES score between groups in the independent variables of education level (lowerclassmen and upper classmen), and history of mental illness (with or without mental illness) (see Table 7). There was no statistically significant difference in the MRSES scores between Lowerclassmen and Upperclassmen ($p = .297$). However, there was a statistically significant difference ($p = .002$) in the MRSES scores between those with mental illness ($M = 20.09$) and those without mental illness ($M = 22.37$). Appendix L includes other group statistics for the MRSES.

Table 7

Result of Independent Sample t Test: Modified Rosenberg Self-Esteem

Demographic	Groups	N	Mean	Std. Deviation	P-value
Education level	Lower classman	192	21.6771	3.64381	.297
	Upper classman	108	21.1852	4.36029	
History of MI	Without MI	120	22.3667	3.62747	.002
	With MI	175	20.0922	4.01605	

Levene's Test for Equality of Variance: all Sig.(p-value) > 0.05 level of significance

Assumption Testing

Multicollinearity

Prior to conducting multiple linear regression, the correlations between variables were examined using the Pearson's correlation coefficient test to determine if multicollinearity between variables existed (Creswell & Creswell, 2018). It is recommended that if two or more variables are highly correlated (+/-) 0.8 or higher) that one or more be removed from analysis in order to minimize the potential for multicollinearity (Creswell & Creswell, 2018; Field, 2013). Based on the correlation results there were no variables highly correlated (see Table 8), hence there is no multicollinearity in the dataset and there will be no need to remove any variables from the multiple linear regression analysis.

Table 8

Pearson Correlation Results (Multicollinearity)

	Age	Family income	Educational level	History of MI	DASTT	MRSES2
Age		.004	.324**	.022	.011	.085
Family income	.004		.126*	-.063	-.121*	-.069
Educational level	.324**	.126*		-.045	.013	-.011
History of MI	.022	-.063	-.045		.202**	-.180**
DASTT	.011	-.121*	.013	.202**		-.249**
MRSES2	.085	-.069	-.011	-.180**	-.249**	

Correlation statistically significant at the 0.05 level (2-tailed).
**Correlation statistically significant at the 0.01 level (2-tailed).

Field (2013) recommended that further scrutiny of variable correction should be completed using additional SPSS collinearity diagnostics such as measuring the variance inflation factor (VIF) and that the VIF should be less than 10. Table 9 shows that the VIF value of each predictor is below 10, which indicates there is no presence of multicollinearity (Mertler & Vannatta, 2013; Stevens, 2001).

Table 9

VIF Values

		Collinearity Statistics	
Model		Tolerance	VIF
1	Age	.892	1.121
	Educational level	.876	1.141
	Family income	.967	1.035
	History of MI	.954	1.048
	DASTT	.946	1.057

a. Dependent Variable: MRSES

Research Question Results

A multiple linear regression was run using the Enter method. The coefficient of

determination R^2 was 0.100 implying that 10% of relationship between the independent

variables and the MRSES score was jointly explained by changes or variation in the

independent variables (see Table 10).

Table 10
Results of Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316[a]	.100	.085	3.74731

a. Predictors: (Constant), DASTT, Age, Family income,
History of MI, Educational level

The history of mental illness (p =.012) and DAST score (p = .000) were found to

be related to the MRSES score at statistically significant levels (see Table 11). Age (p

=.080), education level (p =.557) and family income (p =.069) were not related to the

MRSES score at a statistically significant level. Because all of the independent variables

are not related to the dependent variable at statistically significant level the null

hypothesis is not rejected.

Table 11

Results of Multiple Linear Regression

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	20.463	2.246		9.110	.000
	Age	.191	.109	.103	1.758	.080
	Educational level	-.089	.152	-.035	-.587	.557
	Family income	-.316	.174	-.103	-1.823	.069
	History of MI	-1.126	.447	-.143	-2.521	.012
	DAST	-.346	.084	-.233	-4.099	.000

Coefficients[a]

a. Dependent Variable: MRSES

Summary

There were statistically significant differences in the scores on the Drug Abuse

Screening Test (DAST) as well as the score on the MRSES between those with and

without a history of mental illness. Those with a history of mental illness scored higher

on the DAST (more severe drug use) and lower on the MSRES (lower self-esteem). In

relation to the research question, history of mental illness and DAST score were related

to the score on the MRSES at statistically significant levels. All other independent

variables were not related to the dependent variable at statistically significant levels so

the null hypothesis was not rejected. In chapter 5 I will provide interpretation of the study

findings, limitations of the study, recommendations for further research, implications for positive social changes and conclusions of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to determine if there are predictive relationships between demographic variables (age, socioeconomic level, educational level, and history of mental illness) and level of drug use (as measured by the Drug Abuse Screening Test-DAST), the independent variables, and the dependent variable self-esteem (as measured by the MRSES) in female students in Kaduna, in Nigeria. The results of this study may help leaders of tertiary institutions design appropriate health, social, and educational programs and strategies that best serve the needs of female college students. I used a quantitative, correlational research design of a cross-sectional nature. Primary data were collected face-to-face using surveys including the demographic questionnaire, the DAST-20, and the MRSES.

I found some statistically significant relationships among the variables studied. The history of mental illness ($p = .012$) and total DAST-20 score ($p = .000$) were found to be related to the score on the MRSES at statistically significant levels. Age, education level, and family income were not related to the score on the MRSES at statistically significant levels. Therefore, I was not able to reject the null hypothesis. In this chapter, I interpret the main findings, state the limitations of the study, offer recommendations, and discuss the implications and conclusions of this research study to address the problem of NMPDU among female college students in Kaduna Nigeria.

Interpretation of the Findings

Interpretation Related to Theoretical Framework

Theory of Self-Esteem

Researchers have indicated that one of the primary psychodynamic mechanisms underlying drug use is low self-esteem (Bennett & Holloway, 2015; Giovazolias & Themeli, 2014; Mead, 1934; Rosenberg, 1986; Steffenhagen, 1974). According to Steffenhagen (1974), low self-esteem may result from individuals not achieving goals they set for themselves that are too high and unrealistic. The constructs in self-esteem theory suggest that female students engaging in NMPDU are likely to exhibit similar characteristics that lead to depression; anxiety; and lack of self-confidence, self-image, self-esteem, and poor identity formation (O'Connor, 2016; Telzer, 2014). This study was correlational in nature with the purpose to determine if there are predictive relationships between demographic variables (age, socioeconomic level, educational level, and history of mental illness) and level of drug use (as measured by the Drug Abuse Screening Test-DAST), the independent variables, and the dependent variable self-esteem (as measured by the MRSES) in female students. Findings in this study indicated there were statistically significant relationships between age, history of mental illness, and level of drug use as measured by the DAST and the self-esteem scores as measured by the MRSES. This was to be expected based on the view that frequent NMPDU will likely lead to depression, anxiety, and low self-esteem (Akhter, 2013; Briggs-Vaughn, 2016; Charalampous et al., 1976; Cho et al., 2015; Rosenberg, 1986). Therefore, consistent with previous literature that indicated low self-esteem as a risk factor for female NMPDU.

college students

Social Learning Theory

Social learning explains that individual perceptions of consequences and on

environmental factors versus benefits are capable of affecting personality and behaviors

positively or negatively (Bandura, 1986; Giovazolias & Themeli, 2014). For example, a

female college student who believes NMPDU is safe and acceptable may be less resistant

to experimenting with such NMPDs (Britt, 2016; Judson & Langdon, 2009). This

theoretical framework highlights the idea that any form of human behavior is acquired

and that this mainly takes place in the context of social groups (Bandura, 1986; Britt,

2016; Durkin et al., 2005; Giovazolias & Themeli, 2014; Judson & Langdon, 2009).

Bandura (1986) explained that most behaviors displayed are imitated and learned through

observation of models (peers) that are influential and important to them (Peralta & Steele,

2010). The associations and influence of friends/peers for college students may result in

them engaging in behaviors that their peers participate in if they do not view negative

consequences to these behaviors (Bandura, 1986). Because college students spend much

time around their peers (e.g., in class, eating, socializing, and studying on campus),

behavior may be copied (Cutler, 2014). According to Cutler (2014), NMPDU is largely

the result of the college environment where students have greater access to NMPDs; and

learn from peers the benefits of these drugs, as well as receive both social (praise and

encouragement), and nonsocial reinforcements (the feelings that the drugs provide). This

may contribute to some risky participation in NMPDU among some female students,

thereby solidifying the relationship of social and cultural norms and their influences on

students' NMPD use on campuses to social learning concepts (Arnett, 2014; Cutler, 2014, Maahs et al., 2016; Peralta & Steele, 2010).

Identity Theory

Identify theory explains the processing and matching between identity goal set or the ideal (i.e., the standard) and perceptions of the environment or the actual performance of the self, which results in a direct outcome of successful self-verification (Rosenberg, 1990). Central to identity theory is the motivation to match perceived meanings in the situation with the internal meanings of identity standard, implying an important relationship between goals and achievements (O'Connor, 2016). This study established that there is a statistically significant predictive relationship in the DAST score and history of mental illness, as measured by Drug Abuse Screening Test (DAST), and self-esteem as measured by MRSES. This suggests consistency with similar findings by other researchers Charalampous et al. (1976); Cho et al. (2015); and Johnston et al. (2015) who found relationship between drug use and self-esteem.

Interpretation Related to Previous Research

My findings that age, history of mental illness, and the total DAST score was related to the self-esteem score on the MRSES at statistically significant levels is consistent with previous researchers who also found relationships between age (Akhter, 2013; Britt, 2016; Johnston et al., 2015; O'Connor, 2014), socioeconomic levels (Mulvihill, 2013; Ventola, 2014), educational level (Johnston et al., 2013; Ventola, 2014), psychoactive substance use (Briggs-Vaughn, 2016; Charalampous et al., 1976; Weinberg, 2001), psychological distress (Kim, 2018; Orth et al., 2014; Ord, 2016;

Popovici et al., 2014; Rosenberg, 1965 Weyandt et al., 2009), and self-esteem in college

students. Previous researchers who have studied college students in the United States

have indicated that NMPD medication use is more prevalent among those with a previous

history of medical use of prescription medications (Boyd & McCabe, 2008; Johnston et

al., 2013; O'Connor, 2016; Teter et al., 2005). Some researchers found low self-esteem to

be a risk factor for substance use and indicated that prescription medications are related

to an increased risk of prescription stimulant and analgesic use among college students

(Britt, 2016; Cutler, 2014; Weinberg, 2001). In addition, many other variables such as

level of individual emotions, desires, values, and goals were found related to self-esteem

which may increase the risk of the use of nonmedical prescription stimulants and other

illicit substances (Charalampous et al., 1976; Mulvihill, 2013).

Researchers found the use of psycho-active substances to be a factor that

correlated with low self-esteem (Akhter, 2013; Charalampous et al., 1976; Weinberg,

2001). My findings are also consistent with those of these previous researchers who

found a relationship between psychoactive drug use among college users aged 18-25

years old who had a history of mental illness and low level of self-esteem (Akhter, 2013;

Briggs-Vaughn, 2016; Charalampous et al., 1976). Briggs-Vaughn (2016) found

statistically significant relationships drug use and lower social development and lower

academic achievement, which is similar to the results that I found.

Further independent sample t Test analyses I conducted, although not the focus of

the research question for this study, was conducted to determine if there were statistically

significant differences in the Drug Abuse Screening Test (DAST) scores between groups

with and without a history of MI. I found a statistically significant difference (p = .001) in Drug Abuse Screening Test (DAST) mean scores between those with history of mental illness (M=3.76) and those without a history of mental illness (M=2.73). I also found statistically significant differences (p = .002) in the MRSES mean scores between those with history of mental illness (M = 20.09) and those without a history of mental illness (M = 22.37). These are similar to Briggs-Vaughn (2016) who found group differences in levels of social development for varying levels of drug use.

Limitations of the Study

The scope of this study was limited to the female college students in Kaduna Nigeria, thereby, excluding generalization to female college students outside of this area. In addition, male students and males and females not enrolled in college within the age range 18-25 years would also be excluded from generalization of results. Therefore, results of this study might not be generalizable to other regions of Nigeria, geographic areas which differ in demographic factors nationally and globally, that may differ in micro cultures, social/group dynamics existing in colleges influencing drug use and demographic factors (Aschengrau & Senge, 2008; Dussault & Weyandt, 2013; Ezeonyido, 2015; Frankfort-Nachmias, Nachmias & DeWaard, 2015).

The data collection was via face-to-face and electronic data process via the SurveyMonkey on the internet. However, after I posted flyers about my research in strategic areas within and around the campuses and on WhatsApp, I got low participation through SurveyMonkey (Internet), probably because of poor internet connections and access issues that are often experienced in Nigeria (Ezeonyido, 2016). My decision to use

the group face-to-face survey method was more expensive in comparison to the use of an electronic survey, but was more feasible and availed the opportunity to bring together the desired sampled respondents needed to answer the survey through purposeful convenience and snowball sampling method (Adibe, 2013; Ezeonyido, 2015).

The assessment tools used in collecting this study data were self-administered questionnaires. These are dependent on participant self-reporting honestly, and some information provided may have been biased or not completely accurate (Britt, 2016; Ezeonyido, 2015; Frankfort-Nachmias, Nachmias & DeWaard, 2015). The data provided was based on participant recall of their personal information which may be difficult to validate, as it is a general conception that recalled information may be biased or distorted if the participant is embarrassed about their behavior that they are being asked to report (Fadness, Taube, & Tylleskar, 2009; Frankfort-Nachmias, Nachmias & DeWaard, 2015). And because answering questionnaires requires participants to remember past events and recall and memory deteriorates with time; this may lead to inaccurate reporting (Fadness et al., 2009). This threat was addressed by using surveys that have been tested and have demonstrated empirical validity and reliability in a consistent manner in the work of previous researchers despite relying on personal recall from research participants. I also hope the assurances of anonymity and confidentiality of information further limited the potential impact of this issue (Bailey, 2018; Blascovich & Tomaka, 1993; Fadness et al., 2009; Frankfort-Nachmias & Nachmias, 2008; Gray-Little, Williams, & Hancock, 1997; Hagborg, 1993; Rosenberg, 1986; Tiet et al., 2017; Skinner, 1982; Yudko, Lozhkina, & Fouts, 2007; Zimprich, Perren, & Hornung, 2005).

As a study that used a purposeful convenience sampling method, representation of the sampled population is limited in relation to diversity of participants (Atkinson & Flint, 2001). Therefore, generalizability might be of concern because of potential micro-cultures that exist in other colleges that are different from the ones under study (Creswell, 2009; Frankfort-Nachmias, Nachmias & DeWaard, 2015). However, the sample size (N=300) generated an appropriate statistical power and effect size, although a larger sample of female college students could be surveyed in the future as a larger sample could also mean higher reliability and better generalizability of results (Aschengrau & Seage, 2008; Sitton, 2018). Although data from this study is not the same with other similar studies, it provides a different perspective on the growing research topic area. Since there are few research studies focused on NMPDU among female college students in Nigeria. Despite the limitations in this study, the research findings would promote the discourse on NMPDU among female college students; and contribute to the limited literature currently. It is hoped that information from this study would benefit the college administrators when implementing different strategies, policies, on campus activities.

Recommendations

Because this study took place in Kaduna state located in the northwestern region of Nigeria, other comparative studies could be conducted among female college students in other states and regions to determine if their findings would be similar or different that my findings (Bavarian, Flay & Smit, 2013**;** Cutler, 2013). It may also be beneficial to compare the results from data collected in Nigeria to the results from data collected in other countries to determine what similarities and differences emerge (Dussault &

Weyandt, 2013; Stepanyan, 2016). A comparative study approach could also be made in a study with surveys of other females not enrolled in college or are dropouts and also involving at-risk male college students to determine gender differences of level of self-esteem and the key predictors of drug use behaviors are also recommended (Cutler, 2013; Lange, 2015; Denham, 2014; O'Connor, 2016; Ventola, 2014).

Qualitative studies involving in-depth interviews with female college students would be recommended to gain a deeper understanding of NMPDU and self-esteem (Cutler, 2013; Denham, 2014; O'Connor, 2016). Interviews have the potential to produce information that may not have been captured in the self-administered questionnaire regarding female college non-medical prescription levels of drug use and self-esteem (Cutler, 2013; O'Connor, 2016). In addition, although, the findings from this cross-sectional study indicated statistically significant relationship between demographic variable history of mental illness and self-esteem score; there is need for an in-depth study of the specific NMPDs influence on self-esteem, which is a critical and important aspect of human development. Future researchers may employ other research methodologies such as a longitudinal study where data is collected over a longer period of time at different intervals may provide more insight regarding NMPDU and self-esteem (Britt, 2016; Johnston et al., 2012; McCabe et al., 2014; Popovici et al., 2014; Rosenberg, 1986). These investigations could inform the development of educational materials and methods/strategies toward stemming, minimizing and possibly preventing the risk of NMPDU among college students over the lifetime of their college careers and after.

As a guide for future directions, this study may also be used by other researchers in new areas of research that could contribute to the existing knowledge about NMPDU and risk taking among the college student populations (Babalola, Akinhanmi, & Ogunwale, 2013; Oluwoye, 2016). The additional and specific finding in the data seems to suggest that further research may be required to determine gender differences, NMPDU and level of self-esteem among college students and the frequencies. It is recommended that researchers continue to conduct studies in this topic area (Anyanwu, Ibekwe, & Ojinnaka, 2016; Ola & Atilola, 2017). It is also recommended that college administrators would use the information in this study when implementing different strategies, and policies on campus activities to curb NMPDU among students in campuses.

Implications

The positive social change implications of the study include the opportunity offered to researchers and scholar/practitioners to add to the existing knowledge on NMPDU by providing information on the predictive relationships between demographics age, socio-economic level, educational level, history of mental illness and level of drug use and self-esteem (Babalola, Ogunwale, & Akinhanmi, 2013). Findings from this study may largely contribute to the development and modification of curricula/policy/programs for higher education, that are periodically supervised by the National Board for Technical Education (NBTE) and National University Commission (NUC) in Nigeria (Babalola, Ogunwale, & Akinhanmi, 2013). This change could ensure at-risk female students receive knowledge and guidance that could bring about improved health choices and

social change and may reduce threats to female college students well-being such as

stigmatization, as well as minimize the NMPDU risks among female college students of

NMPDU. Another social change outcome of this study will be the awareness created that

could be instrumental in the reduction of NMPDU and improvement in mental health of

female students through positive behavioral change. It may also increase the awareness of

some college/societal norms, traditions, and practices that put students at risk of

substance abuse on campuses

The results apart from contributing to the existing literature regarding NMPDU

and relationship with level of self-esteem, may lead to promoting strategic action by

higher education administrators to focus on re-designing appropriate social, health, and

educational programs to improve the existing ones, and to put policies in place that match

the needs of students (Azuike & Dirisu, 2012; McCabe et al., 2014; NDLEA, 2014; Ola

& Atilola, 2017; Onifade et al., 2014; Popovici et al., 2014). Locally, the study may raise

awareness of an existing problem of NMPDU among female college students, and the

college management. On a national level, this study has the potential to contribute to the

existing knowledge about female NMPDs in colleges and, globally, to contribute to the

understanding of female NMPDU among female college populations. Since I did not find

any prior researchers that have examined the relationships between my variables in

female college students in Kaduna, Nigeria, this study has begun the process of studying

this population target group which can be built upon.

Conclusion

My key study finding revealed there are predictive relationships between demographic independent variables age, history of mental illness, and level of drug use as measured by the Drug Abuse Screening Test-DAST (Skinner, 1982), and the self-esteem score as measured by the MRSES (Rosenberg, 1965) at statistically significant levels. This indicated that, there exists a relationship between history of mental illness and self-esteem score among female college students in Kaduna in Nigeria (Bolognini, Plancherel, Bettschart & Halfon, 1996; O'Connor, 2016; Rosenberg, 1965). Additionally, the independent sample t Test analyses I conducted to determine differences in the DAST score between groups in the independent variables of education level and the history of mental illness revealed statistically significant difference in DAST mean score between those with and those without a history of mental illness. There was also a statistically significant difference in the MRSES mean scores between groups in the independent variables of education level of those with and without mental illness. These results are important and significant but suggest more research in this area of study to understand other differences that may exist in other geographical, gender and college type. To also possibly find more explanations for the growing menace of NMPDU among female college students (Babalola et al., 2013; Britt, 2016; Denham, 2014; O'Connor, 2016)

Since I could not locate previous studies where researchers specifically used demographic independent variables age, socio-economic level, educational level, and history of mental illness, level of drug use (as measured by the Drug Abuse Screening Test-DAST; Skinner,1982), and the dependent variable level of self-esteem in female

college students (as measured by the MRSES; Rosenberg, 1965) in a research. And the studies that I could examine looked at other independent variables in relationship to self-esteem such as age, ethnicity, marital status, and family history of substance abuse, GPA (Britt, 2016; Denham, 2014; O'Connor, 2016; Rosenberg, 1986; Ventola, 2013). My results and findings can be stated as similar to the findings of other researchers like Charalampous et al. (1976), Johnston et al. (2015), Briggs-Vaughn (2016), and Britt (2016).

My key finding is however consistent with other researchers who found low self-esteem as a risk factor for female NMPDU college students (Akhter, 2013; Briggs-Vaughn, 2016; Britt, 2016; Weinberg, 2001); and that those who participate in NMPDU generally, are those who have experienced previous history of nonmedical use of prescription medication (Charalampous et al., 1976; Johnston et al., 2013; McCabe, 2008; O'Connor, 2014; Weinberg, 2001). In addition, findings are consistent with the views that NMPD users are those who are likely to be more depressed, anxious, tense, and guilt prone (Aebi et al., 2014; Bickman, 2015; Klepfer, 2015; Babalola et al., 2014; Miller et al., 1999; Miller et al., 2012; O'Connor, 2016; Popovici et al., 2014; Ventola, 2013; Weinberg, 2001). Finally, that the persistent use of NMPDs by female college students may influence the level of self-esteem of individuals, in ways that reduces individual worth and may lead to dependence on the habit in order to find solace and feel worthy (Akhter, 2013; Briggs-Vaughn, 2016; Britt, 2016; Charalampous et al., 1976; Johnston et al., 2013). Therefore, based on the findings of this research study, college administrators or management may be encouraged to establish practical and feasible policies that

ensures regular screening opportunities to all students as a strategy for early identification

especially for female college students at-risk of NMPDU (Azuike & Dirisu, 2012; Ola &

Atilola, 2017; Eddy et al., 1992; Maier et al., n.d; Popovici et al., 2014; Strohman et al.,

2014; USDE, 1990). College administrators in addition, may also benefit from the

information and findings in this study, and see to the critical need to guide/direct students

towards accessing the drug and psychosocial counseling services provided by the

colleges (Briggs-Vaughn, 2016; Ola & Atilola, 2017; Schwinn et al., 2016; Verdi et al.,

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Appendix A: Recruitment Material/Poster

Participants are needed for research on non-medical prescription drug use among female students.

I am looking for female undergraduate student volunteers 18 to 25 years to take part in a study on:

"Demographic characteristics, level of drug use and self-esteem among female students in Kaduna Nigeria"

    Venue:--

    Date:------------------------------------ Time:12:00pm to 1:00pm

Individuals who are interested can come to the venue to ask me any questions before participation in the paper and pencil version of the questionnaire.

OR

Choose the option to fill out the SurveyMonkey (electronic questionnaire) via the link

https://www.surveymonkey.com

As a participant in this study please note that all responses will be confidential and anonymous.

    Your participation will involve only take 20 to 30 minutes of your time.

    For more information about this study, or to volunteer for this study,
    Please contact:

    Gladys Geyyourk John

The study has been reviewed and approved by the Institutional Review Board of

Walden University

Appendix B: Introductory Speech and Debriefing

Good morning/afternoon everybody. My name is Gladys Geyyourk John and I am from Kaduna State. I received my BSc. degree from Ahmadu Bello University Zaria, Nigeria in 1984, and MA from University of South Carolina Columbia, United States in 1987. I am currently a PhD student at Walden University, Minneapolis, Minnesota, USA. I am working on my dissertation which aims at examining how demographic characteristics, and drug use/abuse correlate with self-esteem among female college students in Kaduna, Nigeria. I am here today to conduct a survey to understand more on the research topic and proffer solutions to the problem.

I am interested in finding out reasons why female student's use and abuse non-medical prescription drugs, the frequent news report in the electronic and print media about drug abuse. And the increased mental health illness reported in the Federal Neuro-Psychiatric Hospital Kaduna. I chose this topic because of its potential to benefit the female students through awareness on the perceived scourge of non-medical prescription drug abuse among young people in the age group 18-25; and implication to social change. It will also help to improve student's perception and knowledge of use and abuse of drugs and its' impact on their health; and suggestions for strategic intervention programs on campuses. Consequently, the outcome of this study will enable better understanding of the descriptive relationships and patterns between variables and could be instrumental in the reduction of non-medical prescription drugs use and mental ill health problems among female college students through positive behavioral change. It could also increase the awareness of some college/societal norms, traditions, and

practices that put college students at risk for substance abuse on campuses in Kaduna, Nigeria. It was this mindset that influenced my desire to choose students from University A, University B, or University C as my study population; and this topic: *Demographic characteristics, level of drug abuse and self-esteem among female students in Kaduna Nigeria*.

Screening for Eligible Participants

I thank all of you for the gift of your time and for giving me this opportunity to address you. I wish to let you know that there is no obligation whatsoever to participate in this study and even if you decide to participate and change your mind along the line, you can still withdraw (in otherwise it is voluntary). This study is also limited to only female undergraduates between 18 and 25 years old. Regardless of your age or marital status, you are free to stay or leave at any time, if you want to. Please, know that your leaving will not be considered rude or disruptive. At this point, I would like to answer any questions you may have.

Distribution of the Informed Consent and Survey Questionnaire: *(After the questions and discussions).* At this point, I would ask eligible participants to please grab a copy of the informed consent and survey questionnaire. The informed consent gives you further information about your right to participate and necessary contacts you may need. Please, take time to read it. I will come back in the next hour to collect the completed questionnaires. Thank you very much for your time and have a blessed day.

Debriefing: Thank you for your participation. The findings from this study may assist researchers by providing information on the pattern of relationships between

demographics, drug use, and self-esteem in female college students in Kaduna, Nigeria. This study may help the management of the colleges and other similar tertiary institutions to plan programs that match the needs of the students and that will help them manage and cope with the challenges of academic life on campus.

Findings from this study could offer researchers more understanding of the predictive relationships between demographic factors age, socio-economic level, educational level, history of mental illness, self-esteem in female students and provide information to the college management that will help in proffering solutions for female college students to cope with the challenging campus life Results of this study would lead to the development of strategic methods for prevention, and suggestion for treatment programs that will benefit students and the entire society at large; and most importantly positively influence scientific knowledge.

     If completion of this questionnaire distressed you and you feel that you need help, please contact the college or university counselling center. Also seek a counsellors' help if you feel that you may need treatment for nonmedical prescription drug use/abuse. For any questions related to this research project, feel free to contact Gladys John via Phone (xxx) or e-mail at gladys.john@waldenu.edu

Appendix C: Demographic Form

Instruction
Please fill or tick the option appropriate to you

1. **Age**

How old are you: _____ (enter age in years)?

2. **Educational level**

a. Freshman (100 level)

b. Sophomore (200 level)

c. Junior (300 level)

d. Senior (400 level)

You may enter any level that is appropriate if it is different from the above------

3. **Family Income (Socio-Economic level)**

What is the range of your family income?

a. N18,000 - 50,000

b. N50,000 -100.000

c. N100,000-200,000

d. N200,000- 400,000

e. N400,000

You may enter the income that is appropriate if it is different from the above ---------

4. **History of Mental Ill Health**

Please tick if you have experienced any of the following mental illness

a. Attention Deficit Disorder

b. Anxiety Disorder

c. Depression

d. Bipolar Disorder

e. Eating Disorder

f. Stress Disorder

g. Schizophrenia

h. Obesity

i. Hyperactivity Disorder (ADHD)

j. Sleep disorder narcolepsy

Please indicate any other mental ill health you have experienced not listed above----

Appendix D: Permission to Use the Drug Abuse Screening Test

Dear Gladys

Congratulations on successfully defending your dissertation, where you used the Drug Abuse Screening Test (DAST).

The DAST-10 and DAST-20 versions are published by the Center for Addiction and Mental Health (CAMH), Toronto. I am the test author and copyright holder along with CAMH.

You have my permission to use the DAST in your dissertation publication as long as you acknowledge my authorship and respect my copyright along with CAMH. Please use this updated copyright statement:

© Copyright 1982 by the test author Dr. Harvey Skinner, York University, Toronto, Canada and by the Centre for Addiction and Mental Health, Toronto, Canada.

Regards

Harvey

Harvey Skinner (he/him) PhD, CPsych, FCAHS

Professor of Psychology & Global Health

Founding Dean 2006-2016, Faculty of Health

York University, 4700 Keele Street,

Appendix E: Drug Use Questionnaire (DAST-20)

The following questions concern information about your potential involvement with drugs not including alcoholic beverages during the past 12months

Carefully read each statement and decide if your answer is "Yes" or "No". Then, circle the appropriate response beside the question. In the statements "drug abuse" refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (e.g. marijuana, hash), solvents, tranquillizers (e.g. Valium), barbiturates, cocaine, stimulants (e.g. speed), hallucinogens (e.g. LSD) or narcotics (e.g. heroin). Remember that the questions **do not** include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

These questions refer to the past 12 months.	**Circle your response**
Have you used drugs other than those required for medical reasons?	Yes No
Have you abused prescription drugs?	Yes No
Do you abuse more than one drug at a time?	Yes No
Can you get through the week without using drugs?	Yes No
Are you always able to stop using drugs when you want to?	Yes No
Have you had "blackouts" or "flashbacks" as a result of drug use?	Yes No
Do you ever feel bad or guilty about your drug use?	Yes No
Does your spouse or parents ever complain about your involvement with drugs?	Yes No

Has drug abuse created problems between you and your spouse or your parents? Yes   No

Have you lost friends because of your use of drugs?   Yes No

Have you neglected your family because of your use of drugs?   Yes No

Have you been in trouble at work (or school) because of drug abuse?   Yes No

Have you lost your job because of drug abuse?   Yes No

Have you gotten into fights when under the influence of drugs?   Yes No

Have you engaged in illegal activities in order to obtain drugs?   Yes   No

Have you been arrested for possession of illegal drugs?   Yes   No

Have you ever experienced withdrawal symptoms when not taking drugs?   Yes No

Have you had medical problems as a result of your drug use (e.g. memory loss) Yes No

Have you gone to any one for help for drug problem?   Yes   No

Have you been involved in a treatment program specifically related to drug use? Yes   No

Skinner, H. A. (1982). Drug Abuse Screening Test [Database record]. PsycTESTS.

http://dx.doi.org/10.1037/t03979-000

Instrument Type: Screener

Appendix F: Permission to Use the Rosenberg Self-Esteem Scale Instrument

Permissions: Test content may be reproduced and used for non-commercial research and

educational purposes without seeking written permission. Distribution must be

controlled, meaning only to the participants engaged in the research or enrolled in the

educational activity. Any other type of reproduction or distribution of test content is not

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Source:

Zimprich, Daniel, Perren, Sonja, & Hornung, Rainer. (2005). A two-level confirmatory

factor analysis of a Modified Rosenberg Self-Esteem Scale. Educational and

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Appendix G: Modified Rosenberg Self-Esteem Scale

	STATEMENT	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	I feel that I am a person of worth, at least on an equal plane with others.	○		○	○
2	I feel that I have a number of good qualities.	○	○	○	○
3.	All in all, I am inclined to feel that I am a failure.	○	○	○	○
4.	I am able to do things as well as most other people.	○	○	○	○
5.	I feel I do not have much to be proud of.	○	○	○	○
6.	*I take a positive attitude toward myself.	○	○	○	○
7.	*On the whole, I am satisfied with myself.	○	○	○	○
8	I wish I could have more respect for myself.	○	○	○	○
9.	*I certainly feel useless at times.	○	○	○	○
10.	At times I think I am no good at all.	○	○	○	○

Instructions: Below is a list of statements dealing with your general feelings about yourself.

Please indicate how strongly you agree or disagree with each statement. If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

Note. All items were scaled from 1 (*strongly disagree*) to 4 (*strongly agree*)
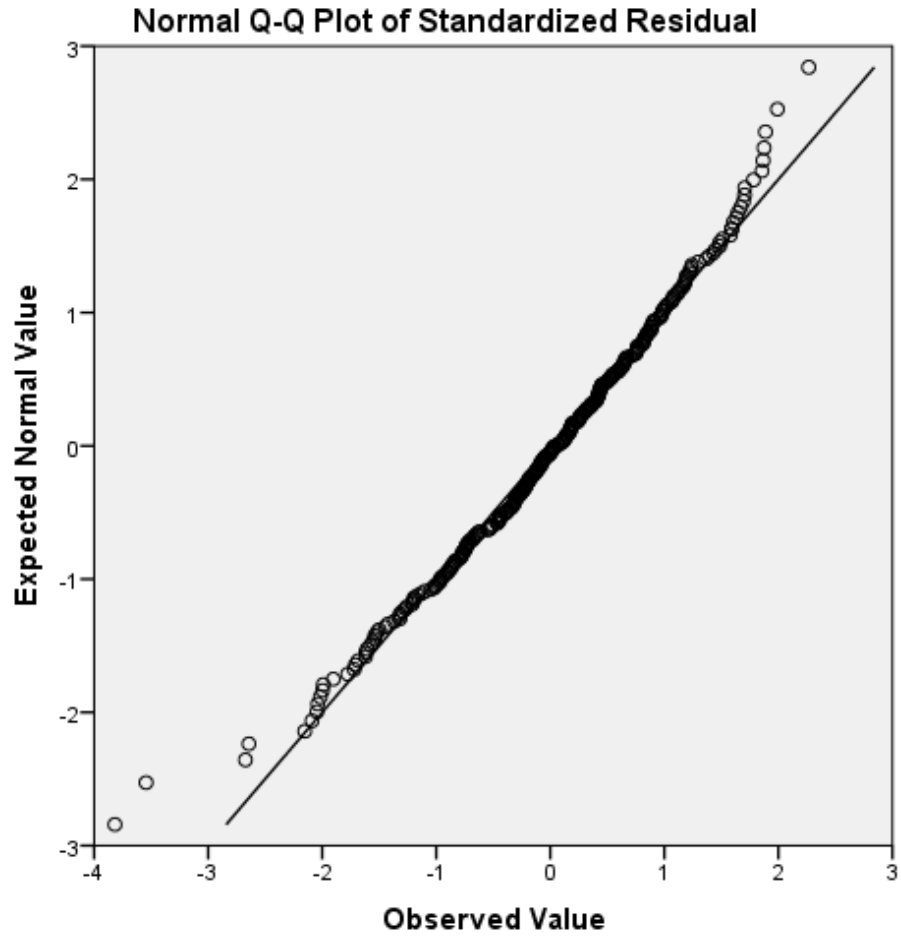
*Item from the original Rosenberg Self-Esteem Scale

Zimprich, D., Perren, S., & Hornung, R. (2005). Modified Rosenberg Self-Esteem Scale [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10.1037/t05307-000

Appendix H: Residual Scatter Plot

Scatterplot
Dependent Variable: MRSES2

Appendix H: Residual Scatter Plot

Normal Q-Q Plot of Standardized Residual
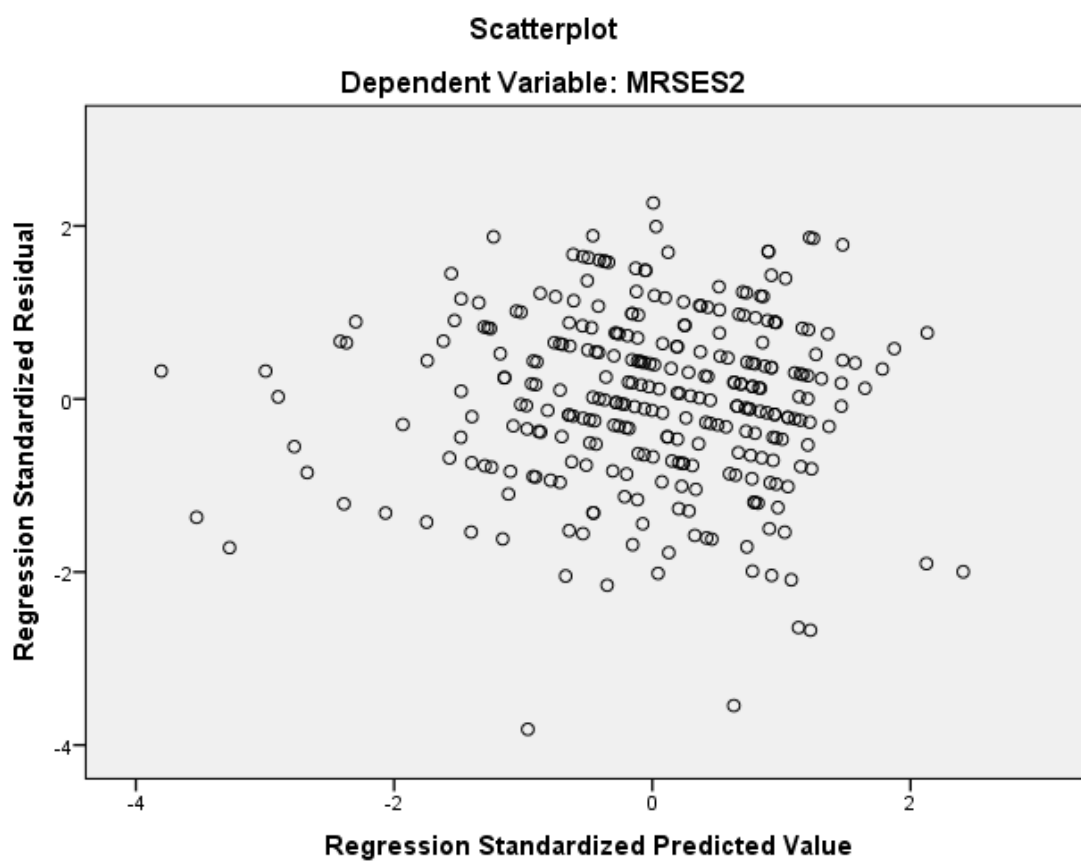
Appendix I: DAST Frequencies

Frequencies of DAST responses (n=300)

	Yes		No	
DAST Item	**Freq.**	**(%)**	**Freq.**	**(%)**
1. Have you used drugs other than those required for medical reasons	39	13.0	261	87.0
2. Have you abused prescription drugs?	59	19.7	241	80.3
3. Do you abused more than one drug at a time?	38	12.7	262	87.3
4. Can you get through the week without using drugs?	137	79.0	63	21.0
5. Are you always able to stop using drugs when you want to?	239	79.7	61	20.3
6. Have you had "Blackouts" or "flashbacks" as a result of drug use?	33	11.0	267	89.0
7. Do you ever feel bad or guilty about your drug use?	72	24.0	228	76.0
8. Does your spouse or parents ever complain about your involvement with drugs	39	13.0	261	87.0
9. Has drug abuse created problems between you and your spouse or your parents?	38	12.7	262	87.3
10. Have you lost friends because of your use of drugs?	33	11.0	267	89.0
11. Have you neglected your family because of your use of drugs?	15	5.0	285	95.0
12. Have you been in trouble at work (or school) because of drug abuse?	17	5.7	283	94.3
13. Have you lost your job because of drug abuse?	12	4.0	288	96.0
14. Have you gotten into fights when under the influence of drugs?	19	6.3	281	93.7
15. Have you engaged in illegal activities in order to obtain drugs?	15	5.0	285	95.0
16. Have you been arrested for possession of illegal drugs?	7	2.3	293	97.7
17. Have you ever experienced withdrawal symptoms when taking drugs?	24	8.0	276	92.0
18. Have you had medical problems as a result of your drug use (e.g. memory loss)	11	3.7	289	96.3
19. Have you gone to any one for help for drug problem?	26	8.7	274	91.3
20. Have you been involved in a treatment program specifically related to drug use?	34	11.3	266	88.7

Appendix J: MRSES Frequencies

Frequencies of MRSES responses (n=300)

MRSES Item	# (%)	#(%)	# (%)	# (%)	Mean
1. I feel that I am a person of worth, at least on an equal plane with others.	60.3	31.7	6.7	1.3	2.51
2. I feel that I have a number of good qualities.	67.3	28.7	3.0	1.0	2.62
3. All in all, I am inclined to feel that I am a failure.	7.0	5.7	33.7	53.7	2.34
4. I am able to do things as well as most other people.	59.3	34.0	4.0	2.7	2.50
5. I feel I do not have much to be proud of.	15.3	29.7	31.3	23.7	1.63
6. I take a positive attitude toward myself.	57.0	31.0	7.3	4.7	2.40
7. On the whole, I am satisfied with myself.	61.0	29.7	6.3	3.0	2.49
8. I wish I could have more respect for myself.	45.7	37.7	9.3	7.3	0.78
9. I certainly feel useless at times.	9.3	17.0	31.7	42.0	2.06
10. At times I think I am no good at all.	5.7	17.0	32.0	44.7	2.16

Appendix K: DAST Group Statistics

Group Statistics

	Educational level	N	Mean	Std. Deviation	Std. Error Mean
DASTT	Lower classmen	192	3.2708	2.56427	.18506
	Upper classmen	108	3.5093	2.78345	.26784

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DASTT	Equal variances assumed	.232	.631	.749	298	.454	-.23843	.31815	.86453	.38768
	Equal variances not assumed			.732	207.107	.465	-.23843	.32555	.88025	.40339

Group Statistics

	History of MI (Use for analyses and demo)	N	Mean	Std. Deviation	Std. Error Mean
DASTT	No	120	2.7250	1.69012	.15429
	Yes	179	3.7598	3.05260	.22816

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DASTT	Equal variances assumed	18.341	.000	3.381	297	.001	-1.03478	.30606	1.63709	.43246
	Equal variances not assumed			3.757	287.947	.000	-1.03478	.27543	1.57689	.49266

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
MRSES2	Equal variances assumed	1.970	.161	1.044	298	.297	.49190	.47104	.43510	1.41889
	Equal variances not assumed			.993	191.060	.322	.49190	.49517	.48480	1.46860

Group Statistics

	History of MI (Use for analyses and demo)	N	Mean	Std. Deviation	Std. Error Mean
MRSES2	No	120	22.3667	3.62747	.33114
	Yes	179	20.9218	4.01605	.30017

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
MRSES2	Equal variances assumed	2.032	.155	3.169	297	.002	1.44488	.45601	.54746	2.34230
	Equal variances not assumed			3.233	272.093	.001	1.44488	.44694	.56497	2.32479

Appendix L: MRSES Group Statistics

	Educational level	N	Mean	Std. Deviation	Std. Error Mean
MRSES2	Lower classmen	192	21.6771	3.64381	.26297
	Upper classmen	108	21.1852	4.36029	.41957