

# Co-Occurrence of Study Difficulty, Psychoactive Substance Use/Abuse and Psychiatric Morbidity among Undergraduate Students and the Organization of the Future

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## ABSTRACT

Management practitioners and students have always been interested and concerned about human resource behaviour in the organizations. Ideally, there should have been a positive correlation between accumulated knowledge from higher institutions and improved human resource behaviour in the organizations but this has not been so yet. Despite all the accumulated knowledge on behaviour, human problems have continued to pose a major challenge confronting organizations. Axiomatically, graduates turned out from Higher Institutions should be knowledgeable enough to carry the future organization to the next level. However, in a situation where the students have difficulty in their studies, they might turn out to be 'half baked' students who will not be able to have the adequate competences to give the organization of the future the competitive edge they need to succeed. The state of mental health of any student is vital in pursuance of excellent academic career. The co-occurrence of study difficulty, psychoactive substance use/abuse and psychiatric morbidity termed ('The Triad') in students definitely would have detrimental effects on their mental health. The three pronged negative impact of "The Triad" on mental health of the university students had led to school dropouts, and extra years of studying in the university, with the attendant economic burden and social consequences on their families and the society at large. The objective of this study is to provide information on the extent of the co-occurrence of study difficulty, psychoactive substance use and psychiatric morbidity among students in our universities and how it might affect organizational competence and competitive edge in the future. Also, the study seeks to provide insight that may be useful in enhancing students' academic performance, reduction of psychoactive substance use/abuse among students and, the development of mental health hygiene conducive to academic work among students

**Key words:** study difficulty, psychoactive substance use/abuse, psychiatric morbidity, organization of the future, TRIAD

## INTRODUCTION

Reports have shown in literatures that passing examinations is an important means to a better and improved living standard in Nigeria (Ola and Morakinyo, 2010). Much of one's success in examinations depends on the ability to learn and reproduce what was learnt. This level of functioning is dependent on a good mental health, which is a prerequisite for effective studying at all levels of education, much especially in higher institutions of learning. The quality of graduates turned from the higher institutions will determine the quality of the human capital in the future organization. Human capital consists of the knowledge, skills and abilities of the people employed in an organization (Armstrong 2005). According to Bontis et al (1999), human capital represents the factor in the organization; the combined intelligence, skills and expertise that gives the organization its distinctive character. The human elements of the organization are those that are capable of learning, changing innovating and providing the creative thrust which if properly motivated can ensure the long term survival of the organization.

The value of human capital depends on its contribution to competitive advantage or the core competence of a firm and its uniqueness (David and Scott 1999, 2002; Oxman 2002). Hence to maintain and improve on the quality of our workforce the issue of what happens in our higher institution of learning should be taken with all

gravity. According to Cole (2005), education will be taken to mean any long-term learning activity aimed at preparing individuals for a variety of roles in society: as citizens, workers and members of family groups. He went on to posit that examples of individual needs are: the need to become literate; the need to be prepared for some occupation and the need to make the most of one's personal gifts and talents. Society's needs include: the need for respect for law and order, the need for a variety of talents to sustain economic activities and the need to protect itself from external aggression.

"The term, co-morbidity (also called dual diagnoses) applies, when criteria for two or more diagnoses are met. It covers two different circumstances: first, disorders which are currently considered distinct but are probably causally related and secondly, disorders that are casually unrelated, (Maj, 2005). This term has limited relevance in relation to developmental problems (Kaplan et al 2006). However, the co-occurrence or co-occurring disorder is the more recent term for also two or more disorders or diagnoses existing together in an individual. This seems to be a more encompassing terminology, denoting the presence of psychoactive substance use/abuse, mental disorder and/ or medical disorders including developmental problems. Taking into cognisance that study difficulty has been associated with both mental, environmental and medical (including developmental) aetiological factors (Table 1: Morakinyo's classification of study difficulty), this informed the choice of the term 'co-occurrence' in this study in preference to co-morbidity.

Studies of co-morbidity of psychoactive substance use and psychiatric disorders have shown that in some cases psychoactive substance abuse is primary and other psychiatric disorders are secondary and vice versa (Shantna and Chaudhury et al., 2009; Petrakis and Gonzalez et al 2015). These are exemplified by studies that include: Major Depression with Cocaine Dependence, Alcohol Dependence with Panic Disorder, Alcoholism and Poly Drug Dependence with Schizophrenia, and Borderline Personality with Episodic Poly Drug Abuse (Perfas 2006). The combinations of psychoactive substance abuse and psychiatric morbidity often vary along important dimensions of severity, chronicity, disability and degree of impairment in functioning, (Perfas 2006). In general people with mental health disorders are at higher risks for psychoactive substance abuse disorders and also people with psychoactive substance abuse problems have increased risk for mental disorders."(Perfas 2006)

Studies of psychiatric morbidity (disorders) associated with study difficulty have also been carried out. Earlier reports had indicated that the diagnosis of the psychiatric disorders found among student populations did not differ from the established nosological practice, any differences were only in pattern (e.g. prevalence of illness) (Morakinyo, 1990). Handforth (1978) reported from Canada that one third of students with study difficulty seen in Queen's University Health Services complained of symptoms of both anxiety and depression. "This positive relationship between study difficulty and mental ill health has been corroborated by several studies. Also study difficulty has been observed to be secondary to many psychiatric morbidities and psychoactive substance (drug) abuse" (Morakinyo, 1990).

Okasha et al, (1985) in a study "Academic difficulty among male undergraduate students in an Egyptian university", reported a high positive correlation between prevalence of mental ill health and rate of drop out from school among students. Also, Morakinyo (1990) identified dropping out of school or difficulty with academic progress as two adverse consequences of mental ill health among students. Therefore, it is pertinent to state that previous studies among undergraduates were on co-morbidities of either the pairs of psychoactive substance use and psychiatric morbidity, or study difficulty/ academic difficulty and psychiatric morbidity (mental illness). However, this study is focusing on the co-occurrence of study difficulty, psychoactive substance use/abuse and psychiatric morbidity ('The Triad') among undergraduate students of University of Abuja in Nigeria.

## REVIEW OF RELATED LITERATURE

### Students Mental Health

Students need optimal mental health (successful performance of mental functions in terms of thought, mood and behaviour) to achieve academic success. The psychosocial and academic stresses and problems which students encounter, negatively affect their mental health. A report from the Summit on the Initiative for Mental Health, (1998) stated that "studies indicate that approximately 1 in every 5 undergraduate students in North American schools has significant mental health problems that need attention. These problems cause pain and emotional distress, and they compromise their chances for fully using learning opportunities and for succeeding. These problems not only present challenging behaviours such as aggression and disruption, but also can cause internal turmoil through feelings such as anxiety and depression". Also in a study conducted among medical students of Nepal, the workers found that a large proportion of students in both basic and clinical sciences had potential

psychological problems. Majority of the stress experienced by the students were mainly related to academic and psychosocial concerns resulting in higher level of psychological morbidities. It was also noted by these authors, that there was an increased rate of psychological morbidities among third, fourth and final year students, 15%, 18.9% and 24% respectively. (Chandrasekhar et al, 2007). Also in a related study “psychoactive substance use among medical students in a Nigerian university”, it was reported that the clinical (4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> year) students were more likely to use psychoactive substances than students in pre clinical, (Daramola 2007).

Several other studies had suggested reasons for the increased psychiatric morbidities among university students. Handforth in 1978 noted that “students as groups of people have to make both external and internal adjustments of a kind, which are not required to the same extent in other sections of the society.” Morakinyo (1990) stated that “they have to cope with success at studying, ability in functioning autonomously as well as positive relationships with others. Adjustments to these processes are expected to be smooth, but in some cases these adjustments are not well made, leading to the development of certain symptoms in which study difficulty is one of the most frequently encountered.” Handforth (1978) also cited the work of Blain and McArthur (1971), in which they reported 50% of study problems among students attending Student Health Services at Harvard University. It is important at this juncture to state that “study is the main preoccupation of students.” It is the essence for being in school; hence problems in relation to studying would expectedly have adverse consequences on both the mental health and outcome of academic aspirations of affected students (Morakinyo 1990).

“Study difficulty can be defined as the impairment of the capacity to study effectively or inability to obtain maximal result from the effort put in the studying” (Morakinyo, 1990). The following have been identified as causes of study difficulty: Diminished motivation, impaired ability to concentrate, retain or recall, improper presentation of materials, faulty study pattern, poor budgeting of available time, difficulty in social adjustments to a new school environment, secondary effect of psychoactive substance use, personality related problems, neurotic conditions and psychotic disorders.

“Study (work) difficulty has always been observed to form part of the symptomatology or signs of the broad spectrum of mental health problems which students present with. It may either be reported by the student himself or may be the only complaint by the teacher, parents, guardian or other significant person in the student’s life. This is noteworthy, as the main pre-occupation of the student is studying. Apart from the fact that study difficulty is a common symptom or sign in students with mental health disorders, it is important also to note that it may lead to premature termination of the educational process and subsequent student wastage, in otherwise good and capable students” (Morakinyo, 1990).

### **Classification of study difficulty**

Classifications of study difficulty have been reported by several scholars, notable among them are: Malleson (1957, 1965), Ryle (1969), Crown et al, (1973), Handforth (1978), James (1980), and Morakinyo (1990). Malleson (1957, 1965) initially recognised three types of study difficulty: Anxiety related, apathetic / withdrawal type and somatic symptoms related. However, in his second report, he subdivided study difficulty into primary and secondary categories. The primary was sub-classified into: obsessionality, disorganized, retention and recall difficulties, and production difficulties. While the secondary type was not sub classified, but was described, as due to personal problems.

Ryles (1965), subdivided study difficulty into: study difficulty associated with Psychiatric disturbances, and study difficulty not associated with psychiatric illness. The type associated with psychiatric disturbances was further sub-classified into 2; disorganised and dynamic types, in which interpersonal relationships with significant others play important role. Crown et al, (1973), and James, (1980), concluded that study difficulty could be classified into: Psychoneurotic difficulties, motivational difficulties and a mixture of both psychoneurotic and motivational difficulties.

Two major types of study difficulty, primary and secondary were identified by Handforth in 1978. He noted that primary type, is associated with poor study habits, counterproductive obsessiveness or poor budgeting of time, and in this, psychiatric diagnosis is inappropriate, while the secondary type is associated with both rare and relatively common conditions like: dyslexia, drug induced amotivational syndrome, schizophrenia, anxiety states, adjustment difficulties, depression, and developmental problems.

Morakinyo (1990) gave a comprehensive classification of study difficulty, which took into account many factors, which have been identified to be associated with study difficulty. The details are shown in Table1.

**Table 1: Morakinyo's Classification of Study Difficulty**

Type	Sub type	Possible Underlying Factors
A. Primary: No association with psychiatric illness	1. Educational/Psychological	(a) Deficient intellectual capacity (b) Impaired reading and comprehension ability (c) Retention – recall difficulties (d) Aptitude vocational in-congruencies (e) Poor study habit (e.g. poor time budgeting etc.)
	2. Motivational/Behavioural	(a) Disorganisation (b) Syllabus bound/syllabus free work manner (c) Low motivation (d) Poor concentration/distractibility
	3. Socio-Cultural	(a) Learning is second language and understanding alien constructs (reading-comprehension difficulties). (b) Attitude to education. (c) Loneliness and social deprivation (d) Adjustment and interpersonal difficulties. (e) Structural and dynamic characteristic of the education system and institution. (f) Community expectations and indebtedness. (g) Family events
	4. Psycho-Physiological	(a) Sensory deprivation (e.g. poor lighting in reading room, classroom or at home). (b) Exertion-exhaustion stress (c) Sleep deprivation
	5. Organic	(a) Perceptual disabilities (e.g. poor sight, hearing). (b) Head injury, dementia and other brain diseases. (c) Arrest or retardation of development and growth.
B. Secondary: Associated with psychiatric disorders.	1. Personality related	i. Easy extinction of conditioning/learning ii. Drug induced a motivational syndrome
	(a) Hysterical personality	

2. Substance (drug) abuse or dependence related	i. Concentration and comprehension impairment under drug influence
3. Neurotic related	i. Impairment of learning/performance due to hyper arousal
(a) Somatic anxiety	ii. Interest disorder
(b) Anticipatory or reactive phobia anxiety related to fear of failure and/or repeated failure	iii Socio-cultural factors
(c) Neurasthenia	iv Psycho-physical factors
(d) Adjustment disorder with work or academic inhibition DSM III, 309, 29	v. Social cultural factors as above
(e) Other neuroses in which study has special symbolic significance e.g. brain fag syndrome.	vi. Constitutional factors
4. Psychotic related	i. Aboulia
(a) Schizophrenia	ii. Interest disorder
	Constitutional factors

## FACTORS ASSOCIATED WITH STUDY DIFFICULTY

Morakinyo's comprehensive classification of study difficulty was an improvement on the preceding ones. In a lecture, that was delivered at the 15th Annual General Meeting of the West African College of Physicians in Accra, Ghana, on the 13<sup>th</sup> November, 1990, he noted that the classifications of study difficulty proposed by Handforth and the London group were more operational than the others, but have not taken into account a number of factors that could be associated with study difficulty. It is imperative to note that many of the factors highlighted in Morakinyo's classification presented above (Table 1) obviously have direct aetiological complications. However, when a complaint of study difficulty is associated with any of the psychiatric conditions listed in Table I, the cause-effect relationship becomes complex (Fatoye, 1998).

Handforth (1978), in a study among undergraduate students in Canada pointed out that "it has become necessary to determine whether this symptom is indeed secondary to some other problems or situational, developmental or associated with emotional distress or secondary to study difficulty derived from poor study habit". Fatoye (1998), in a study among secondary school students, in Western Nigeria, noted that the nature of the contributions of study habits and attitudes, motivational and personality factors to study difficulty have received some attention. Miller (1970) reported the effect of effective study methods on academic achievement. He noted that high achievers tend to be more systematic in their study and effective study methods suggest higher motivation. Brown and Holzman (1955) reported that attitude items differentiate high achievers from low achievers more than study test items. Furneaux (1960) related academic success to moderate neuroticism and introversion, and Entwistle and Entwistle (1970) found the tendency for successful students to have below average scores on study methods and motivation. The tendency for motivated students to be extroverted and those with good study habit to be introverted were reported by Entwistle et al, (1971).

In a survey of undergraduate students at Ainshams University Cairo, in Egypt, during 1979-1980 academic years, about 6% of the students dropped out before graduating, while another 8% required substantial extra time to graduate. These figures were almost similar for both sexes. Also in a study of academic difficulty among male Egyptian undergraduate students using the Eysenck Personality Questionnaire (EPQ), the results suggested that university students especially those with academic difficulties are more neurotic and introverted than the

general Egyptian population. (Okasha et al, 1985a) In a related study diagnoses of psychiatric disorders were made in 42% of male students with academic difficulties as against 9% among academically successful male students. The authors also noted that neurotic disorders accounts for nearly half of the cases and schizophrenia for a quarter. Serious psychiatry illness was found to about four times as frequent among 3<sup>rd</sup> year students as among 1<sup>st</sup> year students (Okasha et al, 1985b).

Furthermore, Crown et al, (1977), studied the relationship of self-esteem and conscience with study difficulty. They found a significant positive relationship between conscience and psychoneurotic symptoms. Low motivation was also positively correlated to study difficulty. Conversely, self esteem showed significant negative correlation. Okasha et al., (1985) further noted that “significant positive association was found between study difficulty, low socio-economic status, overcrowded housing, paternal behavioural problems, strained relationship among parents, family history of psychiatric disorder and living away from home. “Academically less successful students had fewer friends especially women, and more limited recreational activities. They also scored significantly lower in verbal scale of Wechsler Adult Intelligence Scale (WAIS) and Wechsler Intelligence Scale for Children (WISC).” In a survey on study difficulty among Nigerian students: psychological aspects and psychosocial correlates. The results also show that self-reported academic problems, financial strain, polygamous family background, strained relationship between respondents’ parents, self-reported poor mental and physical health were significantly associated with study difficulty. These findings suggest interplay of personality and psychosocial factors in the development of study difficulty and may be useful in the planning of preventive and psychotherapeutic strategies, (Fatoye 2005).

### **PSYCHOACTIVE SUBSTANCES**

Psychoactive substances are chemical substances which when ingested, inhaled or injected into the body have the potential to alter mood, behaviour, perception or mental functioning of an individual. These substances could bring about changes in a person’s emotional state, body functioning or behaviour. These psychoactive substances also exert their effects by modifying chemical or physiological processes in the brain (Okogbenin, 2008).

These substances are categorized as either illicit (illegal) for example cannabis, cocaine and heroin or licit (legal) substances like alcohol kola nuts, or coffee. Studies have shown that these substances are misused or abused by undergraduate students (Adelekan and Ndom 1996, Daramola 2004, and Onofa, 2005). Over the years, the definition of psychoactive substance abuse has varied among researchers however operational definitions are now in place. The two internationally recognized definitions, which are similar in most aspects, are the Diagnostic and Statistical Manual of Mental Disorders (DSM IV, APA, 1994) and the International Classification of Diseases, tenth edition (ICD – 10 WHO, 1992). DSM IV Criteria for substance abuse defines it as “a maladaptive pattern of substance used leading to clinically significant impairment or distress as manifested by one (or more) of the following:

- Recurrent substance use resulting in a failure to fulfil major role obligations at work, school or home,
- Recurrent substance use in situations in which it is physically hazardous,
- Recurrent substance related legal problems.
- Continual substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effect of the substance”.

### **SOCIO-DEMOGRAPHIC CORRELATES OF PSYCHOACTIVE SUBSTANCE USE/ABUSE**

There is a general consensus that the abuse of psychoactive substances in Africa and other developing countries has been on the increase amongst youths (Pela 1988, Odejide 1980, Awaritefe and Ebie 1975, Asuni et al, 1994, Adelekan 1997, and Federal Ministry of Health 1991). This had led to a corresponding increase in research in this area, but its detrimental effects on studying have not received corresponding attention (Fatoye, 1998). Pela in 1986 noted the increased involvement of females’ gender in drug use, Aboidun et al, (1994), found that, in many cases of psychoactive substance abuse, about half of the students got initiated into it while in primary school, three quarters by early secondary school period. “Students many of whom are still in the formative years and in transition to adulthood phase are in period of experimental exploration and curiosity” (Pela 1986). They are particularly prone to the many destructive effects of psychoactive substances abuse, both physically and mentally, study difficulty inclusive. About 40-80% of Nigerian undergraduates were found to use alcohol (Ihezue 1988, Adelekan et al, 1993, Daramola, 2004). In a 30-country survey project in which Nigeria participated, Ibanga et al, (2005) noted that 32.5% of 2,099 respondents were drinkers. Onofa (2005) reported that 69.2% life time use of all drugs among undergraduate students of three higher institutions in Abeokuta, Western Nigeria.

It is likely that contemporary rural-urban drifts, shifts and breakdown in protective effect of the extended family system, socio-economic and psychosocial factors postulated by Adamson and Sijuwola in 2001 may have worsened the pattern of psychoactive substance abuse of the youths in Nigeria. The amphetamines are illegally imported into Africa (Ebie, 1982). Their use is a problem commonly found among adolescents, especially students (Oshodi 1973, Asuni and Pela; 1980, Ebie, 1982). Students use stimulants to keep awake during intense studying (Lambo 1965, Adelekan et al 1982). Labourers use them to fight fatigue, while farmers mostly in the Northern Nigeria use them both to fight fatigue and to suppress appetite during farming. Oshodi (1986) in his study of psychoactive substance abuse in Kaduna over a 3 year period noted that the abuse of amphetamine had assumed an epidemic proportion in the Northern part of Nigeria especially among soldiers, farmers, labourers and students.

## **PSYCHIATRIC MORBIDITY**

### **GENERAL PSYCHIATRIC MORBIDITY**

#### **Relationship Between Psychiatric Morbidity And Psychoactive Substance Use/Abuse**

The abuse of psychoactive substances poses serious consequences to the abusers, leading to students' wastage, dropout, financial loss and threat to societal well being, (Onofa, 2005). These are some of the notable consequences of psychoactive substance abuse. However some authors have associated drug abuse with different forms of psychiatric morbidity. Asuni (1964) reported the development of schizophrenia-like psychosis in abusers of cannabis. Paton and Kandel, (1978) pointed out the association between drug use and depressive illness. Morakinyo; (1983) and Pela (1986) reported the contributory effects of cannabis abuse to the development of psychiatric morbidity.

Also, it has been reported that an increasing number of students in secondary schools and universities present to psychiatric clinics and hospitals with psychological problems following psychoactive substance use (Ogunremi and Okonofua, 1977). In Lesotho, Mauritius, Mozambique, Namibia, the Seychelles and Swaziland, alcohol plays a significant role in treatment demand in both general and psychiatric hospitals. It was reported that 62% of the total admissions into psychiatric hospitals in Swaziland and 80% in Mauritius, were related to alcohol as primary psychoactive substance used (SACENDU, 2005). Also several studies have shown that alcohol is second only to cannabis as primary substance associated with admissions into Nigerian psychiatric hospitals (Ahmed, 1986, Obot and Olaniyi 1991; Ohaeri and Odejide 1993). It was noted that many of these admissions are for co-morbid conditions, where alcohol use disorders are part of the mix, so it is not clear how much role alcohol (or cannabis for that matter) plays in the psychiatric morbidity resulting in hospitalisation.

The WHO Global Burden for Disease project noted that high burden of alcohol is partly due to a strong link with depression (Rehm et al, 2004). In the general population, the co-morbidity of mental illness and drug use was studied in the United States of America; (Ragler et al, 1990). The authors used interview technique to study 20,291 persons in the survey. Among those with alcohol abuse/dependence 37% had co-morbid mental disorder. Among those with mental disorder a lifetime prevalence of having some addictive disorder was 29% including overlapping of 22% with an alcohol and 15% with another drug disorder. A similar association was found in Connecticut, USA, in study by Merikangas and Gelernter, (1990) between alcoholism and depression. Breslau, in 1995, reported that "co morbidities of psychiatric disorders and psychoactive substance use disorders are more pervasive than previously suspected." The study further revealed that "males and females with nicotine dependence had increased odds for alcohol and illicit drug use, major depression and anxiety disorders compared with non dependent smokers and non smokers, increased odds for alcohol and illicit drug disorders were also observed in non dependent smokers compared to non smokers.

Abiodun et al, (1994) and Adelekan et al, (1993) in drug use surveys among secondary school students and university students in Ilorin Nigeria respectively showed significant correlations between mental ill health and the use of alcohol, cannabis and tobacco. Ononye and Morakinyo, (1994) studied 50 inmates of a remand home in South Western Nigeria for drug abuse, psychiatric morbidity and juvenile delinquency. A well matched comparison group of primary and secondary school students from the same geographical area was compared with the delinquent group. Both groups were subjected to the Carlson Psychological Survey (CPS) questionnaire. The questionnaire, which comprises 50 items, has basic content areas identified as follows; Chemical Abuse (CA) Thought Disturbance (TD), Antisocial Tendency (AT) and Self Depreciation (SD). For delinquency and comparison (non delinquent) group, a significant positive association was reported between chemical abuse and psychiatric morbidity (as measured by self depreciation and thought disturbance).

Generally, prevalence studies have reported substance abuse in patients with psychiatric morbidity as ranging from 20% to 75%, while 25% to 65% of alcoholics entering rehabilitation suffer from another major psychiatric disorder (El-Guebaly, 1990). No difference was found between sexes. Forty two percent of students with academic difficulty were diagnosed as having psychiatric problems compared with 9% among academically successful students. Neurosis accounted for half of the case, while schizophrenia accounted for nearly a quarter. More psychiatric problems were recorded among third year students than the first year.

#### **Consequences of Psychiatric Morbidity in Relation To Study**

In a study of co-occurrence study difficulty, drug use and psychopathology among secondary school students (Fatoye 1998), he stated that “A notable consequence of psychopathology is school absence, which invariably impedes performance of students and may lead to drop out. Although the association between psychiatric morbidity and school absence with eventual dropping out of school may appear straight forward, the relationship of psychiatric morbidity and study difficulty may not be that simple” (Fatoye, 1998). Fatoye also noted that study difficulty may be a primary condition; however in many cases it is secondary to psychiatric morbidity of various types. (Table 1 Morakinyo’s Classification of study difficulty). Whether primary or secondary, the eventual outcome is undesirable to the students, their families and the society in general.

#### **Neurobiological Basis For Co- Morbidity Of Psychoactive Use And Psychiatric Morbidity**

In a 2004, in World Health Organization (WHO) publication, it was stated that “There is an increased risk of co-occurrence of substance use/ abuse in individuals who have mental illness, compared to individuals without any mental illness. It further stated that this might be due to either a shared neurobiological basis for both or an interaction of effects at some level”. Several hypotheses have been postulated to advance the reason why mental illness and psychoactive substance use/ abuse may co-occur. There may be a similar neurobiological basis for both; psychoactive substance abuse may help to alleviate some of the symptoms of the mental illness or the side effects of medication; psychoactive substance abuse may precipitate mental illness or lead to biological changes that have common elements with mental illness.

The evidence for all these hypotheses is compelling. However, it is interesting to note, that psychoactive substances can produce psychotic-like symptoms. Examples are amphetamines and cocaine that can induce psychotic-like symptoms. Hallucinogens can produce hallucinations, which are psychotic symptoms and are present in many psychotic disorders. Psychoactive substances regularly alter mood states, producing either euphoria or happy feelings or inducing depressive symptoms. They also alter cognitive functioning. This impairs (memory) effective studying (study difficulty) which is also a core feature of many mental illnesses. The above factors are suggestive of common neurobiological basis to mental illness and psychoactive substance abuse and study difficulty.

Some studies done in United States, reported that more than 50% of people with mental illness also suffer from psychoactive substance dependence, compared to 6% of the general population and odds of exhibiting substance dependence are 4.5 times higher for people with any mental disorder than for people without mental illness (Ragler et al, 1990).

### **SPECIFIC PSYCHIATRIC MORBIDITY**

#### **Brain Fag Syndrome**

A psychiatric syndrome which is related to study or intense academic (intellectual) work was reported by Raymond Prince in Nigeria in 1960. In that publication and in a subsequent one, he described the cluster of symptoms, which characterised the syndrome (Prince, 1962). He called, this syndrome, Brain Fag Syndrome due the belief by the affected students that their brains were fatigued. Morakinyo in 1990 stated that this syndrome is characterised by the following symptoms: intellectual impairments, inability to grasp the meanings of materials read poor retention and recall, and difficulty with concentrating when reading; unpleasant sensations like heat or burning sensations, pain aches, peppery sensations around the head and neck associated with study, either coming on when the student attempts intellectual activity or may be continuously present but worsens when study is attempted and other sensory disturbances like blurring of vision or just seeing blank; fatigue and sleepiness in spite of adequate rest and; affective disturbance which may not be present or be volunteered by the student, but which may take the form of fear, anxiety and/or depression.

The syndrome has since been reported in many parts of West Africa e.g. Liberia (Wintrob, 1977), Sierra Leone (Thebaud and Rigamaer; 1976) and Cote d'Ivoire (Lehmann, 1977). It has also been reported from the other parts of Africa; South of Sahara and in students of African descent who were studying in the Western countries, but is rather rare among Caucasians. A debate as to why there should be this disparity in prevalence has ensued and some explanations have been offered. There have also been suggestions as to the mechanism of its occurrence,

and even whether it should be regarded as a distinct entity on its own, or as an anxiety equivalent or depression equivalent, (Fatoye, 2004).

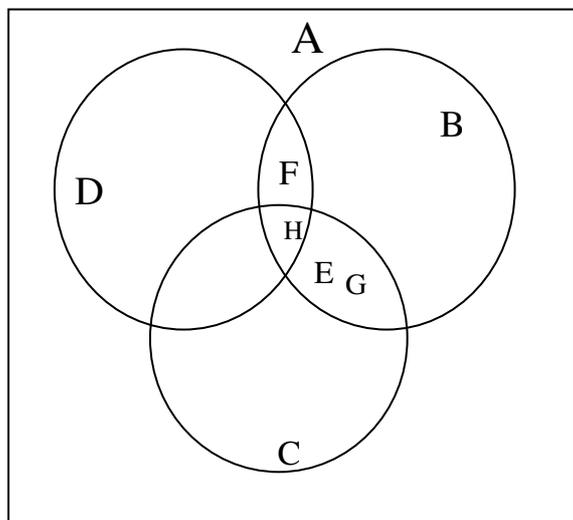
Prince (1980) has argued almost convincingly, that the condition could be regarded as a culture bound syndrome in view of its lop-sided distribution between African and European cultures.

### THE TRIAD

The term triad was first used by Fatoye in 1998 in a study of the co-occurrence of study difficulty, drug use and psychopathology among senior (SS2 and SS3) students from six secondary schools, in Ilesha, Western Nigeria. The University College London Study Questionnaire, the WHO questionnaire for students drug use survey and the General Health Questionnaire (12 items) were used to assess study difficulty, drug use and psychopathology respectively. In the study, a total of 562 respondents (296 males and 262 females) were analysed. In this dimensional survey, the result shows that the consolidated prevalence rates for all drug except antibiotics and analgesics were 39.8% 52.5%, and 60.0% for 30-day, 1- year and life-time rates respectively. It was also reported that, the prevalence rate of the psychopathology was 50.3% while prevalence rates of the subscales of UCLSQ ranged between 18. 1%-22.6 %. These rates were based on respondents' scores above the 75 percentiles on Anxiety, Obsessionality, Depression, Disorganised / Distractible, Somatic, Work Satisfaction and Syllbism subscales and scores below 25 percentiles for Low Motivation subscale of UCLSQ. This study did not report the prevalence rate of the total scores of each respondent (consolidated study difficulty), hence the rates of the triads were calculated based on the rate of each subscale of UCLSQ and ranged between 4.6%- 6.2%. In this study, a survey of Brain Fag Syndrome among the respondents, using Brain Fag Syndrome scale was also carried out and the prevalence rate of Brain Fag Syndrome was 22.9%.

The Venn Diagram Figure 1 depicts the theoretical framework on which this study is based. This shows the constituents (areas) subgroups of the cohort and resultant possible interactions among study difficulty, psychoactive substance use/abuse and psychiatric morbidity; giving rise to co-morbidities (Areas E, F & G) and co-occurrence ("The Triad") represented by Area H. .

**FIGURE 1: THE CONSTITUENTS' SUB-GROUPS OF THE COHORT**



The Cohort studied:

**Area A:** No study difficulty, psychoactive substance use or psychiatric morbidity

**Area B:** Only Study difficulty.

**Area C:** Only psychiatric morbidity

**Area D:** Only psychoactive substance use/abuse

**Area E:** Co- morbidity of psychoactive substance use and study difficulty

**Area F:** Co- morbidity of study difficulty and psychiatric morbidity

**Area G:** Co-morbidity of psychiatric morbidity and psychoactive substance abuse

**Area H:** Co-occurrence of study difficulty, psychoactive substance abuse and psychiatric morbidity

The co- morbidity of psychoactive substance abuse and psychiatric morbidity (psychological disorder or mental illness) has received much attention from researchers. However, the co-occurrence of study difficulty, psychoactive substance use and psychiatric morbidity (The Triad) has not received corresponding attention, (Fatoye, 1998). He suggested that, "A shift in attention to studies involving the three conditions may provide more answers to the questions which have arisen from the observed co morbidity of any of the two conditions". He further stated that, "An attempt should be made to know the extent of co-existence of the three conditions". This formed the focal point of this study.

## METHODOLOGY

The study was conducted at the University of Abuja, Mini-Campus, Gwagwalada, Abuja, in the Federal Capital Territory. As at the time of the data collection the university still operated from the temporary site (the Mini campus). Currently, academic activities are taking shape in the Main campus which is located along the road of the Nnamdi Azikwe International Airport, although some academic activities are still going on in the mini campus as some departments are yet to move over to the main campus. The University of Abuja was established on January 1<sup>st</sup> 1988, as a dual role university with mandate to run both conventional and distant learning programmes. It was the first university in the country to assume such a dual role. The university presently operates both at the Mini-campus in Gwagwalada, about 55kilometers South-West axis of the Federal Capital Territory and the main campus.

University of Abuja admits students from the Federal Capital Territory and the 36 states of Nigeria as well as the neighbouring countries. Admission policy takes cognisance of the Federal Character Policy. The study included: Full time undergraduate students of the university in 3<sup>rd</sup> and 4<sup>th</sup> year of their course and; excluded: 1<sup>st</sup> and 2<sup>nd</sup> level; 5<sup>th</sup> Law students and students who did not wish to participate in the study or were too ill to participate. The respondents were full time undergraduates in 3<sup>rd</sup> and 4<sup>th</sup> year at the University of Abuja. For the purpose of the study, the reference population of ten thousand, one hundred and thirty four (10,134) was based on the total population of full-time (Conventional, Regular) students of the university as at the time of the study. There were more females (5,200) than males (4,934). The ratio of male to female in the total population of the students is 1:1.05.

It is pertinent to note at this juncture, that the university is fairly new in comparison with the first and second generation universities, hence only 6 Faculties (namely Social Sciences, Management Sciences, Education, Law, Sciences and Arts) are fully developed. The Faculties of Health Sciences, Agriculture, Veterinary Medicine and Engineering are still in an early stage of development, with the most senior students in second (2<sup>nd</sup>) academic year. The data collected were appropriately coded and analysed using the Statistical Package for Social Sciences (SPSS) version 16.0. Frequency was used for distribution and t test was used to compare means.

## RESULT

### SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

**Gender distribution:** Two hundred and ninety five (49.2%) were males and 305 (50.8%) of the respondents were females. The male to female ratio (M: F) was 1: 1.03. This is comparable to that of the general population of the students with gender distribution ratio 1:1.05 of male to female.

**Age distribution:** The age range of the respondents was from 18 to 41 years. The mean age for females was 22.4yrs ( $\pm 2.93$ ) while that of the males was 23.9 yrs ( $\pm 3.39$ ) See Table 4. There was a significant difference using independent sample t-test in the age distribution between the males and females respondents. ( $t = 5.52$ ,  $df = 7$ ,  $P < 0.001$ ). **Religion:** Most of the respondents (74.5%) professed Christian religion, while 23.5% were Muslims and only 2% practice other religions.

**Respondents' geopolitical zones of origin:** The respondents were from 256 Local Government Areas of 33 states in 6 geopolitical zones, and the Federal Capital Territory. About half of the respondents have their permanent residence in suburb of cities, while the remaining resides in villages, towns and inner cities. Most respondents (86.5%) had spent between 2 and 4 years in the university.

### PREVALENCE RATES OF STUDY DIFFICULTY AMONG THE RESPONDENTS

**Anxiety:** The median score of the respondents on Anxiety subscale was 8.00. A total of 306 (51%) respondents fell into this group and were termed as positive for Anxiety subscale. **Obsessionality:** For this subscale the median score was 8 and 353 (58.8%) respondents were positive for Obsessionality subscale. **Depression:** Respondents had median score of 7.00 on this subscale. A total of 298 (49.7 %) respondents were positive for Depression subscale of UCLSQ. **Disorganised / Distractible:** Respondents had the median score of 6. A total of 351 (58.5%) respondents were positive for Disorganised subgroup of UCLSQ. **Low motivation:** In this subscale respondents had median scores of 7.00 and 293 (48.8%) of these respondents were positive for this subscale. **Somatic:** Respondents median score in this subscale was 7.00. A total of 342 (57%) respondents were positive for somatic subscale. **Work Satisfaction:** The median score was 10.00. A total of 312 (54%) respondents were positive for this subscale. **Sylbism:** Respondents had median score of 10.00. A total of 318(53.0%) of the respondents were positive for this subscale. Among the UCLSQ subscales, respondents

recorded the highest mean score of 10.08 on the Work Satisfaction subscale, while the lowest mean score of 6.30 was recorded by the respondents in the Disorganised/Distractible subscale. The highest median of 10.00 was also recorded by the respondents in the Work Satisfaction and Syllabism subscales and the lowest median of 6.00 were recorded by the respondents in the Disorganised/Distractible subscale

## **CONSOLIDATED STUDY DIFFICULTY**

The median score for the consolidated study difficulty was 63.00. A total of 323 (53.8%) respondents were positive for this group. The findings in this study have shown that use of psychoactive substances is quite common among the senior students of University of Abuja. The most commonly used psychoactive substance is Alcohol, followed by Stimulants, Tobacco, Cannabis and Inhalants, while Hypnosedatives, Cocaine, Other opiates, Hallucinogens, Sedatives and Opium/Heroin were used in lesser degree. The prevalence rate of 16.7% was observed for the syndrome of co-occurrence of study difficulty, psychoactive substance use/abuse and psychiatric morbidity ("The Triad"). It also observed that prevalence rates of psychiatric morbidity and Brain Fag Syndrome were 35.5% and 36.0% respectively, while that of consolidated study difficulty was 53.8%.

The following socio-demographic variables were found to have statistically significant associations with "The triad", namely: male gender, age group, respondents' level of education, family status and strained parental relationships. Brain Fag Syndrome had statistically significant correlation with consolidated study difficulty, psychiatric morbidity and all the 8 subscales of UCLSQ except Work Satisfaction. This study also found that students with Brain Fag Syndrome most commonly use stimulants (coffee and kola nuts), alcohol, tobacco and cannabis. The commonest type of study difficulty associated with Brain Fag Syndrome is the Secondary (Type B) associated with psychiatric disorders. (Morakinyo's classifications of study difficulty)

## **IMPLICATIONS OF THESE FINDINGS**

This study shows that the prevalence of co-occurrence of study difficulty, psychoactive substance use, and psychiatric morbidity among university students is 16.7%. This is indicative of the magnitude of mental health problems in our tertiary institutions. The adverse effects of "The Triad" on the mental health of these students will impact negatively on the society with its social and economic consequences.

## **PSYCHIATRIC MORBIDITY**

### **General psychiatric morbidity**

This was measured using GHQ – 30. The respondents' mean score was 4.09 ( $\pm 3.31$ ). The scores ranged from 0 to 22, the respondents that scored  $\geq 5$  were classified to be positive for psychiatric morbidity. A total of, 213(35.5%) respondents were grouped as having psychiatric morbidity.

### **Specific psychiatric morbidity**

#### **The Brain Fag Syndrome**

The frequency distribution of the Brain Fag syndrome scale scores showed that the scores ranged from 0 to 13. The mean score was 5.19 ( $\pm 0.08$ ). Scores of 6 and above and minimum of one score in items 4 and 5 were used as criteria for cosiness. A total of 216 (36.0%) respondents met the requirement for cosiness and were categorised as positive for BFS; Identification of co-morbidities and estimation of their magnitudes. From the list of scores on the 3 main variables: study difficulty, psychoactive substance and psychiatric morbidity, the various subgroups were identified, and their magnitudes computed as follows:

#### **Co-morbidity of study difficulty and psychoactive substance abuse**

This subgroup comprised of respondents that scored above the median on the consolidated study difficulty and were positive for psychoactive substance abuse. They accounts for 9.2% of the total study sample and constitute the subgroup F in Figure 2.

#### **Co-morbidity of psychoactive substance use and psychiatric morbidity**

Respondents, who scored above the median of the consolidated psychoactive substance use as well as score positive on GHQ- 30, fell into this group. They constituted 6.5% of the total sample population and formed the subgroup E in Figure 2.

#### **The co-morbidity of study difficulty and psychiatric morbidity**

Respondents who scored above the median of 63 in the consolidated study difficulty and who were identified as having psychiatric morbidity by GHQ -30 constituted this group. They accounted for 6.6% of the total study sample, and formed the subgroup G

**CO-OCCURRENCE OF STUDY DIFFICULTY PSYCHOACTIVE SUBSTANCE ABUSE AND PSYCHIATRIC MORBIDITY (THE TRIAD):**

This group was made up of respondents who were identified as having psychiatric morbidity by GHQ 30 while scoring above the median scores of both the consolidated psychoactive substance use and consolidated study difficulty. This group of 100 respondents were deemed to be suffering from “The Triad”. They accounted for 16.7%, and formed the subgroup H. It is interesting that of the 4 subgroups described so far, they had the highest percentage.

**Table 2: Association between specific psychoactive substances with study difficulty and psychiatric morbidity**

Psychoactive substance	Study Difficulty		Psychiatric Morbidity	
	P-value	Odds ratio	P-value	Odds ratio
	(Fisher’s Exact test)		(Fisher’s Exact test)	
Tobacco	0.0001**	3.2	0.000**	6.8
Alcohol	0.0001**	1.9	0.000**	2.8
Cannabis	0.0001**	2.3	0.000**	4.5
Cocaine	0.02**	7.7	0.289*	1.8
Stimulants	0.02**	1.1	0.000**	3.6
Hallucinogens	0.334*	0.5	0.727*	1.5
Volatile Solvent	0.351*	1.5	0.46*	1.9
Hypnotosedatives	0.655*	0.8	0.08*	3.5
Sedatives	0.217*	4.9	0.193*	3.7
Opium	0.999*	0.9	0.131*	5.5
Heroin	0.999*	1.5	0.005**	0.4
Other Opiates	0.656*	2.0	0.023**	9.3

**\*\*Statistically significant (P<0.05) Fisher’s Exact test; \*Not statistically significant (P>0.05) Fisher’s Exact test**

**4.6 SPECIFIC ASPECTS OF STUDY DIFFICULTY ASSOCIATED WITH PSYCHOACTIVE SUBSTANCE USE**

The findings show that all aspects of study difficulty had statistically significant association with psychoactive substance use, except Low motivation and Work satisfaction. The following were found to have statistical significant associations with psychoactive substance use; Primary and Secondary types of study difficulty,(Table 1 Morakinyo’s Classification of Study Difficulty) Anxiety, Obsession, Depression, Somatic, and Syllabism subscales of study difficulty, (P <0.05). Measure of Agreement was statistically significant in association with Anxiety, Obsession, Depression, Somatic, and Syllabism subscales. The Odds Ratio (OR) was significant in all except also in Low motivation and Work satisfaction subscales.

## 5.0 CONCLUSION AND RECOMMENDATIONS

The findings in this study have shown that use of psychoactive substances is quite common among the senior students of University of Abuja. The most commonly used psychoactive substance is Alcohol, followed by Stimulants, Tobacco, Cannabis and Inhalants, while Hypnosedatives, Cocaine, Other opiates, Hallucinogens, Sedatives and Opium/Heroin were used in lesser degrees. The prevalence rate of 16.7% was observed for the syndrome of co-occurrence of study difficulty, psychoactive substance use/abuse and psychiatric morbidity ("The Triad"). It also observed that prevalence rates of psychiatric morbidity and Brain Fog Syndrome were 35.5% and 36.0% respectively, while that of consolidated study difficulty was 53.8%.

The following socio-demographic variables were found to have statistically significant associations with "The triad", namely: male gender, age group, respondents' level of education, family status and strained parental relationships. Brain Fog Syndrome had statistically significant correlation with consolidated study difficulty, psychiatric morbidity and all the 8 subscales of UCLSQ except Work Satisfaction. This study also found that students with Brain Fog Syndrome most commonly use stimulants (coffee and kola nuts), alcohol, tobacco and cannabis. The commonest type of study difficulty associated with Brain Fog Syndrome is the Secondary (Type B) associated with psychiatric disorders (Morakinyo's classifications of study difficulty). Our study established the fact that the use/abuse of psychoactive substances has negative effect on students' performance. This can enable us to predict performance and productivity of future human resources if the use/abuse of psychoactive substances among the Nigerian Students.

Consequently, this study recommends that student mental health services should be an integral part of Student Health Services in our tertiary educational institutions. These services ought to be provided by mental health professionals, through the Consultation-Liaison Psychiatry. The extent to which this has been implemented is yet to be ascertained. However, in the western world studies have shown that mental health services are integral part of students' health services, (Parnel 1951, Mair 1967, Lucas and Crown 1974). Organisations need to pay more attention to what happens in the university especially the use/abuse of psychoactive substances among the Nigerian Students. Apart from study difficult which invariably will affect talents, knowledge, skills and abilities of the future workforce; if these habits are handled properly they will be transferred to the workplace.

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