

## SCREENING FOR EATING DISORDERS AMONG UNDERGRADUATE STUDENTS IN TWO NIGERIAN HIGHER INSTITUTIONS

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### ABSTRACT

**Background:** Eating disorders are important psychopathologies with associated physical/ mental health complications and mortality. They are common problems in the Western world; however, with only few studies from the Southern part of Africa, they are believed to be rare in the continent, hence this study.

**Methods:** The study was carried out among selected undergraduates of two higher institutions in Lagos, Nigeria. They were administered with Socio-demographic Questionnaire and Eating Attitudes Test- 26-item version (EAT-26).

**Results:** A total of 1054 students in the two institutions were studied, and were made up of 55.6% males and 44.4% females; with mean age of  $21.38 \pm 3.66$  years. The anthropometric indices of the subjects were mean weight of  $63.29 \pm 11.14$ kg, mean height was  $1.69 \pm 0.09$  metres, and mean body mass index (BMI) of  $22.17 \pm 3.58$ . On assessment with EAT-26, 152 (15.3%) scored  $\geq 20$  that is screened positive for eating disorders (N=995). Higher percentage of females screened positive for eating disorders compared to the males with significant difference of  $X^2=19.47$  and  $p=0.000$ .

**Conclusion:** About one-sixth of the subjects screened positive for eating disorder, which is quite important for our environment erroneously believed to lack cases of eating disorders. Also as obtained in the Western world, eating disorders are more prevalent among the females. With limitation of screening instrument, it is advocated for diagnostic instruments to be employed in future studies.

**Keywords:** Eating disorders, Undergraduates, Screening, Nigeria.

### INTRODUCTION

Eating disorders (EDs) have been present with mankind right from time immemorial, and scientific studies became evident only some decades ago especially in the western world (Shuriquie, 1999). EDs are complex syndromes of disturbed eating behavior with multiple biological, psychological and socio-cultural causative factors (Halmi, 1994; Sadock & Sadock, 2003). Various kinds of EDs include Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Binge Eating Disorder (BED); and altogether have been reported in earlier studies as affecting about 4% of adolescents and young adults in the western world (Szmukler, 1985; Kohn & Golden, 2001). In AN, there is marked distortion in body image, morbid desire for slimness and deliberate weight loss through various methods

such as grossly inadequate feeding and vigorous exercise. BN is characterized by repeated episodes of large food consumption (binge eating) with associated compensatory behaviours most especially induced vomiting and/ or purging with overvalued idea about the 'ideal' body weight. On the other hand, in BED there are frequent episodes of uncontrollable large food consumption, feeling extremely distressed during or after bingeing; however, there is no vomiting, purging or over-exercising (Semple & Smith, 2004; [www.mayoclinic.org](http://www.mayoclinic.org), 2016). EDs are described as mental disorders characterized by abnormal eating habits that negatively affect a person's physical and/ or mental health (Solmi et al, 2015). According to Stuart & Laraia (2001), eating disorders entail the use of food to satisfy unmet emotional needs, to moderate stress, and to provide rewards or punishments.

Most epidemiological data on EDs are derived from studies in developed countries of the Western world. From such studies, it's been shown that the true incidence and prevalence of all EDs are difficult to ascertain due among other factors to concealment of the problem by the affected individuals; but they are believed to remain relatively rare and are most commonly seen in females (Halmi, 2009). However, from such countries the prevalence of BED is reported to be 1.6% among females and 0.8% in males, AN affects 0.4% while BN is 1-3% in females respectively, but affect only 0.1% of males respectively. Lifetime prevalence figures have been given as 4% (AN), 2% (BN) and also 2% for BED among females; and AN as well as BN occur up to ten times in females (APA, 2013; Smink et al, 2013). Aside gender variation in the epidemiological figures, prevalence of EDs is also different for various age groups; thus, in childhood (5–12 years), the ratio of girls to boys diagnosed with AN or BN is 5:1, whereas in adolescents and adults, the ratio is much larger – 10 females to every male. Furthermore, in a Canadian study, while 1.5% of Canadian women aged 15–24 years had an eating disorder, the prevalence of anorexia and bulimia is estimated to be 0.3% and 1.0% among adolescent and young women respectively. Thus, prevalence rates of anorexia and bulimia appear to increase during the transition from adolescence to young adulthood (PHAC, 2003; Hoek, 2007).

Furthermore, studies among College students in developed countries have shown that symptoms of eating disorders (EDs) are pervasive in such populations; and prevalence estimates of current EDs among college students range from 8% to 17% (Hoerr, 2002; Reinking & Alexander, 2005). Again, from such studies there is noticeable gender variation among the College students, with undergraduates prevalence of positive screens for EDs to be 13.5% for women and 3.6% for men (Eisenberg et al, 2011).

In Africa, EDs are hardly seen in clinical practice, but some studies have been carried out, particularly in the Southern part of the continent (Szabo & le Grange, 2001). Specifically, in Nigeria, the only scientific study describing some cases of anorexia nervosa among female adolescents was carried out over two decades ago by Oyewumi and Kazarian

(1992). The popular belief in Africa is that EDs is a ‘culture bound syndrome’ restricted to the western world, and the pervasive poverty in Africa where many people do not have enough to eat does not give room to the presence of EDs (Njenga, 2007). Furthermore, is the culture of ‘fattening’ in women in Africa, which is largely seen as a sign of affluence for married women or to prepare maidens for marriage, this practice is particularly common in the Niger delta area of Nigeria, among some tribes in South Africa and in Mauritania where the practice of fattening from force feeding is known as “Leblouh” (Lamb, 2001; Rguibi & Belahsen, 2006). The advent and spread of western civilization in the past few decades in Africa now makes many female adolescents and young female adults particularly the undergraduate students to opt for thin or slim shape as a form of imitation of Western models and Artists (Popenoe, 2004; Baba, 2013). Thus, in the past few decades, studies have shown that EDs have become more prevalent mental health disorders with associated health complications in low and middle income countries (LMICs) largely due to peer influence on eating and body image concerns (Smink et al, 2012; Gerbasi et al, 2014). This observation together with paucity of research data from the West African sub-region prompted this study; with the main objective of screening for possible cases of EDs among selected undergraduates in Lagos, Nigeria.

## **MATERIALS AND METHODS**

**Subjects and Study Locations:** The study was carried out in University of Lagos, Akoka and Yaba College of Technology in Yaba, Mainland area of Lagos. The city of Lagos is the commercial capital of Nigeria, with inhabitants from all over the country and from neighboring African nations. There are many higher institutions in Lagos; but the two study sites were chosen for convenience of accessibility, proximity to one another and from where permission could be obtained to carry out the study. In the two centres, study participants were obtained from all the faculties and departments by stratified random sampling.

Participants were undergraduates who gave consent to be enrolled in the study, and had no history of chronic physical illness. Ethical approval was obtained from the authority of each of the two institutions before the commencement of the study.

**Instruments:** Instruments used in the study included Socio-demographic Questionnaire, Eating Attitudes Test, 26 item version (EAT-26), as well as Standard Weighing Scale and Height Measuring Tape.

**Socio-demographic Questionnaire:** This was constructed by the Researchers to obtain such information as Subjects’ age, sex, course and level of study, anthropometric measurements of weight and height. Furthermore, information about the parents viz highest level of education, family size, occupation and yearly income were also obtained using the Questionnaire.

**The Eating Attitudes Test (EAT-26):** This instrument was originally designed as a standardized self-report inventory to measure symptoms, concerns and socio-cultural factors characteristic of eating disorders. The original version is a 40-item instrument published by Garner and Garfinkel (1979); however, a shorter 26-item version was produced by Garner et al (1982) and found to retain the psychometric properties of the original version, that is reliable and valid. For instance, in a cross-cultural study of eating attitudes among African adolescents using EATS-26, Cronbach's alpha of 0.75 and 0.79 were derived for the instrument (Szabo & Allwood, 2004). EAT-26 is an efficient screening instrument used to assess "eating disorder risk" in an individual or groups, but cannot be used as the sole means to diagnose eating disorders. It has been used extensively among students in high school and colleges (Garner et al, 1998). There are three subscales in the instrument: a. Dieting subscale includes items 1, 6, 7, 10, 11, 12, 14, 16, 17, 22, 23, 24, 26; b. Bulimia and Food Preoccupation subscale with items 3,4,9,18,21 and 25; c. Oral Control Subscale of items 2, 5, 8, 13, 15, 19 and 20. On scoring, each item in the instrument is scored on a scale of Sometimes, Rarely, Never (0 point), Often (1 point), Usually (2 points) and Always (3 points), and with score range of 0-78, the cut-off score is 20, thus a score of 20 and above is positive screen for eating disorder, but a clinical interview by mental health professional is required for definitive diagnosis (Garner, 2015).

**Procedure:** The Socio-demographic Questionnaire and EATS-26 were self-administered on the subjects under a conducive atmosphere that was as much as possible devoid of unnecessary distraction. Thereafter, the anthropometric measurements of Height (in metres, m) and Weight (in kilogram, kg) were taken using appropriate Tape measure and Weighing Scale respectively. Body Mass Index (BMI) was then computed for each subject as:  $BMI = \text{Weight (kg)} / \text{Height (m)}^2$ .

**Data Analyses:** A total of 1100 Questionnaires were administered, but 46 with one or more sheets missing from the questionnaire were discarded, leaving a total of 1054 (95.8%) for analyses. Data was now entered into spreadsheet and cleaned, as inappropriately filled or incomplete item of the instruments /Questionnaires was discarded for the particular subject in the final analyses. Data was analyzed using SPSS version 16 for windows. Means were computed for continuous variables, with t-test carried out to compare means as may be necessary. Chi-squared statistics was used to analyze categorical variables with significant p set at  $\leq 0.05$ .

## RESULTS

### **Socio-demographic Variables (Table 1)**

A total of 1054 undergraduate students in the two institutions were included in the study. They were made up of 546 respondents from the University of Lagos, and the rest 508 from Yaba College of Technology. In the results, an important problem noticed as common with research among adolescents/young adults in this part of the world was

incomplete/ inappropriate filling of information in some parts of the instruments; for example writing 'adult' in the column of age. Consequently, different total numbers were used as may be appropriate for some variables in the analysis.

There were 561 (55.6%) males and 448 (44.4%) females (N=1009), and nearly half (49.5%) were of age group 15-20 years, closely followed by 21-30 years age group (48.8%), with mean age of  $21.38 \pm 3.66$  years. Nearly all were single, 1015 (97.0%) and only 28 (2.7%) were married (N=1046); over three-quarter 859 (81.6%) were Christians and 185 (17.6%) Muslims (N=1053). The highest number of subjects, 687 (76.2%) were on monthly stipend of ₦10,000 to 20,000 from their parents/ sponsor, distantly followed by those on ₦25,000 to 30,000 (11.8%) and 10.7% on ₦35,000 to 50,000 (N=901); ₦ is the symbol of Naira, the official currency in Nigeria with variable exchange rate to the dollar which was ₦150 to US\$1 at the time of our data collection.

A higher proportion, 796 (84.0%) were from monogamous family, and the rest were from polygamous setting of two or more wives (N=948). The subjects' fathers (most often the sponsors of the students) were largely employed, 933 (95.3%) and only few, 46 (4.7%) were unemployed (N=979).

#### ***Anthropometric Indices***

**Weight:** The weight of the subjects ranged from 40 to 120kg, with mean of  $63.29 \pm 11.14$ kg (N=1036).

**Height:** The mean height of the subjects was  $1.69 \pm 0.09$  metres, with range of 1.36-2.01m (N=1041).

**Body Mass Index (BMI) (Table 2):** The mean BMI of subjects was  $22.17 \pm 3.58$ , and range of 15.40-68.50 (N=1036). On BMI categorization, it was normal in 751 (72.5%) of subjects, 141 (13.6%) were overweight, 115 (11.1%) were underweight and 29 (2.8%) were obese.

#### ***The Eating Attitudes Test (EAT-26) Scores (Table 3)***

Eight hundred and forty three (84.7%) subjects scored  $<20$  on assessment with EAT-26, and the rest, 152 (15.3%) scored  $\geq 20$  that is screened positive for eating disorders (N=995). The higher percentage (18.2%, n=451) of those that screened positive were the College of Technology students, and 12.9% (n=544) were the University students, and the difference was statistically significant ( $X^2=5.38$ , df=1 and p=0.020).

#### ***Association between EAT-26 Scores and Socio-demographic Variables (Table 4)***

**Age groups:** The highest number, 80 (8.4%) of those who screened positive to eating disorders were in the age bracket 21-30 years, closely followed by 72 (15.0%) in the age group 15-20 years (N=970); and the difference was significant:  $X^2=9.21$ , df=3 and p=0.027.

**Sex:** Higher percentage of females (21.9%, n=448) screened positive for eating disorders, and 11.6% (n=561) for males (N=1009), with significant difference of  $X^2=19.47$ , df=1

and  $p=0.000$ . Furthermore, the mean EATS-26 score for all the subjects was  $11.52\pm 8.54$ ; for the females it was  $12.83\pm 9.26$  and for the males  $10.44\pm 7.80$ . The difference between the mean scores was significant with  $t' = -4.43$  and  $p=0.001$ .

EAT-26 scores had no significant relationship with the remaining socio-demographic variables of marital status, religion and fathers' employment status.

## **DISCUSSION**

As expected of undergraduate population, the subjects were adolescents/ young adults, with nearly all of them (98.3%) less than or equal to 30 years old and mean age of  $21.38\pm 3.66$  years. More than three-quarter (76.2%) of the subjects were on ₦10,000 to 20,000, that is 66.7 to 133.3 US\$ stipend a month. It is out of this meager monthly allowance, the subjects feed, buy stationeries and clothes; and this is a reflection of the pervasive poverty in Nigeria. However, this poverty tendency was not reflected in the BMI of the subjects which was normal in over 75% of the subjects.

Various self-report screening inventories are commonly used to study EDs in clinical and general populations; and many of them including EAT-26 are known to possess good psychometric properties (Hill et al, 2010). In our study, less than 1 in 5, that is 15.3% of our subjects screened positive for EDs using EAT-26; which was slightly higher than 14.1% found also in Nigeria over two decades ago by Oyewumi and Kazarian (1992). This reflects Eating disorders to be rare condition in the general population, as submitted in previous studies. In a review of studies from Europe and America, eating disorders are relatively rare, and are more of disorders of western civilization. Using definitive diagnostic instrument, the prevalence rates of eating disorders vary between 0.1%-3.3% (Preti et al, 2009; Deans, 2012). In studies specifically among undergraduate students in America, and using screening inventories, prevalence of positive screen for eating disorders was found to range from 8% to 17%, and specifically 13.5% for women, very close to our finding (Reinking & Alexander, 2005). However our finding is contrary to the prevalence figure of 3% found for abnormal eating attitudes also using EATS-26 in rural Zulu region of South Africa by Szabo and Allwood (2004). Perhaps, the wide margin in the prevalence figures could be explained by the fact that the South African study was carried out in a rural area, while our own study was among undergraduates in cosmopolitan city of Lagos. This assertion is further supported by previous studies which showed that eating disorders are 'alien' to African culture; but with western civilization most especially in cities and towns of Africa, preference for thinness through dieting is becoming rampant (Popenoe, 2004; Baba, 2013).

In our study, positive screen for EDs was significantly higher among the female students compared to the males, in almost ratio 2:1. Our finding is in line with those from many previous studies that showed EDs to be predominantly female problem, both in the Western world and from few available studies in Africa (Kohn & Golden, 2001; Reinking & Alexander, 2005; Szabo & le Grange, 2011; Eisenberg et al, 2011; Smink et al, 2013).

For instance, Reinking and Alexander (2005) found female–male ratio of positive screens for EDs to be about 3 to 1 (Reinking & Alexander, 2005), a ratio higher than that obtained in our study. More recent studies continue to show female predominance in the prevalence of EDs (Rivas et al, 2010; Tseng et al, 2014; Laus et al, 2015).

### **LIMITATION AND CONCLUSION**

A limitation in this study is the use of a screening inventory (EATS-26) which is not diagnostic on its own. However, different studies have shown EATS-26, a short form of the original 40-item version to be an effective screening instrument with good psychometric properties to pick at risk individuals for EDs (Gerbası et al, 2014; Tseng et al, 2014; Laus et al, 2015). Thus, it can be concluded from our study that significant number of our subjects had high risk of EDs.

### **RECOMMENDATIONS**

It is recommended for similar study to be carried out in a larger population and wider socio-cultural background in the country so as to pick up at risk cases. Furthermore, diagnostic instruments can also be used to make definitive diagnoses for necessary therapeutic intervention.

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**Table 1: Socio-demographic Characteristics of Subjects**

Variable	Frequency (%)
<b>Sex (N=1009)</b>	
Male	561 (55.6)
Female	448 (44.4)
<b>Total</b>	<b>1009 (100.0)</b>
<b>Age Group in years (N=1009)</b>	
15-20	504 (49.5)
21-30	501 (48.8)
>30	4 (1.7)
<b>Total</b>	<b>1009 (100.0)</b>
<b>Mean Age: 21.38±3.66 years</b>	
<b>Marital Status (N=1046)</b>	
Single	1015 (97.0)
Married	28 (2.7)
Separated	3 (0.3)
<b>Total</b>	<b>1046 (100.0)</b>
<b>Religion (N=1053)</b>	
Christianity	859 (81.6)
Islam	185 (17.6)
Traditional	9 (0.8)
<b>Total</b>	<b>1053 (100.0)</b>

**Table 2: Categories of Body Mass Index (BMI) of Subjects**

Categories of BMI (N=1036)	Frequency (%)
Normal	751 (72.5)
Underweight	115 (11.1)
Overweight	141 (13.6)
Obese	29 (2.8)
<b>Total</b>	<b>1036 (100.0)</b>
<b>Mean BMI: 22.17±3.58</b>	

**Table 3: Scores on EATS-26**

<i>EATS-26 Score (N=995)</i>	<i>Frequency (%)</i>
<20 (Normal Score)	843 (84.7)
≥20 (Screened positive for ED)	152 (15.3)
<b>Total</b>	<b>995 (100.0)</b>
 <i>Institutional Distribution of positive Screen for ED</i>	
University of Lagos (n=544)	71 (12.9)
Yaba College of Technology (n=451)	81 (18.2)
<b>X<sup>2</sup>=5.38, p=0.020</b>	

**Table 4: Association between Age groups and Sex and EATS-26 Scores**

<i>Variable</i>	<i>EATS-26 Scores</i>	
	<i>(&lt;20)</i>	<i>(≥20, screened positive for ED)</i>
<i>Age group</i>		
15-20 years (n=504)	432	72
21-30 years (n=501)	421	80
<b>X<sup>2</sup>=9.21, p=0.027.</b>		
<i>Sex</i>		
Male (n=561)	507	54
Female (n=448)	350	98
<b>X<sup>2</sup>=19.47, p=0.000.</b>		
<i>Mean EATS scores</i>		
All the subjects	11.52±8.54	
Females	12.83±9.26	
Males	10.44±7.80	
<b>t= -4.43, p=0.001</b>		