**ORIGINAL ARTICLE**

# Assessment of eating disorders among adolescent students in tertiary institutions in Lagos, Nigeria

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## ABSTRACT

Eating disorders can influence teenagers' eating patterns, nutritional health, and academic performance. This research evaluated eating disorders and their correlation with the socio-economic and demographic attributes of adolescents in six chosen tertiary institutions within Lagos State, Nigeria. The identification of adolescents experiencing eating disorders was conducted using a modified 26-item Eating Attitude Test from a sample of 866 adolescents chosen through a multistage sampling method. Information on the respondents' socio-economic and demographic traits, along with eating disorder risk referral criteria, was gathered through the Eating Disorder Inventory (EDI) questionnaire. Data were displayed utilizing frequency counts, percentages, means, and Chi-Square analysis. Findings indicate that 63.7% of participants were female, 43.5% were university students, while 33.3% and 23.2% were enrolled in polytechnics and Colleges of Education, respectively. Fewer than half (45.4%) of the participants received a monthly allowance ranging from ₦5000 to ₦10,000, while 46.8% and 32.0% reported that their fathers and mothers were employed in civil service, respectively; 40.2% and 62.4% stated that they were involved in business, respectively. Additionally, 21.8% of teenagers were identified as at risk for eating disorders, of which 66.5% suffered from anorexia nervosa, the most common eating disorder. Chi-square findings indicate that there was no statistically meaningful link ($P>0.05$) between eating disorders in the respondents and their socio-economic or demographic traits. The research found that eating disorders could be more influenced by psychological factors rather than socio-economic or demographic ones. Instilling healthy eating practices in children from a young age to avert the development of eating disorders is essential.

**Keywords:** Eating disorder, Adolescents, Socio-economic and Demographic

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## INTRODUCTION

Eating disorders (E.D.s) are mental health issues characterized by an intense focus on food and body weight (1). These are conditions related to eating habits, linked thoughts, feelings, beliefs, and the consequent physiological consequences. Eating disorders represent significant mental health conditions; they are neither a personal choice nor a diet that has gone "overboard." Eating disorders are linked to serious physical issues and a higher risk of death. The death rate among individuals with eating disorders is the highest among all mental health conditions and more than 12 times greater than that of those without such disorders. Eating disorders affect individuals of all genders, ages, economic statuses, and cultural backgrounds. Approximately one in every 20 Australians suffers from an eating disorder, and this prevalence is rising within the Australian population (3). Eating disorders can also be characterized, according to the 10th edition of the International Classification of Disorders (ICD-10), as a collection of behavioral issues that may occasionally be linked to physiological and physical changes (4). They are divided into Anorexia Nervosa (AN), Bulimia Nervosa (B.N.), and various other Non-Specific Eating Disorders (EDNOS), including binge eating (5). Eating disorders within psychiatric disorders exhibit a significant mortality rate among adolescents and young adults, particularly in both developing and developed nations (6). The causes of eating disorders are generally recognized as a mix of genetic, psychological, and socio-cultural elements, which collectively are termed bio-psychosocial disorders (7).

The likelihood of developing eating disorders in children mainly relies on the traits of the child and the characteristics of their parents or family. The traits of a child may encompass gender, age, ethnicity, health status, cognitive and psychological abilities, exposures to illnesses before and after birth, physical stress, substances like alcohol and drugs, nutrition, infections, and additional environmental factors, along with a history of environmental exposure to toxins, infections, social surroundings, and significant stressors throughout their life. Family and parental traits encompass parental schooling, age, social status, occupation, mental health, and health background (8). Data indicates that one out of every five women faces challenges with an eating disorder (NDSU, 2016). An eating disorder impacts 24 million Americans and 70 million people globally, with approximately 10-15% of those affected being male and 90% female, predominantly between the ages of 12-25 (9).

Nutritious eating is rapidly becoming a frequent topic on media channels, social media platforms, and similar outlets. Individuals engaged in diet and nutrition education often unknowingly experience the very conditions they advocate for preventing (10). It is widely recognized that food is essential for maintaining good health. Consuming nutritious food is crucial at all stages of life, but it holds particular significance for adolescents and teenagers. As teenagers are still developing, it is essential for them to consume sufficient vitamins and minerals to feel well and maintain good health too (11).

Being a teenager can be enjoyable, but it can also be challenging as the body undergoes changes. These bodily changes can be difficult to cope with if they don't align with the adolescent's expectations. Friends may exert pressure to appear slim, which could influence their eating habits. The adolescent years are not an appropriate period for crash dieting, as this will deprive them of essential nutrients needed to achieve their full potential (11). Advancing the well-being and safety of teenagers is essential for the country's future (12). Adolescence is a distinct phase of life where people are past childhood but have not yet attained adulthood. They make significant decisions regarding their health and cultivate attitudes and practices that influence their present safety and well-being, as well as shape their likelihood of developing serious chronic diseases in the future (12).

Adolescence provides a chance to promote healthy decisions and positive behaviors that will carry into adulthood. By establishing safe and supportive settings for modern teenagers—settings that promote positive traits while decreasing risks for harmful behaviors—we can help ensure that the adults of tomorrow will be healthy and effective. Content analyses (13) indicate that the product category most commonly advertised to children while they watch television is high-energy-dense food. According to Story et al. (14), children today exist in an environment filled with media. Young kids are particularly susceptible to media influence. They acquire knowledge by watching others and copying the actions of an attractive model when they anticipate a favorable result from those actions (15).

Thus, there is a need to assess the eating disorders among these adolescents and their likely association with their socio-economic and demographic association to curtail and proffer solutions to alter it.

## MATERIALS AND METHODS

### Study Area

The research was carried out in six chosen tertiary institutions in Lagos State. Lagos was the previous capital of Nigeria, the biggest commercial center in Nigeria, and among Africa's

rapidly growing cities.

**Study Design**

A non-experimental research design was utilized since participants were observed in their natural environments. Thus, a method based on a quantitative research strategy (cross-sectional survey) was utilized.

**Study Population**

The study population consists of adolescent students in tertiary institutions in Lagos State.

**Sample Size Determination**

SS=(Z^2 (P)(1-P))/C^2

Where SS= Sample Size, Z= Z-value A (e.g., 1.96 for a 95% confidence level), P= Percentage of population picking a choice, expressed as decimal B, and C = Confidence interval, expressed as decimal (e.g., .04 = +/- 4 percentage points) (16)

SS=(3.8416×0.5×0.5)/0.0016 = 600 ≈ 900

To take care of non-response, increase representativeness and ensure data quality, 50% of the calculated sample was added to the calculated sample size to increase the sample size to 900 respondents.

**Sampling Techniques and Procedure**

A multistage sampling technique was adopted for the study. Stage 1 involved the intentional choice of six from the eighteen higher education institutions in Lagos State. The six selected tertiary institutions were chosen intentionally due to their strong establishment and diverse nutrition-related departments, which allows for the implementation of programs to inform students about the advantages of healthy eating habits. To ensure representation across all levels of tertiary institutions in Lagos state and for comparison purposes, a Federal University, a State University, a Federal Polytechnic, a State Polytechnic, a Federal College of Education, and a State College of Education were intentionally chosen for the research.

Stage 2 was the random selection of 50% of the faculty members in the federal and state universities. Fifty percent of Schools were randomly selected from Federal Polytechnic, State Polytechnic, and the two Colleges of Education.

Stage 3 was the selection of the departments to be studied. Fifty percent of the departments in the randomly selected Faculties and Schools of the Universities, Polytechnics, and Colleges of Education were randomly selected.

The teenage students chosen from various departments were classified according to their levels. Students in the two hundred and three hundred levels from all selected departments at Universities and Colleges of Education, together with Ordinary National Diploma two and Higher National Diploma one students from the chosen departments in the Polytechnics under examination, were intentionally selected. The decision was taken as first-year students from all Tertiary Institutions were beginners and had not established their eating practices, and because the College of Education did not have fourth-year students, the inclusion of second and third-year students aided in reducing bias and ensuring consistency. A comprehensive list of every student in the selected levels across all the Tertiary Institutions reviewed was compiled, and all students over nineteen years were removed. The resulting list of adolescents from the identified levels of the randomly selected departments was employed to methodically select three hundred seventy-seven students from the designated departments of the two selected Universities, two hundred eighty-eight students from the chosen departments of the two selected Polytechnics, and two hundred one students from the departments of the two chosen Colleges of Education using a random starting point and a consistent periodic interval, yielding a total of 866 respondents for this study.

**Tools and Methods of Data Collection**

A structured Eating Attitude Test (EAT) questionnaire (17) was modified to suit Nigeria's contest. The questionnaire, which had basically three sections, was used for data collection. The first section collected information on the socio-demographic characteristics of the respondent, e.g. student school type, age, how they live, habits of drinking alcohol, habits of cigarette consumption, allowance, type of extracurricular activities, e.g. does the student participates in any sporting activity and does the student have any known ailment. The second section collected information about the respondents' family background such as parental occupation, educational status, and any history of psychological disorder or mental illness in the family. The third section contains a modified Eating Attitude Test-26, which is one of the scales often used in screening for those who are at risk of eating disorders (17).

Scores vary from 0 to 78, with individuals scoring 20 or more deemed at high risk for developing an eating disorder. The seriousness of the condition escalated as the scores rose. Those who achieved scores of 20 or higher were classified as being at high risk for eating disorders and were subsequently assessed using another tool called Eating Disorder Inventory-3 (EDI-3). The EDI-3 instrument evaluates the existence of eating disorders including Anorexia Nervosa (both Restricting and Binge-eating/purging types), Bulimia Nervosa, and eating disorders not elsewhere classified. The EDI-3 instrument comprises 91 items (questions) categorized into twelve subscales. Three (3) scales

focused on eating disorders included: drive for thinness, body dissatisfaction, and bulimia (key indicators of eating disorder psychopathology that make up the eating disorder risk composite), while nine (9) subscales were broader psychological measures that, although not specific, were pertinent to eating disorders. These consist of diminished self-worth, social detachment, relational insecurity, social estrangement, interoceptive insufficiency, emotional dysregulation, perfectionist tendencies, ascetic behaviors, and fear of maturity.

**Questionnaire Validation**

Standardized and approved questionnaires underwent face and content validity assessment by engaging professionals in Nutrition and Dietetics. Ambiguous items were adjusted appropriately prior to conducting the pilot survey.

**Reliability Test**

The test-retest approach was utilized to evaluate the reliability of the test instruments. The pre-test involved choosing (25) participants who were outside the scope of the main study. This was performed every two weeks, and the overall score for each period was calculated utilizing Pearson Product Correlation (PPMC). A reliability coefficient of at least 0.75 was deemed reliable.

**Data Analysis**

Descriptive (frequency count, percentage, and mean) and inferential statistics (Chi square and Pearson Product Moment Correlation) were used to present and analyze the data for likely association and relationship between variables in order to describe the problem or identify possible explanations. Significance was set at $p < 0.05$.

**Ethical Approval**

Ethical approval for this research was obtained from the Lagos State Ministry of Education (SAE/HED/S.35/VOL.V/31)

Permission to conduct the study was obtained from the various tertiary institutions and departments involved. Consent was obtained from the students themselves. Participants were assured of the confidentiality of their responses and were requested to provide informed verbal consent. They were assured of anonymity in the research report. The participants were informed that their involvement in the study was voluntary and that they were free to withdraw at any stage of the interviews if they were not comfortable. The students, who were found to have an eating disorder, were informed about the risk of this situation and counseled on how to manage the condition.

## RESULTS

**Demographic characteristics of respondents**

Table 1 presents the demographic features of the participants. Over half (63.7%) of the participants were women, and 49.5% had households consisting of 3 to 5 individuals. Additionally, 62.9% identified as Yoruba, 27.3% as Igbo, and merely 3.9% as Hausa. The largest group (77.3%) identified as Christians, whereas 21.8% were Muslims, and 0.9% practiced traditional religions. The table also indicates that 63.7% of the participants resided off campus, 30.1% lived on campus, and merely 4.7% were transitional students. Additionally, approximately 43.5% of the participants were university students, 33% were sourced from polytechnic institutions, and 23.2% came from colleges of education. The monthly stipends revealed by the respondent indicate that 45.4% earned ₦5000-₦9999, while a portion (10%) received ₦25000 each month. Furthermore, fewer than half of the participants (44.6%) attended the cinema; a small portion (18.1%) frequented clubs/parties; a tiny fraction (1%) drank alcohol, while only (0.8%) used cigarettes in some capacity.

**Diagnostic groups by eating disorders risk composite**

Table 2 presents the results from the diagnostic categories based on eating disorder risk composite; a portion (34.3%) of the participants exhibited a low clinical range eating disorder risk composite score for anorexia nervosa restricting type, while fewer than half (40.5%) displayed a typical clinical range score, and approximately a quarter (25.2%) had an elevated clinical range score. Additionally, 60.7% of the participants exhibited a low clinical range eating disorder risk composite score for the binge/purging subtype of anorexia nervosa; a portion (38.8%) of the participants had a typical clinical range score, while merely one participant had (0.4%) an elevated clinical range score. The table additionally reveals that the majority (98.3%) of respondents had a low clinical ranged eating disorder risk composite score for bulimia nervosa, whereas only 1.7% had a typical clinical ranged score, and no respondents had an elevated clinical ranged score. Most respondents (87.6%) exhibited a low clinical risk composite score for eating disorders not otherwise specified (EDNOS); a small percentage (12.1%) had a typical clinical ranged score, while just one respondent (0.4%) had an elevated clinical ranged score.

**Association between gender and eating disorder types**

Table 3 shows the relationship between gender and eating disorder types. There was no statistically significant association ($P<0.05$) between the gender and anorexia nervosa-R, anorexia nervosa-BP, bulimia nervosa, EDNOS and General

Psychological Maladjustment composite (GPMC) of the respondents. Association between anorexia nervosa-restrictive type and demographic characteristics of the respondents The result in Table 4 shows the association between anorexia nervosa-restrictive type and socio-economic characteristics of the respondents. A statistically significant association (P<0.05) was not observed between anorexia nervosa-restricting subtypes with socio-economic/demographic characteristics of the respondents, such as sex, religion, ethnicity, monthly income, residence, and lifestyle. Association between anorexia nervosa-b/p and socio-demographic/ economic characteristics of the respondents. The result in Table 5 reveals the association between anorexia nervosa-b/p and the demographic characteristics of the respondents. No statistically significant association (P>0.05) was observed between Anorexia nervosa-restricting subtypes with sex, ethnicity, residence, religion, monthly allowance and lifestyle.

**Association between bulimia nervosa and demographic characteristics of the respondents**

The result in Table 6 reveals the association between bulimia nervosa and the socio-economic/demographic characteristics of the respondents. There was no significant association (P>0.05) between Bulimia Nervosa the socio-demographic/ economic characteristics of the respondents such as sex, ethnicity, religion, residence, monthly allowance and lifestyle.

**Association between other eating disorders and demographic characteristics of the respondents**

Table 7 shows the association between other eating disorders and the socio-demographic/economic characteristics of the respondents. The table revealed that there was no significant association (P>0.05) between eating disorders not otherwise Specified (EDNOS) and socio-demographic/ economic variables such as sex, ethnicity, religion, residence, monthly allowance and lifestyle of the respondents.

**Association between general psychological maladjustment composite and socio-demographic/ economic characteristics of the respondents**

Table 8 describes the association between the general psychological maladjustment composite and the socio-demographic/ economic characteristics of the respondents. There was no significant association (P>0.05) between the General Psychological Maladjustment Composite (GPMC) and socio-demographic/ economic variables such as sex, ethnicity and religion, residence, monthly allowance and lifestyle of the respondents.

## DISCUSSION

The majority of participants identified as Yoruba, likely due to the study being conducted in Lagos, a southwestern state where Yoruba predominates. The research also indicated that over fifty percent of the participants were women, likely due to many male students not consenting to participate and some hesitating to share details about their dietary practices, as noted in a comparable study conducted in the United States that identified respondents' reluctance to provide information regarding their eating behaviors (18).

The monthly allowance logs of the participants indicated that a significant number were surviving on under five hundred naira (₦500.00) daily. This could be due to numerous parents being civil servants with family sizes varying from 3 to 5, indicating many individuals to support with limited income. This finding concurs with the statement from the African Development Bank (19) that almost 152 million (80%) Nigerians are surviving on less than two dollars daily, which is below the poverty threshold. The findings indicated that over one-fifth of the participants were at risk for an eating disorder (E.D.), with a majority being females. This is consistent with prior research indicating a significant risk of eating disorders among students in higher education (20, 21, 22). A different study conducted in Germany supports this, indicating that females faced a higher risk of E.D.s (23). This may be because females engage in bulimia behaviors to preserve their figure, as noted by (24), whose research indicated a similar pattern. Additionally, other eating disorder risks like binge eating and bulimia (including laxative use, induced vomiting, and excessive exercise) were noted among the participants. This aligns with additional research indicating that dieting for weight loss, binge eating, self-induced vomiting, excessive exercising, and laxative usage may not be considered illnesses but can develop into severe eating disorders (18, 25, 26, 23).

Additional results uncovered the clinical qualitative ranges of the diagnostic categories based on the eating disorder risk composite. It was noted that more than half of the participants at risk for E.D.s had anorexia nervosa (AN). This supports previous research indicating that the onset of AN starts in adolescence (27, 28, 29). This elevated occurrence indicates major issues with eating and weight worries, including anxiety over weight gain, a wish to appear slimmer, and dissatisfaction with body image, suggesting that the participants fulfilled the diagnostic standards for Anorexia nervosa. A significant occurrence of Anorexia nervosa in both elevated and typical ranges is often observed in samples of clinically diagnosed

eating disorders, as demonstrated in previous research (30, 31). Consequently, the score range in this research is concerning and necessitates public health focus, given that the study was conducted in non-clinical environments. Similarly, a high clinical range eating disorder risk composite (EDRC) score for AN-restrictive subtypes; AN-binge/purging subtypes, bulimia, and eating disorder not otherwise specified (EDNOS) diagnostic group signifies a severe or significant issue with eating and weight issues, including fear of gaining weight, wish to be thinner, and dissatisfaction with body image (32). The score range in this research is alarming and can significantly harm the health of participants because they were sourced from non-clinical environments.

A high clinical range eating disorder risk composite score (EDRC) for the AN-B/P subtype diagnostic category signifies a severe issue with eating and weight concerns, which include fear of gaining weight, a wish to be slimmer, episodes of binge eating, laxative use, and dissatisfaction with body image. This is due to the possibility that Anorexia Nervosa may have originated from poor eating behaviors; thus, comprehending the processes influencing the factors that lead to the formation and persistence of unhealthy eating behaviors might enhance the efficacy of anorexia nervosa treatment (33, 27). The link between AN and excessive exercise in this study is consistent with similar research that noted high levels of intense physical activity among the examined populations (34, 25). Such extreme behavior reflects low self-worth and inadequate mental health in adolescents (35, 36), highlighting public health issues within the Nigerian youth demographic.

This study revealed that nearly all participants exhibited low clinical range composite scores for bulimia nervosa risk related to eating disorders. This implies that these individuals did not experience major issues with consuming large quantities of food in secret due to emotional distress, utilizing laxatives, self-induced vomiting, and excessive exercise when compared to other patients with clinical eating disorders. This aligns with the prior finding of the EAT 26-item score, which indicated that the majority of participants did not engage in bulimic behaviors (37). However, a low clinical range EDRC score could indicate unusual eating disorders, and eating issues are not the motivating factor. It may also represent a rejection of the present clinical condition or response bias, which might not accurately portray the psychological state of the participants due to distorted answers and the unreliability of self-reported information (38). In any event, the lack of a high clinical range for bulimia nervosa was also confirmed.

Results from this research indicated no significant correlation between gender and types of eating disorders, nor with other recognized socio-demographic and economic factors of the participants. Previous research indicated that eating disorders were present in both males and females (20, 39). Nonetheless, the research conducted by (40) revealed that being female was a predictor of eating disorders alongside financial status.

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## TABLES AND FIGURE

**Table 1: Socio-demographic characteristics of the respondents (n=866)**

| Variables | Frequency | Percentage |
|---|---|---|
| Sex | | |
| Males | 314 | 36.3 |
| Females | 552 | 63.7 |
| Household size | | |
| 1-2 | 33 | 3.8 |
| 3-5 | 429 | 49.5 |
| 6-7 | 245 | 28.3 |
| 8-9 | 78 | 9 |
| No response | 81 | 9.4 |
| Ethnicity | | |
| Hausa | 34 | 3.9 |
| Igbo | 236 | 27.3 |
| Yoruba | 545 | 62.9 |
| Others | 51 | 3.3 |
| Religion | | |
| Christianity | 669 | 77.3 |
| Islam | 189 | 21.8 |
| Traditional religion | 8 | 0.9 |
| Residence | | |
| On campus | 261 | 30.1 |
| Off campus | 552 | 63.7 |
| Transitional | 41 | 4.7 |
| no response | 12 | 1.4 |
| Monthly Allowance | | |
| ₦5,000-₦9,999 | 307 | 35.4 |
| ₦10,000-₦14,999 | 199 | 23 |
| ₦15,000-₦19,999 | 116 | 13.4 |
| ₦20,000-₦24,999 | 33 | 3.8 |
| ≥₦25,000 | 87 | 10 |
| No Response | 124 | 14.3 |
| Lifestyle | | |
| I club/Party | 157 | 18.1 |
| I go to cinemas | 386 | 44.6 |
| I consume alcohol | 9 | 1 |
| I take any form of cigarettes | 7 | 0.8 |
| No Response | 307 | 35.5 |
| Type of Institution | | |
| College of Education | 201 | 23.2 |
| Polytechnic | 288 | 33.3 |
| University | 377 | 43.5 |

**Table 2: The clinical qualitative ranges of diagnostic groups by eating disorder risk composite (n=242)**

| Diagnostic groups | Range | N | % |
|---|---|---|---|
| (AN-R) | Low Clinical | 83 | 34.3 |
| | Typical Clinical | 98 | 40.5 |
| | Elevated Clinical | 61 | 25.2 |
| (AN-B/P) | Low Clinical | 147 | 60.7 |
| | Typical Clinical | 94 | 38.8 |
| | Elevated Clinical | 1 | 0.4 |
| Bulimia nervosa | Low Clinical | 238 | 98.3 |
| | Typical Clinical | 4 | 1.7 |
| | Elevated Clinical | 0 | 0 |
| EDNOS | Low Clinical | 212 | 87.6 |
| | Typical Clinical | 29 | 12.0 |
| | Elevated Clinical | 1 | 0.4 |

**Table 3: Association between gender and eating disorder types among the respondents**

| | Gender | | | | | | $\chi^2$ | |
|---|---|---|---|---|---|---|---|---|
| | Male | | Female | | Total | | | |
| Variables | F | % | F | % | F | % | | P-value |
| Anorexia Nervosa- R | | | | | | | | |
| Low | 26 | 31.0 | 57 | 36.1 | 83 | 34.3 | | |
| Typical | 38 | 45.2 | 60 | 38.0 | 98 | 40.5 | 1.234 | 0.540 |
| Elevated | 20 | 23.8 | 41 | 25.9 | 61 | 25.2 | | |
| Total | 84 | 100.0 | 158 | 100.0 | 242 | 100.0 | | |
| Anorexia Nervosa B.P. | | | | | | | | |
| Low | 53 | 63.1 | 94 | 59.5 | 147 | 60.7 | | |
| Typical | 30 | 35.7 | 64 | 40.5 | 94 | 38.8 | 2.322 | 0.313 |
| Elevated | 1 | 1.2 | 0 | 0.0 | 1 | 0.4 | | |
| Total | 84 | 100.0 | 158 | 100.0 | 242 | 100.0 | | |
| Bulimia Nervosa | | | | | | | | |
| Low | 81 | 98.4 | 157 | 99.4 | 238 | 98.3 | | |
| Typical | 3 | 3.6 | 1 | 0.6 | 4 | 1.7 | 2.913 | 0.088 |
| Elevated | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| Total | 84 | 100.0 | 158 | 100.0 | 242 | 100.0 | | |
| *EDNOS | | | | | | | | |
| Low | 73 | 86.9 | 139 | 88.0 | 212 | 87.6 | | |
| Typical | 10 | 11.9 | 19 | 12.0 | 29 | 12.0 | 1.889 | 0.389 |
| Elevated | 1 | 1.2 | 0 | 0.0 | 1 | 0.4 | | |
| Total | 84 | 100.0 | 158 | 100.0 | 242 | 100.0 | | |
| **GPMC | | | | | | | | |
| Low | 8 | 9.5 | 13 | 8.2 | 21 | 8.7 | | |
| Typical | 64 | 76.2 | 124 | 78.5 | 188 | 77.7 | 0.183 | 0.913 |
| Elevated | 12 | 14.3 | 21 | 13.3 | 33 | 13.6 | | |
| Total | 84 | 100.0 | 158 | 100.0 | 242 | 100.0 | | |

*** Eating Disorders Not Otherwise Specified, **General Psychological Maladjustment Composite**

Table 4: Association between Anorexia Nervosa-Restrictive subtype and Socio-economic/Demographic Characteristics of the Respondents

| | Anorexia Nervosa- Restrictive Type | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Clinical Range | | Typical Clinical Range | | Elevated Clinical Range | | Total | | $\chi^2$ | |
| Variables | N | % | N | % | N | % | N | % | | P-value |
| Sex | | | | | | | | | | |
| Male | 26 | 31.0 | 38 | 45.2 | 20 | 23.8 | 84 | 100.0 | | |
| Female | 57 | 36.1 | 60 | 38.0 | 41 | 25.9 | 158 | 100.0 | 1.234 | 0.540 |
| Total | 83 | 34.3 | 98 | 40.5 | 61 | 25.2 | 242 | 100.0 | | |
| Ethnicity | | | | | | | | | | |
| Hausa | 3 | 21.4 | 9 | 64.3 | 2 | 14.3 | 14 | 100.0 | | |
| Igbo | 20 | 35.1 | 16 | 28.1 | 21 | 36.8 | 57 | 100.0 | 19.529 | 0.360 |
| Yoruba | 54 | 34.2 | 67 | 42.4 | 37 | 23.4 | 158 | 100.0 | | |
| Religion | | | | | | | | | | |
| Christianity | 62 | 36.0 | 64 | 37.2 | 47 | 27.3 | 173 | 100.0 | | |
| Islam | 20 | 30.8 | 32 | 49.2 | 13 | 20.0 | 65 | 100.0 | 6.311 | 0.612 |
| Traditional | 1 | 33.3 | 2 | 50 | 1 | 25.0 | 4 | 100.0 | | |
| Total | 83 | 34.3 | 98 | 40.5 | 61 | 25.2 | 242 | 100.0 | | |
| Residence | | | | | | | | | | |
| On Campus | 32 | 35.2 | 38 | 41.8 | 21 | 23.1 | 91 | 100.0 | | |
| Off Campus | 48 | 33.6 | 56 | 39.2 | 39 | 27.3 | 143 | 100.0 | 1.859 | 0.932 |
| Transitional | 3 | 37.5 | 4 | 1.6 | 1 | 12.5 | 8 | 100.0 | | |
| Total | 83 | 34.3 | 98 | 40.5 | 61 | 25.2 | 242 | 100.0 | | |
| Monthly Allowance | | | | | | | | | | |
| ₦5,000-₦9,999 | 29 | 35.4 | 32 | 39.0 | 21 | 25.6 | 82 | 100.0 | | |
| ₦10,000-₦14,999 | 19 | 33.9 | 20 | 35.7 | 17 | 30.4 | 56 | 100.0 | | |
| ₦15,000-₦19,999 | 9 | 29.0 | 14 | 45.2 | 8 | 25.8 | 31 | 100.0 | 11.28 | 0.186 |
| ₦20,000-₦24,999 | 4 | 28.6 | 2 | 14.3 | 8 | 57.1 | 14 | 100.0 | | |
| ≥ ₦25,000 | 8 | 29.6 | 15 | 55.6 | 4 | 14.8 | 27 | 100.0 | | |
| Total | 69 | 32.9 | 83 | 39.5 | 58 | 27.6 | 210 | 100.0 | | |
| Lifestyle | | | | | | | | | | |
| Club/Partying | 18 | 30.0 | 28 | 46.7 | 14 | 23.0 | 60 | 100.0 | | |
| Cinema | 37 | 33.0 | 46 | 41.1 | 29 | 47.5 | 112 | 100.0 | | |
| Alcoholism | 0 | 0.0 | 2 | 100 | 0 | 0.0 | 2 | 100.0 | 9.027 | 0.340 |
| Cigarette Smoking | 0 | 0.0 | 0 | 0.0 | 1 | 1.6 | 1 | 100.0 | | |
| No Response | 28 | 41.8 | 22 | 32.8 | 17 | 25.4 | 67 | 100.0 | | |
| Total | 83 | 34.3 | 98 | 40.5 | 61 | 25.2 | 242 | 100.0 | | |

**Low clinical range (1-24 percentile), Typical Clinical range (25-66 percentiles), Elevated clinical range (67 and above).**

Table 5: Association between anorexia nervosa-Binge/Purging and demographic characteristics of the respondents

| | Anorexia Nervosa -Binge/Purging | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Clinical Range | | Typical Clinical Range | | Elevated Clinical Range | | Total | | $\chi^2$ | |

| Variables | N | % | N | % | N | % | N | % | | P-value |
|---|---|---|---|---|---|---|---|---|---|---|
| Sex | | | | | | | | | | |
| Male | 53 | 63.1 | 30 | 35.7 | 1 | 1.2 | 84 | 100.0 | | |
| Female | 94 | 59.5 | 64 | 40.5 | 0 | 0.0 | 158 | 100.0 | 2.322 | 0.313 |
| Total | 147 | 60.7 | 94 | 38.8 | 1 | 0.4 | 242 | 100.0 | | |
| Ethnicity | | | | | | | | | | |
| Hausa | 5 | 35.7 | 9 | 64.3 | 0 | 0.0 | 14 | 100.0 | | |
| Igbo | 33 | 57.9 | 23 | 40.4 | 1 | 1.8 | 57 | 100.0 | 11.216 | 0.885 |
| Yoruba | 99 | 62.7 | 59 | 37.3 | 0 | 0.0 | 158 | 100.0 | | |
| Religion | | | | | | | | | | |
| Christianity | 102 | 59.0 | 70 | 40.5 | 1 | 0.6 | 173 | 100.0 | | |
| Islam | 43 | 66.2 | 22 | 33.8 | 0 | 0.0 | 65 | 100.0 | 4.450 | 0.814 |
| Traditional | 2 | 50.0 | 2 | 50.0 | 0 | 0.0 | 4 | 100.0 | | |
| Total | 147 | 60.7 | 94 | 38.8 | 1 | 0.0 | 242 | 100.0 | | |
| Residence | | | | | | | | | | |
| On Campus | 59 | 64.8 | 31 | 34.8 | 1 | 0.0 | 91 | 100.0 | | |
| Off Campus | 83 | 58.0 | 60 | 42.0 | 0 | 100 | 143 | 100.0 | 4.069 | 0.667 |
| Transitional | 5 | 62.5 | 3 | 37.5 | 0 | 0.0 | 8 | 100.0 | | |
| Total | 147 | 60.7 | 94 | 38.8 | 1 | 100 | 242 | 100.0 | | |
| Monthly Allowance | | | | | | | | | | |
| ₦5,000-₦9,999 | 50 | 61.0 | 32 | 39.0 | 0 | 0.0 | 82 | 100.0 | | |
| ₦10,000-₦14,999 | 33 | 58.9 | 23 | 41.1 | 0 | 0.0 | 56 | 100.0 | | |
| ₦15,000-₦19,999 | 18 | 58.1 | 12 | 38.7 | 1 | 3.2 | 31 | 100.0 | 7.912 | 0.442 |
| ₦20,000-₦24,999 | 6 | 42.9 | 8 | 57.1 | 0 | 0.0 | 14 | 100.0 | | |
| ≥ ₦25,000 | 14 | 51.9 | 13 | 48.1 | 0 | 0.0 | 27 | 100.0 | | |
| Total | 121 | 57.6 | 88 | 41.9 | 1 | 0.5 | 210 | 100.0 | | |
| Lifestyle | | | | | | | | | | |
| Club/Partying | 35 | 58.3 | 25 | 41.7 | 0 | 0.0 | 60 | 100.0 | | |
| I go to Cinema | 68 | 60.7 | 44 | 39.3 | 0 | 0.0 | 112 | 100.0 | | |
| Alcoholism | 1 | 50.0 | 1 | 50.0 | 0 | 0.0 | 2 | 100.0 | 4.952 | 0.763 |
| Cigarette Smoking | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100.0 | | |
| No Response | 43 | 64.2 | 23 | 34.3 | 1 | 1.5 | 67 | 100.0 | | |
| Total | 147 | 60.7 | 94 | 38.8 | 1 | 0.4 | 242 | 100.0 | | |

Low clinical range (1-24percentile), Typical Clinical range (25-66 percentiles), Elevated clinical (67 and above)

Table 6: Association between bulimia nervosa and socio-demographic and economic characteristics of the respondents

| | Bulimia Nervosa | | | | | | Total | | $\chi^2$ | P-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Range | Clinical | Typical Clinical Range | | Elevated Clinical Range | | | | | |
| Demographics | N | % | N | % | N | % | N | % | | |
| Sex | | | | | | | | | | |
| Male | 81 | 98.4 | 3 | 3.6 | 0 | 0.0 | 84 | 100.0 | | |
| Female | 157 | 99.4 | 1 | 0.6 | 0 | 0.0 | 158 | 100.0 | 2.913 | 0.088 |
| Total | 238 | 98.3 | 4 | 1.7 | 0 | 0.0 | 242 | 100.0 | | |
| Ethnicity | | | | | | | | | | |
| Hausa | 14 | 100.0 | 0 | 0.0 | 0 | 0.0 | 14 | 100.0 | | |
| Igbo | 56 | 98.2 | 1 | 1.8 | 0 | 0.0 | 57 | 100.0 | 0.516 | 1.000 |
| Yoruba | 155 | 98.1 | 3 | 1.9 | 0 | 0.0 | 158 | 100.0 | | |
| Religion | | | | | | | | | | |
| Christianity | 170 | 98.8 | 3 | 1.7 | 0 | 0.0 | 173 | 100.0 | | |
| Islam | 64 | 98.5 | 1 | 1.5 | 0 | 0.0 | 65 | 100.0 | 0.098 | 0.999 |
| Traditional | 4 | 100.0 | 0 | 0.0 | 0 | 0.0 | 4 | 100.0 | | |
| Total | 238 | 98.3 | 4 | 1.7 | 0 | 0.0 | 242 | 100.0 | | |
| Residence | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| On Campus | 89 | 97.8 | 2 | 2.2 | 0 | 0.0 | 91 | 100.0 | | |
| Off Campus | 141 | 98.6 | 2 | 1.4 | 0 | 0.0 | 143 | 100.0 | 0.418 | 0.936 |
| Transitional | 8 | 100.0 | 0 | 0.0 | 0 | 0.0 | 8 | 100.0 | | |
| Total | 238 | 98.3 | 4 | 1.7 | 0 | 0.0 | 242 | 100.0 | | |
| Monthly Allowance | | | | | | | | | | |
| ₦5,000-₦9,999 | 80 | 97.6 | 2 | 2.4 | 0 | 0.0 | 82 | 100.0 | | |
| ₦10,000-₦14,999 | 56 | 100.0 | 0 | 0.0 | 0 | 0.0 | 56 | 100.0 | | |
| ₦15,000-₦19,999 | 29 | 93.5 | 2 | 6.5 | 0 | 0.0 | 31 | 100.0 | | |
| ₦20,000-₦24,999 | 14 | 100.0 | 0 | 0.0 | 0 | 0.0 | 14 | 100.0 | 5.439 | 0.245 |
| ≥₦25,000 | 27 | 100.0 | 0 | 0.0 | 0 | 0.0 | 27 | 100.0 | | |
| Total | 206 | 98.1 | 4 | 1.9 | 0 | 0.0 | 210 | 100.0 | | |
| Lifestyle | | | | | | | | | | |
| Club/Partying | 60 | 100.0 | 0 | 0.0 | 0 | 0.0 | 60 | 100.0 | | |
| I go to Cinema | 110 | 98.2 | 2 | 1.8 | 0 | 0.0 | 112 | 100.0 | | |
| Alcoholism | 2 | 100.0 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 | 1.802 | 0.772 |
| Cigarette Smoking | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | | |
| No Response | 65 | 97.0 | 2 | 3.0 | 0 | 0.0 | 67 | 100.0 | | |
| Total | 238 | 98.3 | 4 | 1.7 | 0 | 0.0 | 242 | 100.0 | | |

Low clinical range (1-24percentile), Typical Clinical range (25-66 percentiles), Elevated clinical (67 and above)

Table 7: Association between other eating disorders and socio demographic/ economic characteristics of the respondents

| | Eating Disorders Not otherwise specified | | | | | | | | $\chi^2$ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Clinical Range | | Typical Clinical Rang | | Elevated Clinical Range | | Total | | | |
| Variables | N | % | N | % | N | % | N | % | | P-value |
| Sex | | | | | | | | | | |
| Male | 73 | 86.9 | 10 | 11.9 | 1 | 1.2 | 84 | 100.0 | | |
| Female | 139 | 88.0 | 19 | 12.0 | 0 | 0.0 | 158 | 100.0 | 1.889 | 0.389 |
| Total | 212 | 87.6 | 29 | 12.0 | 1 | 0.4 | 242 | 100.0 | | |
| Ethnicity | | | | | | | | | | |
| Hausa | 14 | 100 | 0 | 0.0 | 0 | 0.0 | 14 | 100.0 | | |
| Igbo | 47 | 82.5 | 9 | 15.8 | 1 | 1.8 | 57 | 100.0 | 8.735 | 0.966 |
| Yoruba | 140 | 88.6 | 18 | 11.4 | 0 | 0.0 | 158 | 100.0 | | |
| Religion | | | | | | | | | | |
| Christianity | 150 | 86.7 | 22 | 12.7 | 1 | 0.6 | 173 | 100.0 | | |
| Islam | 58 | 89.2 | 7 | 10.8 | 0 | 0.0 | 65 | 100.0 | 1.306 | 0.995 |
| Traditional | 4 | 100 | 0 | 0.0 | 0 | 0.0 | 4 | 100.0 | | |
| Total | 212 | 87.6 | 29 | 12.0 | 1 | 0.4 | 242 | 100.0 | | |
| Residence | | | | | | | | | | |
| On Campus | 77 | 84.6 | 13 | 14.3 | 1 | 1.1 | 91 | 100.0 | | |
| Off Campus | 129 | 90.2 | 14 | 9.8 | 0 | 0.0 | 143 | 100.0 | 4.579 | 0.599 |
| Transitional | 6 | 75.0 | 2 | 25.0 | 0 | 0.0 | 8 | 100.0 | | |
| Total | 212 | 87.6 | 29 | 12.0 | 1 | 0.4 | 242 | 100.0 | | |
| Monthly Allowance | | | | | | | | | | |
| ₦5,000-₦9,999 | 73 | 89.0 | 9 | 11.0 | 0 | 0.0 | 82 | 100.0 | | |
| ₦10,000-₦14,999 | 49 | 87.5 | 7 | 12.5 | 0 | 0.0 | 56 | 100.0 | | |
| ₦15,000-₦19,999 | 24 | 77.4 | 6 | 19.4 | 1 | 3.2 | 31 | 100.0 | 9.025 | 0.340 |
| ₦20,000-₦24,999 | 11 | 78.6 | 3 | 21.4 | 0 | 0.0 | 14 | 100.0 | | |
| ≥₦25,000 | 25 | 92.6 | 2 | 7.4 | 0 | 0.0 | 27 | 100.0 | | |
| Total | 182 | 86.7 | 27 | 12.9 | 1 | 0.5 | 210 | 100.0 | | |
| Lifestyle | | | | | | | | | | |
| Club/Partying | 50 | 83.3 | 10 | 16.7 | 0 | 0.0 | 67 | 100.0 | | |
| I go to Cinema | 103 | 92.0 | 9 | 8.0 | 0 | 0.0 | 60 | 100.0 | | |
| Alcoholism | 2 | 100 | 0 | 0.0 | 0 | 0.0 | 112 | 100.0 | 6.554 | 0.585 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cigarette Smoking | 1 | 100 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 |
| No Response | 56 | 83.6 | 10 | 14.9 | 1 | 1.5 | 1 | 100.0 |
| Total | 212 | 87.6 | 29 | 12.0 | 1 | 0.4 | 242 | 100.0 |

Low clinical range (1-24percentile), Typical clinical range (25-66 percentiles), Elevated clinical (67 and above)
Statistically significant P-value = 0.05

Table 8: Association between general psychological maladjustment composite and socio-demographic/ economic characteristics of the respondents

| | General Psychological Maladjustment Composite | | | | | | | | $\chi^2$ | P-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Clinical Range | | Typical Clinical Range | | Elevated Clinical Range | | Total | | | |
| Variables | N | % | N | % | N | % | N | % | | |
| Sex | | | | | | | | | | |
| Male | 8 | 9.5 | 64 | 76.2 | 12 | 14.3 | 84 | 100.0 | | |
| Female | 13 | 8.2 | 124 | 78.5 | 21 | 13.3 | 158 | 100.0 | 0.183 | 0.913 |
| Total | 21 | 8.7 | 188 | 77.7 | 33 | 13.6 | 242 | 100.0 | | |
| Ethnicity | | | | | | | | | | |
| Hausa | 0 | 0.0 | 11 | 78.6 | 3 | 21.4 | 14 | 100.0 | | |
| Igbo | 4 | 7.0 | 44 | 77.2 | 9 | 15.8 | 57 | 100.0 | 14.70 | 0.682 |
| Yoruba | 15 | 9.5 | 123 | 77.8 | 20 | 12.7 | 158 | 100.0 | | |
| Religion | | | | | | | | | | |
| Christianity | 17 | 9.8 | 134 | 77.5 | 22 | 12.7 | 173 | 100.0 | | |
| Islam | 4 | 6.2 | 50 | 76.9 | 11 | 16.9 | 65 | 100.0 | | |
| Traditional | 0 | 0.0 | 4 | 100 | 0 | 0.0 | 4 | 100.0 | 2.814 | 0.945 |
| Total | 21 | 8.7 | 188 | 77.7 | 33 | 13.6 | 242 | 100.0 | | |
| Residence | | | | | | | | | | |
| On Campus | 7 | 7.7 | 72 | 79.1 | 12 | 13.2 | 91 | 100.0 | | |
| Off Campus | 13 | 9.1 | 109 | 76.2 | 21 | 100 | 143 | 100.0 | | |
| Transitional | 1 | 12.5 | 7 | 87.5 | 0 | 0.0 | 8 | 100.0 | 2.162 | 0.904 |
| Total | 21 | 8.7 | 188 | 77.7 | 33 | 13.6 | 242 | 100.0 | | |
| Monthly Allowance | | | | | | | | | | |
| ₦5,000-₦9,999 | 5 | 6.1 | 68 | 82.9 | 9 | 11.0 | 82 | 100.0 | | |
| ₦10,000-₦14,999 | 7 | 12.5 | 41 | 73.2 | 8 | 14.3 | 56 | 100.0 | | |
| ₦15,000-₦19,999 | 1 | 3.2 | 21 | 67.7 | 9 | 29.0 | 31 | 100.0 | 12.834 | 0.118 |
| ₦20,000-₦24,999 | 0 | 0.0 | 10 | 71.4 | 4 | 28.6 | 14 | 100.0 | | |
| ≥₦25,000 | 3 | 11.1 | 22 | 81.5 | 2 | 7.4 | 27 | 100.0 | | |
| Total | 16 | 7.6 | 162 | 77.1 | 32 | 15.2 | 210 | 100.0 | | |
| Lifestyle | | | | | | | | | | |
| Club/Partying | 5 | 8.3 | 44 | 73.3 | 11 | 16.4 | 60 | 100.0 | | |
| I go to Cinema | 11 | 9.8 | 90 | 80.4 | 11 | 18.3 | 112 | 100.0 | | |
| Alcoholism | 0 | 0.0 | 2 | 100 | 0 | 0.0 | 2 | 100.0 | 3.969 | 0.860 |
| Cigarette Smoking | 0 | 0.0 | 1 | 100 | 0 | 0.0 | 1 | 100.0 | | |
| No Response | 5 | 7.5 | 51 | 76.1 | 11 | 16.4 | 67 | 100.0 | | |

**Low clinical range (1-24percentile), Typical clinical range (25-66 percentiles), Elevated clinical (67 andabove)**