

A Cross-sectional Study on Eating Disorders among Female Undergraduates in a Nigerian University: Implications for Online Nutritional Interventions

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Abstract

Eating disorder is a serious public health issue linked to diabetes. Research suggests a high rate of co-morbidity of eating disorders and diabetes with resultant rise in morbidity linked to poor glycemic control as a key causative factor for individuals with this co-occurrence. This study aimed at investigation of issues concerning eating disorders among female undergraduates in a Nigerian University. This is a cross-sectional descriptive survey study. Purposive random sampling was used to select second year female undergraduates from one of the country's oldest public university – University of Nigeria. There was a population of 4,561 second year female undergraduates officially residing in both campuses of the selected University as of the time of the study. A total of 456 female undergraduates were sampled for the study. The data collected was analyzed using mean and standard deviation to answer the research questions, and the hypotheses were tested at 0.05 level of significance using Student t-test statistics. Results show that social, financial and health problems were associated with eating disorders among the female undergraduates. The respondents agreed that some ways of enhancing healthy eating behaviors included talking it over with parents/lecturers/counselor, improving eating plan, and restoring lost weight among others. No significance differences were found in the mean ratings of the respondents on the social, financial and health problems associated with eating disorders as well as on the strategies for enhancing healthy eating behaviors. Therefore, female undergraduates should be urged to avoid skipping breakfast and stick to a regular eating schedule. The implications for online nutritional education are discussed.

Keywords: Online nutritional program, eating disorders, female undergraduates, Nigeria

INTRODUCTION

Current research have demonstrated a high rate of co-morbidity of eating disorders and diabetes with resultant rise in morbidity linked to poor glycemic control as a key causative factor for individuals with this co-occurrence. Thus, eating disorder is a serious public health issue in recent time. Eating disorders refers to abnormal eating habits which are characterized by inadequate or excessive food intakes. Duyff^[1] categorized eating disorders into three main types, namely, Anorexia nervosa, Bulimia nervosa, and Binge eating

disorder. Anorexia nervosa is characterized by eating little, refusal to eat, ignoring feeling of hunger, obsessive fear of gaining weight and unrealistic perception of current body weight.^[2] Bulimia nervosa, according to Uher and Treasure^[3] is a disorder characterized by recurrent binge eating or eating very large amount of food at a time followed by compensatory behaviors such as purging, vomiting, excessive use of laxatives or excessive exercise in an attempt to prevent weight gain. Binge eating disorder is characterized by excessive eating. In binge eating, the individual binges but does not purge or exercise, and the individual may be overweight or may be between losing and gaining weight. Every year, thousands of young people develop eating disorders.^[4] According to Winters^[5], eating disorders occur in young adults, especially females. Bailer^[6] stated that many individuals are prone to eating disorders, particularly young teenage girls. This author further contended that even though it is crucial for young teenage girls to gain additional body fat at puberty period, most of them might respond to this development in an apprehensive manner. Some of these teenage girls could also erroneously compel themselves to surmount this condition by all means possible. It is worth noting that eating disorders appears to be associated with substance use, stress, anxiety, depression, and heart conditions and may results to malnutrition problems and mortality.^[7]

Undergraduates in various Nigerian universities are not exempt from the exhibition of various eating behaviors, some of which may result in eating disorder. In fact, studies^[5, 4] have shown that most University students skip breakfast, some consume unnecessary greasy and fattening greasy based foods, sugary foods and alcohol, and some others resort to inadequate meals. Apart from keeping shape to look like models, financial problems have been acknowledged as a contributory factor to eating disorder in some female students. According to Matthew^[8], lack of money may force some female students to fast and skip meals. Arguably, eating disorders are common in Nigeria, and 1 out of every 100 students might be struggling with one. Yet, little is known about any study which aimed to assess issues surrounding eating disorder among undergraduates in Nigerian Universities. Therefore, the objective of this study was to explore certain issues associated with eating disorders, and to determine strategies for handling eating disorder among female undergraduates in a Nigerian University.

METHODS

The study adopted a cross-sectional descriptive survey design. The study was conducted at the University of Nigeria, Nsukka and Enugu campuses, Enugu State, Nigeria. The target population of the study was 4,560 second year female undergraduates officially residing in all the female hostels in both campuses of the University of Nigeria (Enugu and Nsukka). All the second year female undergraduate students officially residing in the 10 female hostels at Nsukka campus (3,060) and the 6 female hostels at Enugu campus (1501 students) composed this population. As of the time of this study, there were therefore 16 female hostels[9]. The study’s participants were 456 second year female undergraduate students from Enugu and Nsukka campuses of the University of Nigeria. Simple random sampling technique was used to select 3 out of the 10 female hostels in Nsukka campus of the University, and 2 out of 6 female hostels in Enugu campus. Based on Nworgu’s[10]criteria for sample size selection, selecting 10% of the students can be considered a representative of this population size. Thus, 10% of 3,060 gave a sample size of 306 second year female undergraduates from Nsukka campus, while 10% of 1501 produced 150 females from the Enugu campus. A total of 456 second year female undergraduates of the University of Nigeria were then purposively selected to participate in this study. The data collection was by means of Eating Behavior Questionnaire (EBQ) developed by the researchers. The EBQ is a structured questionnaire consisting of 40 items used to elicit information on problems associated with eating disorders. The EBQ also elicited information regarding ways to enhance healthy eating behaviors. The EBQ is 4-point rating scale with response options which range from “strongly disagree” to “strongly agree”. The EBQ was face validated by three public health experts. Cronbach’s alpha statistical tool was used to determine the internal consistency of this instrument and it yielded a co-efficient of 0.79 using data collected from the 456 second year female undergraduates. Copies of the questionnaire were administered to respondents by direct delivery and retrieval method. The data collected was analyzed using mean and standard deviation to answer the research questions. Item statements with mean ratings less than 2.50 were adjudged as disagreed upon by the respondents, whereas item statements with mean ratings ≥ 2.50 were considered as being agreed upon by the respondents. The hypotheses were tested at 0.05 level of significance using Student t-test statistics.

RESULTS

Table 1: Demographic Characteristics of the Respondents

Characteristic	Nsukka Campus N(%)	Enugu Campus N(%)
Age M(SD) ^a 18-24yrs	306(67.11), 21.53±3.23 ^a	150(32.89), 21.34±3.44 ^a

N=Number of respondents, %=Percentage of respondents by University campus

Table 1 shows the demographic characteristic of the female undergraduates who took part in the study. As can be seen in Table 1, the mean age of the 306 female undergraduates who took part in the study from Nsukka campus was 21.53±3.23years, while the mean age of the 150 participants from Enugu campus was 21.34±3.44years.

Table 2: Mean ratings of respondents on the Social Problems associated with Eating Disorder among Female Undergraduates of both Campuses. (N=456).

Social Problems	Mean	Std. Dev.	Decision
Feel guilty after eating especially in group.	2.03	0.51	Disagree
Feel terrified about over weight.	3.30	0.82	Agree
Suffer social alienation due to over eating.	2.23	0.56	Disagree
Like my clothes to fit tightly.	3.58	0.86	Agree
Other people think that I am too thin.	3.63	0.91	Strongly Agree
Eat secretly.	1.93	0.33	Strongly Disagree
Like eating with other people.	1.42	0.20	Strongly Disagree
Prepare food for others but do not eat the food I cook.	2.62	0.67	Agree
Becoming anxious prior to eating.	2.92	0.74	Agree
Eat faster than other people.	2.96	0.81	Agree

Std. Dev.=Standard deviation, SD=Strongly Disagree, D=Disagree, A=Agree, SA=Strongly Agree

The results of data analysis presented in Table 2 indicated that items 1 and 3, items 6 and 7 were disagreed and strongly disagreed upon respectively as social problems associated with eating disorder among female undergraduates at both campuses of the University of Nigeria. Other items had mean ratings which range from 2.50-4.00, and were therefore accepted as the social problems associated with eating disorder among the female undergraduates.

Table 3: Mean ratings of respondents on the Financial Problems associated with Eating Disorder among Female Undergraduates of both campuses. (N=456).

Financial Problems	Mean	Std. Dev.	Decision
Enjoy trying new rich food.	2.16	0.54	Disagree
Enjoy eating at restaurants.	2.37	0.59	Disagree
Find myself preoccupied with food.	3.12	0.78	Agree
Spend more money on food.	2.91	0.73	Agree
Eat different variety of food at a time.	2.43	0.61	Disagree
Take laxatives or Self induced purging.	2.82	0.71	Agree
Enjoy eating different meals.	2.22	0.56	Disagree
Eat more than I can afford.	2.89	0.73	Agree
Spend more money on healthcare.	1.92	0.41	Disagree
Spend money on exercise to keep fit.	1.42	0.21	Strongly Disagree

Std. Dev.=Standard deviation, SD=Strongly Disagree, D=Disagree, A=Agree, SA=Strongly Agree

The results of data analysis in Table 3 indicated that items 11, 12, 17 and 19 were disagreed upon; and item 20 was strongly disagreed upon as the financial problems associated with eating disorder among second year female undergraduates. Other items had mean ratings above set benchmark value of 2.50 and were therefore accepted as the financial problems associated with eating disorder among female undergraduates at both Enugu and Nsukka campuses.

Table 4: Mean ratings of respondents on the Health Issues associated with Eating Disorder among Female Undergraduates of both campuses. (N=456).

Health Issues	Mean	Std. Dev.	Decision
Exercise strenuously to burn off fat.	2.16	0.54	Disagree
Vomit after I have eaten.	2.91	0.73	Agree
Suffer from constipation.	2.98	0.75	Agree
Unhealthy teeth and gum.	2.91	0.73	Agree
Experience irregular menstrual period.	2.63	0.67	Agree
Noticeable extreme loss of weight.	2.82	0.71	Agree
When stomach is empty I experience sharp pain.	2.22	0.56	Disagree
Experience back pain as a	1.92	0.41	Disagree

Health Issues	Mean	Std. Dev.	Decision
result of ulcer.			
Always feel dizzy.	2.92	0.73	Agree
Always fall sick and visits the doctor regularly	2.91	0.73	Agree

Std. Dev.=Standard deviation, SD=Strongly Disagree, D=Disagree, A=Agree, SA=Strongly Agree

Table 4 show the mean ratings of the respondents on the social problems associated with eating disorder among female undergraduate in both campuses of Enugu and Nsukka. Items 21, 27 and 28 were disagreed upon as health problems associated with eating disorder among the female undergraduates. The remaining items were agreed upon as health problems associated with eating disorder among the female undergraduates.

Table 5: Mean ratings of respondents on ways to enhance Healthy Eating Behaviors among Female Undergraduates of both campuses. (N=456).

Ways to enhance Healthy Eating Behaviors	Mean	Std. Dev.	Decision
Recognition of eating disorder.	1.74	0.36	Disagree
Talk it over with parents/lecturers/counselor.	2.96	0.74	Agree
Improve overall eating plan.	3.15	0.80	Agree
Avoid nibbling between meals.	3.09	0.78	Agree
Watch out for food allergy and avoid such food.	3.27	0.83	Agree
Restore lost weight.	2.61	0.66	Agree
Start the school day with a good breakfast.	3.84	0.96	Strongly Agree
Get involved in a healthy exercise.	3.66	0.92	Strongly Agree
Include complex carbohydrates in the diet.	3.21	0.80	Strongly Agree
Eat vegetables and fruits in season.	3.20	0.80	Agree

Std. Dev.=Standard deviation, SD=Strongly Disagree, D=Disagree, A=Agree, SA=Strongly Agree

Results of data analysis in Table 5 indicated that only item number 41 had a mean rating less than 2.50 which was the set benchmark value. Thus, item 41 was rejected by the respondents as one of the ways of enhancing healthy eating behaviors among female undergraduates. Other items had mean ratings above 2.50 and therefore were accepted as the ways of enhancing healthy eating behaviors among female undergraduates at both campuses of the University of Nigeria.

Table 6: Summary of t-test on the mean ratings of the second year Female Undergraduates at Nsukka and Enugu campuses on the Social Problems associated with Eating Disorder

Respondents	N	Mean	SD	Df	Calculated t.	Table value	Decision
UNN Female Students	306	2.76	0.20	454	0.07	1.96	NS
UNEC Female Students	150	2.66	0.15				

NS=Not Significant, UNN=University of Nigeria Nsukka campus, UNEC=University of Nigeria Enugu campus, SD=standard deviation, N=Number of respondents, df=degrees of freedom

Table 7: Summary of t-test on the mean ratings of the second year Female Undergraduates at Nsukka and Enugu campuses on the Financial Problems associated with Eating Disorder

Respondents	N	Mean	SD	Df	Calculated t.	Table value	Decision
UNN Female Students	306	2.46	0.17	454	0.06	1.96	NS
UNEC Female Students	150	2.49	0.16				

NS=Not Significant, UNN=University of Nigeria Nsukka campus, UNEC=University of Nigeria Enugu campus, SD=standard deviation, N=Number of respondents, df=degrees of freedom

Results in Table 6 show the calculated t-value of 0.07 at 452 degree of freedom at 0.05 level of significance on the mean ratings of respondents regarding social problems associated with eating disorder among the female undergraduates. Since the calculated t-value of 0.07 is less than the table of 1.96 at 0.05 level of significance, the null hypothesis is accepted. Therefore, there is no significant difference in the mean rating of the second year female undergraduates at Nsukka campus and those at Enugu campus on the social problems associated with eating disorder.

Results in Table 7 show the calculated t-value of 0.06 at 454 degree of freedom at 0.05 level of significance on the mean ratings of respondents regarding financial problems associated with eating disorder among the female undergraduates. Since the calculated t-value of 0.06 is less than the table of 1.96 at 0.05 level of significance, the null hypothesis is accepted. Therefore, there is no significant difference in the mean ratings of the second year female undergraduate students at Nsukka campus and their counterparts at Enugu campus on the financial problems associated with eating disorder.

Table 8: Summary of t-test on the mean ratings of the second year Female Undergraduate Students at Nsukka and Enugu campuses on the Health Problems associated with Eating Disorder

Respondents	N	Mean	SD	Df	Calculated t.	Table value	Decision
UNN Female Students	306	2.47	0.53	454	0.24	1.96	NS
UNEC Female Students	150	2.48	0.55				

NS=Not Significant, UNN=University of Nigeria Nsukka campus, UNEC=University of Nigeria Enugu campus, SD=standard deviation, N=Number of respondents, df=degrees of freedom

Results in Table 8 show the calculated t-value of 0.24 at 454 degree of freedom at 0.05 level of significance on the mean ratings of respondents regarding health problems associated with eating disorder among the female undergraduates. Since the calculated t-value of 0.24 is less than the table of 1.96 at 0.05 level of significance, the null hypothesis is accepted. Therefore, there is no significant difference in the mean ratings of the second year female undergraduates at Nsukka campus and those at Enugu campus on the health problems associated with eating disorder.

Results in Table 9 show the calculated t-value of 0.66 at 454 degree of freedom at 0.05 level of significance on the mean ratings of the female undergraduate students on ways to enhance healthy eating behaviors. Since the calculated t-value of 0.66 is less than the table of 1.96 at 0.05 level of significance, the null hypothesis is accepted. Therefore, there is no significant difference in the mean ratings of the second year female undergraduates at Nsukka campus and their counterparts at Enugu campus on ways to enhance healthy eating behaviors.

Table 9: Summary of t-test on the mean ratings of the second year Female Undergraduates at Nsukka and Enugu campuses on ways to enhance Healthy Eating Behavior

Respondents	N	Mean	SD	Df	Calculated t.	Table value	Decision
UNN Female Students	306	3.02	0.96	454	0.66	1.96	NS
UNEC Female Students	150	3.08	0.77				

NS=Not Significant, UNN=University of Nigeria Nsukka campus, UNEC=University of Nigeria Enugu campus, SD=standard deviation, N=Number of respondents, df=degrees of freedom

DISCUSSION

The findings of this study indicated that there are social problems associated with eating disorder among the female undergraduates. The study showed that there is no significant difference in the mean rating of the second year female undergraduates on the social problems associated with eating disorder. This finding is in consonance with Ntim and Sarfo^[13] who found that there is a positive correlation between body image and eating disorders. Negligence of healthy eating behaviors by some university undergraduates due to social constraints could therefore result to eating disorder. Furthermore, we found in this study that financial problems are associated with eating disorder. The results indicate that there is no significant difference in the mean ratings of the second year female undergraduate students on the financial problems associated with eating disorder.

Financial problems have been acknowledged as a contributory factor to eating disorder in some female students, and as Matthew^[8] contended, lack of money may force some female students to fast and skip meals. The study found out that there are health problems associated with eating disorder among female undergraduates. As revealed after our hypothesis testing, there is no significant difference in the mean ratings of the second year female undergraduates on the health problems associated with eating disorder. The results reinforces previous studies^[1,11-12,14] which emphasized that individuals should be aware of healthy eating pattern, and this can be achieved by eating at normal time of the day such as breakfast, lunch and dinner, choosing fast foods wisely, eating healthy snacks and avoiding starvation.

Our study showed that there are ways of enhancing healthy eating behaviors among female university undergraduates. We found that there is no significant difference in the mean ratings of the second year female undergraduates on ways to enhance healthy eating behaviors. Thus, it seems that the feelings for food that preoccupy most female undergraduates are usually accounted for by their negative effects and disorders.^[15] It may also imply that the level of education of these undergraduates may not determine their eating habits rather financial status could be attributed to it. University counselors need to be organizing either group or individual counseling for the undergraduates to assist them in developing and maintaining appropriate eating habits. An individual's educational status does not totally predict that the person would experience eating disorder.^[14] University counselors should be called to action to assist these students as Yeh et

al^[16] have noted that unhealthy dietary behaviors are rapidly spreading among young female students.

The implications of any study on eating behaviors cannot be overemphasized. Healthier lives can be promoted among female undergraduates through nutritional interventions delivered via social networking sites such as Facebook, Twitter, and Whatsapp. Also, video blogs such YouTube can be useful in helping nutritionists to pass relevant and swift nutritional information to female undergraduates. Previous researchers have demonstrated that interactive web-based program impact positively on physical activity, dietary intake and several dimension of quality of life of individuals. [17]. Thus, interactive web-based nutritional program might benefit female undergraduates who which to make lifestyle modifications and wiser choices of foods consumed as well as eating patterns. However, this study investigated just the perceptions of female undergraduates on problems associated with eating disorders and ways to enhance healthy eating behaviors among these undergraduates. Other aspects of eating disorders, including the prevalence rate, were not studied. It is possible that different results might be obtained with male undergraduates or mixed group. Even if the validity of the questionnaire we used was checked, some might argue that there is no certainty that it actually reflects very important issues around eating disorders among female undergraduates. The study was carried out in one public university, thus, the results cannot be fully generalized to all universities and tertiary institutions in the country. It must be considered that perceptions of problems influencing eating disorders among undergraduates can also vary in different countries.

CONCLUSIONS

There are social, financial and health problems associated with the incidence of eating disorders among female undergraduates in a Nigerian university. But healthy eating behaviors of female undergraduates in Nigerian Universities can be enhanced using feasible strategies. Our findings suggest that female undergraduates should avoid skipping breakfast and that they should stick to a regular eating schedule. The University Counselors and Public Health Officers should be aware of the fact that there are feasible self-help strategies which they can encourage the students to adopt so as to develop and/or maintain healthy eating behaviors.

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