

# Relationship between emotional eating and frequency of unhealthy food consumption among Undergraduates in Public Universities in Enugu State

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## ABSTRACT

**Background:** Increased consumption of unhealthy foods among adolescents and young adults will have an impact on nutrition and health.

**Objective:** This research determined the relationship between emotional eating and frequency of unhealthy food consumption among undergraduates in public universities in Enugu state.

**Methods:** A descriptive cross-sectional study design was employed. The population comprised of 86,000 undergraduate students in the two public universities in Enugu State. Purposive sampling was used to select a sample size of 763 respondents. Questionnaire was the instrument for data collection. Data collected were entered into Statistical Product for Service Solution (IBM-SPSS), version 23.0 for analysis. Frequencies, percentages, means, standard deviation and chi square were used for data analysis.

**Results:** Findings showed that a greater proportion (68.8%) of the students skipped meals 2-3times/week, mostly due to poor finance (31.1%), and lack of time (30.9%). More than a third (46.5%) of them ate fast foods 1-3times per week. Findings on the types of emotional eating showed that a greater proportion (31.2%) of the respondents were depressed eaters, 21.8% were bored eaters and 21.1% were lonely eaters. Result showed that up to 63.6% of the respondents had high frequency of consuming unhealthy foods, while 22.4% had low frequency of consuming unhealthy foods. Emotional eating was associated with frequency of unhealthy food consumption among the students.

**Conclusion:** Nutrition education on the importance of adequate diets should be given to the students by school authorities in collaboration with nutrition departments of the schools in order to promote their practice of healthy food choices.

**Keywords:** Emotional eating, Food consumption, Undergraduates, University, Eating behaviour

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## INTRODUCTION

Unhealthy food consumption has become a serious global health concern [1]. According to the World Health Organization, unhealthy foods are foods high in energy, sodium, and sugar and low in nutrients such as protein, essential fatty acids, vitamins, minerals, and fiber [2]. These energy-dense, nutrient-poor foods and beverages have been more widely available globally in recent times, with their consumption increasing among adolescents and young adults [3]. Unhealthy foods have become a large component of people's diets all

over the world because they are widely available, less expensive, and heavily marketed [1]. Despite considerable evidence of the detrimental impacts of poor food choices, more than one-third of individuals frequently consume these unhealthy foods (4). According to studies [1, 5, 6, 7], continued intake of such foods could increase the prevalence of non-communicable diseases (NCDs), such as obesity, breast cancer, rectal and colon cancer, ischemic heart disease, type 2 diabetes, stomach cancer, and hypertension. Having knowledge of the

factors that influence food intake is critical for understanding energy balance and obesity. For instance, studies [8, 9] indicated that an individual's mental health has an impact on both their food consumption and body weight. This is known as emotional eating style, and it is one of the factors identified to account for individual disparities in susceptibility to weight gain in today's obesogenic environment [10].

Emotional eating, also referred to as emotional overeating, is the tendency to eat in response to positive or negative emotions. Although the term commonly relates to eating to cope with negative emotions, it can also refer to eating for positive emotions, such as overeating in celebration of a special event or to increase an already existing good mood [11]. According to McGowan [12], emotional eating is an act of eating in response to a particular feeling and often occurs independent of physical hunger. These emotions include depression, anxiety, stress, anger, boredom, loneliness, and even happiness. Due to the variability in emotions, different human emotions may increase or decrease eating [13]. Experimental studies have explained the link between negative emotions and increased food consumption, but recent studies have shown that positive emotions also exerts influence over food consumption [1]. Eating in response to emotions can be problematic as many studies link emotional eating to weight gain, higher BMI, binge eating, and depression; not to mention the immediate feelings of guilt and shame that typically follow [12].

Several theories have been proposed to explain emotional eating, its determinants and outcomes. The major theory associated with emotional eating is the Psychosomatic Theory of Obesity which contends that in times of distress, food is used as an emotional defense. It also posits that obesity results from overeating in order to deal with negative affective states [10]. Thayer [14] cited feelings of increased tension and low-energy as the primary culprit in emotional eating, as it underlies many of the negative moods that have been found to be associated with overeating. Hence, food is used in an attempt to self-medicate and self-regulate mood. Although most research on emotional eating focused on women, it is apparent that the emotional fluctuations tend to result in an increase or a decrease without gender differences [15]. For instance, among adolescents and young adults, loss of control was found to be a requisite for overeating. Furthermore, strict diet and strenuous exercise for weight control among young people were associated with emotional eating [16] which is one factor that increases the consumption of unhealthy food.

Eating is seen by many people as a social activity, sometimes as a method of coping with a negative emotion, and sometimes as a rewarding method. It has been determined that especially when faced with a negative emotion or situation, the feeling of hunger increases and people tend to eat more [15]. Overeating may be attributed to the converse set of problems such as magnified hunger signals or suppressed satiety signals, particularly as a result of emotional influences [17]. Eating in response to emotion has notable physical and psychological health implications. For example, emotional eating is related to eating disorders (binge eating, bulimia nervosa and anorexia nervosa), depression and higher weight status or obesity; and being overweight increases risk of diabetes, cardiovascular disorders and fatty liver disease [18]. According to Bennett et al. [19], approximately one-third of college students are overweight or obese and the average student gains 5kg during college. Previous research has identified a relationship between emotional eating and weight gain in young adults, but outside the realm of eating disorders, few studies qualitatively capture why individuals cope with emotions by eating. Additionally, emotional eating could be one factor contributing to the consumption of foods high in calories, added sugars, saturated or trans-fats, and/or sodium, and low in essential nutrients [20]. Furthermore, recognizing associated factors of emotional eating and unhealthy food consumption among undergraduate students is important for students to successfully minimize its effects. Restrained eating, which refers to the tendency to deliberately restrict food intake in order to control body weight, has been extensively researched, but specific overeating tendencies such as emotional eating continue to receive less attention [10]. This study therefore determined the dietary pattern of undergraduates in public universities in Enugu state; identified the types of emotional eating among them; determined the frequency of unhealthy food consumption among the students; ascertained the factors that give rise to the consumption of unhealthy foods; and determined the relationship between emotional eating and frequency of unhealthy food consumption among the undergraduates. This will help policy makers and relevant professional in designing appropriate strategies to limit the consumption of unhealthy foods and beverages.

## **MATERIALS AND METHOD**

### **Study area**

The study was carried out in the two public universities in Enugu state (University of Nigeria,

Nsukka – UNN and Enugu State University of Science and Technology – ESUT). UNN is one of the best and most renowned Federal Universities in Nigeria with three campuses situated in Nsukka, Enugu town, and Ituku-Ozalla. UNN consists of seventeen faculties and one hundred and two departments [21]. ESUT is one of the major state universities in South-east Nigeria with two campuses at Agbani and Enugu town. ESUT consist of eleven faculties and over thirty academic departments [22].

### Study design

The study adopted a descriptive cross-sectional study design. This design was suitable for this study because cross-sectional study design entails collecting data on the magnitude of one or more variables of interest (in this case, unhealthy food consumption and emotional eating) from a defined population at a particular point in time. This design is also used to make inferences regarding possible relationships between variables [23] which was the focus of this study.

### Population of the study

The study population comprised of 86,000 undergraduate students in the two public universities in Enugu State (UNN – 36,000 and ESUT – 50,000) according to National Universities Commission [24].

### Sample size and sampling technique

The WHO (38) guideline for calculation of sample size in a survey was used to calculate the sample size for the study as follows.

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N}\right)}$$

z = level of confidence (1.96);

p = baseline levels of the indicators (0.5 or 50%);

e = margin of error (0.05 or 5%);

N = Population size.

This gave 381 respondents from UNN and 382 respondents from ESUT. Therefore a total of 763 undergraduate students served as sample for the study. The study adopted a multi-stage sampling technique in selecting the sample from the population. The first stage involved the use of simple random sampling by balloting without replacement

for the selection of 30% (five) of the faculties in UNN and 30% (three) of the faculties in ESUT. In stage two, proportionate sampling was used to determine the number of students to be selected from the sampled faculties in each school. In the final stage, a simple random technique was used to select 50% of the departments in each faculty. The sample size computed for each faculty was selected from the departments. Only the students who were available in the departmental classrooms on the data collection days and gave their consent participated in the study.

### Instrument for data collection

Data was collected using questionnaire. The questionnaire was divided into five sections. Section A was structured to provide data on the personal information of the respondents. Section B was used to elicit data on the dietary pattern of the respondents. Section C was an adaptation of the Emotional Eating Questionnaire developed by Pitroski [25] for Wild Wood Family Clinic, designed to help an individual gain a better understanding of his or her emotional eating tendencies. The items are used to determine the most common types of emotional eating such as depressed eating, anxiety/stress eating, angry eating, bored eating, lonely eating, and happy eating. Section D was used to elicit data on the frequency of unhealthy food consumption among the undergraduates. Section E was structured to determine the factors that gave rise to the consumption of unhealthy foods. Responses were on a Likert type scale. The instrument underwent face and content validation by three experts in the Field of Food and Nutrition. The reliability estimate of the test instrument was determined and Cronbach Alpha equation was used to obtain the reliability co-efficient of 0.79 which was accepted as adequate.

### Method of data collection

The structured questionnaires was hand distributed to the respondents by the researchers and two postgraduate students. The students were trained as research assistants in the administration and retrieval of questionnaire. Collection of data was on the spot delivery.

### Data analysis

The scores of each respondent on the items for each emotional eating type were summed up and the type they scored highest in was taken as their emotional eating type. Items on frequency of unhealthy food consumption were summed up and scores ranged from 1-130. Scores of 1-32 were regarded as 'very low consumption', 33-66 were regarded as 'low

consumption', 67-99 were regarded as 'high consumption' and 100-130 were regarded as 'very high consumption' of unhealthy foods. For responses on emotional eating and factors that gave rise to the consumption of unhealthy foods, mean of 2.5 and above was regarded as 'agreed' while below 2.5 was regarded as 'disagreed'.

### **Statistical analysis**

Data was coded into Statistical Product for Service Solution (SPSS), version 23.0 for analysis. The result was expressed as frequencies, percentages, means and standard deviation. Chi-square test was used to determine the relationship among categorical variables.  $P < 0.05$  was accepted as level of significance.

## **RESULTS**

### **Demographic characteristics of the respondents**

Table 1 shows the demographic characteristics of the respondents. A greater proportion (46.5%) of them were aged 18-22years. Up to 53.5% were females while 46.5% were males. Majority (76.4%) of them had monthly allowance of N10,000 - N30,000. The respondents' area of residence showed that 69.2% of them resided off-campus while 30.8% lived in the schools' hostels. More than a third (38.5%) of the students were in their final year. Students from ESUT were 50.1% while 49.9% of the respondents were UNN students.

### **Dietary patterns of undergraduates**

The dietary patterns of the respondents were shown in table 2. More than a third (38.9%) of them took only two meals daily. A greater proportion (68.8%) of the students skipped meals 2-3times/week mainly due to poor finance (31.1%), lack of time (30.9%), and sickness. More than a third (46.5%) of them ate fast foods 1-3times per week.

### **Types of emotional eating and frequency of unhealthy food consumption**

Table 3 shows the types of emotional eating and

frequency of unhealthy food consumption among the undergraduates. A greater proportion (31.2%) of them were depressed eaters, 21.8% were bored eaters, 21.1% were lonely eaters, 16.4% were happy eaters, 7.5% were angry eaters and 2.1% were stress eaters. Table 3 also presents the frequency of unhealthy food consumption among undergraduates. Up to 63.6% of the students consumed unhealthy foods with high frequency, 22.4% had low frequency consumption of unhealthy foods and 14.0% had very high frequency of consuming unhealthy foods.

### **Factors of unhealthy food consumption**

Table 4 shows the factors that gave rise to the consumption of unhealthy foods among the students. The need to satisfy hunger (2.84), sweet taste and flavor (3.07), not knowing what makes up a healthy meal (2.69), and trying to meet up with time (2.99), among other things, were identified by the respondents as factors that gave rise to the consumption of unhealthy foods. They disagreed to the following as factors of unhealthy food consumption; easy accessibility and availability (2.44), inability to prepare meals (2.37), not thinking they are bad for health (2.45) and some of them being common foods they take at home (2.45).

### **Relationship between emotional eating and frequency of unhealthy food consumption**

Table 5 presents the relationship between emotional eating and frequency of unhealthy food consumption among the students. At  $p < 0.05$ , significant relationship existed between types of emotional eating and frequency of unhealthy food consumption among the respondents. Angry eaters (80.7%) consumed unhealthy foods with higher frequency compared to other groups. The proportion of bored eaters (40.4%) with very high frequency of unhealthy food consumption was high compared to other groups.

**Table 1: Demographic characteristics of the respondents**

Variable	Frequency	Percentage
Age		
18-22years	355	46.5
23-27 years	291	38.1
Above 27 years	117	15.3
Total	763	100.0
Gender		
Male	355	46.5
Female	408	53.5
Total	763	100.0
Monthly allowance		
Less than ₦10,000	61	8.0
₦ 10,000-₦30,000	583	76.4
₦31, 000-₦50,000	119	15.6
Total	763	100.0
Area of residence		
Hostel	235	30.8
Off-campus	528	69.2
Total	763	100.0
Year of study		
First year	59	7.7
Other years	410	53.7
Final year	294	38.5
Total	763	100.0
Institution of study		
UNN	381	49.9
ESUT	382	50.1
Total	763	100.0

**Table 2: Dietary pattern of undergraduate students**

Variables	Frequency	Percentage
Number of meals taken daily		
Two meal	297	38.9
Three meal	406	53.2
More than 3 meals	60	7.9
Frequency of skipping meals		
2-3 times /weeks	525	68.8
4-6 times/week	119	15.6
Once in a week	119	15.6
Reasons for skipping meal		
Sickness	117	15.3
Lack of time	236	30.9
Poor finance	237	31.1
Lack of appetite	59	7.7
Fasting	114	14.9
Frequency of eating in fast foods		
Daily	59	7.7
1-3 times per week	355	46.5
4-6 times/week	116	15.2
Never	233	30.5

**Table 3: Types of emotional eating and frequency of unhealthy food consumption**

Emotional eating	Frequency	Percentage
Depressed eating	238	31.2
Stress/anxiety eating	16	2.1
Angry eating	57	7.5
Bored eating	166	21.8
Lonely eating	161	21.1
Happy eating	125	16.4
Total	763	100.0
Consumption of unhealthy foods	Frequency	Percentage
Low frequency	171	22.4
High frequency	485	63.6
Very high frequency	107	14.0
Total	763	100.0

**Table 4: Factors that gave rise to the consumption of unhealthy foods**

Factors	Mean	Standard deviation	Remark
The need to satisfy hunger	2.84	0.54	Agree
Trying to meet up with time	2.99	0.88	Agree
Their sweet taste and flavour	3.07	0.83	Agree
Inability to afford proper meals	2.86	0.95	Agree
They are easily accessible and available	2.44	1.01	Disagree
Inability to prepare meals	2.37	1.14	Disagree
Not knowing what makes up a healthy meal	2.69	0.91	Agree
They are the commonly consumed foods in the campus	2.77	0.98	Agree
To cope with stress	2.85	0.86	Agree
To deal with bad mood	2.61	1.22	Agree
Not thinking they are bad for health	2.45	1.01	Disagree
Some of them are common foods taken at home	2.45	1.01	Disagree

**Table 5: Relationship between emotional eating and frequency of unhealthy food consumption**

Variables	Low frequency	High frequency	Very high frequency	Total
	F (%)	F (%)	F (%)	F (%)
Depressed eating	5 (21.0)	173 (72.7)	15 (6.3)	238(100.0)
Stress eating	0 (0.0)	12 (75.0)	4 (25.0)	16 (100.0)
Angry eating	5 (8.8)	46 (80.7)	6 (10.5)	57 (100.0)
Bored eating	23 (13.9)	76 (45.8)	67 (40.4)	166 (100.0)
Lonely eating	66 (41.0)	82 (50.9)	13 (8.1)	161 (100.0)
Happy eating	27 (21.6)	96 (76.8)	2 (1.6)	125 (100.0)

$\chi^2 = 172.538$ ,  $df = 10$ ,  $p = 0.000$

$\chi^2$  = Chi-square value;  $p$  = Level of significance;  $df$  = degree of freedom;

\*Correlation is significant at  $p < 0.05$

## DISCUSSION

This study determined the relationship between emotional eating and frequency of unhealthy food consumption among undergraduates in public universities in Enugu state. Findings showed that a greater proportion of the respondents were aged 18-22 years. This implies that most students belonged to the younger age bracket. Their gender showed that there were more females than males students. In contrast Nwakunor et al. [26] reported that although the number of female students has continued to rise, enrolment into tertiary institutions across the country is still male dominated. Most of the respondents had monthly allowance of N10,000-N 30,000, suggesting that the students were receiving moderate amount of funds from their sponsors. Supporting this, Ekanem [27] reported that the ideal monthly allowance for University students in Nigeria ranged from N15,000-N30,000, with few receiving up to N50,000. The respondents' area of residence showed that more than half of them resided off-campus with less than three quarter of them living in the schools hostels. This could be attributable to the increasing population of students and inadequate funding that have resulted in poor availability and accessibility of hostel accommodation for students [28]. Consequently, a lot of students who do not have accommodation on campus end up residing in the surrounding localities close to the universities.

Meal skipping, as defined by Dubois et al. [29] is the failure to eat or under-consumption of one or more of the traditional main meals (breakfast, lunch, or supper) throughout the day. Result of this study showed that a greater proportion of the respondents skipped meals 2-3 times/week mainly due poor finance and lack of time. This implies that not having enough funds and poor time management may lead to undergraduates omitting some daily meals several times a week. Similarly, a review by Pendergast et al. [30] showed different ranges in the prevalence of meal skipping among study participants mostly due to lack of time. Additionally, studies by Anowai, Chukwuone and Ogbonnaya [31] and Rai et al. [32] showed that not having enough time was among the major reasons why undergraduate students skipped meals.

Thayer [14] explained emotional eating to be an act of overeating in response to a particular emotion such as depression, anxiety, stress, anger, boredom, loneliness and even happiness. Overall, this study provides important information about the types of emotional eating among undergraduate students in Enugu state with depressed eaters being the most prevalent indicating that some students with

depression tend to overeat. This suggests that a larger part of students tend to overeat when they get a persistent feeling of sadness and loss of interest. The findings of this study are similar to that of Grajek et al. [33] and Sze et al. [34] which found that a high proportion of undergraduate students in Nigeria engaged in emotional eating such as stress, depressed and boredom eating. According to Moore, overeating can be tied to one's emotions when eating becomes a way to cope with painful or upsetting emotions [35]. Among mental health disorders, depression has the closest tie to a number of eating problems like emotional overeating [36].

This study provided important information about the frequency of unhealthy food consumption among undergraduate students in Enugu state. According to Rodrigues [37], consumption of unhealthy foods has to do with a low consumption of fruits, vegetables, and milk/dairy, and a high consumption of foods rich in fats and sodium. These foods are often highly processed and lack the vitamins, minerals, and other nutrients that are necessary for optimal health [37]. Result of this study showed that a greater proportion of undergraduates had a high frequency of consuming unhealthy foods. This implies that most students in universities regularly consume unhealthy foods such as sweetened breakfast cereal, pizzas chips, candy bars, lollipop, instant noodles, soft drinks and fried pastries among other foods. Supporting this finding, study by Madan, Verma and Mathur [38] showed that more than half of the sampled undergraduate students regularly consumed unhealthy foods such as pizza, pasta, soft drinks, ice-cream, donuts, pastries and cakes among others. Similarly, study by Kavimalar and Gudadinni [4] found that majority of the college students sampled will opt for junk foods most of the times.

Studies [39, 40] have shown that there are several factors that can affect an individual's food consumption. The need to satisfy hunger, sweet taste and flavor of junk foods, not knowing what makes up a healthy meal, poor finance, dealing with bad moods and trying to meet up with time were some of the reasons why this study participants frequently consumed unhealthy foods. The findings of this study are similar to those of other studies conducted in Nigeria and other developing countries. For instance, a study by Kabir, Miah and Islam [40] showed that students consumed subpar foods due to many reasons that included sweet taste, poor knowledge and perceptions about healthy diets, influence of peers and inability to afford cooking resources. Additionally, studies by Sogari et al. [41] and Hilger-Kolb and Diehl [42] found that time

constraints, convenience high-calorie food, stress, high prices of healthy food, and easy access to junk food were some of the barriers to healthy eating among college students.

Emotional eating is one factor that increases the consumption of unhealthy food [1]. Findings of this showed significant association between emotional eating and frequency of unhealthy food consumption among undergraduates in Enugu State. The direction of the relationship showed that angry eaters consumed unhealthy foods with higher frequency compared to other groups. The proportion of bored eaters with very high frequency of unhealthy food consumption was high compared to other groups. The implication is that students who engage in emotional eating are more likely to choose unhealthy foods as a way to cope with their emotions. An alternative implication is that students who consumed unhealthy foods at a high frequency are more likely to experience emotional eating, due to the effects of unhealthy foods on mood and energy levels. Supporting these findings, a study by Biu et al. [1] found that participants exhibiting emotional eating were more likely to consume fast food such as high-fat snacks, processed meat products, dessert foods, and sugar-sweetened beverages. Similarly, a study by Zahrah, Fanani and Ardyanto [43] showed that emotional eating variables had a significant relationship with unhealthy food consumption patterns among the subjects that were examined.

## CONCLUSION

The study showed the types of emotional eating prevalent among undergraduates in Enugu state and the frequency with which they consume unhealthy foods. The major types of emotional eating discovered among the students were depressed, bored and lonely eating. High frequency of consuming unhealthy foods among the respondents was attributable to the need to satisfy hunger, sweet taste and flavor, not knowing what makes up a healthy meal, and trying to meet up with time. Types of emotional eating among the students associated significantly with the frequency with which they consume unhealthy foods, with angry eaters consuming unhealthy foods with higher frequency compared to other groups. This study therefore concludes that college students turn to unhealthy foods as a way to cope with negative emotions. This was attributed to the fact that unhealthy foods are often high in sugar and fat, which can trigger the release of dopamine, a neurotransmitter that produces feelings of pleasure. This information can be used to develop

interventions to help students cope with their emotions in a healthy manner while still making healthy food choices.

## Recommendations

The following recommendations were made based on the findings of the study.

1. Universities should prioritize and make available mental health support and encourage students to seek help for emotional distress.
2. Nutrition education which emphasizes the importance of adequate diet should be initiated by school authorities in collaboration with nutrition departments in order to provide students with the skills to make healthier food choices even on a tight budget.

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