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A descriptive study to assess the prevalence of night eating syndrome and its association with depression among the students of UCON, Faridkot (Punjab)

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Abstract

Introduction: Night eating syndrome (NES) is described as “an eating disorder characterized by a delayed circadian pattern of food intake and includes evening hyperphagia and/or nocturnal awakening and ingestion of food two or more times per week”. Problematic eating behavior is largely observed in university students in whom depression might predict NES. Disruptions in mood, perhaps secondary to stressful life events or perceived stress among students, may trigger a coping response of overeating, most probably nocturnal eating.

Aim of The Study: The aim of the study is to assess the prevalence of Night Eating Syndrome and its association with depression among the students of UCON, Faridkot (Punjab).

Materials and Methods: The study was conducted at UCON hostel, Faridkot to assess the prevalence of Night Eating Syndrome and its association with depression among the students of UCON, Faridkot (Punjab). Convenience sampling technique was used to collect data from 100 students who were present at the time of data collection. Standardized Night Eating Syndrome Questionnaire to assess the prevalence of Night Eating Syndrome and Standardized Beck's Depression Inventory to assess the level of depression were used.

Results: The study revealed that Night Eating Syndrome was prevalent among the study population. Majority of the students (54%) had Night Eating Syndrome, out of which (25%) Mild Night Eating Syndrome followed by (16%) had Moderate Night Eating Syndrome, (13%) had Severe Night Eating Syndrome and the rest (46%) did not have Night Eating Syndrome as per criteria. The study showed that the out of 100 students, (67%) had No depression as per the Standardized criteria of Beck's Depression Inventory. Rest (33%) showed the symptoms of depression as per the Standardized criteria out of which (14%) had Mild depression, (10%) had borderline depression, (8%) had Moderate depression followed by (1%) who had severe depression. So, the prevalence is 33% or 33/100 population. A significant correlation was found between Night Eating Syndrome and Depression ($p = 0.0001$). The study results showed that 33(33%) of the students had depression as per Beck's Depression Inventory, out of which 26 (78.3%) had Night Eating Syndrome. The findings of the study revealed significant correlation between Night Eating Syndrome and two socio-demographic variables, i.e., Religion ($p=0.017$) and BMI ($p=0.021$).

Keywords: Night eating syndrome (NES), night eating syndrome, UCON, Faridkot, (Punjab)

Introduction

“Say good night to night eating”
(Thompson SH, DeBate RD, 2009) [8]

Background of the study

Night eating syndrome (NES) is described as “an eating disorder characterized by a delayed circadian pattern of food intake and includes evening hyperphagia and/or nocturnal awakening and ingestion of food two or more times per week”. It was originally described by Albert Stunkard in 1955. It was later conceptualized as a combination of disordered eating, sleeping and mood. In the Diagnostic and Statistical Manual of Mental Disorders 5th edition (American Psychiatric Association) 2 the importance of NES was recognized and it found its place under the category of “Other Specified Feeding or Eating Disorders”.

Depression is one of the most common mental health disorders, affecting more than 300 million people, or 4.4% of the global population. According to the World Health Organization, depression ranks as the third cause of disease burden worldwide. As a part of various efforts, researchers have sought to identify dietary factors related to depression.

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Night eating has been described through various expressions, such as night eating and nocturnal ingestion of food, characterized by a circadian delay in daily food ingestion. Depressive mood has been found to be more severe among individuals with NES. Night Eating Syndrome is characterised by a triad which is outlined as follows (Thompson SH, DeBate RD) [8].

Review of literature

He J, Huang F, *et al.*, (2018) [15] conducted study to assess the prevalence of night eating syndrome among Chinese college students and its association with psychological distress by using the Chinese version of Night Eating Questionnaire (C-NEQ). Data collection was done from 909 university students sampled from three provinces in China. Results showed that the prevalence of NES was 2.8%.

Borges KM, do Souto PR, *et al.*, (2017) [3] [16] conducted a study to determine the prevalence of night eating syndrome among students from a Brazilian University and evaluate the association of the syndrome behaviour with emotional, biological and environmental factors. A cross sectional study was conducted with 200 students from private higher education institution located in Brazil. NES was evaluated using NEQ score ≥ 25 as the cut off value for the indication of NES. Result showed that 30 participants (15%) presented with NEQ ≥ 25 , indicative of NES.

Seviner GM, *et al.*, (2016) [4] [30] conducted a study to examine the frequency of Night Eating Syndrome and it correlates with depression, anxiety, impulsivity and problematic eating behaviours. In this study 210 students from Istanbul Gelisim University, Istanbul, Turkey were included. All participants completed a socio-demographic form, Beck Depression Inventory and Night Eating Questionnaire (NEQ). It was found that 9.5% of the participants screened positive for NES. NES frequency was found to be 22% in people with depression.

Kim OS, Kim MS, *et al.*, (2016) [5] [31] conducted a study to determine the prevalence of NES as well as the association between NES and severity of self-reported depressive symptoms among South Korean female nurses. The Korea Nurses' Health Study, following the protocols of the Nurses' Health 21 Study led by the Harvard University, collected data on Korean female nurses. Survey responses from 3617 participants were included in this cross-sectional study. The prevalence of both NES and self-reported depressive symptoms among Korean female nurses were higher. Nurses with NES were 1.65 times more likely to have greater severity of depressive symptoms than those without NES.

Methodology

Study design and setting

Quantitative research approach was used to assess the prevalence of Night Eating Syndrome and its association

with depression among the students of UCON, Faridkot (Punjab). A non-experimental descriptive research design was used to assess the prevalence of Night Eating Syndrome and its association with depression among the students of UCON, Faridkot (Punjab).

Setting of study: The study was conducted in UCON hostel, Faridkot (Punjab).

Study population: The study population comprised of students of UCON hostel, Faridkot (Punjab).

Sample size: Total 100 students were selected as the study subjects.

Sampling technique: Convenience sampling technique was adopted to collect the data. The students were selected based on the inclusion and exclusion criteria.

Ethical considerations: This study has been approved by the ethical committee of University College of Nursing and Baba Farid University of Health Sciences, Faridkot, Punjab. Written informed consent was taken from each participant after informing them about study and its objectives.

Plan and procedures of data collection: Girls Hostel was selected for conducting the research study. Data was collected from 8th -12th July, 2020. Data was planned to be collected from nursing students residing in UCON Girls Hostel. Formal written permission was obtained from Principal, University College of Nursing, and 34 Faridkot. Researchers first introduced themselves to the study subjects. Then purpose and objectives of the study were presented and discussed with the study subjects. The consent was taken from the study subjects and they were assured about the confidentiality of their responses. The timings of data collection were from 9 am to 12 noon and 2:30 pm to 4 pm. Average time taken by study subjects to complete the structured questionnaire was 20-25 minutes. At the end, participants were thanked for cooperating with the researchers.

Analysis and interpretation

Objectives of the study

1. To assess the prevalence of Night Eating Syndrome among the students of UCON hostel, Faridkot (Punjab).
2. To assess the prevalence of Depression among the students of UCON hostel, Faridkot (Punjab).
3. To find out the association between Night Eating Syndrome and depression among the students of UCON hostel, Faridkot (Punjab).
4. To assess the association between Night Eating Syndrome and selected socio-demographic variables among the students of UCON hostel, Faridkot (Punjab).

Part 1: Sample characteristics

Table 1: Percentage distribution of sample characteristics

S. No	Socio demographic variables	Frequency(N)		Percentage (%)
		Age		
1.	• 20-21	37	37	37
	• 22-23	42	42	42
	• 23-25	14	14	14
	• >25	7	7	7

		Gender		
2.	• Male	0	0	
	• female	100	100	
3.	Religion			
	• Hindu	31		
	• Sikh	66		
	• Muslim	2		
	• Christian	1		
	• Others	0		
4.	Marital status			
	• Married	2		
5.	• Unmarried	98		
	Area of residence			
6.	• Urban	33		
	• Rural	67		
7.	Family type			
	• Nuclear	74		
	• Joint	26		
8.	• Extended	0		
	Family income			
	• 50001-150000	7		
9.	• 15001-25000	26		
	• 25001-35000	20		
	• >35000	47		
	P0cket money monthly			
10.	• 500-1000	33		
	• 1500-2000	26		
	• 2500-3000	17		
	• >3000	24		
11.	Do you earn yourself			
	• No	98		
12.	• Yes	2		
	Programme			
13.	• Under graduate	76		
	• Post graduate	24		
14.	BMI (kg/m2)			
	• <18.5	19		
	• 18.5-24.9	69		
	• 25-29.9	10		
	• 30-39.9	2		
15.	History of previous illness			
	• No	90		
	• Yes	10		

Table 1. shows the distribution of sample characteristics according to Age (in years), Gender, Religion, Marital status, Area of Residence, Family type, Family income (monthly INR), Pocket money (monthly INR), Do you earn yourself, Programme, BMI (kg/m2), History of previous illness. According to Age (in years): Majority of the students (42%) were in the age group of 22-23 years, According to Gender: All the study subjects were females (100%). According to Religion: Majority (66%) of the study subjects were Sikh followed. According to Marital status: Majority (98%) of the study subjects were unmarried and other (2%) were married. According to Area of Residence: Majority (67%) of the study subjects belonged to Rural area, According to Family Type: Majority (74%) of the study subjects belonged to Nuclear Family, According to Family Income (monthly INR): Majority (47%) of the study subjects had family Income > 35,000/. According to Pocket Money (Monthly INR): Majority (33%) of the study subjects had pocket money of 500-1000/. According to Earning: Majority (98%) of the study subjects do not earn by themselves and rest (2%) earn by themselves. According

to Programme: Majority (76%) of the study subjects were pursuing Undergraduate programme and rest (24%) were pursuing Post Graduate. According to BMI (kg/m2): Majority (69%) of the study subjects had BMI between 18.5-24.9, followed by (19%), and had BMI.

Part 2: Prevalence of night eating syndrome

Table 2: Percentage distribution of study subjects according to prevalence of night eating syndrome

S. No	Prevalence of NES	Frequency (N)	Percentage (%)
1	No NES	46	46
2	Mild NES	25	25
3	Moderate NES	16	16
4	Severe NES	13	13
	Total	100	100

Table 2. Depicts the prevalence of Night Eating Syndrome among the students of UCON, Faridkot (Punjab). Out of 100 students, (46%) had No NES as per the Standardized criteria of Night Eating Syndrome. Rest showed the symptoms of

Night Eating Syndrome as per the Standardized criteria out of which (25%) had Mild NES, (16%) had Moderate NES followed by (13%) who had Severe NES. So, the prevalence

is 54% or 54/100 population of students UCON, Faridkot (Punjab).

Part 3: Association of night eating syndrome with depression

Table 3: P-Value computed between NES and levels of Depression

	Level of depression	Night eating syndrome No (%)	Mild (%)	Moderate (%)	Severe (%)	Total	P -Value
1	No	39(58.2%)	19(28.4%)	4(5.9%)	5(7.5%)	67	0.0001 *S
2	Mild	5(35.7%)	4(28.6%)	3(21.4%)	2(14.3%)	14	
3	Border line	2(20%)	1(10%)	5(50%)	2(20%)	10	
4	Moderate	0(0%)	1(12.5%)	3(37.5%)	4(50%)	8	
5	Severe	0(0%)	0(0%)	1(100%)	0(0%)	1	
	Total	46	25	16	13	100	

*S= Significant

Table 3 and Figure 3 depicts that 67(67%) of the study subjects had no depression as per BDI, out of which 39(58.2%) had no NES, 19(28.4%) had mild NES, 5(7.5%) had severe NES, 4(5.9%) had moderate NES. 14(14%) of the study subjects had mild depression as per BDI, out of which 5(35.7%) had no NES, 4(28.6%) had mild NES, 3(21.4%) had moderate NES, 2(14.3%) had severe NES. 10(10%) of the study subjects had borderline depression as per BDI, out of which 5(50%) had moderate NES, 2(20%) had no NES, 2(20%) had severe NES, 1(10%) had mild

NES. 8(8%) of the study subjects had moderate depression as per BDI, out of which 4(50%) had severe NES, 3(37.5%) had moderate NES, 1(12.5%) had mild NES, 0(0%) had no NES. 1(100%) of the study subjects had severe depression as per BDI, out of which 1(100%) had moderate NES, 0(0%) had no NES, 0(0%) had mild NES, 0(0%) had severe NES. It is evident from the p-value that there was significant association between NES and Depression of the study subjects as the calculated p-value was 0.0001.

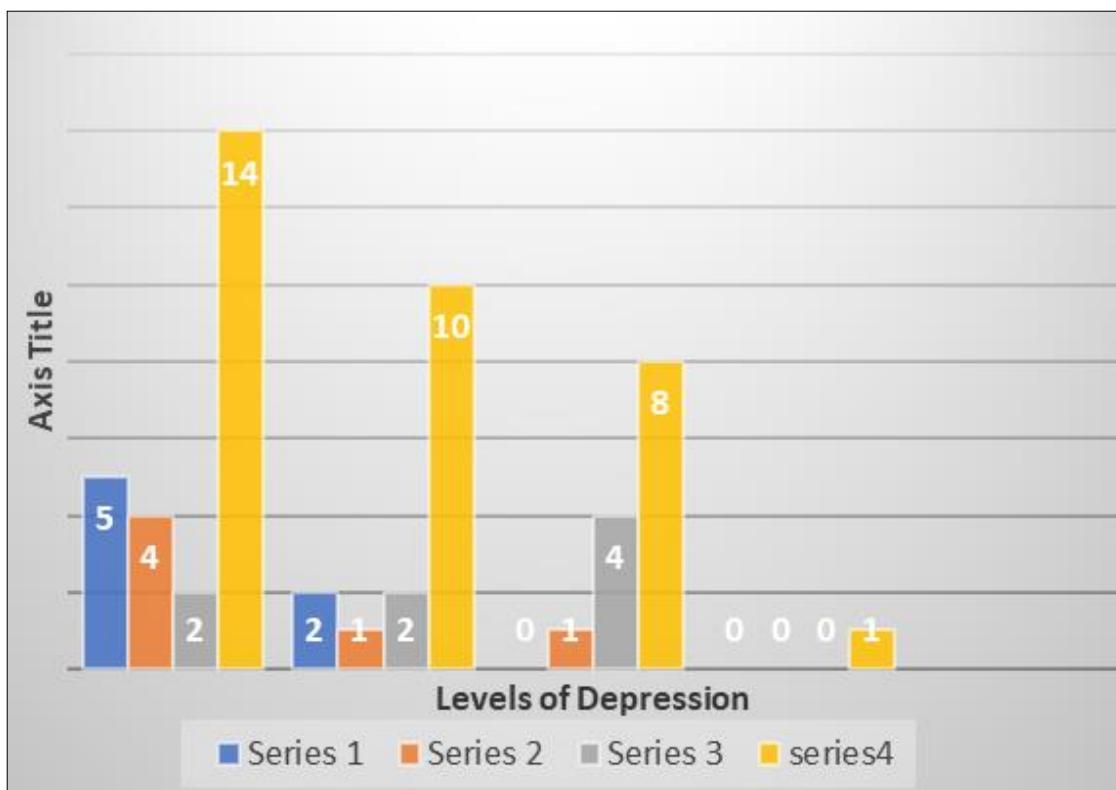


Fig 1: Show the level of depression

Part 4: Association of night eating syndrome with selected socio-demographic variables

Association of Night Eating Syndrome with selected socio-demographic variables, i.e., Age (in years) Gender Religion Marital status Area of Residence Family type Family

income (monthly INR) Pocket money (monthly INR) Do you earn yourself Programme BMI (kg/m²) History of previous illness

It was found that association of night eating syndrome was found only with religion and with BMI

Table 4: Association of NES with Religion

S. No	Religion	Night eating syndrome					P-Value
		No N (%)	Mild N (%)	Moderate N (%)	Severe N (%)	Total	
1.	Hindu	10(32.2)	15(48.3)	3(9.6)	3(9.6)	31	P=0.017 *S
2.	Sikh	34(51.5)	10(15.1)	12(18.1)	10(15.1)	66	
3.	Muslim	2(100)	0(0)	0(0)	0(0)	2	
4.	Christian	0(0)	0(0)	1(100)	0(0)	1	
	Total	46	25	16	13	100	

*S= Significant

P < 0.05

Table 4 depicts that majority of the individuals 66(66%) belonged to Sikh religion, out of which 34(51.5%) had no NES, 12(18.1%) had moderate NES, 10(15.1%) had mild NES and 10(15.1%) had severe NES. 31(31%) of the individuals belonged to Hindu religion, out of which 15(48.3%) had mild NES, 10(32.2%) had No NES 3(9.6%) had moderate NES and 3(9.6%) had severe NES. 2(2%) of the individuals belonged to Muslim religion, out of which 2(100%) had No NES,0(0%) had Mild NES, 0(0%) had

moderate NES and 0(0%) had severe NES. 1(1%) of the individuals belonged to Christian religion, out of which 1(100%) had Moderate NES,0(0%) had No NES, 0(0%) had mild NES and 0(0%) had severe NES. It is evident from the p-value that there was significant association between NES and Religion of the study subjects as the calculated p-value was 0.017. There was no significant relationship of NES with other demographic variables. 5(k) Association of NES with BMI (kg/m²)

Table 5: p-value computed between NES and BMI (kg/m²)

S. No	BMI (kg/m ²)	Night eating syndrome				Total	P-Value
		No	Mild	Moderate	Severe		
1.	<18.5	9(47.4%)	3(15.7%)	3(15.7%)	4(21.1%)	19	P=0.021 *S
2.	18.5-24.9	36(52.2%)	19(27.5%)	7(10.1%)	7(10.1%)	69	
3.	25-29.9	1(10%)	3(30%)	5(50%)	1(10%)	10	
4.	30-39.9	0(0%)	0(0%)	1(50%)	1(50%)	2	
	Total	46	25	16	13	100	

Table 5 and Figure 7 depicts that 69(69%) of the individuals had BMI between 18.5-24.9, out of which 36(52.2%) had no NES,19(27.5%) had mild NES, 7(10.1%) had moderate NES and 7(10.1%) had severe NES. 19(19%) of the individuals had BMI between < 18.5, out of which 9(47.4%) had no NES, 4(21.2%) had severe NES, 3(15.7%) had mild and 3(15.7%) had NES. 10(10%) of the individuals had BMI between 25-29.9, out of which 5(50%) had moderate NES,3(30%) had mild NES, 1(10%) had no NES. 2(2%) of the individuals had BMI between 30-39.9 out of which 1(50%) had moderate NES, 1(50%) had severe NES,0(0%) had no NES and 0(0%) had mild NES. It is evident that from p value that there was significant association between NES and BMI of the study subjects as the calculated p value was 0.021.

Discussion

The present study was conducted to assess the prevalence of Night Eating Syndrome and its association with depression among the students of University College of Nursing, Faridkot.

The study revealed that Night Eating Syndrome was prevalent among the study population. Majority of the students (54%) had Night Eating Syndrome, out of which (25%) Mild Night Eating Syndrome followed by (16%) had had Moderate Night Eating Syndrome, (13%) had Severe Night Eating Syndrome and the rest (46%) did not have Night Eating Syndrome as per criteria. Similar findings shown by the prevalence of the NES is estimated at 1.5% in the general U.S. population (Rand CSW, Macgregor AMC, Stunkard AJ (1997) ^[6]. Most NES assessments among college students suggest that its prevalence is higher than in the general population. Elsadek AM, *et al.* (2014) ^[7]

conducted study among Egyptian students and found that 5.8% of the students were having NES.

Conclusion

There is high prevalence of NES (54%) among the students residing in UCON hostel, Faridkot. According to the results of the study students with depression are more likely to have NES (78.7%). So, there is urgent need to teach these students about healthy coping behaviours for better adaptations to the stressful life.

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