

Assessment of relationship between Body Mass Index and Level of Depression among Nursing Students attending colleges in selected areas

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ABSTRACT

Background:

Depression is a major public health concern worldwide. This study assessed the relationship between Body Mass Index (BMI) and level of depression among nursing students. A quantitative descriptive correlational design was used with 60 participants. Results showed a positive but non-significant correlation ($r = 0.23$) between BMI and depression. Most students had normal BMI, while many experienced mild to moderate depression.

Objectives:

To assess Body Mass Index and level of depression among Nursing students attending colleges in selected areas.

Methods:

A quantitative descriptive correlational research design was adopted. The study was conducted in selected nursing colleges. A total of 60 nursing students were selected using non-probability purposive sampling. Data were collected using BMI measurements and a structured depression scale. Statistical analysis included descriptive statistics and inferential tests such as Pearson's correlation and Fisher's exact test.

Results:

The study revealed that 63.3% of students had normal BMI, while 21.7% were underweight, 11.7% overweight, and 3.3% obese. Regarding depression, 45% had mild depression, 25% moderate, 26.7% minimal, and 3.3% severe depression. A positive correlation ($r = 0.23$) was found between BMI and depression, but it was not statistically significant ($p > 0.05$). No significant association was found between depression and demographic variables, whereas age showed significant association with BMI.

Conclusion:

The study concludes that although most nursing students have normal BMI, a considerable proportion experience mild to moderate depression. The relationship between BMI and depression is positive but not statistically significant. There is a need for integrated physical and mental health interventions.

Keywords: Body Mass Index, Depression, Nursing Students, Mental Health, Correlation.

INTRODUCTION

Depression is a major public health concern worldwide and is one of the leading causes of disability. Nursing students are particularly vulnerable to mental health problems due to academic pressure, clinical responsibilities, and lifestyle changes. Body Mass Index (BMI) is an important indicator of physical health and may significantly influence psychological well-being. Both underweight and overweight conditions are associated with emotional distress, low self-esteem, and depressive symptoms; however, the relationship between BMI and depression remains unclear.

The present study aims to assess the relationship between Body Mass Index and level of depression among nursing students attending colleges in selected areas. A quantitative, descriptive correlational research design was adopted. BMI was calculated using standard height and weight measurements, and the level of depression was assessed using a self-structured depression scale. Data were analysed using descriptive and inferential statistics to determine the correlation between BMI and depression and its association with selected demographic variables.

The study seeks to identify the prevalence of depressive symptoms across different BMI categories (underweight, normal weight, overweight, and obese) and to determine high-risk subgroups among nursing students. The findings of this study are expected to provide evidence for developing effective strategies to promote both physical and mental health among nursing students. Understanding the relationship between BMI and depression will help nursing educators, administrators, and healthcare professionals to design holistic interventions for improving students' overall well-being.

BACKGROUND OF THE STUDY

Obesity is a highly prevalent somatic comorbidity of Major Depressive Disorder and represents a significant global health concern. Both obesity and depression are associated with a wide range of medical complications, including hypertension, dyslipidaemia, diabetes mellitus, coronary heart disease, stroke, and increased mortality. Despite their shared burden and overlapping risk factors, the relationship between these two conditions remains complex and inconsistently reported in the literature.

Body Mass Index (BMI) is commonly used as a proxy measure for obesity and has been frequently linked to depressive symptoms. However, evidence from longitudinal studies examining the impact of BMI on depression in adults remains inconclusive. Some findings suggest a positive association between higher BMI and increased risk of depression, while others report weak or non-significant relationships.

Given that depression is one of the leading causes of disability worldwide, understanding its association with BMI is crucial. Therefore, this study aims to explore the relationship between BMI and depressive symptoms, as well as to examine how obesity and overweight status influence depression outcomes.

NEED OF THE STUDY

Depression is a growing global mental health concern and is frequently associated with physical health conditions such as obesity. Increasing evidence suggests a potential link between Body Mass Index (BMI) and depressive symptoms; however, this relationship remains insufficiently explored, particularly among young adult populations such as nursing students.

This study is needed to assess the prevalence of depressive symptoms among nursing students across different BMI categories, examine the relationship between BMI and levels of depression, and identify high-risk groups. The findings may contribute to the development of evidence-based, holistic interventions that address both physical and mental health, thereby improving overall well-being.

The need for the present study is justified by the following factors:

1. **Identification of prevalence of depressive symptoms:** understand the depression symptoms among nursing students in selected colleges and assess how it varies across different BMI (body mass index) categories (underweight, normal, overweight, obese).
2. **Association between BMI and depression levels:** Understanding the relationship between the BMI (body mass index) and level of depression.
3. **Identification of high risk of subgroups:** For understanding the risk of groups those with abnormal BMI (body mass index) and level of depression.
4. **Development of evidence-based strategies:** The study findings can identify the relationship between BMI and level of depression.

METHODOLOGY

This study employed a quantitative research approach with a descriptive correlational design to examine the relationship between Body Mass Index (BMI) and depressive symptoms among nursing students. The study was conducted in selected nursing colleges.

A total of 60 nursing students were recruited using a non-probability purposive sampling technique based on predefined inclusion criteria. Data collection was carried out over a one-day period using structured assessment methods.

RESULT

SECTION I:

FINDINGS RELATED TO DEMOGRAPHIC VARIABLES.

1.AGE

According to the age, percentage-wise distribution of respondents according to their age depicts that the highest percentage 58.3% of the nursing students had age 15-19 years, 30% of them had age 20-24 years and 11.7% of them had age 25 years and more.

2.GENDER

According to the gender, percentage wise distribution of respondents according to their gender reveals that the 48.3% of them were males and 51.7% of them were females.

3.COURSE

According to the course, the percentage wise distribution of respondents according to their Course are 60% were B.Sc. Nursing students.

4. MONTHLY FAMILY INCOME

According to the monthly family income, the percentage wise distribution of respondents based on monthly family income shows that 55% of them had monthly family income Rs. 10000-19000, 20% of them had monthly family income Rs. 20000-29000, 13.3% of them had monthly family income Rs. 30000-40000 and 11.7% of them had monthly family income.

5.DIET

According to the diet, the percentage wise distribution of respondents according to their diet 48.3% of them had mixed diet, 11.7% of them were non-vegetarian and 40% of them were vegetarians.

6. DIETARY HABITS.

According to the dietary habits, the percentage wise distribution of respondents according to their Dietary habits 10% of them had habit of fast foods, 33.3% of them had homemade food and 56.7% of them had mess food.

Section II

Analysis of data related to Body Mass Index among Nursing students attending colleges in selected areas.

Table 5: Body Mass Index among Nursing students attending colleges in selected areas

N=60

BMI	Freq	%
Underweight	13	21.7%
Normal	38	63.3%
Overweight	7	11.7%
Obese	2	3.3%

N=60

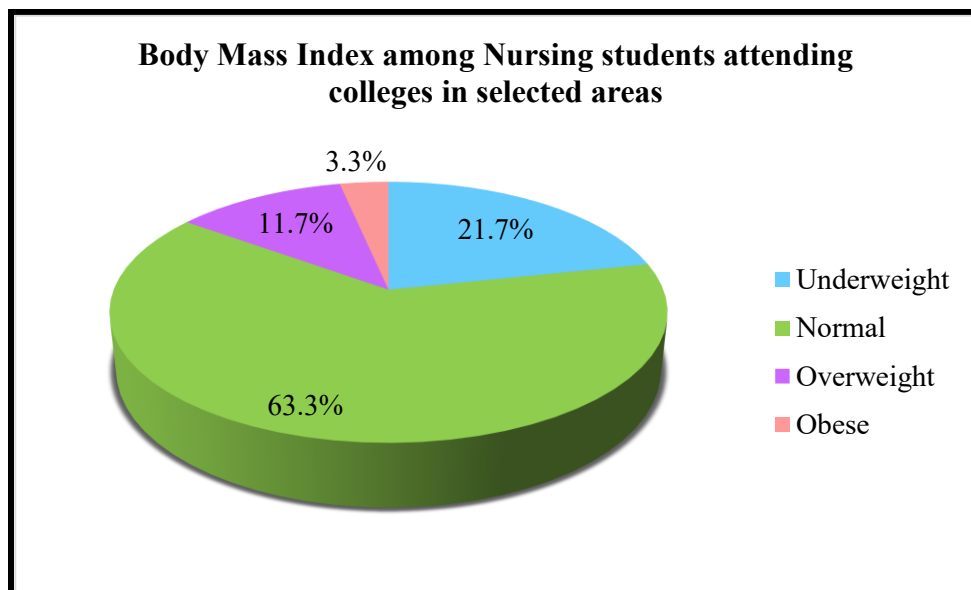


Figure 5: Pie diagram shows the percentage of samples according to their Body Mass Index.

Percentage distribution of Body Mass Index had 21.7% of the nursing students were underweight, 63.3% of them had normal weight, 11.7% of them were overweight and 3.3% of them were obese.

Section III

Analysis of data related to depression among Nursing students attending colleges in selected areas

Table 6: Depression among Nursing students attending colleges in selected areas

N=60

Depression	Freq	%
Minimal	16	26.7%
Mild	27	45.0%
Moderate	15	25.0%
Severe	2	3.3%

N=60

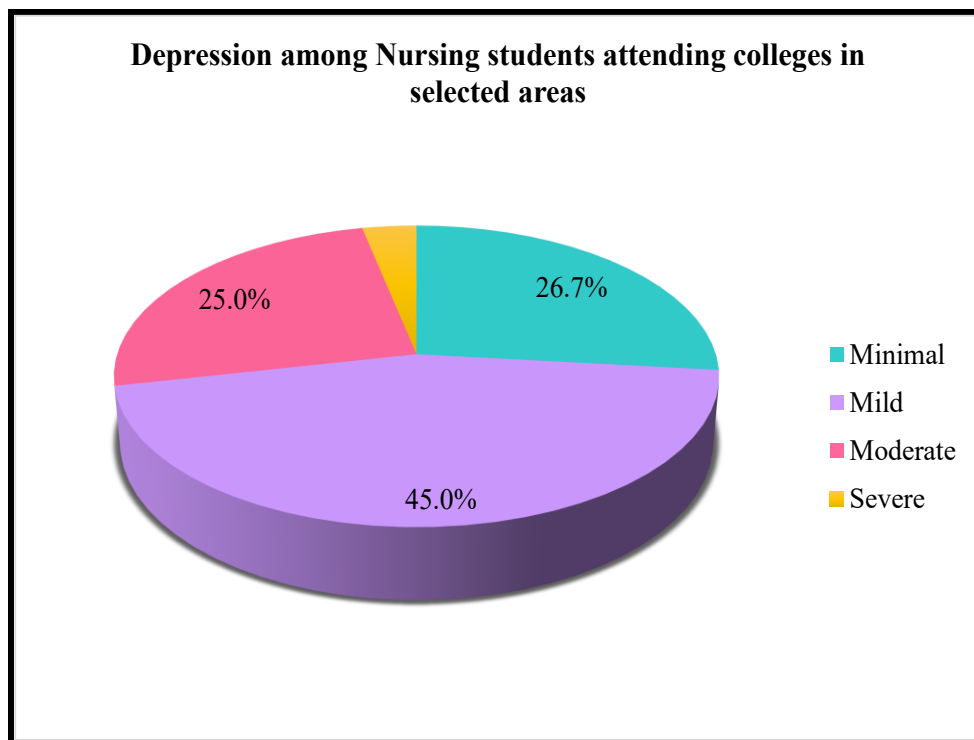


Figure 6: Pie diagram shows the percentage of samples according to their depression.

Percentage distribution of Depression had 26.7% of the nursing students had minimal depression, 45% of them had mild depression, 25% of them had moderate depression and 3.3% of them had severe depression.

Section IV

Analysis of data related to correlation between Body Mass Index and depression among Nursing students attending colleges in selected areas

Table 7: Correlation between Body Mass Index and depression among Nursing students attending colleges in selected areas

N=60

Statistic	Value
r	0.23
t	1.77
df	58
p-value	0.082

N=60

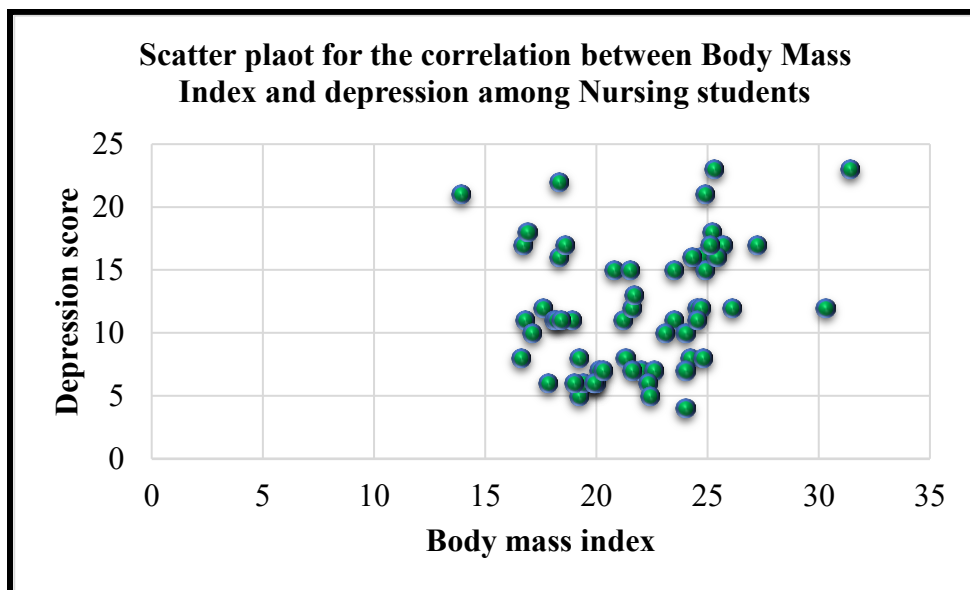


Figure 6: A Scatter diagram shows Correlation between Body Mass Index and depression among Nursing students attending colleges in selected areas.

Pearson's correlation coefficient was 0.23, which is positive (greater than 0), indicates that there is positive correlation between depression and body mass index. The significance of this correlation was tested using t-test for the significance of correlation coefficient. T-value for this test was 1.77 with 58 degrees of freedom. Corresponding p-value was large (greater than 0.05), the correlation between depression and body mass index though positive is not significant.

Section V

Analysis of data related to associations between study findings and selected demographic variables.

Table 8.1: Fisher's exact test for the associations between depression and selected demographic variables

N=60

Demographic variable		Depression				p-value
		Mild	Minimal	Moderate	Severe	
Age	15-19 years	16	11	7	1	0.186
	20-24 years	10	4	4	0	
	25 years and more	1	1	4	1	
Gender	Male	10	9	9	1	0.439
	Female	17	7	6	1	
Monthly family income	Rs. 10000-19000	14	12	7	0	0.428
	Rs. 20000-29000	6	1	4	1	
	Rs. 30000-40000	4	1	2	1	
	Rs. 40000 above	3	2	2	0	
Diet	Mixed	14	8	6	1	0.161
	Non-vegetarian	2	0	4	1	
	Vegetarian	11	8	5	0	
Dietary habits	Fast food	1	1	3	1	0.272
	Home - Made food	9	5	6	0	
	Mess Food	17	10	6	1	

DESCRIPTION: Since all the p-values are large (greater than 0.05), none of the demographic variables was found to have significant association with depression among nursing students.

Table 8.2: Fisher's exact test for the associations between body mass index and selected demographic variables**N=60**

Demographic variable		Body mass Index				p-value
		Underweight	Normal	Overweight	Obese	
Age	15-19 years	8	22	4	1	0.040
	20-24 years	5	13	0	0	
	25 years and more	0	3	3	1	
Gender	Male	6	17	6	0	0.117
	Female	7	21	1	2	
Monthly family income	Rs. 10000-19000	9	22	1	1	0.125
	Rs. 20000-29000	3	7	1	1	
	Rs. 30000-40000	1	5	2	0	
	Rs. 40000 above	0	4	3	0	
Diet	Mixed	6	17	5	1	0.306
	Non-vegetarian	2	3	1	1	
	Vegetarian	5	18	1	0	
Dietary habits	Fast food	1	3	1	1	0.359
	Home - Made food	5	11	3	1	
	Mess Food	7	24	3	0	

DESCRIPTION: Since p-value corresponding to age was small (less than 0.05), demographic variable age was found to have significant association with the BMI of nursing students.

DISCUSSION

This study examined the relationship between Body Mass Index (BMI) and depression among nursing students. Most students had a normal BMI, but many experienced mild to moderate levels of depression. Although a positive relationship between BMI and depression was observed, it was not statistically significant. These findings are similar to previous studies that show mixed results regarding the link between BMI and depression. The lack of significant association may be due to the small sample size, short data collection period, and other influencing factors such as academic stress, lifestyle, and psychological conditions. No significant association was found between depression and most demographic variables, while age was significantly associated with BMI. Overall, the findings suggest that the relationship between physical health and mental health is complex.

CONCLUSION

The Assessment of the relationship between body mass index and level of depression among nursing students attending colleges in selected areas. study deals that although most nursing students had a normal BMI, a large proportion experienced mild to moderate levels of depression. The correlation between BMI and depression was positive but not statistically significant. Additionally, depression was not significantly associated with selected demographic variables.

ACKNOWLEDGEMENT

This study was conducted to assess the relationship between BMI and levels of depression among nursing students using a quantitative, descriptive correlational design. A total of 60 participants were selected through purposive sampling. The findings indicated that while the majority of students had normal BMI, a significant number experienced varying levels of depression. Although a positive correlation between BMI and depression was observed, it was not statistically significant. The study emphasizes the need to address both physical and mental health among nursing students.

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