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A Statistical Analysis of Knowledge of Nutritional Status and Food Practices Among Hostel Students of Gulbarga University Kalaburagi

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Abstract
The present study examines the relationship between nutritional knowledge and dietary practices among hostel students at Gulbarga University, Kalaburagi, and evaluates their impact on students' Body Mass Index (BMI). Data were collected from 300 hostel students (150 boys and 150 girls) using a structured questionnaire and analyzed using the Chi-square test to assess associations between BMI, knowledge about food practices, and nutritional status. The results indicate a significant association between BMI and specific dietary habits, including the consumption of fruits, sweets, fasting practices, and vegetable intake. These findings suggest that students' awareness and knowledge of nutrition play a crucial role in their overall health and BMI. The study underscores the need for promoting nutritional education and healthy eating practices, particularly in hostel settings, to improve studentsphysical well-being, long-term health outcomes, and ultimately enhance their academic performance.

Keywords: Nutritional knowledge, BMI, Dietary practices, Chi-square test.

1. INTRODUCTION

Nutrition plays a critical role in the overall health and well-being of individuals, especially for students undergoing significant physical, mental, and emotional development during their academic years. Proper dietary practices are essential for maintaining energy levels, cognitive function, and overall health (Anderson & Smith, 2015). In hostel settings, where students often have limited access to home-cooked meals and may adopt irregular eating habits, their nutritional knowledge and food practices can significantly influence their body composition and health outcomes (Sharma et al., 2017)

Body Mass Index (BMI) is commonly used as an indicator of nutritional status, and its relationship with dietary habits has been the subject of various studies. Research by Johnson et al. (2016) highlights the impact of dietary factors such as fruit and vegetable intake, consumption of sweets, and fasting practices on students' BMI. The association between nutritional knowledge and BMI is particularly important in educational settings as it influences students' health choices and academic performance (Nguyen et al., 2020).

Several studies have focused on the dietary habits of students in university hostels. Findings indicate that hostel students often consume higher amounts of fast food and sugary snacks, leading to an increased

risk of obesity and related health issues (Williams & Brown, 2018). Similarly, students with higher levels of nutritional knowledge are more likely to make healthier food choices, which in turn contributes to better BMI management (Lee et al., 2019).

Nutritional knowledge encompasses an understanding of the nutritional value of different foods, the importance of a balanced diet, and the potential health consequences of poor dietary habits (Harrison & Stewart, 2021). Studies have suggested that students with a higher level of nutritional knowledge are more likely to engage in healthy eating behaviors, such as consuming more fruits and vegetables, while avoiding excessive intake of sweets and fast food (Jones et al., 2018). However, despite possessing this knowledge, many students in hostel settings may still struggle to apply it due to factors such as limited resources, time constraints, and peer influence (Gonzalez et al., 2020). Furthermore, the accessibility of healthier food options on university campuses plays a vital role in shaping students' dietary behaviours, necessitating policy-level interventions (Morris et al., 2023).

This study aims to examine the association between nutritional knowledge, dietary practices and BMI among hostel students at Gulbarga University, Kalaburagi Understanding these associations can inform the development of targeted nutritional education programs and interventions to promote healthier eating habits and improve the overall well-being of university students.

2. Materials and Methods:

A cross-sectional study was conducted among 300 hostel students (150 males and 150 females) at Gulbarga University, Kalaburagi, to assess the relationship between nutritional knowledge, food practices, and BMI. Data were collected using a structured questionnaire covering demographic details, dietary habits, and nutritional awareness. BMI was categorized into underweight, normal, overweight, and obese based on standard classifications. Frequency and percentage distributions were used to describe the data, while the Chi-square test was applied to determine associations between demographic factors, dietery/nutrition patterns, and BMI. Statistical significance was considered at $p< 0.05$. The results were presented in tabular and diagrammatic forms, including pie charts. SPSS software was used for data analysis to evaluate the impact of variables such as fruit intake, sweet consumption, fasting practices, and vegetable consumption etc, on students' BMI.

3. Results and Discussion:

Frequency and percentage distribution of the respondants.

In the preliminary analysis, the data has been presented in the tabular and diagrammatic form using pie chart.

Table 3.1: Religion wise Distribution of Students

Religion	Frequency	Percent
Hindu	246	82.0
Muslim	22	7.3
Christian	30	10.0
Other	2	0.7
Total	**300**	**100.0**

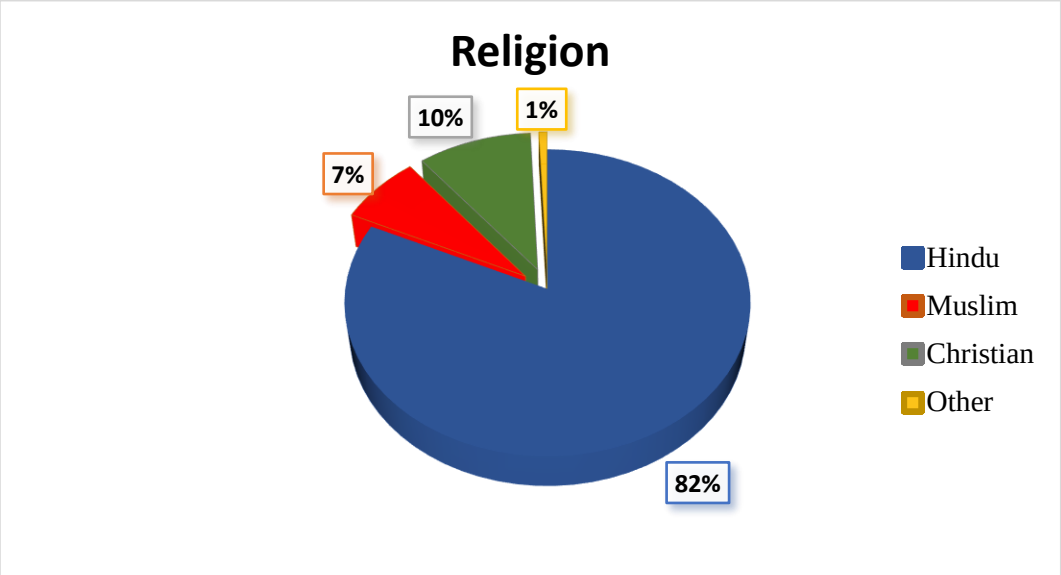

Figure 3.1: Percentage Distribution of Students according to theirReligion

From the above Table 3.1, one can observe that the majority of students, 82% ,belong to the Hindu religion. Muslim students constitute 7.3% , while 10% are Christians. A small proportion, 0.7% belong to other religions. These findings indicate that Hindu students form the predominant group in the sample, with a relatively lower representation of other religious groups.

Table 3.2: Frequency Distribution of Students by Body Mass Index Categorization

BMI classification	No. of Cases	Percentage
Under weight	21	07
Normal	222	74
Over weight	33	11
Obese	24	08
Total	**300**	**100.0**

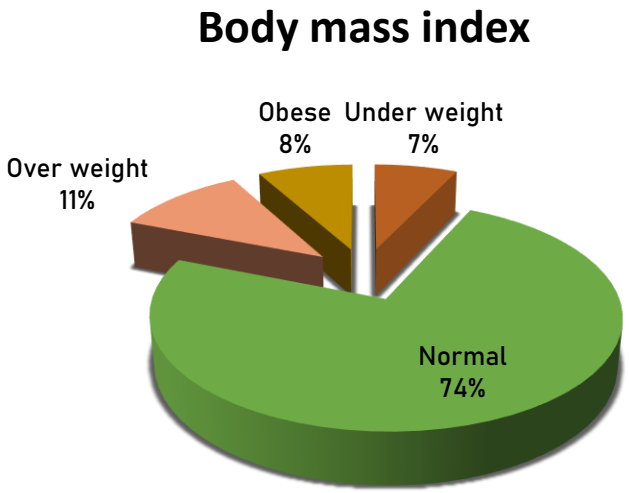

Figure 3.2: Percentage Distribution of Students by Body Mass Index Categorization

From the above Table 3.2,the results showed that 74% of students fall within the normal BMI range, suggesting that the majority maintain a healthy weight. However, 7% are underweight, which may indicate nutritional deficiencies, while 11% are overweight and 8% are obese, reflecting potential lifestyle and dietary concerns. Although most students exhibit a normal BMI, the presence of overweight and obese individuals, highlights the need for increased awareness regarding nutrition and physical activity.

Table 3.3: Frequency Distribution of Students according to consumption of Fast Foods

Fast food	No. of Cases	Percentage
Weekly	86	28.7
Monthly	60	20
Yearly	53	17.7
No	101	33.7
Total	300	**100.0**

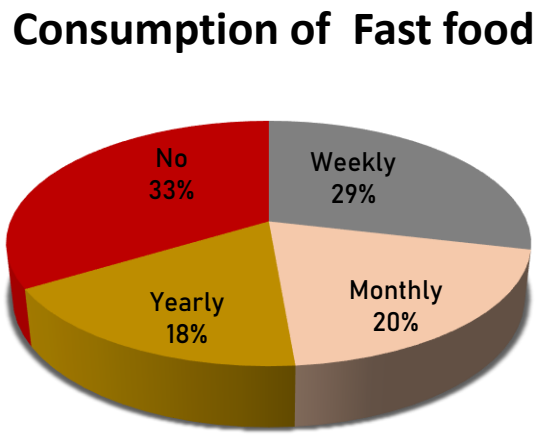

Figure 3.3: Percentage Distribution of Students according to Fast Food consumption

The above results showed that 33.7% do not consume fast food, making them the largest group. Meanwhile, 28.7% consume fast food weekly, followed by 20% who consume it monthly, and 17.7% whoconsume it yearly. This suggests that while a notable number of students avoid fast food, a significant proportion still consume it frequently, particularly on a weekly basis, which could influence their overall health and BMI status.

These findings emphasize the impact of students' dietary habits on their nutritional status and BMI. The association between fast food consumption, BMI variations, and nutritional practices highlights the need for promoting better dietary awareness and healthy eating habits among hostel students to support their long-term well-being.

4. Association between demographic factors, knowledge about food practices and nutrition status and BMI

This section deals with testing the association between demographic factors, knowledge about food prac-

tices, nutrition status and BMI.

4.1 Associationbetween demographic factors and BMI

H_0: There is no significant association between demographic factors and BMI of the students.

Table 4.1: Association between Demographic Variables and BMI

Variable / Category	Underweight	Normal	Overweight	Obese	P value
Religion					0.614 (>0.05)
Hindu	19	175	30	22	
Muslim	00	19	02	01	
Christian	02	26	01	01	
Other	00	02	00	00	
Economic Status					0.108 (>0.05)
Low	08	55	08	12	
Middle	09	141	21	11	
High	04	26	04	01	
Residential					0.652 (>0.05)
Rural	13	154	23	19	
Urban	08	68	10	05	

The findings from Table 4.1 indicate that there is no significant association between demographic factors such as religion, economic status, and residential background with BMI ($p > 0.05$). Among Hindu students, 175 students have a normal BMI, while 19 students are underweight, 30 students are overweight, and 22 students are obese. Similarly, for Muslim and Christian students, the BMI distribution does not show a significant difference. Economic status also has no significant impact on BMI, as students from low, middle, and high-income groups show similar distributions across BMI categories. Additionally, residential background (urban vs. rural) does not show a significant association with BMI, suggesting that these demographic factors do not significantly influence students' body weight status.

4.2 Association between Knowledge about food practices and BMI of the students

H_0: There is no significant association between knowledge about food practices and BMI of the students.

Table 4.2: Association between Knowledge about food practicesand BMI of the students

Variable / Category	underweight	Normal	Overweight	Obese	P value
Skip Meals					0.364 (>0.05)
Breakfast	10	92	14	08	
Lunch	10	96	10	12	
Dinner	01	34	09	04	
Diet					0.062 (>0.05)
Vegetarian	07	124	13	10	
Non vegetarian	14	98	20	14	

Fruits					
<2 Fruits per day	09	103	13	15	0.009 (<0.05) *
2-4 Fruits per day	04	52	17	02	
>4 Fruits per day	04	25	02	01	
Do not eat	04	41	01	06	
Sweets					
Everyday	04	34	09	05	0.039 (<0.05) *
Once in a week	11	97	19	10	
Once in a month	05	60	03	03	
Not very often	1	19	01	01	
No	00	12	01	05	
Milk Products					
<2 Servings per day	08	80	12	11	0.682 (>0.05)
2-3 Servings per day	04	64	12	05	
>3 Servings per day	04	29	06	02	
Do not consume	05	49	03	06	
Food Type					
Salty	00	25	01	00	0.117 (>0.05)
Spicy	09	87	16	06	
Sweet	05	37	08	05	
Normal	07	73	08	13	
Fasting Practices					
Weekly	05	62	15	04	0.005 (<0.05)*
Monthly	05	50	05	00	
Yearly	04	39	07	03	
No	07	71	06	17	
Fast Food					
Everyday	04	29	07	03	0.252 (>0.05)
Once a week	06	80	16	09	
Once a month	08	53	04	03	
Not very often	02	28	02	02	
No	01	32	04	07	

One can observethat knowledge about food practices significantly influences BMI in certain instances. The chi-square test reveals a significant association between fruit consumption per day ($p = 0.009$), sweet consumption per day ($p = 0.039$), and fasting practices ($p = 0.005$) with BMI. Students who consumed fewer than two fruits per day had a higher proportion of underweight and obese cases, while those consuming 2-4 fruits per day had a higher percentage of normal BMI. Similarly, students who consumed sweets daily or once a week were more likely to be overweight or obese. Fasting practices also showed a significant impact, with students who fasted weekly or monthly exhibiting variations in BMI. However, other dietary habits, such as skipping meals, vegetarian vs. non-vegetarian diet, milk

product consumption, food type preferences, and fast-food consumption, did not show a significant association with BMI (p> 0.05). These results suggest that certain eating habits, such as frequent fruit consumption and controlled sweet intake, positively impact BMI.

4.3: Association between Nutritional status and BMI of the students

H_0: There is no significant association between Nutritional status and BMI of the students.

Table 4.3: Association between Nutritional status and BMI of the students

Variable / Category	underweight	Normal	Overweight	Obese	P value
Vegetables					
Everyday	08	123	13	11	
Once in a week	13	66	17	12	
Once in a month	00	13	02	01	0.027
Occasionally	00	20	01	00	(<0.05) *
Green Vegetables					
Everyday	06	78	10	05	
Once in a week	13	114	18	15	
Once in a month	02	20	04	04	0.743
Occasionally	00	10	01	00	(>0.05)
Non-Vegetarian					
<2	11	107	19	11	
2-3	08	75	13	07	0.339
>3	02	40	01	06	(>0.05)

The results from Table 4.3revealed a significant association between vegetable consumption and BMI (p = 0.027). Students who consumed vegetables daily had a higher proportion of normal BMI compared to those who ate vegetables less frequently. However, green vegetable consumption, non-vegetarian intake, and meal frequency did not show a statistically significant impact on BMI. This indicates that a regular intake of vegetables contributes to maintaining a healthy BMI.

Conclusion:

The findings of this study highlight the significant relationship between hostel students' dietary practices and their Body Mass Index (BMI) at Gulbarga University, Kalaburagi. The results indicate that the majority of students fall within the normal BMI range, but there is a concerning presence of overweight and obese students, suggesting the need for better dietary awareness. Significant associations were found between BMI and certain dietary habits, particularly the consumption of fruits, sweets, and vegetables, as well as fasting practices. Students consuming fewer fruits per day and those who had daily or weekly sweet consumption were more likely to be overweight or obese. Additionally, those who consumed vegetables daily showed a higher proportion of normal BMI, emphasizing the positive impact of vegetable intake on maintaining a healthy weight. However, no significant associations were found between BMI and factors like skipping meals, diet type, milk product intake, or fast-food consumption, suggesting that these factors may have a less pronounced impact on students' BMI.

Furthermore, demographic factors such as religion, economic status, and residential background did not show significant associations with BMI, indicating that these variables do not substantially affect students' nutritional status. The study underscores the importance of promoting nutritional education and healthy eating habits among hostel students, particularly in settings where irregular eating habits are common. Overall, the study emphasizes that nutritional knowledge and dietary practices play a crucial role in students' health outcomes and highlights the need for interventions to improve students' nutritional awareness, which could lead to better long-term health outcomes and enhanced academic performance.

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