

Intermittent fasting and nutritional health: A study on awareness and dietary behaviour among college students

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Abstract

Fasting has long been practiced for cultural and spiritual purposes and has recently gained popularity as a dietary strategy, notably Intermittent Fasting (IF), which emphasizes meal timing rather than food restriction. This study aimed to assess the nutritional knowledge, dietary behaviours, and fasting practices of university students and examine the association between knowledge and fasting management. A cross-sectional survey was conducted among 100 undergraduate and postgraduate students (aged 18-25 years) at Babasaheb Bhimrao Ambedkar University, Lucknow, selected through stratified random sampling. Data were collected via a structured questionnaire covering socio-demographics, anthropometrics, dietary habits, fasting practices, and nutritional literacy. Descriptive statistics and chi-square tests were applied using SPSS (version 20.0), with significance set at $p < 0.05$. Results indicated that 53% of participants were male and 47% female, with 71% belonging to the middle socio-economic class. BMI analysis showed 52% with normal weight, 28% overweight, and 20% underweight. Fasting was practiced by 46% of students, predominantly selective fasting (57%), while 78% were aware of intermittent fasting, primarily through social media (80%). Nutritional literacy was generally high, with 92% aware of macronutrients and 97% acknowledging hydration importance; however, only 51% had consulted a nutrition professional. A significant association ($p < 0.05$) was observed between higher nutritional knowledge and structured fasting behaviours, indicating that informed students followed more balanced and consistent eating practices. The findings suggest that while students possess strong theoretical nutrition knowledge, gaps persist in its practical application, and reliance on social media underscores the need for evidence-based education. Strengthening nutritional literacy through academic programs, expert guidance, and awareness campaigns can promote healthier dietary and fasting behaviours among young adults.

Keywords: Intermittent fasting, nutritional knowledge, weight management, nutritional deficiencies, public health

Introduction

Fasting, as a practice, has been a part of human civilization for centuries, often rooted in cultural, spiritual, and religious traditions. In its simplest definition, fasting is the voluntary abstinence from food for a specific period of time [1]. From a physiological standpoint, fasting reflects the body's catabolic state, where energy reserves are utilized in the absence of nutrient intake, leading to metabolic adaptations that may support detoxification and health restoration. Across religions such as Hinduism, Islam, and Christianity, fasting continues to be integrated into rituals, with Ramadan and Navratri serving as widely observed examples [2].

In recent years, fasting has been repurposed as a dietary strategy beyond religious practices. The modern concept of Intermittent Fasting (IF) emphasizes when to eat rather than what to eat. It encompasses methods such as the 16:8 model (16 hours fasting, 8 hours eating), alternate-day fasting, and the 5:2 regimen, in which two days per week involve restricted caloric intake. Unlike restrictive diets that focus on eliminating specific food groups, IF provides flexibility and simplicity, making it appealing to contemporary populations with irregular schedules, particularly students and young adults [3].

The popularity of IF is driven not only by its association with weight management but also by its reported physiological benefits. Studies suggest that fasting enhances insulin sensitivity, promotes autophagy, reduces systemic inflammation, and aids in weight regulation [4]. Research has also linked IF with improvements in cardiovascular health, lipid metabolism, and cognitive performance, though much of the evidence has been derived from middle-aged or obese populations rather than healthy young adults. Despite these potential benefits, the risks of nutritional inadequacy, fatigue, irritability, and disordered eating behaviours remain, especially when fasting is practiced without scientific guidance [5].

Intermittent Fasting in the Indian Context

India presents a unique environment for exploring IF, as fasting is historically ingrained in cultural and spiritual life. Practices such as upvaas or fasting during Ekadashi are common across Hindu traditions, while Ramadan fasting among Muslims involves strict abstinence from dawn to sunset. However, the contemporary adaptation of IF among Indian youth is often influenced not by tradition but by exposure to digital platforms, peer networks, and global diet

trends. Social media platforms like Instagram, TikTok, and YouTube have played a crucial role in popularizing fasting through influencers and anecdotal success stories [6].

The dietary practices of Indian students, however, are complicated by academic stress, irregular routines, and easy access to processed foods. With India currently experiencing a “nutrition transition”- characterized by the coexistence of undernutrition and overnutrition- college students stand at a vulnerable intersection. They often adopt health trends like IF without adequate nutritional literacy, potentially risking nutrient deficiencies, poor diet quality, or unhealthy weight control behaviours [7].

Nutritional Knowledge and Management

The success of IF as a health-promoting strategy depends significantly on the individual’s nutritional knowledge. Nutritional knowledge encompasses awareness of nutrient functions, food sources, dietary requirements, and their implications for health outcomes. When applied to intermittent fasting, nutritional knowledge is essential for ensuring that eating windows include nutrient-dense, balanced meals. Without it, students may compensate for

fasting hours with calorie-dense, nutrient-poor foods, leading to health risks rather than benefits [9].

Globally, studies suggest that young adults are increasingly adopting IF, but evidence of their scientific understanding of its principles remains limited. In the Indian setting, college students represent an especially important demographic: they are in a transitional life stage marked by growing independence, lifestyle experimentation, and the formation of long-term dietary habits. As future parents, professionals, and decision-makers, their practices will influence not only their health but also community-level health outcomes [10].

Methods and Materials

Research Design

This study adopted a cross-sectional descriptive research design to assess the nutritional knowledge of intermittent fasting and its influence on nutritional management among college students. A cross-sectional approach was selected because it provides an efficient and economical way of gathering information on dietary behaviours, health practices, and knowledge levels from a defined population at one point in time.



Fig 1: Study Area and Population

The research was conducted at Babasaheb Bhimrao Ambedkar University, Lucknow, a central university with a diverse student population representing different cultural and socio-economic backgrounds. The study population consisted of undergraduate and postgraduate students aged between 18 and 25 years. This age group was specifically chosen because it marks the transition into adulthood, a critical period for establishing independent dietary habits and lifestyle choices.

Sample Size and Sampling Technique

A total of 100 students were included in the study. The sample size was determined considering feasibility and the representativeness required for a cross-sectional survey. A stratified random sampling technique was used to ensure balanced representation of both genders and different academic years. This approach helped minimize sampling bias and ensured diversity within the selected respondents.

Inclusion and Exclusion Criteria

Students were eligible for inclusion if they were between 18 and 25 years of age, willing to participate, and provided

informed consent. Those who had chronic medical conditions requiring specialized diets (such as type 1 diabetes or kidney disease), pregnant or lactating women, and students unwilling to participate were excluded to prevent confounding influences on the study outcomes.

Data Collection Tools and Procedure

Data were collected using a structured questionnaire that was specifically developed for the study. The tool consisted of four sections: demographic and socio-economic profile, anthropometric measurements, fasting and dietary practices, and nutritional knowledge. Anthropometric data, including height and weight, were recorded using standardized equipment, and body mass index (BMI) was calculated. The section on fasting and dietary practices gathered information on the type of intermittent fasting followed (16:8 method, alternate-day fasting, or 5:2 regimen), frequency of practice, dietary preferences, and sources of information. The nutritional knowledge section assessed awareness of balanced diet principles, hydration, macro- and micronutrient requirements, and the use of supplements, detoxifying agents, and immune boosters.

The questionnaire was pre-tested among a small group of students outside the sample population to ensure clarity and reliability. Modifications were made based on feedback received. Data collection was conducted through both in-person and online modes. For in-person data collection, participants were approached in classrooms, libraries, and hostels, and anthropometric measurements were recorded with their consent. Online data were collected using Google Forms for students unable to attend physically. Each participant required approximately 20-25 minutes to complete the questionnaire.

Data Analysis

The collected data were coded and analysed using the Statistical Package for Social Sciences (SPSS, version 2.0). Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize demographic characteristics, fasting practices, and nutritional knowledge levels. Cross-tabulations were performed to explore relationships between intermittent fasting practices and nutritional management. Chi-square tests were applied to assess associations between categorical variables, with $p < 0.05$ considered statistically significant.

Reliability of the questionnaire was evaluated using Cronbach's alpha, which confirmed acceptable internal consistency, while content validity was ensured through expert review by faculty members of the Department of Food and Nutrition.

Results

General Information of Participants

The study surveyed 100 students (Table 1) from Babasaheb Bhimrao Ambedkar University. Gender distribution showed 53% males and 47% females, with no representation of transgender participants. The majority of respondents (76.3%) fell within the 18–25 years age group, followed by 13.3% between 26–35 years, and smaller proportions in older age brackets. Religious affiliation indicated that 84% of participants were Hindu, 14% Muslim, and 2% Christian, while 1% belonged to other religions. In terms of education, 48% of the students were postgraduates, 34% undergraduates, and 18% pursuing Ph.D. studies. Regarding residence, 56% lived in hostels, 24% at home, 12% in other arrangements, and 8% as paying guests. Socio-economic distribution revealed that 71% belonged to the middle class, 17% to the lower class, and 12% to the upper class.

Table 1: General Information of the Participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	53	53.0
	Female	47	47.0
	Transgender	0	0.0
Age Group (years)	18–25	76	76.3
	26–35	13	13.3
	>35	11	10.4
Religion	Hindu	84	84.0
	Muslim	14	14.0
	Christian	2	2.0
	Others	1	1.0
Educational Qualification	Undergraduate	34	34.0
	Postgraduate	48	48.0
	Ph.D.	18	18.0
Type of Residence	Hostel	56	56.0
	Home	24	24.0
	Paying Guest	8	8.0
	Others	12	12.0
Socio-economic Status	Lower Class	17	17.0
	Middle Class	71	71.0
	Upper Class	12	12.0

Anthropometric Profile

Analysis of Body Mass Index (BMI) showed (Table 2) that 52% of students were within the normal range, 28% were

overweight, and 20% underweight. This indicates the presence of both undernutrition and lifestyle-related weight concerns among participants.

Table 2: Anthropometric Profile of Participants Based on Body Mass Index (n = 100)

BMI Category	Frequency (n)	Percentage (%)	Nutritional Interpretation
Underweight (<18.5 kg/m ²)	20	20.0	Indicative of undernutrition
Normal weight (18.5–24.9 kg/m ²)	52	52.0	Within healthy weight range
Overweight (≥25 kg/m ²)	28	28.0	Reflects risk of lifestyle-related conditions
Total	100	100.0	—

Physical Activity and Fitness Trends

Most students were actively engaged in physical activity (Table 3). Gym workouts were reported by 83%, walking by 78%, and running by 70%, while 52% practiced yoga. However, 10% of students reported no regular physical activity. In terms of workout duration, 43% exercised for

30–40 minutes daily, 26% for 10–15 minutes, and 20% for 1–2 hours, while only 3% reported working out for 3–4 hours. Another 8% admitted to not exercising at all. Fitness goals varied, with weight loss being the most common (74%), followed by endurance improvement (59%), general health maintenance (36%), and muscle gain (20%).

Table 3: Physical Activity and Fitness Trends among Participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Type of Physical Activity	Gym Workout	83	83.0
	Walking	78	78.0
	Running	70	70.0
	Yoga	52	52.0
	No Regular Activity	10	10.0
Daily Workout Duration	10–15 minutes	26	26.0
	30–40 minutes	43	43.0
	1–2 hours	20	20.0
	3–4 hours	3	3.0
Fitness Goals	No Exercise	8	8.0
	Weight Loss	74	74.0
	Endurance Improvement	59	59.0
	General Health Maintenance	36	36.0
	Muscle Gain	20	20.0

Fasting Practices

Current fasting practices revealed (Table 4) that 46% of students were engaged in fasting, while 54% were not. Among those who fasted, selective fasting was most common (57%), followed by complete fasting (29%) and intermittent fasting (14%). Awareness of intermittent fasting was reported

by 78% of participants, while 22% were unaware. Social media (80%) emerged as the leading source of information, followed by health professionals (68%), books (47%), peers (38%), and friends (33%). A significant majority (79%) reported trust in their sources of knowledge, and 84% expressed interest in learning more about the scientific aspects of intermittent fasting.

Table 4: Fasting Practices and Awareness among Participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Engagement in Fasting	Yes	46	46.0
	No	54	54.0
Type of Fasting Practiced (<i>n</i> = 46)	Selective Fasting	26	57.0
	Complete Fasting	13	29.0
	Intermittent Fasting	7	14.0
Awareness of Intermittent Fasting	Aware	78	78.0
	Unaware	22	22.0
Source of Information	Social media	80	80.0
	Health Professionals	68	68.0
	Books	47	47.0
	Peers	38	38.0
	Friends	33	33.0
Trust in Information Sources	Yes	79	79.0
	No	21	21.0
Interest in Learning Scientific Aspects	Yes	84	84.0
	No	16	16.0

Nutritional Knowledge

Participants demonstrated good foundational knowledge of nutrition (Table 5). About 90-95% were aware of macronutrients and food supplements. Awareness of hydration importance during fasting was nearly universal (97%), and an equal proportion understood the concept of a balanced diet. However,

only 51% had ever consulted a dietitian or nutritionist for dietary guidance. Awareness of detoxifying agents, probiotics, and immune boosters was present but varied, with some students lacking clarity on their role. Notably, 39% recognized that intermittent fasting could reduce insulin resistance, while 61% were unaware, showing a statistically significant knowledge gap ($p < 0.05$).

Table 5: Nutritional Knowledge of Participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Awareness of Macronutrients and Food Supplements	Yes	92	92.0
	No	8	8.0
Awareness of Importance of Hydration during Fasting	Yes	97	97.0
	No	3	3.0
Knowledge of Balanced Diet Concept	Yes	97	97.0
	No	3	3.0
Consultation with Dietitian/Nutritionist	Yes	51	51.0
	No	49	49.0
Awareness of Detoxifying Agents / Probiotics / Immune Boosters	Aware	68	68.0
	Unaware / Unclear	32	32.0
Knowledge that Intermittent Fasting Reduces Insulin Resistance	Aware	39	39.0
	Unaware	61	61.0
Statistical Association (χ^2 test)	p-value	—	$p < 0.05$

Dietary Habits and Food Choices

Dietary analysis revealed (Table 6) that 57% of students consumed vegetarian meals regularly, while 49% followed a mixed diet. About 35% reported not consuming non-vegetarian meals at all, reflecting cultural and religious influences. Meal timings were evenly divided between fixed schedules and irregular patterns. Outside food consumption was frequent, with 63% reporting eating out at least once a

week. In terms of cooking preferences, mustard oil (94%) and desi ghee (91%) were the most commonly used, while refined oil (75%) and olive oil (40%) were also popular. Iodized salt was universally consumed (100%), while rock salt (66%) and pink salt (43%) were used by a considerable proportion. Multi-grain flour was the most common choice (81%), followed by gram flour (60%), rice flour (60%), and refined flour (50%).

Table 6: Dietary Habits and Food Choices of Participants (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Type of Diet	Vegetarian	57	57.0
	Mixed Diet	49	49.0
	Non-vegetarian (occasional)	35	35.0
Meal Timings	Fixed Schedule	50	50.0
	Irregular Schedule	50	50.0
Frequency of Outside Food Consumption	At least once a week	63	63.0
	Rarely / Never	37	37.0
Cooking Oil / Fat Preference	Mustard Oil	94	94.0
	Desi Ghee	91	91.0
	Refined Oil	75	75.0
Type of Salt Used	Olive Oil	40	40.0
	Iodized Salt	100	100.0
	Rock Salt	66	66.0
	Pink Salt	43	43.0
Type of Flour Commonly Used	Multi-grain Flour	81	81.0
	Gram Flour (Besan)	60	60.0
	Rice Flour	60	60.0
	Refined Flour (Maida)	50	50.0

Associations Between Knowledge and Practice

Cross-tabulation revealed that students with higher nutritional knowledge were more likely to adopt structured intermittent fasting (Table 7) methods and consume balanced meals during eating windows. Conversely,

students with limited knowledge demonstrated irregular fasting practices and were at risk of nutritional deficiencies. These associations were statistically significant ($p < 0.05$), suggesting that awareness and education strongly influence fasting outcomes and nutritional management.

Table 7: Association Between Nutritional Knowledge and Fasting Practices among Participants (n = 100)

Nutritional Knowledge Level	Fasting Practice Pattern	Frequency (n)	Percentage (%)	χ^2 (Chi-square)	p-value
High Knowledge (n = 60)	Structured Intermittent Fasting	32	53.3		
	Balanced Meal During Eating Windows	28	46.7		
Low Knowledge (n = 40)	Irregular / Unstructured Fasting	25	62.5		
	At Risk of Nutritional Deficiency	15	37.5		
Total	—	100	100.0	4.12	$p < 0.05^*$

Discussion

The present study assessed the nutritional knowledge, dietary habits, fasting practices, and lifestyle behaviours of university students at Babasaheb Bhimrao Ambedkar University. The findings provide valuable insights into the interplay between awareness, food choices, and health-related behaviours among young adults.

1. General Characteristics and Anthropometric Profile

The demographic distribution indicated a nearly equal gender ratio, with most participants belonging to the 18-25 years age group. This reflects a representative young adult population often undergoing lifestyle transitions. The Body Mass Index (BMI) analysis revealed that over half of the students (52%) maintained a normal weight, while 20% were underweight and 28% overweight [11,12]. This dual burden of under- and over-nutrition mirrors trends observed in similar student populations across developing countries, where dietary inconsistency and sedentary habits coexist. The presence of both extremes highlights the growing need

for targeted nutritional education and health promotion programs within university settings [13].

2. Physical Activity and Fitness Trends

Most students reported engagement in physical activity, particularly gym workouts (83%) and walking (78%). However, duration and intensity varied, with 43% exercising for only 30–40 minutes daily. While enthusiasm for fitness was evident, irregularity and limited duration suggest suboptimal adherence to WHO recommendations for physical activity among young adults [14]. The predominance of weight loss and endurance improvement as fitness goals indicates body-image awareness and performance orientation rather than holistic health motivation. These findings underscore the importance of structured exercise counselling integrated with academic wellness initiatives [15].

3. Fasting Practices and Awareness

Nearly half of the respondents (46%) practiced fasting, with selective fasting being the most common. Awareness of

intermittent fasting was high (78%), largely influenced by social media (80%), followed by health professionals (68%). Although trust in these information sources was high (79%), the strong reliance on social platforms raises concerns about misinformation [16,17]. Most participants (84%) expressed willingness to learn the scientific basis of fasting, suggesting a promising opportunity for evidence-based nutritional education campaigns. The finding that selective fasting was preferred over complete fasting aligns with current trends emphasizing flexibility and metabolic benefits [18,19].

4. Nutritional Knowledge and Dietary Habits

Students demonstrated strong foundational nutritional awareness-over 90% recognized macronutrients, food supplements, and the importance of hydration. Yet, only half had ever consulted a dietitian or nutritionist, indicating a gap between theoretical knowledge and professional guidance. Awareness regarding detoxifying agents, probiotics, and immune boosters was moderate, suggesting areas for curriculum enhancement [20]. Moreover, dietary behaviour reflected cultural diversity: 57% followed vegetarian diets, and 63% consumed outside food at least once a week. The dominance of mustard oil and desi ghee as cooking fats suggests traditional preferences, while the universal use of iodized salt (100%) reflects successful public health intervention. These habits reveal both health-promoting and risk-inducing tendencies among educated youth [21].

5. Association Between Knowledge and Practice

A significant association ($p < 0.05$) was found between nutritional knowledge and fasting practices. Students with higher awareness demonstrated structured fasting behaviors and maintained balanced meals during eating windows, whereas those with limited knowledge showed irregular fasting patterns and potential nutrient inadequacies. This finding reinforces the theory that informed individuals are more capable of translating knowledge into effective dietary behavior. Similar associations have been reported by previous studies, confirming that nutrition education directly influences health-promoting practices among university students [22].

6. Implications and Recommendations

The observed trends highlight the urgent need for integrating formal nutritional literacy programs and wellness campaigns in university curricula. Initiatives such as workshops, peer-education drives, and expert-led counselling sessions can enhance students' ability to make informed dietary choices. Moreover, collaborations between academic institutions and nutrition professionals can promote sustainable fasting and eating practices, thereby improving metabolic health and overall well-being [23].

Conclusion

The present study highlights the interrelationship between nutritional knowledge, dietary behaviour, and fasting practices among university students of Babasaheb Bhimrao Ambedkar University. The findings reveal that while most participants possess good theoretical understanding of nutrition- particularly regarding macronutrients, hydration, and balanced diets- gaps persist in practical application and professional consultation. A considerable proportion of students engage in fasting and physical activity; however,

irregular fasting patterns, inconsistent meal timings, and reliance on social media for nutritional information reflect partial translation of knowledge into healthful practice. The statistically significant association ($p < 0.05$) between higher nutritional knowledge and structured fasting behaviour emphasizes the critical role of awareness and education in shaping healthy lifestyles. Therefore, integrating evidence-based nutrition education, expert guidance, and behavioural interventions within university programs is essential to foster sustainable dietary habits, prevent lifestyle-related disorders, and promote overall student well-being.

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