

Exploring the Relationship between Knowledge of Fast Food and Junk Food Consumption and Sociodemographic Characteristics among High School Students in Bogura Town, Bangladesh

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DOI: [10.36348/sjimps.2024.v10i06.011](https://doi.org/10.36348/sjimps.2024.v10i06.011)

| Received: 18.05.2024 | Accepted: 25.06.2024 | Published: 28.06.2024

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Abstract

Background: The increasing consumption of fast food and junk food among adolescents is a growing public health concern, particularly in urban areas of developing countries like Bangladesh. This study aims to explore the relationship between knowledge of fast food and junk food consumption and sociodemographic characteristics among high school students in Bogura Town, Bangladesh. **Methods:** This cross-sectional descriptive study was conducted at the Department of Community Medicine, Rajshahi Medical College, from January 2023 to December 2023. A total of 384 high school students from various schools in Bogura were selected using purposive sampling. Data were collected using a pretested semi-structured questionnaire and analyzed using SPSS version 26. Descriptive statistics and chi-square tests were employed to assess associations between variables. **Result:** The majority of participants were aged 14-16 years (58.07%) and female (66.15%). Most students resided in urban areas (95.31%) and came from nuclear families (87.24%). Parental education levels were high, with 56.77% of fathers and 37.76% of mothers being graduates or having higher education. Despite this, only 23.70% of students had complete knowledge about the nutritional value of fast food and junk food. Significant associations were found between knowledge levels and gender, parental education, economic status, and BMI ($p < 0.05$). Fast food consumption was prevalent, with 74.48% consuming it at school and 78.13% consuming instant foods at home. Knowledge gaps were notable in areas such as the effects of saturated fats, metabolism, and chronic disease risks. **Conclusion:** The findings highlight significant gaps in nutritional knowledge among adolescents, despite high rates of fast food consumption. Sociodemographic factors play a crucial role in influencing nutritional knowledge. There is an urgent need for targeted educational programs to address these gaps and promote healthier eating habits among adolescents to improve long-term health outcomes.

Keywords: Adolescents, Fast food consumption, Nutritional knowledge, Sociodemographic factors, Public health.

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INTRODUCTION

The consumption of fast food and junk food has escalated globally, especially among adolescents, contributing significantly to rising obesity rates and related health issues. In low- and middle-income countries (LMICs), approximately 55.2% of adolescents consume fast food at least once per week, with 10.3% consuming it 4-7 times per week, indicating a growing

public health concern [1]. This global trend is mirrored in Bangladesh, where rapid urbanization and lifestyle changes have led to an increase in fast food consumption among young people [2]. Adolescence is a critical period for establishing dietary habits, and the choices made during this time can have long-term health implications. Poor eating habits established during adolescence, such as frequent consumption of fast food, are likely to lead to negative long-term health consequences [3]. The

importance of understanding the dietary behaviors of adolescents is underscored by the significant public health implications of fast food consumption. High consumption of fast food is linked to numerous health issues, including obesity, diabetes, and cardiovascular diseases, which pose significant public health challenges [4]. Adolescents from low-income families are particularly vulnerable due to the compounded effects of economic strain, limited access to healthy foods, and socio-cultural factors that promote unhealthy eating habits [5]. Addressing these dietary behaviors in adolescence is crucial for preventing long-term health consequences and reducing the burden on healthcare systems. Nutritional knowledge plays a vital role in shaping dietary habits. Studies have shown that increased nutritional knowledge can effectively reduce fast food consumption among adolescents [6]. However, the relationship between nutritional knowledge and dietary behaviors is complex and influenced by various factors, including peer pressure, social norms, and family habits. Adolescents' eating behaviors are significantly influenced by their peers and social environment, often leading to unhealthy eating patterns [7]. Peer pressure and social norms can shape food choices, with adolescents often conforming to the dietary habits of their peers to fit in socially [8]. Family habits also play a crucial role in shaping adolescents' dietary behaviors. Adolescents are influenced by their parents' eating habits and the availability of food at home [9]. Parental guidance and family support are critical in promoting healthy eating habits among adolescents, but low socioeconomic status and limited educational levels can hinder these efforts [10]. Moreover, environmental factors such as the availability of fast food outlets and economic factors like food prices and household income significantly affect dietary habits [11]. The increasing availability of fast food and the relatively low cost compared to healthier options make fast food a convenient choice for many adolescents, particularly in low-income settings [5]. Despite the existing knowledge on the influence of nutritional education and the socio-environmental factors affecting dietary behaviors, there is a gap in understanding how these factors interact to influence fast food consumption among adolescents, particularly in specific contexts such as Bogura Town, Bangladesh. This study aims to fill this gap by exploring the relationship between knowledge of fast food, junk food consumption, and sociodemographic characteristics among high school students in Bangladesh. By examining how factors such as age, gender, socioeconomic status, and nutritional knowledge

influence dietary choices, this research seeks to provide a comprehensive understanding of the drivers of unhealthy eating behaviors in this population.

METHODS

This cross-sectional descriptive study was conducted at the Department of Community Medicine, Rajshahi Medical College, Rajshahi, Bangladesh. The study duration was one year, from January 2023 to December 2023. The study population comprised high school students of both sexes from various high schools in Bogura, including Bogura Zilla School, Police Line School & College, Bogura, Yaqubia Girl's High School, Bogura, VM Girl's High School, Bogura, and BIAM Model School & College, Bogura. A sample size of 384 students was determined using purposive sampling. Inclusion criteria included high school students of both genders who were available on the day of the interview, while students unwilling to participate were excluded. Prior to data collection, a questionnaire was developed based on the study's objectives and pretested among 20 high school students from a nearby school in Bogura. The pretest helped refine and finalize the questionnaire. Participants were briefed about the study's purpose before data collection commenced. Data were collected using a semi-structured questionnaire that included variables of interest, and the information was recorded on a data sheet. Weight was measured to the nearest 0.5 kg using a digital weight machine, and height was measured to the nearest centimeter using a measuring tape, with students standing without shoes. These measurements were used to calculate the body mass index (BMI) for each participant. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) software, version 26. Qualitative variables were described using frequency and percentage, while quantitative variables were described using mean and standard deviation. The chi-square test was applied for categorical data, with statistical significance evaluated at a probability level of $p < 0.05$ for all tests. Ethical approval was obtained from the Institutional Review Board (IRB) of Rajshahi Medical College. The study complied with the Helsinki Declaration for Medical Research Involving Human Subjects (1964, revised in 2013). Participants were verbally informed about the study design, purpose, potential benefits, and risks. They were assured of their right to withdraw from the study at any time for any reason. Consent was obtained from the school authorities after a full briefing on the study's purpose.

RESULTS

Table 1: Distribution of baseline characteristics among the participants (N=384)

Baseline Characteristics	Frequency	Percentage
Age		
11-13	154	40.10%
14-16	223	58.07%
17-19	7	1.82%

Baseline Characteristics	Frequency	Percentage
Gender		
Male	130	33.85%
Female	254	66.15%
Residence		
Urban	366	95.31%
Rural	18	4.69%
Family type		
Joint Family	49	12.76%
Nuclear Family	335	87.24%
Education Status		
Class 6-7	136	35.42%
Class 8-9	197	51.30%
Class 10	51	13.28%
Fathers Education		
Illiterate	4	1.04%
Primary	11	2.86%
SSC/HSC	151	39.32%
Graduate and above	218	56.77%
Mothers Education		
Illiterate	5	1.30%
Primary	18	4.69%
SSC/HSC	216	56.25%
Graduate and above	145	37.76%
Economic status		
Lower Class	33	8.59%
Middle Class	50	13.02%
Upper Class	301	78.39%
BMI of the participants		
Below 18.50- underweight	179	46.61%
18.50 to 24.99- healthy weight	175	45.57%
25 to 29.99- overweight	24	6.25%
30 or above- obesity	6	1.56%

The study included 384 high school students, with the baseline characteristics detailed in Table 1. The age distribution of participants showed that the majority were between 14-16 years old (58.07%), followed by 11-13 years old (40.10%), and a small proportion were 17-19 years old (1.82%). In terms of gender, 66.15% of the participants were female, while 33.85% were male. Most of the students resided in urban areas (95.31%), with only 4.69% living in rural areas. The predominant family structure was nuclear, accounting for 87.24% of participants, whereas 12.76% belonged to joint families. Regarding educational status, 51.30% of the students were in classes 8-9, 35.42% in classes 6-7, and 13.28% in class 10. Examining parental education, 56.77% of

fathers were graduates or had higher education, 39.32% had completed SSC/HSC, 2.86% had primary education, and 1.04% were illiterate. Similarly, 37.76% of mothers were graduates or had higher education, 56.25% had completed SSC/HSC, 4.69% had primary education, and 1.30% were illiterate. In terms of economic status, the majority of the participants came from upper-class families (78.39%), followed by middle-class (13.02%) and lower-class families (8.59%). The BMI distribution among the participants indicated that 46.61% were underweight (BMI below 18.50), 45.57% had a healthy weight (BMI 18.50 to 24.99), 6.25% were overweight (BMI 25 to 29.99), and 1.56% were classified as obese (BMI 30 or above).

Table 2: Distribution of participants by dietary patterns among the participants (N=384)

Dietary Pattern	Frequency	Percentage
Frequency of daily major meal		
Less than 3 times	192	50.00%
More than 3 times	192	50.00%
Food at lunch		
Fast food / junk food	31	8.07%
Homemade food	337	87.76%
Both	16	4.17%

Dietary Pattern	Frequency	Percentage
Skip meal in daily life		
Breakfast	158	41.15%
Lunch	104	27.08%
Dinner	63	16.41%
Don't skip	39	10.16%
2meals	20	5.21%
Reason of skipping meal		
Limited time	215	55.99%
Intentionally	65	16.93%
Habitually	62	16.15%
Others	42	10.94%

The frequency of daily major meals was evenly split among the participants, with 50.00% consuming meals less than three times a day and 50.00% consuming more than three meals daily. When examining the type of food consumed at lunch, a significant majority (87.76%) reported eating homemade food, while 8.07% consumed fast food or junk food, and 4.17% ate both types of food. Meal skipping was common among the

participants, with 41.15% skipping breakfast, 27.08% skipping lunch, and 16.41% skipping dinner. Only 10.16% reported not skipping any meals, while 5.21% skipped two meals per day. The primary reasons for skipping meals included limited time (55.99%), intentional skipping (16.93%), habitual skipping (16.15%), and other reasons (10.94%).

Table 3: Distribution of fast food and junk food consumption patterns among the participants (N=384)

Variables	Frequency	Percentage
Fast food consumption at school		
Yes	286	74.48%
Sometimes	60	15.63%
No	38	9.90%
Instant food (noodles, canned food, microwave food) consumption at home		
Yes	300	78.13%
Sometimes	34	8.85%
No	50	13.02%
commonly consume multiple types of fast food daily		
Yes	299	77.86%
Sometimes	34	8.85%
No	51	13.28%
Fast foods consumed daily		
Burger	20	5.21%
Ice cream	83	21.61%
Sandwich	7	1.82%
Chocolate	39	10.16%
Noodles	50	13.02%
Others	96	25.00%
Multiple	89	23.18%
Place of consumption		
Trip	17	4.43%
At restaurant	83	21.61%
At home	74	19.27%
At school	51	13.28%
At friend's home	5	1.30%
Multiple	154	40.10%
Occasion of consumption		
Special day	60	15.63%
Holyday	40	10.42%
Shopping time	11	2.86%
While travel	30	7.81%
While reading	7	1.82%
Multiple	236	61.46%

Variables	Frequency	Percentage
Time of eating fast food		
Morning	19	4.95%
Noon	21	5.47%
Evening	337	87.76%
Don't eat	1	0.26%
More than once	6	1.56%

A significant majority of students (74.48%) reported consuming fast food at school, while 15.63% did so sometimes, and 9.90% did not consume fast food at school at all. At home, 78.13% of students consumed instant foods such as noodles, canned food, or microwave food regularly, with 8.85% consuming them sometimes and 13.02% not consuming them at all. Daily consumption of multiple types of fast food was reported by 77.86% of the students, 8.85% consumed them sometimes, and 13.28% did not consume multiple types of fast food daily. Among the types of fast foods consumed daily, 25.00% reported consuming various other types of fast foods not specifically listed, 23.18% consumed multiple types, 21.61% consumed ice cream,

13.02% noodles, 10.16% chocolate, 5.21% burgers, 1.82% sandwiches, and 21.61% ice cream. Regarding the place of consumption, 40.10% of students consumed fast food at multiple locations, 21.61% at restaurants, 19.27% at home, 13.28% at school, 4.43% during trips, and 1.30% at a friend's home. The occasions for consuming fast food were also varied, with 61.46% consuming on multiple occasions, 15.63% on special days, 10.42% on holidays, 7.81% while traveling, 2.86% during shopping, and 1.82% while reading. The preferred time for eating fast food was overwhelmingly in the evening (87.76%), with 5.47% consuming it at noon, 4.95% in the morning, 1.56% more than once, and 0.26% not consuming fast food at all.

Table 4: Distribution of the knowledge about fast food and junk food among the participants (N=384)

Variables	Frequency	Percentage
Have complete knowledge about nutritional value of fast food and junk food		
True	91	23.70%
False	172	44.79%
Not Sure	121	31.51%
Fast food and junk food makes a person overweight		
True	363	94.53%
False	15	3.91%
Not Sure	6	1.56%
Fast food and junk food create toxicity in human body		
True	319	83.07%
False	26	6.77%
Not Sure	39	10.16%
Junk food contains a high number of saturated fats which are harmful for the body specially if eaten in abundance		
True	34	8.85%
False	17	4.43%
Not Sure	333	86.72%
Have knowledge about how the fast food affects the body's metabolism and energy level		
True	34	8.85%
False	7	1.82%
Not Sure	343	89.32%
Fast food and junk food is related to heart disease		
True	337	87.76%
False	30	7.81%
Not Sure	17	4.43%
Fast food increases blood sugar		
True	34	8.85%
False	20	5.21%
Not Sure	330	85.94%
Fast food causes raise of blood pressure		
True	34	8.85%
False	12	3.13%
Not Sure	338	88.02%

Variables	Frequency	Percentage
Fast food and junk food can cause cancer		
True	34	8.85%
False	15	3.91%
Not Sure	335	87.24%

The knowledge about fast food and junk food among the participants is summarized in Table 4. Only 23.70% of the students claimed to have complete knowledge about the nutritional value of fast food and junk food, while 44.79% did not, and 31.51% were unsure. A significant majority (94.53%) acknowledged that fast food and junk food contribute to being overweight, with only 3.91% disagreeing and 1.56% unsure. Regarding the belief that fast food and junk food create toxicity in the human body, 83.07% agreed, 6.77% disagreed, and 10.16% were unsure. However, when asked if junk food contains high amounts of saturated fats harmful to the body when eaten in abundance, only 8.85% affirmed this, 4.43% disagreed, and a notable

86.72% were unsure. Knowledge about how fast food affects the body’s metabolism and energy levels was very low, with only 8.85% of students indicating awareness, 1.82% disagreeing, and 89.32% unsure. A substantial 87.76% believed that fast food is related to heart disease, while 7.81% disagreed and 4.43% were unsure. Regarding the impact of fast food on blood sugar levels, 8.85% agreed that it increases blood sugar, 5.21% disagreed, and 85.94% were unsure. Similarly, only 8.85% believed that fast food raises blood pressure, 3.13% disagreed, and 88.02% were unsure. Lastly, when asked if fast food and junk food can cause cancer, 8.85% agreed, 3.91% disagreed, and 87.24% were unsure.

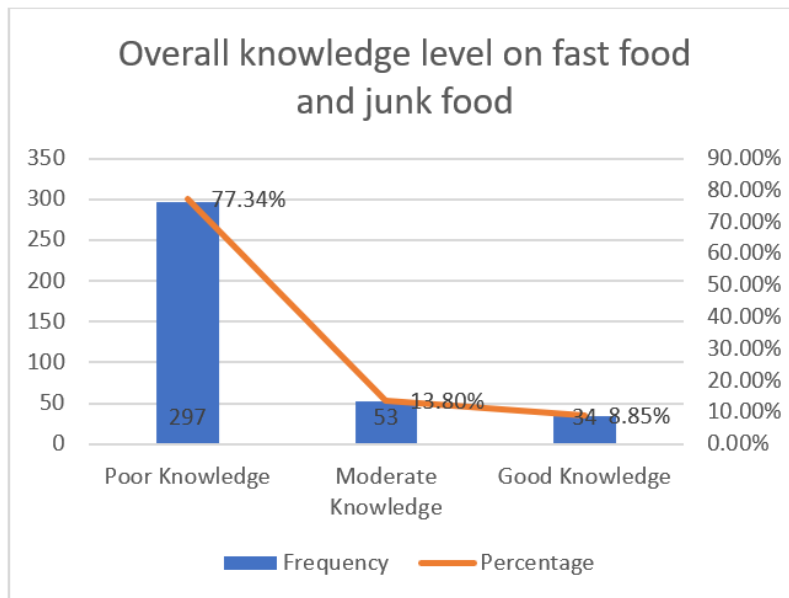


Figure 1: Distribution of participants by overall knowledge level on fast food and junk foods (N=384)

The distribution indicates that a substantial majority of the students (77.34%) have poor knowledge regarding fast food and junk food, while 13.80% possess moderate knowledge, and only 8.85% have good

knowledge. This graphical representation underscores the significant knowledge gap among the majority of high school students about the nutritional and health impacts of fast food and junk food.

Table 5: Association between knowledge of fast food and junk food and sociodemographic characteristics of the participants (N=384)

Sociodemographic Characteristics	Knowledge on fast food and junk food			p-value
	Poor n=297	Moderate n=53	Good n=34	
Age				
11-13	125 (42.09%)	15 (28.30%)	14 (41.18%)	>0.05
14-16	167 (56.23%)	37 (69.81%)	19 (55.88%)	
17-19	5 (1.68%)	2 (3.77%)	1 (2.94%)	
Gender				
Male	92 (30.98%)	20 (37.74%)	18 (52.94%)	<0.05
Female	205 (69.02%)	33 (62.26%)	16 (47.06%)	

Sociodemographic Characteristics	Knowledge on fast food and junk food			p-value
	Poor	Moderate	Good	
	n=297	n=53	n=34	
Residence				
Urban	283 (95.29%)	52 (98.11%)	31 (91.18%)	>0.05
Rural	14 (4.71%)	1 (1.89%)	3 (8.82%)	
Education Status				
Class 6-7	128 (43.10%)	1 (1.89%)	7 (20.59%)	<0.01
Class 8-9	134 (45.12%)	40 (75.47%)	23 (67.65%)	
Class 10	35 (11.78%)	12 (22.64%)	4 (11.76%)	
Fathers Education				
Illiterate	2 (0.67%)	2 (3.77%)	0 (0.00%)	<0.05
Primary	6 (2.02%)	2 (3.77%)	3 (8.82%)	
SSC/HSC	118 (39.73%)	25 (47.17%)	8 (23.53%)	
Graduate and above	171 (57.58%)	24 (45.28%)	23 (67.65%)	
Mothers Education				
Illiterate	3 (1.01%)	2 (3.77%)	0 (0.00%)	<0.01
Primary	9 (3.03%)	5 (9.43%)	4 (11.76%)	
SSC/HSC	178 (59.93%)	25 (47.17%)	13 (38.24%)	
Graduate and above	107 (36.03%)	21 (39.62%)	17 (50.00%)	
Economic status				
Lower Class	4 (1.35%)	0 (0.00%)	29 (85.29%)	<0.01
Middle Class	0 (0.00%)	50 (94.34%)	0 (0.00%)	
Upper Class	293 (98.65%)	3 (5.66%)	5 (14.71%)	
BMI of the participants				
Below 18.50- underweight	141 (47.47%)	26 (49.06%)	12 (35.29%)	<0.01
18.50 to 24.99- healthy weight	136 (45.79%)	20 (37.74%)	19 (55.88%)	
25 to 29.99- overweight	18 (6.06%)	6 (11.32%)	0 (0.00%)	
30 or above- Obese	2 (0.67%)	1 (1.89%)	3 (8.82%)	

****Percentages based on category of knowledge on fast food and junk food**

The association between knowledge of fast food and junk food and the sociodemographic characteristics of the participants is presented in Table 5. The analysis shows that knowledge levels are influenced by various sociodemographic factors. Age-wise distribution indicates that the majority of participants with poor knowledge (56.23%) were aged 14-16 years, followed by those aged 11-13 years (42.09%). Participants aged 17-19 years had the least representation in all knowledge categories. However, the differences in knowledge levels across age groups were not statistically significant ($p > 0.05$). Gender-wise, a significant association was found between knowledge levels and gender ($p < 0.05$). More males (52.94%) had good knowledge compared to females (47.06%), while females predominantly had poor knowledge (69.02%). Residence showed that most participants with poor (95.29%), moderate (98.11%), and good knowledge (91.18%) resided in urban areas, with no significant difference observed between urban and rural residents ($p > 0.05$). Educational status exhibited a significant association with knowledge levels ($p < 0.01$). Participants in classes 8-9 showed the highest percentage of moderate (75.47%) and good knowledge (67.65%), while those in classes 6-7 had the highest percentage of poor knowledge (43.10%). The educational level of fathers also significantly influenced knowledge levels ($p < 0.05$). Participants whose fathers had graduate or

higher education showed a higher percentage of good knowledge (67.65%) compared to those whose fathers were illiterate (0.00%) or had primary education (8.82%). Similarly, the educational level of mothers was significantly associated with knowledge levels ($p < 0.01$). Participants with mothers who had graduate or higher education exhibited higher good knowledge (50.00%) compared to those whose mothers were illiterate (0.00%) or had primary education (11.76%). Economic status revealed a significant association with knowledge levels ($p < 0.01$). The majority of participants with poor knowledge (98.65%) belonged to the upper class, whereas the lower class had a notable representation in the good knowledge category (85.29%). BMI showed a significant association with knowledge levels ($p < 0.01$). Participants with healthy weight (BMI 18.50 to 24.99) had the highest percentage of good knowledge (55.88%), while those underweight (BMI below 18.50) had the highest percentage of poor knowledge (47.47%). Overweight participants (BMI 25 to 29.99) had no representation in the good knowledge category.

DISCUSSION

The present study provides a comprehensive analysis of fast food and junk food consumption patterns among high school students in Bogura, Bangladesh, examining the influence of sociodemographic factors

and the level of nutritional knowledge. Our findings reveal significant associations between these variables, aligning with existing literature on adolescent dietary behaviors globally. The age distribution of our participants, predominantly aged 14-16 years (58.07%), is consistent with studies that highlight this critical developmental period characterized by increased autonomy and susceptibility to unhealthy eating habits [12]. Similarly, the gender distribution, with a higher proportion of females (66.15%), aligns with research indicating that female adolescents often exhibit higher rates of dietary concerns and nutritional knowledge [13,14]. Urban residency was predominant among our participants (95.31%), reflecting trends observed in other studies that urban adolescents have greater access to fast food outlets compared to their rural counterparts [15]. This urban-rural divide underscores the necessity of targeted nutritional interventions in urban settings, where fast food availability is higher. The family structure analysis showed that most students came from nuclear families (87.24%), a factor linked to distinct eating habits and dietary patterns [16]. Additionally, the high educational status of parents, particularly fathers (56.77% graduates or higher), correlates with better nutritional knowledge and healthier dietary behaviors among adolescents [17]. This is further supported by findings from the HELENA study, which demonstrated that higher parental education significantly influences adolescents' nutritional knowledge [18]. Economic status played a crucial role in dietary habits, with the majority of participants from upper-class families (78.39%) having better access to nutritious foods, a finding consistent with global studies on socioeconomic disparities in dietary intake [19]. However, despite the higher economic status, the prevalence of underweight (46.61%) and healthy weight (45.57%) participants suggests a complex interplay of factors influencing BMI, including lifestyle and cultural dietary norms [20]. Our study highlights significant gaps in nutritional knowledge, with only 23.70% of participants having complete knowledge about the nutritional value of fast food and junk food. This is concerning given the high rates of fast food consumption observed, particularly at school (74.48%) and at home (78.13%) [2, 21]. The pervasive consumption of instant foods and multiple types of fast food daily (77.86%) reflects a worrying trend that necessitates robust nutritional education programs [1]. The types of fast food consumed, such as ice cream (21.61%) and noodles (13.02%), along with the varied places of consumption, indicate a deep integration of fast food into daily life, mirroring findings from studies in Australia and Seoul [22,23]. This widespread consumption across different occasions and times, particularly in the evening (87.76%), aligns with research linking fast food consumption to convenience and lifestyle patterns [24]. The knowledge gaps identified in our study, particularly regarding the health effects of fast food, are significant. While most participants recognized the link between fast food and being overweight (94.53%) and its toxicity (83.07%),

awareness about saturated fats (8.85%), metabolic impacts (8.85%), and chronic diseases like heart disease (87.76%) and cancer (8.85%) was alarmingly low. Sociodemographic factors significantly influenced knowledge levels, with notable differences based on gender, parental education, economic status, and BMI, similar to the findings of existing studies [25,26]. Females generally had higher nutritional knowledge, possibly due to greater health consciousness. The influence of parental education and economic status on nutritional knowledge underscores the need for inclusive educational interventions that address these disparities [27,28]. In conclusion, our findings highlight the critical need for targeted nutritional education programs that address the significant knowledge gaps and promote healthier eating habits among adolescents. Such programs should consider sociodemographic factors to effectively reach and educate diverse adolescent populations, ultimately contributing to better public health outcomes.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The present study highlights the complex interplay of sociodemographic factors, nutritional knowledge, and dietary behaviors among high school students in Bogura, Bangladesh. Our findings reveal significant gaps in nutritional knowledge and high consumption rates of fast food and junk food, both at school and home. The data indicate that while most students are aware of the general health risks associated with fast food, detailed knowledge about specific health impacts, such as the effects of saturated fats and metabolic disruptions, remains low. Sociodemographic factors, including gender, parental education, economic status, and BMI, significantly influence the level of nutritional knowledge among adolescents. These insights underscore the urgent need for comprehensive, targeted nutritional education programs that address these knowledge gaps and promote healthier dietary choices. Such interventions are essential for improving adolescent health outcomes and mitigating the long-term risks associated with poor dietary habits. Future research should continue to explore these associations and evaluate the effectiveness of tailored educational initiatives in fostering sustainable healthy eating behaviors among adolescents.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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