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DIETARY HABITS AND FOOD PATTERNS OF SCHOOL GOING ADOLESCENT GIRLS IN RURAL AND URBAN AREAS OF BEGUSARAI DISTRICT, BIHAR

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ABSTRACT

Adolescence is a period of fast growth and development. For girls, this growth usually begins between 10–12 years of age. During this time, many physical, mental, and emotional changes take place. Adolescent girls need special care because they play an important role in the health and well-being of future generations. Their nutritional needs are very important as they are preparing for adulthood and future motherhood. Poor nutrition during adolescence can cause health problems later in life. Eating a balanced and nutritious diet is essential for healthy growth and development. The main aim of this study is to understand the dietary habits and food patterns of school-going adolescent girls.

The study was conducted among 200 adolescent girls from both rural and urban areas of Begusarai district in Bihar using a structured questionnaire. Information was collected about their food intake, socio-economic status, and family education background. The findings showed that the average daily dietary intake of these girls was lower than the Recommended Dietary Allowance (RDA). Daily consumption of milk and milk products was also very low. Overall, the results indicated poor nutritional status among the girls. There is a need to educate adolescent girls about the importance of eating nutritious foods and avoiding unhealthy items. Nutrition education from the primary school level can help them choose a variety of healthy foods and maintain a proper body weight.

KEYWORDS: Adolescent girls, Dietary habits, Dietary pattern, Nutrition status.

INTRODUCTION

Adolescence is a very important stage in a girl's life. It is the period between childhood and adulthood, during which many physical, mental, and emotional changes take place. Adolescent girls are often nutritionally vulnerable because many of them have poor eating habits and do not meet their daily nutritional needs. According to Census 2011, India has 253.2 million adolescents (10–19 years), which is 20.9% of the total population. This means that every fifth person in the country is an adolescent, and about 120 million of them are girls. Since these girls represent the future of the nation, their nutritional status is extremely important.

A healthy diet plays a key role in the proper growth and development of adolescents. In this age group, both undernutrition and overnutrition are common. Good nutrition helps children grow well, learn better, stay healthy, and participate actively in their communities. The human body needs seven major nutrients: carbohydrates, proteins, fats, vitamins, minerals, fiber, and water. Foods are divided into ten groups, and each group provides essential nutrients and energy needed for normal growth and good health. It is important to choose foods rich in proteins, vitamins, and minerals, rather than foods high in fat, salt, or empty calories.

Many adolescents in India suffer from nutritional deficiencies because they lack awareness about their food requirements. Poor nutrition can begin before birth and continue through childhood, adolescence, and adulthood. Adolescence is a period of rapid physical growth; therefore, proper nutrition during this time is crucial. Milk provides calcium and vitamin A, which are essential for strong bones and good vision. Vegetables and fruits give vitamins, minerals, and fiber. Pulses are an important source of protein in the daily diet. Including these foods helps in forming a balanced diet, which is necessary for healthy physical and mental development.

Because of this, it is important to study the dietary habits and food patterns of adolescent girls. Understanding what they eat helps in planning better nutrition programs and ensuring proper care. The present study aims to assess the nutritional status and dietary patterns of adolescent girls.

OBJECTIVES:
- To assess the dietary intake of different food items among the respondents.

- To study the existing dietary patterns of the adolescent girls.
- To compare the dietary intake of girls from rural and urban areas.

MATERIAL AND METHODS:

To study the dietary habits and food patterns of school-going adolescent girls in the rural and urban areas of Begusarai district, specific materials and methods were used. The details are given below:

Study Subjects

The study included school-going adolescent girls aged 12–15 years.

Selected Area

Both rural and urban areas of Begusarai district were chosen for the study.

Sample Size

A total of 200 adolescent girls were selected, with 100 girls from rural areas and 100 girls from urban areas.

Method of Data Collection

Data were collected through personal interviews using a pre-designed questionnaire. The questionnaire included questions related to daily dietary intake of different food items such as cereals, pulses, milk and milk products, green leafy vegetables, fruits, sugar, and beverages.

Food and Nutrient Assessment

Accurate information about the girls' daily food consumption and dietary patterns was gathered to assess their nutrient intake.

Table 1 . Age-wise distribution of adolescent girls under study areas.

Study area (Block)		Completed age in years				Total
	>12	13	14	15	<16	
Barauni (n=100)	11 (11%)	21 (21%)	26 (26%)	40 (40%)	2 (2%)	**100 (100.00)**
Bhagwanpur (n=100)	10 (10%)	28 (28%)	37 (37%)	24 (24%)	1 (1%)	**100 (100.00)**
Total N=200	**21 (21%)**	**49 (49%)**	**63 (63%)**	**64 (64%)**	**3 (3%)**	**200 (100.00)**

Table 1 shows that the age-wise distribution of 200 adolescent girls from two study areas, Barauni and Bhagwanpur, with 100 respondents from each block. In Barauni, the largest proportion of girls belonged to the 15-year age group (40%), followed by 14 years (26%), 13 years (21%), and above 12 years (11%), while only 2% were below 16 years. Similarly, in Bhagwanpur, the majority of respondents were aged 14 years (37%), followed by 13 years (28%) and 15 years (24%), with 10% above 12 years and only 1% below 16 years. When data from both areas were combined, the highest number of adolescent girls were in the 15-year age group (64%), followed by 14 years (63%) and 13 years (49%), whereas a very small proportion (3%) belonged to the below-16 years category. Overall, the table indicates that most of the respondents were concentrated in the middle adolescent age groups (13–15 years) in both study areas, reflecting a fairly comparable age distribution between Barauni and Bhagwanpur.

Table 2. Standards in school of adolescent girls under study areas

Study area (Block)	Standards (Class) of adolescent girls			Total
	$\geq 7^{th}$ to 8th	9th to 10th	11th to 12th	
Barauni (n=100)	18 (18%)	44 (44%)	38 (38%)	**100 (100.00)**
Bhagwanpur (n=100)	24 (24%)	47 (47%)	29 (29%)	**100 (100.00)**
Total N=200	**42** (21%)	**175** (45.5%)	**67** (33.5%)	**200 (100.00)**

Figures in parentheses indicate the percentage.

Table 2 shows that the distribution of adolescent girls according to their school standards in the two study areas, Barauni and Bhagwanpur, with a total sample size of 200 respondents. In Barauni block, the highest proportion of girls were studying in classes 9th to 10th (44%), followed by those in classes 11th to 12th (38%), while 18% were enrolled in classes above 7th to 8th standard. In Bhagwanpur block, a similar pattern was observed, with nearly half of the respondents (47%) studying in classes 9th to 10th, followed by 29% in classes 11th to 12th and 24% in classes above 7th to 8th. On combining data from both study areas, the majority of adolescent girls (45.5%) were studying in classes 9th to 10th, followed by 33.5% in classes 11th to 12th, while 21% were enrolled in classes above 7th to 8th. Overall, the table reveals that most of the adolescent girls in both blocks were concentrated at the secondary school level, indicating comparable educational status across the two study areas.

Table 3. Food habits of adolescent girls under study areas.

Sex	Food habits of adolescent girls		Total
	Vegetarian	**Non-vegetarian**	
Barauni (n=100)	16 (16%)	84 (84%)	**100 (100.00)**
Bhagwanpur (n=100)	21 (21%)	79 (79%)	**100 (100.00)**
Total N=200	**37 (18.5%)**	**163 (81.5%)**	**200 (100.00)**

Table 3 show that the food habits of adolescent girls in the two study areas, Barauni and Bhagwanpur, comprising a total of 200 respondents. In Barauni block, the majority of adolescent girls were non-vegetarian, accounting for 84% of the respondents, while only 16% followed a vegetarian diet. Similarly, in Bhagwanpur block, a large proportion of girls (79%) consumed a non-vegetarian diet, whereas 21% were vegetarians. When the data from both study areas were combined, it was observed that 81.5% of the adolescent girls were non-vegetarian and only 18.5% were vegetarian. Overall, the table indicates that non-vegetarian food habits were predominant among adolescent girls in both study areas, with only a small proportion adhering to a vegetarian diet.

Table 4. Frequency of meal in daily diet of adolescent girls under study areas

Study area (Block)	Frequency of meal in daily diet of adolescent girls (Rs)				Total
	1 time	**2 times**	**3 times**	**4 times**	
Barauni (n=100)	1 (1.00)	-	85 (85.00)	14 (10.00)	100 (100.00)
Bhagwanpur (n=100)	0	1 (1.00)	80 (80.00)	19 (19.00%)	100 (100.00)
Total N=200	1 (1.00%)	1 (01.00%)	165 (82.5%)	33 (16.50%)	200 (100.00)

Table 4 shows that the frequency of meals consumed daily by adolescent girls in the two study areas, Barauni and Bhagwanpur, with a total sample of 200 respondents. In Barauni block, the majority of adolescent girls (85%) reported consuming three meals per day, while 14% consumed four meals daily. Only 1% of respondents consumed one meal per day, and

none reported consuming two meals daily. In Bhagwanpur block, a similar trend was observed, where most girls (80%) consumed three meals per day, followed by 19% who consumed four meals daily. A very small proportion (1%) consumed two meals per day, while none reported consuming only one meal per day. When data from both study areas were combined, it was found that a large majority of adolescent girls (82.5%) consumed three meals daily, followed by 16.5% who consumed four meals per day. Only 1% each consumed one meal or two meals per day. Overall, the table indicates that three meals per day was the most common dietary pattern among adolescent girls in both study areas, reflecting a generally regular meal frequency.

Table 5. Food diversity in daily diet of adolescent girls in urban area of Barauni Block (n = 100)

Food groups	Inclusion of food groups					Total (N=100)
	Daily	**Weekly**	**Monthly**	**Sometimes**	**Never**	
Cereal and Cereal products	100 (100.00)	-	-	-	-	100 (100.00)
Legumes and pulses	94 (94.00)	6 (6.00)	-	-	-	100 (100.00)
Nuts & oilseeds	1 (1.00)	1 (1.00)	5 (5.00)	93 (93.00)	-	100 (100.00)
Green leafy vegetables	5 (5.00)	48 (48.00)	46 (46.00)	1 (1.00)	-	100 (100.00)
Green vegetables	99 (99.00)	-	1 (1.00)	-	-	100 (100.00)
Other Vegetables	7 (7.00)	43 (43.00)	51 (51.00)	2 (2.00)	-	100 (100.00)
Fruits	18 (18.00)	58 (58.0)	22 (22.00)	4 (4.00)	-	100 (100.00)
Milk and Milk products	58 (58.00)	25 (25.00)	17 (17.00)	-	-	100 (100.00)
Eggs	22 (22.00)	38 (38.00)	27 (27.00)	3 (3.00)	10 (10.00)	100 (100.00)
Meat and fish	-	28 (28.00)	54 (54.00)	12 (12.00)	6 (6.00)	100 (100.00)

Table 5 shows that the food diversity in the daily diet of adolescent girls in the urban area of Barauni block. The data reveal that cereals and cereal products were consumed daily by all respondents (100%), indicating their role as the staple food. Legumes and pulses were also regularly included, with 94% consuming them daily and 6% on a weekly basis. In contrast, the consumption of nuts and oilseeds was very limited, as 93% of the girls reported consuming them only sometimes, while negligible proportions consumed them daily (1%), weekly (1%), or monthly (5%). Green leafy vegetables showed moderate inclusion, with 48% consuming them weekly and 46% monthly, whereas only 5% consumed them daily. Green vegetables were widely consumed, with 99% reporting daily intake. Other vegetables were mainly consumed monthly (51%) and weekly (43%), with very few consuming them daily. Fruit consumption was comparatively low on a daily basis, with only 18% consuming fruits daily, while the majority consumed them weekly (58%) or monthly (22%). Milk and milk products formed an important component of the diet, as 58% of the respondents consumed them daily and 25% weekly. Regarding animal-based foods, eggs were consumed mostly on a weekly (38%) or monthly (27%) basis, while 10% of the respondents never consumed eggs. Meat and fish were largely consumed monthly (54%) or weekly (28%), with only a small proportion consuming them sometimes or never. Overall, the findings indicate that while staple foods and basic vegetables were commonly consumed, the intake of fruits, green leafy vegetables, nuts, and animal-source foods was comparatively infrequent, suggesting limited dietary diversity among adolescent girls in the urban area of Barauni block.

Table 5. Food diversity in daily diet of adolescent girls in urban area of Bhagwanpur Block (n = 100)

Food groups	Inclusion of food groups					Total
	Daily	**Weekly**	**Monthly**	**Sometimes**	**Never**	**(N=100)**
Cereal and Cereal products	100 (100.00)	-	-	-	-	100 (100.00)
Legumes and pulses	89 (89.00)	1 (1.00)	-	-	-	90 (90.00)
Nuts & oilseeds	1 (1.00)	3 (3.00)	28 (28.00)	57 (57.00)	-	89 (89.00)
Green leafy vegetables	6 (6.00)	65 (65.00)	8 (8.00)	2 (2.00)	-	81 (81.00)
Green	96	-	1	-	-	97

vegetables	(96.00)		(1.00)			(97.00)
Other Vegetables	8 (8.00)	16 (16.00)	62 (62.00)	6 (6.00)	-	92 (92.00)
Fruits	7 (7.00)	54 (54.00)	18 (18.00)	14 (11.33)	-	93 (93.00)
Milk and Milk products	62 (86.67)	8 (8.00)	-	5 (5.00)	-	75 (75.00)
Eggs	3 (3%)	28 (28.00)	30 (30.00)	8 (8.00)	10 (10.00)	79 (79.00)
Meat and fish	-	22 (22.00)	35 (35.00)	2 (2.00)	8 (8.00)	67 (67.00)

The table shows that that all adolescent girls in the urban area of Bhagwanpur block consumed cereals daily. Legumes and pulses and green vegetables were also commonly consumed on a daily basis. However, the consumption of nuts and oilseeds, green leafy vegetables, fruits, and other vegetables was mainly weekly, monthly, or occasional. Milk and milk products were included daily by many respondents, while eggs and meat/fish were largely consumed on a weekly or monthly basis, with some girls never consuming them. Overall, the findings reflect a cereal-dominated diet with limited dietary diversity among adolescent girls in Bhagwanpur block.

Table 7. Type of fast food in consumption among adolescent girls in rural and urban area of Begusarai district (n = 200)

Fast food types	Barauni (n=100)	Bhagwanpur (n = 100)	Total (N=200)
Burger	20 (20.00)	12 (12.00)	32 (16.00)
Pizza	25 (25.00)	12 (12.00)	37 (18.5)
French fries	18 (18.00)	2 (2.00)	20 (10.00)
Patties	12 (12.00)	2 (02.00)	14 (7.00)
Chowmin	65 (65.00)	38 (38.00)	103 (51.50)
Hot dog	2 (2.00)	0	2 (1.00)
Egg roll	32 (32.00)	18 (18.00)	50 (25.00)

The table 7 shows the types of fast foods consumed by adolescent girls in rural and urban areas of Begusarai district. Chowmein was the most commonly consumed fast food in both Barauni (65%) and Bhagwanpur (38%), accounting for 51.5% of total consumption. This was followed by egg roll (25%), pizza (18.5%), and burger (16%) at the overall level. French fries (10%) and patties (7%) were less commonly consumed, while hot dog consumption was minimal (1%). Overall, fast food consumption was higher in Barauni compared to Bhagwanpur, with chowmein and egg rolls being the most preferred items among adolescent girls in both areas.

OBSERVATION AND ASSESSMENT:

The findings of the study reveal distinct patterns in the dietary habits of school-going adolescent girls from rural and urban areas of Begusarai District. Most girls were found to consume staple food items such as cereals and cereal products on a daily basis, indicating adequate access to basic food grains. Green vegetables and legumes were also part of their regular meals, suggesting that some essential nutrients, particularly carbohydrates, fiber, and plant-based proteins, were available in their routine diet.

However, the frequency of consumption of nutrient-dense foods was noticeably low. A majority of girls consumed fruits, nuts, oilseeds, eggs, meat, and fish either weekly or monthly. Only a small proportion reported daily intake of these items. Green leafy vegetables—an important source of iron, folate, and micronutrients—were also not consumed daily by many girls, with most reporting weekly or monthly intake.

These patterns reflect a dependence on staple foods with limited inclusion of protective and body-building foods. This dietary imbalance may contribute to nutritional deficiencies, particularly iron, protein, and vitamin deficiencies, which are common among adolescent girls. The restricted variety in the daily diet highlights a gap in nutritional awareness, affordability, or availability of diverse food items.

Overall, the assessment clearly indicates that although the girls had regular meals and access to basic food items, their diets lacked adequate diversity. Enhancing the consumption of fruits, green leafy vegetables, milk products, and protein-rich foods is essential for supporting proper growth, cognitive development, and overall health during adolescence.

CONCLUSION:

The study on dietary habits and food patterns of school-going adolescent girls in rural and urban areas of Begusarai district, Bihar, reveals that most girls follow regular eating routines, with the majority consuming three meals per day. Cereals, green vegetables, and legumes constitute the primary components of their daily diet, indicating adequate availability of staple foods.

However, the intake of nutrient-dense foods such as fruits, green leafy vegetables, nuts, oilseeds, milk and milk products, eggs, meat, and fish was found to be limited, particularly on a daily basis. This reflects low dietary diversity despite sufficient access to basic food items. Both rural and urban adolescent girls showed a heavy dependence on staple foods, with inadequate consumption of protein-, vitamin-, and mineral-rich foods essential for optimal growth and development during adolescence.

Overall, the study highlights the need to improve nutritional awareness and promote diversified diets among adolescent girls. Emphasis should be placed on the regular inclusion of protective and body-building foods in daily meals to support healthy physical growth, prevent nutritional deficiencies, and ensure overall well-being during this critical stage of life.

SUGGESTIONS:

1. **Nutrition Awareness Programs:** Schools and community centers should organize awareness sessions for students and parents on the importance of balanced diets.
2. **Increase Intake of Fruits and Green Leafy Vegetables:** Girls should be encouraged to include at least one serving of fruits and leafy vegetables every day.
3. **Promote Protein-rich Foods:** Regular consumption of eggs, milk, pulses, meat, and fish should be encouraged to meet protein requirements.
4. **Introduce School-based Midday Supplements:** Schools can provide nutritious snacks like seasonal fruits, sprouts, or milk to improve dietary diversity.
5. **Counseling for Healthy Eating Habits:** Adolescents should receive guidance on avoiding meal skipping and maintaining a routine of three balanced meals a day.
6. **Parental Involvement:** Parents must be educated to include affordable yet nutritious food items like sprouts, peanuts, seasonal vegetables, and eggs in the family diet.

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