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Socioeconomic Disparity and Dietary Pattern of School Children in Pabna

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Abstract

Introduction: A limited number of dietary assessments based on socioeconomic conditions specifically designed for children are available ***Objective:*** The purpose of this study was to investigate differences in dietary patterns of youth by socioeconomic status. ***Methodology*:** This descriptive study involved 100 students from primary and high schools in Pabna, Bangladesh, conducted from January to June 2021. Only students with tiffin facilities were included. Data was collected through a questionnaire, with the average completion time being around 15 minutes. ***Results:*** In a study of 100 participants, 49% were male and 51% were female, with 31% from primary school and 69% from high school. The participants were categorised by socioeconomic status: 59% low, 36% middle, and 5% high. Most students (58%) did not pay for their meals. Among high socioeconomic students, cereals (mean serving size 6.92) and meat met standard serving sizes, while fruits fell short (mean serving size 1.53). For middle-class students, cereals also had the highest mean serving size at 5.08, while fruits again had a low mean at 0.54. Overall, fruits, vegetables, and milk were below standard serving sizes for all students, and fats exceeded the recommended amount for both groups. ***Conclusions:*** The findings of this study show dietary patterns depend on socioeconomic conditions among school-going students. As socio-economic status tends to get better, diet quality improves and promotes a healthy lifestyle as compared to those living in improvised conditions.

Keywords: Dietary intake, food habit, socioeconomic status, food availability.

INTRODUCTION

Socioeconomic status significantly influences health inequalities among young children. Dietary patterns depend on food availability and cultural factors. A balanced diet provides essential nutrients for growth and daily function. Enjoying healthy foods can enhance quality of life. School nutrition plays a vital role in promoting student health. Optimal nutrition includes three meals and two snacks daily while limiting sugary and fatty foods. A variety of fruits, vegetables, lean meats, and low-fat dairy can help prevent obesity, weakened bones, and diabetes [1-4]. The growth of a child primarily occurs during school age, making optimal nutrition crucial as dietary habits are influenced by school and peer interactions. A proper diet is essential for meeting daily nutritional needs and supporting physical and mental development. If these needs are unmet, malnutrition can hinder growth and learning capabilities, negatively impacting long-term health. Despite improvements in nutritional standards due to economic growth and increased food availability, negative trends such as irregular meal patterns and unhealthy snacks persist. Establishing healthy eating habits is vital but takes time, influenced by education, culture, family dynamics, and socioeconomic factors [5, 6]. Children's diets can be evaluated using food guidelines, which require accurate assessments of their intake from various food groups. Common tools for assessing dietary intake include 24-hour recalls, food records, and food frequency questionnaires, though data collection can be challenging in large studies. After gathering data, nutrient intake can be compared to established standards, such as the Food Guide Pyramid, which recommends serving sizes based on caloric needs [7-9]. Eating is a socially learned behaviour influenced by social pressures, and many habits are formed in school, where over half of U.S. youth eat at least one of their main meals. Schools have a crucial role in promoting healthy eating, especially since the Child Nutrition and WIC Reauthorization Act of 2004 [10, 11]. Research shows disparities in diet-related behaviours among youth, particularly regarding socioeconomic status. Generally, lower socioeconomic status is linked

to poorer diets. However, few studies address how race and ethnicity may affect this relationship. For example, Fahlman et al. [12] found that Black middle school students from low-income backgrounds tended to consume more empty-calorie foods and fewer fruits, vegetables, dairy, and grains compared to higher-income White peers [12, 13]. This study aims to study the socioeconomic condition and dietary patterns among school-going students in Pabna. Ethical clearance and written consent were assured before the study.

OBJECTIVES

- ***General Objective:*** The primary aim of this study was to evaluate the dietary pattern of school children in Pabna.
- ***Specific Objective:*** This study targeted to illustrate the socioeconomic disparity and dietary pattern of primary and high school children living in Pabna.

METHODOLOGY

This 5-month descriptive study included 100 school students studying in primary and high schools in Pabna Sadar, Bangladesh from January 2021 to June 2021. The present study included only students who had tiffin facilities at their school.

Inclusion criteria: The current study included school going students only who had tiffin facilities at their schools. Also, legally accepted guardians, who gave consent and were willing to comply with the study procedure.

Exclusion criteria: Patients who were not school students or school-going but were under tiffin facilities and were unwilling to participate in the study were excluded from this study.

Data was collected through a data questionnaire at the school with the help of their teachers. The average completion time was approximately 15 minutes. All analyses controlled for sex and school and were conducted in SPSS 24.0. The data for comparison of food groups was presented in the form of a table. Parental consent was obtained at the beginning of the study period via a signed letter sent home through each school to parents.

RESULT

In 100 cases, 49% was male and 51% was female participants. The study population were from the primary school section and high school section including 31% and 69% of the participants respectively. The population was divided into low (59%), middle (36%) and high (5%) socioeconomic conditions. Most of the students need not to pay for their tiffin at school (58%) where only 42% got paid tiffin [Table-1]. Table 2 shows that cereals and meat were the only food groups that met the standard serving sizes for students from high socioeconomic backgrounds. In this group, the mean serving size for cereals was the highest at 6.92, while fruits had the lowest mean serving size at 1.53. For students from middle-class backgrounds, cereals also had the highest mean serving size at 5.08, with fruits again having the lowest mean at 0.54. Overall, fruits, vegetables, and milk were below the standard serving sizes for all students, and the serving size of fats exceeded the standard for both socioeconomic groups.

Table 1: Basic distribution of study population (n=100).

Variables	Characteristic	Frequency	Percentage
Sex	Male	49	49%
	Female	51	51%
Socioeconomic condition	Low Socioeconomic	59	59.0%
	Middle Socioeconomic	36	36.0%
	High Socioeconomic	5	5.0%
Lunch status	Free	58	58%
	Paid	42	42%
Grade	Primary (I-V)	31	31%
	Secondary (VI-X)	69	69%

Table 2: Comparison of food groups among different schools based on Socioeconomic condition (n=100)

Food Groups	High (Mean ± SD)	Middle (Mean ± SD)	Low (Mean ± SD)	Standard servings
Cereals	6.92 ± 1.914	5.08 ± 1.492	2.05 ± 1.472	6-11
Meat and meat products	3.42 ± 1.192	1.83 ± 0.990	0.86 ± 0.900	3-6
Fruits	1.53 ± 0.743	0.54 ± 0648	0.04 ± 0148	2-3
Vegetables	1.68 ± 0678	1.35 ± 0.889	2.35 ± 0.892	3-4
Milk and milk products	1.66 ± 0.645	0.95 ± 0. 755	0.02 ± 0.700	2-3
Fats and oils	6.08 ± 1.505	3.57 ± 1.321	1.47 ± 1.321	2-3

DISCUSSION

This study examined the differences in dietary behaviors among school-aged children based on their socioeconomic status. It is particularly relevant in the context of Pabna, Bangladesh, which parallels Spartanburg County, South Carolina, where the

southeastern United States reports higher rates of obesity and poorer health outcomes than other regions [15]. Understanding eating behaviours among youth could serve as a potential predictor of health disparities, including childhood and adult overweight/obesity, which may be even more pronounced in the American South. Since obesity in adolescence is strongly linked to adult obesity [16], it is crucial to implement initiatives like the Spartanburg Healthy Schools Initiative to address these health disparities early in life. School-based nutrition education can enhance dietary practices that influence the health, growth, and intellectual development of youth [7]. Research suggests that targeted efforts for specific groups of students may be necessary. Although few studies have compared the eating behaviours of minority and low-income youth with those of white or higher-income youth, evidence indicates that the higher prevalence of obesity in low-income and minority populations is associated with limited access to healthy foods [17, 18].

One possible explanation for our finding that minority youth were significantly less likely to consume healthy proteins compared to white youth may be the lack of accessibility in their immediate food environments. Food deserts, or areas with limited access to healthy food options, are often found in predominantly Black neighbourhoods. According to Kwate *et al.*, "it is easier to get fried chicken than a fresh apple" [19-22]. Additionally, school food environments do not always support healthy food choices. A study by Finkelstein et al. reported that vending machines were present in 17%, 82%, and 97% of elementary, middle, and high schools, respectively, while a la carte items were sold in 71%, 92%, and 93% of these schools. These sources often provide low-nutrient, energy-dense foods and beverages, commonly known as "junk food." The study concluded that as children progress to higher grade levels, their school food environments tend to become less healthy [23].

A survey was conducted to assess the dietary patterns of children aged 9-13 years studying in high and middle socioeconomic schools. The dietary habits of 30 children from two different schools were observed. The health status of students in high socioeconomic schools improved more than those in middle socioeconomic schools, attributed to better living conditions, wider availability of food options, and the greater care and time their parents devoted to them. Carbohydrates are the primary source of energy, making it important to examine the intake of carbohydrates through cereal consumption among these children [24].

Table 1 shows the consumption of cereals by the respondents. A study conducted on students in Nigeria found that starchy foods, such as boiled rice and spaghetti, play a significant role in their diets, with carbohydrate intake from these foods being higher compared to other food groups [25-27]. Additionally, a study in Guatemala investigated fruit and vegetable consumption among students in public and private socioeconomic schools [28]. The mean vegetable intake varied between the two groups, but the difference was not statistically significant. It is essential to consume adequate amounts of vegetables, as they provide greater concentrations of fiber, vitamins, minerals, antioxidants, phytochemicals, and electrolytes. Dark green leafy vegetables, oranges, and red vegetables are particularly recommended [29, 30]. Fruits are important sources of fiber, vitamins, and minerals, and they help maintain water intake. Being low in fats and sodium, fruits are beneficial for the body. Studies indicate that fruit consumption was higher among students in high socioeconomic schools (1.53 servings) compared to those in middle socioeconomic schools (0.54 servings) [31-34]. Cost also plays a crucial role in shaping dietary patterns. Less nutritious, high-energy foods are often more economical sources of calories. Generally, better dietary quality is associated with higher food costs and better socioeconomic status [35-39]. A study conducted in Hyderabad revealed that 96% of children from high socioeconomic backgrounds consumed milk and dairy products, compared to 70% from lower economic classes. This highlights the significant impact that economic class has on children's diets [40]. Not everyone has the luxury of accessing a diverse range of foods. Children tend to develop a preference for foods that align with their social and economic class at a young age. Milk is a vital source of calcium, potassium, and phosphorus, which are essential for strengthening bones, teeth, and promoting muscle mass. Reduced calcium intake can lead to deficiencies, increasing the risk of osteoporosis [41].

CONCLUSION

The research was conducted to assess the dietary pattern of students studying in school of three different socio-economic levels of Pabna. Intervention efforts in schools should take into account socioeconomic differences that might affect nutritional behaviour and actions in order to ensure improved health outcomes for all children for generations to come.

Limitations of the study

A limited population and short study duration may affect the overall outcome of the study. Also, it does not represent the result for the whole nation.

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Conflicts of Interest: No conflicts of interest were found.

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