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Nutritional Status and Food Habits of Child Labor in Rangpur City, Bangladesh

Md. Rafiul Islam[1,6], Jannatul Ferdous Promity[1], Khanam Maraj Afroz[2,6], Sadia Marjan Kaniz[3,6], Md. Razibul Hassan[4] and Khandaker Fadwana Islam[5,*]

[1]Department of Food and Process Engineering, Faculty Engineering, Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh
[2]Department of Food science and nutrition, Faculty Engineering, Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh
[3]Department of Resource Management & Entrepreneurship, Bangladesh Home Economics College, Dhaka, Bangladesh
[4]Scientific Officer, Bangladesh Livestock Research Institute (BLRI), Savar, Dhaka, Bangladesh
[5]Maternal and Child Health and Nutrition Research Project of Johns Hopkins University (Bangladesh), Bangladesh.
[6]Center for Multidisciplinary and Contemporary Research, Rangpur, Bangladesh

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***Correspondence:**
Khandaker Fadwana Islam
Address: Maternal and Child Health and Nutrition Research Project of Johns Hopkins University (Bangladesh), Bangladesh.
Email: koliijaman@gmail.com

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ABSTRACT

Background: In Bangladesh, the harsh reality of child labor persists, with over 8 million children engaged in such work. This not only deprives them of their childhood but also has severe implications for their mental and physical health. This study seeks to investigate the daily food intake and nutritional status of child laborers in Rangpur City, shedding light on the broader health impacts of child labor in this region. **Methods:** The study employed a structured questionnaire and anthropometric measurements to assess the socioeconomic status and dietary habits of participants. Pretesting ensured questionnaire accuracy, while daily and weekly recall methods captured comprehensive food consumption data. Socioeconomic inquiries included income, education, employment, and family details, providing a holistic understanding of participants' circumstances. **Results:** The survey highlights that most working children are aged 12-14, predominantly employed in mechanics and sales, working long hours under precarious conditions for low wages, primarily to support their families. Despite some attending primary school and receiving employer-provided meals and medical aid, these children struggle with inadequate education and nutrition, and a high incidence of workplace accidents. **Conclusion:** Child laborers have often poorer nutritional status than the average person. They are not provided with a proper diet. Consequently, they are dealing with various health problems.

Keywords: Child labor; child nutrition; employed; education; health

1. INTRODUCTION

According to UNICEF and many international legal frameworks, "Child" is generally defined as every human being under the age of eighteen years unless under the law applicable to the child.(1) According to International Labor Organization (ILO), the term "child labor" is often defined as work that depriv es children of their childhood, their

potential, and their dignity, and that is harmful to physical and mental development.[2] This work is damaging to children and dangerous from a mental, physical, social, or moral standpoint. Child labor is a complex, persistent, and widespread global problem whose roots are deeply embodied in cultural and socio-economic structures of societies.[3-5] Although most countries have laws against child labor, many children still work, and this problem has grown significantly in recent years all across the world, particularly in the impoverished developing nations of Asia, Africa, and Latin America. According to the most recent estimates, there were 160 million young people working as minors worldwide at the start of 2020, including 97 million boys and 63 million girls.[6]

In Bangladesh, India, Nepal, and Pakistan, a total of 24 million children aged 5 to 14 are not attending school because of labor. Additionally, over 15 million children aged 5 to 17 are engaged in hazardous work, producing and supplying goods for both local and global markets.[7] Bangladesh faces a serious problem with child labor, much like any other developing nation. Bangladesh has 39.96 million children aged five to seventeen (51.79% boys and 48.21% girls), according to the "National Child Labor Survey 2022," which was published on July 19, 2023. Out of them, 4.4% (1,776,097) worked as children, with 60.14 percent (1,068,212) doing dangerous child labor.[8] Children from economically disadvantaged backgrounds in Bangladesh often end up working outside due to poverty. Their parents who are unable to meet their basic needs, are compelled to have them work to help and support the family.[9] Numerous studies have demonstrated that poverty is the primary cause of child labor, but there are other factors as well, such as conventional family practices, a lack of educational opportunities, dropping out of school, unemployment, the need for cheap labor on the part of employers, the necessity for a daily income for the family, an inadequate set of labor laws, and the nonapplication of those laws.[10]

Children's nutritional health during childhood is regarded as a key predictor of their future well-being since it has a significant impact on their future physical, mental, and intellectual development.[11] The correlation between children's health and their adult welfare and future economic opportunities makes determining the health implications of child labor crucial.[12] Children become vulnerable to wasting from severe food insecurity and caloric energy shortages.[13] A low-quality diet, especially one with a low energy or protein content, or an insufficient supply of nutrients overall, combined with illness, might result in waste. Nearly all of the working children in this demographic eat bread and rice, which are the most easily accessible items.[14] Frequently, they have to rely on left-over rice. These foods are starchy and low in protein and key nutrients. These children experience malnourishment, underweight problems, and stunted bodies as a result of inadequate healthcare facilities, poor hygiene and sanitation practices, and limited access to nourishing food.

It has been discovered that the majority of children who work have various health issues, including fever, gastrointestinal issues, dengue, measles, etc. The nutritional shortcomings have severe consequences. It is not just in their underweight or stunted bodies; "the brain suffers poverty" as well.[15] Early malnutrition has several negative effects, including higher mortality, impaired cognitive development, delayed improvement in motor skills, growth faltering, retardation in development, unsatisfactory academic performance, and lower productivity in adulthood.[16,17] Even though almost all child laborers in Bangladesh are employed in rural regions, those who work in urban areas are more vulnerable to adverse environments and have a higher risk of experiencing a decline in their health and nutritional status.[18] Therefore, present study was undertaken with the aim of investigating the nutritional status and food intake patterns of child laborers in Rangpur city.

2. METHODS

2.1 Study Location and Population

This cross-sectional study was conducted in a commercial area or urban market in Rangpur City that was specifically designed for child laborers. Determining the nutritional status of child laborers is the study's objective. Data was gathered from Children between the ages of 9 to 17 who work in grocery stores, various automobile and other workshop, and construction sites. Total number of subjects involved in the study was 90.

2.2 Questionnaire Development

To determine the socioeconomic status of the subjects, a structured questionnaire was developed, and

data were collected through interviews. The questionnaire was initially prepared in English and subsequently translated into Bengali. The interviews were conducted in Bengali to gather the required information, which was later translated back into English for analysis. Before administering the questionnaire in this cross-sectional study, multiple pretests were conducted to ensure the accuracy of its wording, format, and sequencing.

2.3 Data Collection

Anthropometric measurements were obtained using standard methods. Informed consent was obtained from the subjects prior to data collection. Body weight was measured using a conventional weighing machine and recorded in kilograms. Participants were instructed to remove heavy clothing and stand barefoot during the measurement. Height was measured with the participants standing barefoot on a platform, with their heads held upright and faces looking straight ahead, using a standard height-measuring scale.[19]

The daily and weekly recall methods were employed to collect data on the participants' regular food consumption. Participants were asked about their eating habits, including meals and snacks consumed outside the home. In addition to dietary inquiries, other questions were posed regarding reasons for working instead of pursuing education, income levels, family details, and other socioeconomic factors.[20]

2.4 Data Analysis

The research data was analyzed in Microsoft Excel software. Participants age, body mass index (BMI) from height and weight etc. were sorted and analyzed in this software.

3. RESULTS

3.1 Socio-Demographic Characteristics

Figure 1a shows that the majority (58%) of children engaged in labor fall within the 12-14 age group, followed by those aged 15-17, who constitute 32% of the surveyed population.

Regarding education, 55% of these children were enrolled in primary school before beginning work, while 27% had attended secondary school. Alarmingly, 4% of the children had never attended school. At the time of the survey, only 14% of working children were still enrolled in school, highlighting the significant impact of child labor on educational participation (Figure 1b).

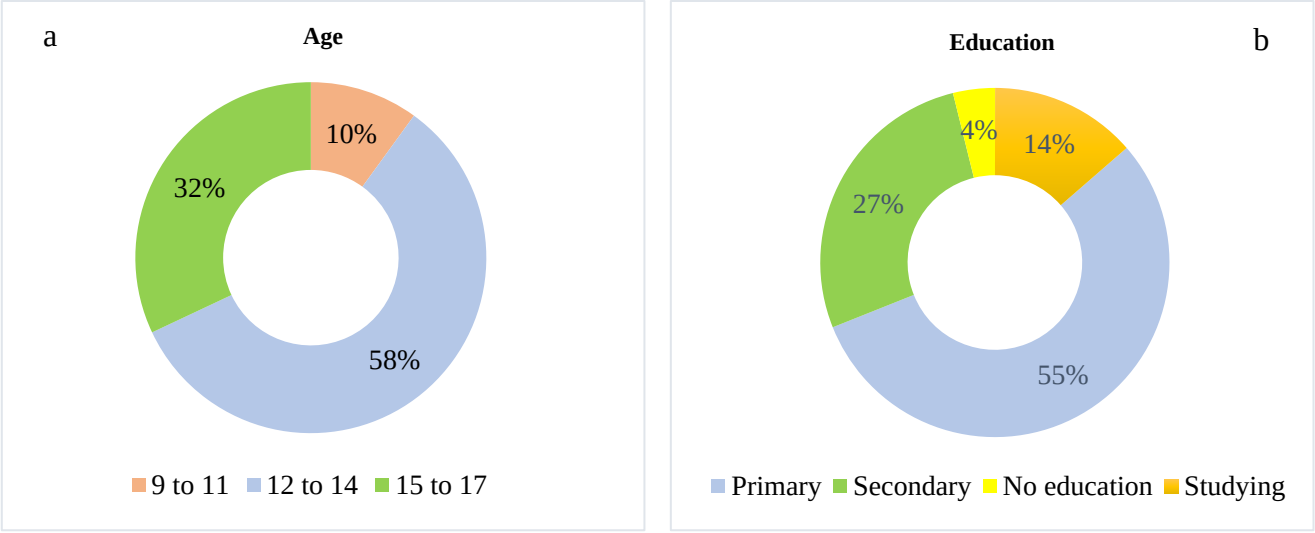

Figure 1. Age (a) and Educational (b) description of child labors

In our survey of parental education, it was observed that 80% of mothers and 70% of fathers had attended primary school. Notably, 14% of mothers and 21% of fathers were unable to sign their names. The occupation of the father plays a significant role in child labor, with 47% of the cases involving fathers who work as rickshaw pullers. Additionally, 14% of the fathers were day laborers or small business owners. In contrast, 20% of mothers were engaged in various jobs, while the majority (80%) were homemakers, dedicated to family care. Economic analysis revealed that 61% of the children come from families with an average monthly

income ranging between 7,001 and 14,000 currency units. Furthermore, a significant majority (94%) of the children's families identified as Muslim (Table 1).

Table 1. Demographic profile of children (sample size, n=90)

Parameter	N	Percentage
Father's educational qualification		
Primary	63	70%
Secondary	8	9%
No educational qualification	19	21%
Mother's educational qualification		
Primary	72	80%
Secondary	5	6%
No educational qualification	13	14%
Father's occupation		
Day laborer	13	14%
Rickshaw puller	42	47%
Small business	13	14%
Small job	11	12%
Others	6	7%
Unemployed	12	13%
Mother's occupation		
Housewife	72	80%
Domestic worker	5	6%
Others	13	14%
Family income		
0-7000	7	8%
7001-14000	55	61%
14001-21000	28	31%
Religion		
Islam	85	94%
Hindu	5	6%

3.2 Working Details

Our survey indicates that the largest proportion of working children, nearly 33%, are employed in mechanic garages. This is followed closely by those working as salespersons, who make up approximately 29% of the sample. Child labor in welding and construction follows, accounting for 17% and 9% of the cases, respectively. All other professions combined represent 12% of the child workforce.

Figure 3a indicates that the majority of the children in the sample work between 8 to 10 hours per day, accounting for 52% of the cases. A significant portion, 38%, work even longer hours, ranging from 11 to 13 hours daily. Only a small percentage, 10%, work between 5 to 7 hours per day.

In terms of remuneration, over two-thirds (68%) of the children receive a monthly salary of less than BDT 3,000 (Bangladeshi Taka or TK or BDT). Meanwhile, 25% earn between BDT 3,000 and BDT 6,000. Only a small fraction (7%) of the children receives a salary exceeding BDT 6,000 (Figure 3b).

While 16% decided to learn how to work, the majority (46%) selected this profession in order to support their families. Owners provide meal subsidies for 43% of laborers and medical support to 77% of laborers, respectively. Eighty-six percent of laborers have workplace accidents (Table 2).

Figure 2. Occupational details of child labors

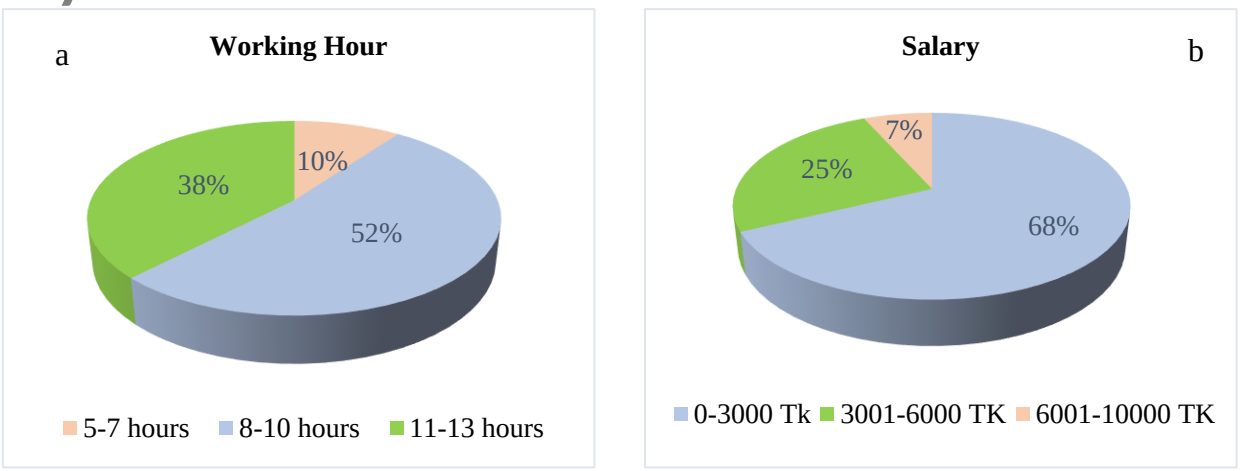

Figure 3. Working hour (a) and salary range (b) of child labors

Table 2. Working details of child labors

Parameter	N	Percentage
Cause of work		
Family support	41	46%
Family support & learning work	31	34%
Learn work	14	16%
Others	6	7%
Nature of employment		
Paid	5	6%
Unpaid	85	94%
Meal support		
Yes	39	43%
No	51	57%
Accident at workplace		
Yes	77	86%
No	13	14%
Medical support		
Yes	10	77%
No	3	23%

3.3 Health Condition of Child Labors

In this study, we collected data on height, weight, and age to calculate the body mass index (BMI) of child laborers. The results indicate that 43% of the children have a BMI within the normal range, while 56% are classified as underweight (BMI less than 18). A small percentage (1%) falls outside the typical BMI range. The average BMI for the group was less than 18, reflecting a prevalent underweight condition. Additionally, the most common illnesses reported among these children were coughs and colds, with only 8% reporting job-related body pain.

3.4 Diet Pattern of Child Labors

The Table 3 presents the distribution of food intake and dietary preferences among the surveyed children. All respondents reported consuming cereal daily. Nearly all participants included vegetables and

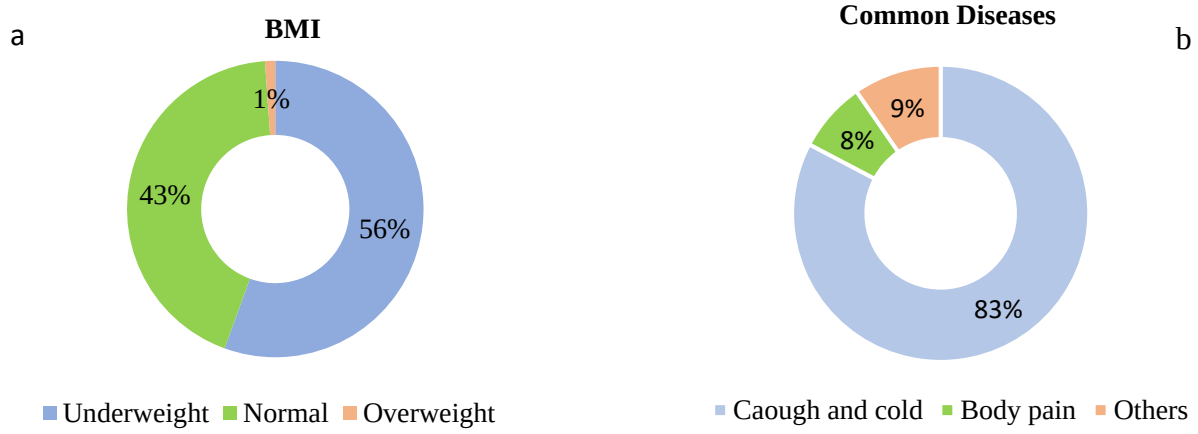

Figure 4. BMI distribution (a) and common diseases (b) among child labors

pulses in their daily meals, with only 7% not consuming pulses regularly. However, the data reveals that only 6% and 22% of respondents consume meat and fish daily, respectively, indicating infrequent intake of these protein sources. A substantial 74% of children eat eggs daily. Conversely, dairy product consumption is infrequent, with only 12% of participants consuming them regularly, while 54% consume them inadequately. The most concerning finding relates to fruit consumption; although 40% of children consume fruits frequently, only 3% include them in their daily diet (Table 3).

Table 3. Diet Pattern of Children (percentage)

Food Item	Daily	Frequently	Occasionally	Rarely
Meat	6	93	0	1
Fish	22	70	0	8
Egg	74	21	4	0
Dairy	12	27	7	54
Fruits	3	40	0	57
Vegetables	99	0	0	1
Pulses	93	7	0	0
Cereals	100	0	0	0

4. DISCUSSION

The purpose of this study was to investigate the nutritional status and food habits of child laborers in Rangpur City which is located in the Northwestern part of Bangladesh. Children are seen as tomorrow's leaders. Unfortunately, child labor is a common practice in Bangladesh, and they are the most victimized group in the community.[11] The conducted survey shows that 58% of children aged between 12 and 14 years were engaged in labor, while only 10% fall within the age group of 9-11 years. And the percentage of involvement in child labor above 14 years old was 32% in Rangpur City. While a survey about Dietary Pattern and Nutritional Status of Child Labor, which was conducted in Dhaka city, shows that the maximum percentage (51%) of children involved in child labor are aged below 12 years old, and the minimum percentage (9%) involvement of children involved in child labor were aged above 16 years old.[9] In Rangpur City, child labor is notably high among those aged 12-14 years, while Dhaka City shows a more significant proportion of child laborers below 12 years old. Dhaka City has a lower percentage of child laborers above 16 years compared to Rangpur City. These variations might reflect different local factors such as economic conditions, educational opportunities, enforcement of child labor laws, and cultural attitudes towards child labor in these cities. According to the same survey conducted in Dhaka city, 32.5% of children never attended school, child laborers reach primary school at a rate of about 60%, and secondary school at a rate of 7.5%.[9] However, according to our poll, 4% of students have never attended school, and 27% continue on to secondary education while 55% of kids drop out of school after primary school. These two results indicate that a smaller proportion of child laborers have never attended school compared to the Dhaka City survey. This might reflect better access to primary education or different circumstances affecting school attendance. A greater percentage of child laborers in your survey have continued their education up to secondary school compared to the Dhaka City survey, which could suggest improvements or different patterns in educational attainment among child laborers. Child labor is still a major problem in Bangladesh, as societal norms and economic hardships encourage the exploitation of young people. The children's health conditions, according to the data, range from 9 to 17. Of these children, 43% are within the normal range and 56% are underweight. In another survey conducted by the percentage of malnourished (underweight) children was 26.[11] In another study conducted in Pakistan shows that 30.0% and 15.5% of the child laborer's suffered from acute and chronic malnutrition, respectively.[21] The primary cause of this is insufficient nutrition; over 60% of children do not receive the right kind of food and calories. About half the children (51.1%) were affected by food insecurity, and an alarming prevalence of food

inadequacy was observed in the consumption of fruits, vegetables/potatoes, milk/dairy products, legume and meat/poultry.[21] The factors that lead to a child becoming a laborer include poverty, parent's illiteracy, the size of the household and number of family members, the absence of family support for education, etc. According to the ECLT foundation "Poverty is certainly the greatest single force driving children into the workplace".[22] When families cannot afford to meet their basic needs like food, water, education or health care, they have no choice but to send their children to work to supplement the household income. Children are most often involved in child labor because their parents or guardians consider it 'normal' for children to work, and sometimes for children's own survival and that of their families. According to my study, 4% of students have never attended school, and 55% of children drop out of school after primary school. Most children are employed in rickshaw pulling, sales jobs, or farming, which confirms a study conducted by.(23) They decide to work rather than attend school in order to provide for their families or to further their education. The education of parents is a major factor in turning children into laborers. According to my survey, 13% of mothers and 19% of fathers are illiterate. Of the present father and mother population, 36 have only completed primary education, and 72 are unaware of their children's educational status. This is comparable to the other studies conducted in urban slums where 52.4% mothers were illiterate.(24) A survey conducted in Dhaka cleared that cereals and pulses were reported to be consumed daily by all the respondents.(11) Our survey report also matched with it. Both cities have strong daily consumption patterns for cereals and pulses. On that report only, 10% of them stated that although they did not eat vegetables daily, they took them frequently.(11) But in our report, we can see almost, 99% of the respondents eat vegetables daily. So, Rangpur City outperforms Dhaka City in daily vegetable consumption. The report revealed that almost 80% of the respondents affirmed the daily consumption of protein foods such as meat, fish, and eggs, and 82% of them take eggs on a daily basis, which is the highest among these three types. Apart from that, their meat consumption percentage (81%) on a daily basis is also satisfactory.(11) But in our survey, only 6% of respondents consume meat on a daily basis while having higher egg consumption, near 74%. Both cities show low fruit consumption, with Rangpur City having the lowest (3%) daily intake. Both cities have low consumption of dairy products, though Rangpur City has a little bit higher percentage (12%) of frequent consumption compared to Dhaka City.

Limitations

The sample size in this study was limited, and we were unable to include female participants engaged in domestic work. Although there are numerous aspects that could be further investigated-such as food nutritional value calculations, calorie consumption, and other health status indicators. These were beyond the scope of this study due to funding limitations and a lack of organizational support.

5. CONCLUSION

The current study provides a comprehensive summary of the health and nutrition condition of children in Rangpur city who are working to support their family. The primary cause of children entering the work force at a young age is that most of them arise from families with lower incomes and poor literacy. They don't consistently acquire the nourishment they require. Malnutrition resulted from an unbalanced diet, low consumption of micronutrients, and a very low per capita food intake. This was further corroborated by their eating habits, since most of the foods in their usual diet were lacking in micronutrient sources, such as fruits, milk, and milk products. Strict adherence to current labor rules is necessary to minimize child labor. The number of jobs available to senior citizens should rise. In addition to these, additional detailed research initiatives had to be created.

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Conflict of Interest

The authors declare no conflict of interest.

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