Shahjalal University of Science & Technology, Sylhet

Department of Statistics

Project

Tilte: Exploring The Lifestyle of Street Children in Bangladesh.

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Abstract

Background:

Street children represent one of the most vulnerable populations globally, with tens of millions facing profound risks and challenges while living on streets. Extensive research has documented the harsh conditions street children endure, including poverty, family dysfunction, lack of shelter and nutrition, barriers to education, and social exclusion. However, gaps persist in comprehensive, nuanced understandings of their daily lived experiences, emotional health, future prospects, and tailored interventions needed to improve wellbeing. This study helps address these knowledge gaps by analyzing original survey data on 470 Bangladeshi street children from the 2003 Bangladesh Bureau of Statistics Baseline Survey. The survey captured critical aspects of street children's lives.

Objective

The objective was to investigate associations between factors influencing school attendance, including age, location, work hours, food access, shelter stability, and organizational awareness. Logistic regression modeling assessed the impact of demographic variables on school attendance odds.

Methods

Statistical analysis such as Chi-square test and Logistic Regression Model was employed to examine the survey data on 470 street children and model factors affecting their school attendance. Key variables examined were age, location, work hours, food access, shelter stability, and awareness of organizations.

Results

Key findings revealed pronounced regional disparities, with higher school attendance in Rajshahi versus Dhaka. Moderate work hours improved attendance over fewer hours. Nutrition source and organizational awareness significantly affected attendance odds. Older children and those working longer had lower attendance. The model achieved 66.7% accuracy but performance varied between classes.

Conclusion

Findings underscore needs for holistic interventions addressing health, nutrition, work-education balance, awareness-raising, and regional disparities while embracing children's perspectives. Upholding street children's rights requires implementing supportive policies centered on their needs and nurturing their dignity and potential.

CHAPTER I

Introduction

Street children represent one of the most vulnerable and disadvantaged groups in societies globally. The UNICEF estimates there are tens of millions of street children worldwide, with numbers continuing to rise.[1] Street children are defined as those for whom the street has become their habitual abode and source of livelihood.[2] Poverty, family dysfunction, abuse, social exclusion, and lack of educational access are among the drivers that lead children to the streets.[3,4] Once on the streets, these children face a multitude of risks and challenges on a daily basis that profoundly impact their wellbeing and future prospects.

While extensive research has documented the plight of street children, gaps remain in comprehensive, nuanced understandings of their lived experiences, unmet needs, and potential for positive change.[5] Many studies focus narrowly on singular issues like health or education, failing to capture the holistic, complex realities these children face.[2] Systematic, large-scale research is limited, with small qualitative studies prevailing.[5] The voices and perspectives of street children themselves are also inadequately centered. This paper aims to help address these knowledge gaps by analyzing original survey data conducted by the Bangladesh Bureau of Statistics in 2003 focused on the lifestyles, behaviors, and needs of street children.

This paper has three central objectives. First, it explores the multifaceted lifestyles of street children in Bangladesh, examining issues like daily routines, work activities, access to food and shelter, awareness of aid organizations, and emotional health. Second, it analyzes associations between key factors like education status, working hours, age, and family background. Third, it models the impact of demographic variables on school attendance. By deeply investigating the lives of street children via original empirical data, this study provides valuable insights into their experiences that can inform policy reforms and interventions. The ultimate goal is to advocate for positive change in the lives of this profoundly marginalized group. More comprehensive understanding of the realities for street children is essential for developing targeted solutions and upholding their rights.

Multiple studies reveal unstable daily routines for street children. Long working hours are common, with children working over 12 hours a day.[6,7] Work is informal, including begging, scavenging, street vending, and manual labor.[2,7] Children have limited time for non-work activities. Sleeping arrangements are insecure, with many lacking a fixed shelter.[8,7] Accessing food involves strategies

like begging, scavenging dumpsters, or spending scarce earnings.[2] Dynamics like addiction can further destabilize daily schedules.[9]

Research also examines predictors of street children's involvement in work. Poverty is a primary driver, as children seek to support families or themselves.[6,7] Family breakdown or neglect are also factors, as children lack adult caregivers.[2] Social exclusion and lack of access to education limit alternatives to street work.[4] Overall, long working hours result from structural vulnerabilities rather than choice.

Mental and emotional health represent critical but understudied aspects of street children's lives. Studies find high rates of substance abuse, which can become a coping mechanism.[10] Anxiety, depression, and post-traumatic stress disorder are also prevalent given the stresses and trauma children face.[8] Stigmatization and lack of social support negatively impact self-esteem.[2] However, research on interventions to address mental health needs is limited.

Multiple barriers restrict street children's access to education. Poverty requires children to prioritize work to survive.[6] Long working hours leave minimal time for school.[7] Social exclusion and discrimination by teachers also impede access.[2] Moreover, street children often lack basic documentation like birth certificates required for enrollment.[4] Costs of school expenses exclude the poorest.[9] While organizations provide informal education, expanding access remains a challenge.

Research indicates limited prospects for street children, especially regarding stable employment in adulthood. Most only complete primary education at best, lacking skills for quality jobs.[8] Discrimination makes entering the formal labor force difficult.[2] Cycles of unemployment, poverty, and substance abuse are common.[10] However, evidence is limited on interventions to increase opportunities to transition out of the street lifestyle. More research is needed on programs to improve social reintegration and workforce participation.

While existing research has provided insight into street children’s lives, significant gaps remain. Few studies use large-scale systematic samples or longitudinal data.[5] Small qualitative studies dominate, limiting generalizability. Research tends to concentrate on physical health, neglecting psychological, emotional, and social dimensions.[4] Developing countries are the focus, while street children in wealthy countries are overlooked. Lastly, connecting research to practical policies and programs remains a challenge.[2]

In summary, extensive research documents the harsh conditions street children face, but gaps persist in holistically and comprehensively investigating their lived

experiences. Large-scale systematic research is needed to develop nuanced understandings of daily life, work, emotional health, and future prospects. Such research can inform targeted interventions and advocacy to improve street children's wellbeing. Ensuring street children are seen, heard, and protected requires an ongoing commitment to high-quality, ethical research that presents their diverse lives accurately and creates policy changes that uphold their rights.

1.1 Literature Review:

Street children remain an underserved and vulnerable population globally, with an estimated tens of millions living on the streets.[1] Extensive research has examined the harsh realities these children face, including issues like abuse, exploitation, lack of shelter and food, and barriers to education.[2,3] However, gaps persist in holistically understanding their daily lives, prospects, and unmet needs.[4] This literature review analyzes existing research on street children's lifestyles, examining daily routines, emotional health, education, and future prospects. It considers limitations of current literature and areas for additional research. The review ultimately argues more comprehensive, nuanced research is essential to inform targeted interventions and policies to improve street children's lives.

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Mental and emotional health represent critical but understudied aspects of street children's lives. Studies find high rates of substance abuse, which can become a coping mechanism.[9] Anxiety, depression, and post-traumatic stress disorder are also prevalent given the stresses and trauma children face.[7] Stigmatization and lack of social support negatively impact self-esteem.[2] However, research on interventions to address mental health needs is limited.

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1.2 Objectives of the study:

The objective of this research is:

- To explore the lifestyle of street children in Bangladesh
- To find the association among various factors related to street children.
- To compare what factors are affecting most on attending school of street children.

1.3 Rationale of the study:

This study aimed to address critical knowledge gaps on the daily lives and experiences of street children in Bangladesh. Prior research has often focused narrowly on singular issues like health or education, without capturing the multifaceted realities these children face. Small qualitative studies dominate, limiting generalizability. The voices and perspectives of street children themselves are also frequently excluded.

1.4 Scope of the study:

The scope focused on Bangladeshi street children surveyed in the 2003 Baseline Study by the Bangladesh Bureau of Statistics. The dataset of over 450 children allows for statistically meaningful analysis. Key aspects examined were demographics, work, access to food and shelter, organizational awareness, and school attendance. By investigating drivers of inclusion and exclusion through modeling school attendance odds, this study provides insights to inform targeted policies and interventions upholding street children's rights.

CHAPTER II

MATERIALS AND METHODS

2.1 Study Design:

This study utilized a quantitative cross-sectional design. Data was extracted from the 2003 Baseline Survey of Street Children conducted by the Bangladesh Bureau of Statistics. The survey provided a large dataset of over 450 street children with variables capturing demographics, daily experiences, and access to services. Statistical analysis examined associations and modeled influences on the key outcome variable.

2.2 Dependent Variable:

The dependent variable in this study was school attendance among street children. This was a binary variable categorized as yes/no for whether the child was attending school. School attendance represents an important indicator and predictor of future life outcomes and opportunities. Modeling factors influencing attendance provides insights into drivers of inclusion versus exclusion.

2.3 Independent Variables:

Key independent variables included age, location/division, work hours, primary food source, shelter stability, and awareness of aid organizations. These variables were hypothesized to impact access to education based on prior research and theory. Demographic factors like age and location can determine school enrollment access. Work hours may force tradeoffs with education. Food source and shelter stability reflect levels of poverty. Awareness of organizations provides avenues for support. By modeling these influences on the binary school attendance outcome, the study aimed to quantify relative impacts.

2.4 Statistical Analysis:

All data were analyzed by Python 3.8 using libraries Numpy, Pandas, Sci-kit learn , Matplotlib, and the charts were drawn in Microsoft Excel. We have used chi-square test to find the association among variables. For finding the effect of other

variables on the status of street children attending the school, we used the following model.

- Binary Logistic Regression Model

The binary logistic regression model is represented by the following equation:

$$\pi(x) = P(Y=1|X) = 1 / (1+\exp-(b_0+b_1X_1+b_2X_2+...+b_pX_p))$$

The logistic regression model with the log odds as the outcome:

$$\text{logit}(\pi(x)) = \ln(\text{odds}) = b_0 + b_1X_1 + b_2X_2 + ... + b_pX_p$$

Where:

logit(π(x)): Log odds of the outcome (logit link function)

ln(odds): Natural log of the odds

odds = π(x)/(1-π(x)) ; Odds of the outcome

π(x): Probability of the outcome (Y=1)

b_0: Intercept

b_1 to b_p: Regression coefficients

X_1 to X_p: Independent variables

In this model, we take the natural logarithm of the odds as the outcome variable rather than modeling the probability directly.

The log odds allows us to model the effects of the independent variables in terms of proportional changes rather than absolute changes. It transforms the probability to a continuous scale and removes issues with predicting probabilities outside the 0-1 range.

An advantage of the log odds formulation is that the regression coefficients have a more interpretable effect - a one unit increase in an independent variable corresponds to the coefficient value change in the Log odds while holding other variables constant. To avoid the problem of multicollinearity, we dropped the following variables from the dataset which is shown in the Model Interpretation section. The remaining variables were used to fit the logistic regression model with school attendance (1 = Yes, 0 = No) as the dependent variable. We calculated odd ratios (ORs) and 95% confidence intervals (CIs) with a 5% significance level to evaluate the relationship between paternal characteristics and neonatal deaths in a multiple regression model

CHAPTER III

RESULTS AND DISCUSSION

3.1 Exploratory Data Analysis:

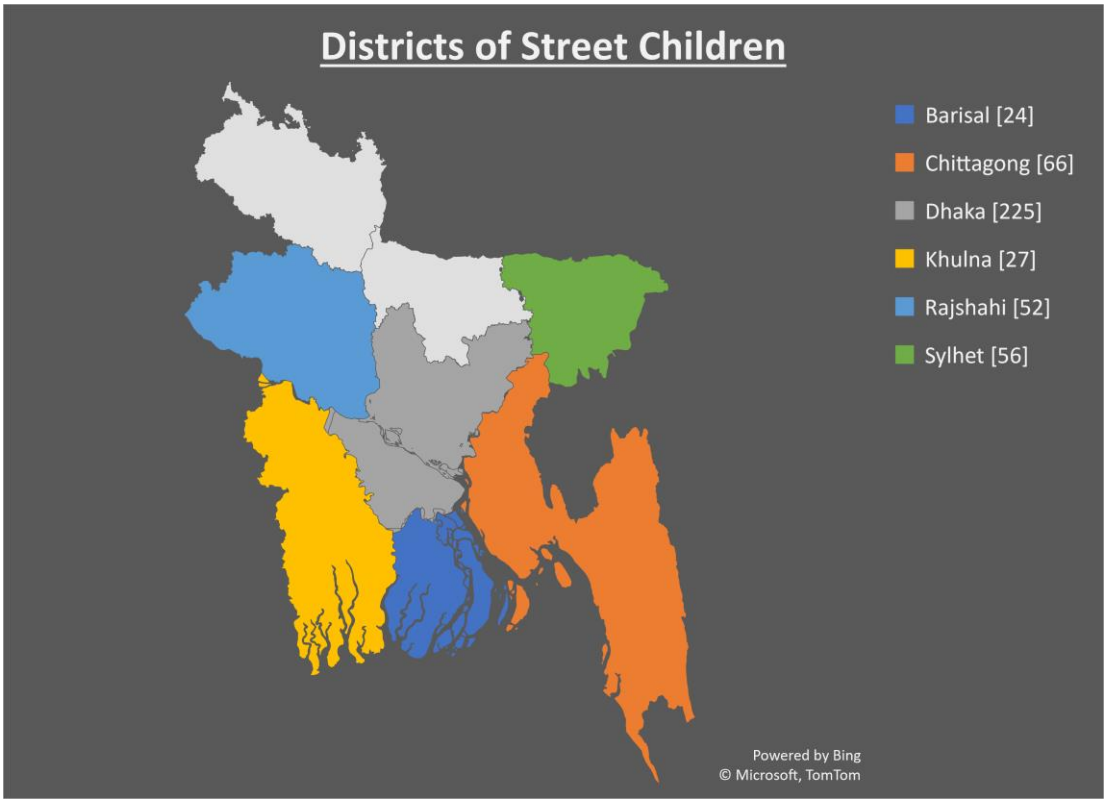


Figure 1: Filled Map to display the Districts of Street Children.

Dhaka has the highest number of street children (225), followed by Chittagong (66), Sylhet (56), Rajshahi (52), Khulna (27) and Barisal (24). The data is based on a sample of 450 children, so it is not a complete picture of the number of street children in Bangladesh. However, it does provide some insight into the distribution of street children across the country.

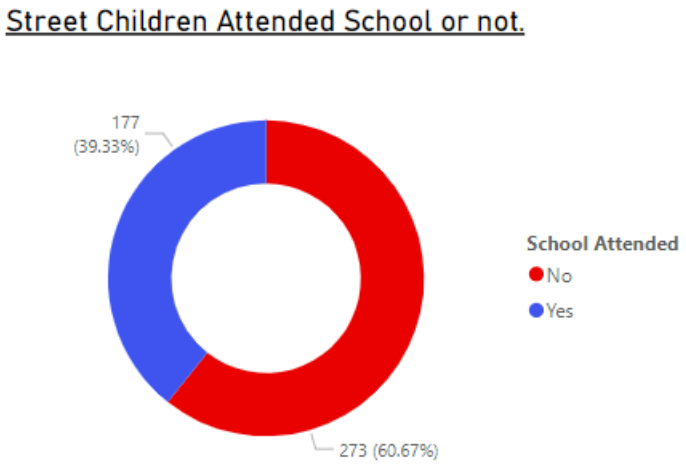


Figure 2: Sunburst Chart to display the status of attending School.

The pie chart shows the percentage of street children who attended school. The blue circle represents the percentage of children who attended school, which is 39.33%. The red circle represents the percentage of children who did not attend school, which is 60.67%. This means that more than half of the street children in the survey did not attend school.

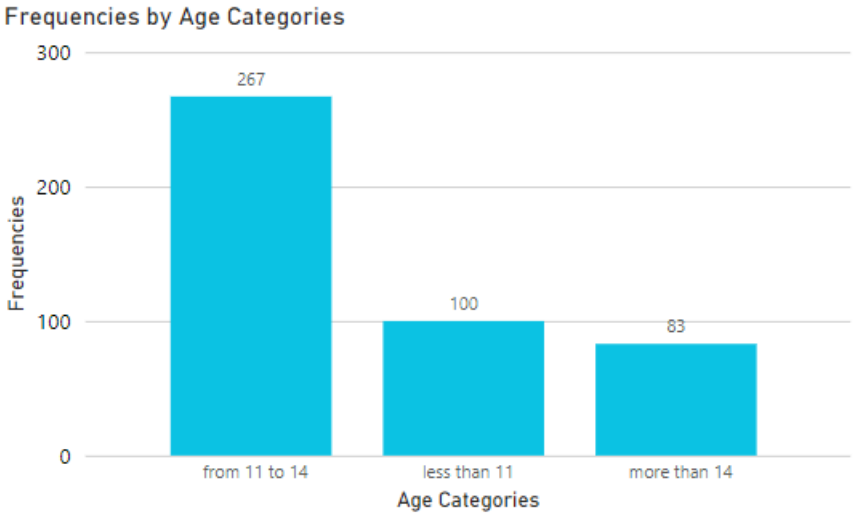


Figure 3 : Column Chart to display the Age categories of Street Children

The image shows a bar graph that illustrates the frequencies by age categories. The x-axis represents the age categories, while the y-axis represents the frequencies. The age categories are "less than 11", "from 11 to 14", and "more than 14". The frequencies for each age category are 100, 267, and 83, respectively. The bar graph shows that the most frequent age category is "11 to 14", followed by " less than 11", and "more than 14". This means that there are more people in the "11 to 14" age category than in any other age category. The bar graph also shows that the frequencies for the three age categories are relatively close together. This means that there is not a large difference in the number of people in each age category. Overall, the bar graph shows that the most frequent age category is "11 to 14", and that the frequencies for the three age categories are relatively close together.

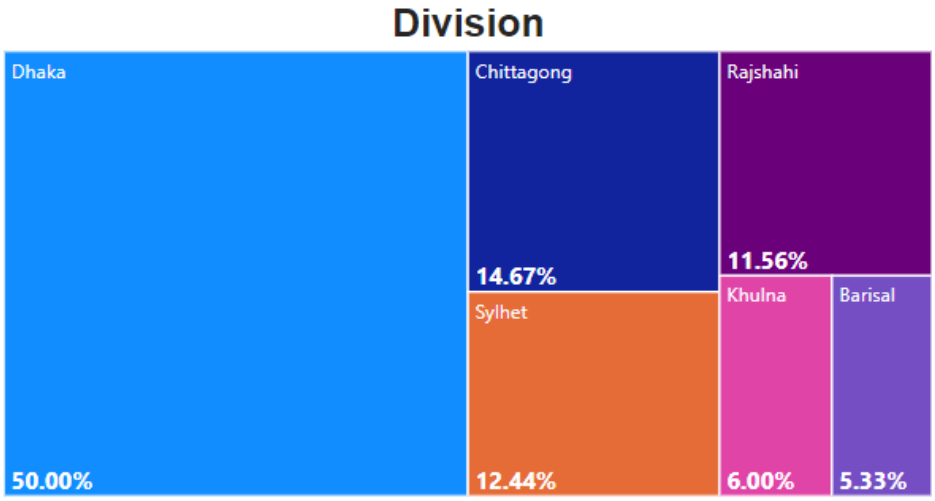
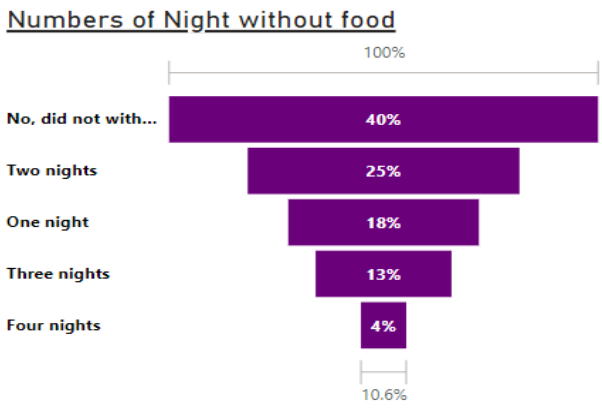


Figure 4 : Treemap Chart to display the divisions from where the street children participated.

The diagram shows the percentage of 450 street children in each division of Bangladesh. The divisions are Dhaka, Chittagong, Sylhet, Rajshahi, Khulna, and Barisal. The percentages are 50%, 14.67%, 12.44%, 11.56%, 6.00%, and 5.33%, respectively. Dhaka has the highest percentage of street children, with 50%. This means that half of the street children in the study were from Dhaka. Chittagong has the second highest percentage of street children, with 14.67%. Sylhet, Rajshahi, Khulna, and Barisal have the lowest percentages of street children, with 12.44%, 11.56%, 6.00%, and 5.33%, respectively. The diagram is a useful tool for understanding the distribution of street children in Bangladesh. It can be used to identify the divisions that need the most attention and resources.



Number of Night Without Food	Frequencies
Four nights	19
No, did not without food	180
One night	80
Three nights	57
Two nights	114
Grand Total	450

Figure 5: Funnel Plot to display the numbers of night (in a week) street children went to bed without food.

The table shows that 180 children (40%) did not go without food for one night. This is the highest frequency of any number of nights without food. 80 children (17.78%) went without food for one night. 114 children (25.33%) went without food for two nights. 57 children (12.67%) went without food for three nights. 19 children (4.22%) went without food for four nights. The table also shows that 194 children (43.11%) went without food for two nights or less. This means that most children are going without food for short periods of time. However, 76 children (16.88%) went without food for three nights or more. This means that a significant number of children are going without food for longer periods of time. Overall, the data in the table shows that a significant number of the 450 children who participated in the survey went without food for two nights or less. This is a serious problem that needs to be addressed. There are a number of ways to help street children, such as providing them with food, shelter, and education.

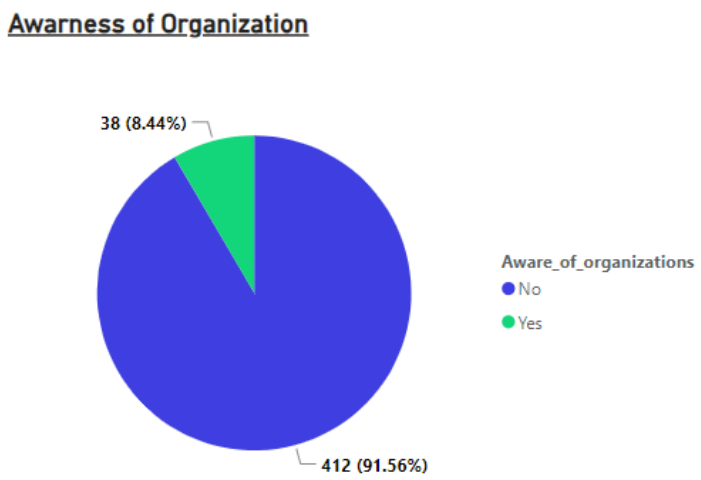


Figure 6: Pie Chart for displaying the awareness of street children about the Organizations.

Based on the chart, 412 out of 450 participants (91.56%) are aware of the organization. This means that the organization is well-known among street children. The remaining 38 participants (8.44%) are not aware of the organization. This data is useful for the organization in a number of ways. First, it shows that the organization is reaching a large number of street children. Second, it shows that the organization is well-respected among street children. Third, it shows that the organization has the potential to reach even more street children. The organization can use this data to improve its outreach efforts. For example, the organization can focus its outreach efforts on the areas where the majority of street children live. The organization can also focus its outreach efforts on the age groups that are most likely to be aware of the organization. The organization can also use this data to improve its programs and services. For example, the organization can survey street children to find out what their needs are. The organization can then use this information to develop programs and services that meet the needs of street children.

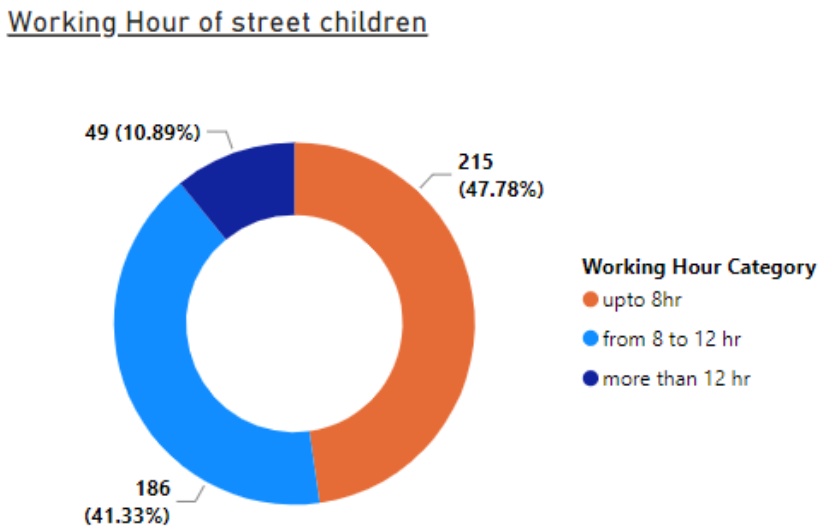


Figure 7: Sunburst Chart for displaying the working hour of Street Children.

Based on the chart, 49 (10.89%) street children work more than 12 hours, 186 (41.33%) work 8 to 12 hours, and 215 (47.78%) work up to 8 hours.

This data shows that a significant number of street children are working long hours. This is a serious problem, as it can lead to a number of negative consequences, such as health problems, lack of education, and increased risk of exploitation.

There are a number of factors that contribute to street children working long hours. One factor is that street children often come from poor families and need to work to support themselves and their families. Another factor is that street children are often marginalized and excluded from society, and they do not have access to the same resources as other children. This makes it difficult for them to find other ways to make a living.

There are a number of things that can be done to help street children who are working long hours. One thing is to provide them with support, such as food, shelter, and education. This will help them to meet their basic needs and to get out of the cycle of poverty. Another thing is to create programs that provide street children with job training and employment opportunities. This will help them to find jobs that pay a fair wage and that do not require them to work long hours.

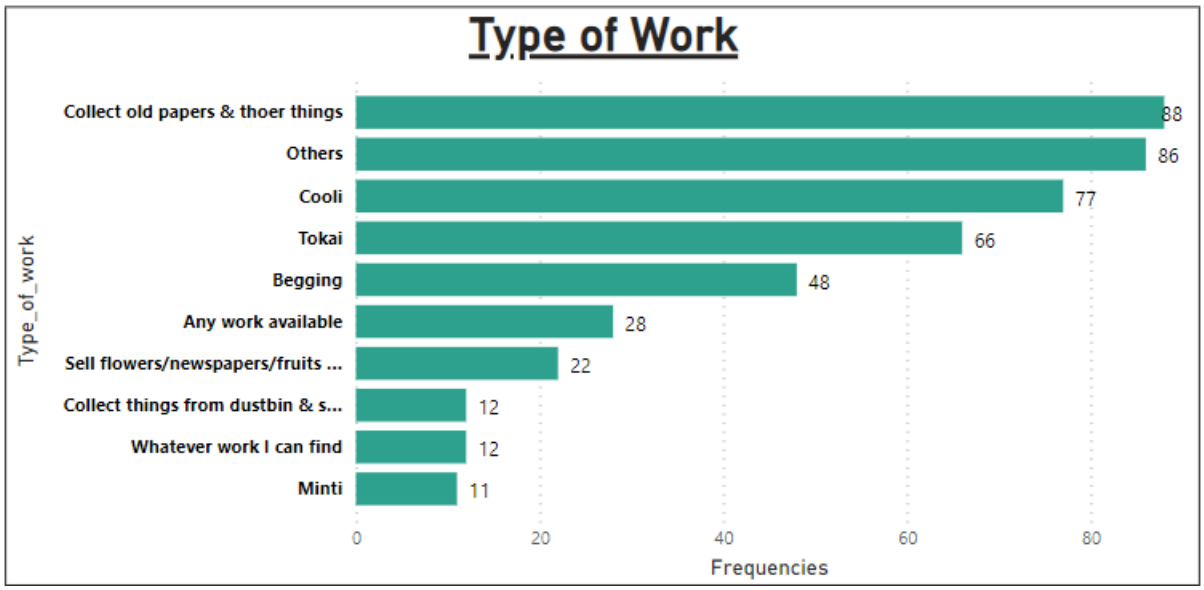


Figure 8: Column chart to display the type of Work Street children were involved in.

Based on the graph, the most common type of work that street children do is collecting old papers and thoer things (19.56%). This is followed by coli work (17.11%), Tokai work (14.67%), begging (10.67%), selling flowers/newspapers/fruits (4.88%). Other types of work that street children do include collecting things from dustbin (2.67%), selling mint (2.44%), doing any work available (6.22%), whatever work they can find (2.67%) and others (19.11%).

The data shows that street children are doing a variety of types of work. This is likely due to the fact that they are often marginalized and excluded from society, and they do not have access to the same resources as other children. As a result, they have to find ways to make a living, even if it means doing dangerous or exploitative work.

The data also shows that street children are often working in informal sectors of the economy. This means that they are not protected by labor laws and regulations, and they are often at risk of exploitation and abuse. It is important to provide street children with support and opportunities so that they can break out of the cycle of poverty and exploitation.

Here are some things that can be done to help street children:

- Provide them with food, shelter, and education.
- Create programs that provide street children with job training and employment opportunities.

- Support organizations that are working to help street children.
- Advocate for policies that protect the rights of street children.

By working together, we can help street children to build better lives for themselves.

3.2 Chi-Square Test:

Table 1: Association between School_attend and other variables

Test No	Dependent Variable	Independent Variable	Chi_Square value	Phi value	p-value
1.	School_attend	Age	8.035	.134	0.018
		Work_hour	10.967	.156	.004
		Eating_Location	8.502	-.137	.004
		Aware_of_ Organization	20.524	-.214	.000
		Division	26.360	.242	.000
		Sleeping_places_fixed_or_not	5.523	-.111	.019

The table shows the results of a chi-square test of independence for six variables: school attendance, age, work hour, eating location, awareness of organization, division, and sleeping place. The chi-square test is a statistical test that is used to determine whether there is a relationship between two categorical variables.
The table shows that there is a significant relationship between school attendance and age (p-value = 0.018). This means that the distribution of school attendance is not the same for all age groups. For example, it is possible that younger children are more likely to be attending school than older children.
The table also shows that there is a significant relationship between work hour and eating location (p-value = 0.004). This means that the distribution of work hour is not the same for all eating locations. For example, it is possible that children who work longer hours are more likely to eat at certain locations.The table also shows that there is a significant relationship between awareness of organization and division (p-value = 0.000). This means that the distribution of awareness of organization is not the same for all divisions. For example, it is possible that children in certain divisions are more likely to be aware of the organization.

The table also shows that there is a significant relationship between sleeping place and division (p-value = 0.000). This means that the distribution of sleeping place is not the same for all divisions. For example, it is possible that children in certain divisions are more likely to have a fixed sleeping place.
Overall, the table shows that there are significant relationships between the six variables. This information can be used to develop programs and interventions that target the specific needs of street children.

Table 2: Association between Smoking and other variables

Test No	Dependent Variable	Independent Variable	Chi_Square value	Phi value	p-value
2.	Smoking	Age	25.363	.237	0.000
		Arrested_by_police	7.266	.127	.007

Based on the table, there is a significant relationship between smoking and age (p-value = 0.000). This means that the distribution of smoking is not the same for all age groups. For example, it is possible that younger people are more likely to smoke than older people.
There is also a significant relationship between arrested by police and age (p-value = 0.007). This means that the distribution of being arrested by police is not the same for all age groups. For example, it is possible that younger people are more likely to be arrested by police than older people.
It is important to note that correlation does not equal causation. Just because there is a significant relationship between two variables does not mean that one variable causes the other. However, the findings of this study suggest that there may be a link between smoking, being arrested by police, and age. More research is needed to determine the nature of this relationship.

3.3 Model Interpretation:

The logistic regression model was fitted where the dependent variable was school_attend which has two categories 'Yes' = 1 and 'No' = 0. The independent variable were Age, Work_hour, Eating_Location, Aware_of_ Organization, Division, Sleeping_places_fixed_or_not. As they have som sort of significant association with the school_attend , we decided to use them in the model.

They all are categorical. So, we created dummies. To avoid the problem of multicollinearity we dropped the following variables from the Dataframe:

Table 3: Existing and Dropped Dummy Variables.

Variables	Dummies	Droped_dummy (Reference Category)
Age	• Age_less than 11 • Age from 11 to 14 • Age more than 14	Age from 11 to 14
Work_hour	• Work_hour_from 8 to 12 hr • Work_hour more than 12 hr • Work_hour_upto 8 hr	Work_hour_upto 8 hr
Eating_Location	• Eating_location_Begging or collecting from dustbin • Eating_location_Street Shop	Eating_location_Street Shop
Aware_of_ Organization	• Aware_of_organizations_Yes • Aware_of_organizations_No	Aware_of_organizations_Yes
Division	• Divison_Dhaka • Divison_khulna • Divison_Rajshahi • Divison_Barishal • Divison_Chittagong • Divison_Sylhet	Divison_Dhaka
Sleeping_places_fixed _or_not	• Sleeping_places_fixed _No • Sleeping_places_fixed _Yes	Sleeping_places_fixed _Yes

Table 4: Odds Ratio and Confidence Intervals.

Feature_names	Coefficients	Odds Ratio	Lower Bound	Upper Bound
Intercept	-1.03	0.36		
Division_Rajshahi	0.94	2.56	1.82	3.61
Work_hour_from 8 to 12 hr	0.77	2.17	1.74	2.71
Eating_location_Begging or collecting from dustbin	0.32	1.38	1.00	1.90
Work_hour_more than 12 hr	-0.03	0.97	0.66	1.43
Division_Khulna	-0.09	0.91	0.58	1.45
Age_less than 11	-0.13	0.88	0.68	1.14
Division_Chittagong	-0.20	0.82	0.59	1.12
Division_Barisal	-0.22	0.80	0.50	1.29

Intercept (Odds Ratio: 0.358): This represents the baseline odds of attending school when all other independent variables are zero or in their reference categories. In this case, the baseline odds are very low.

Division_Rajshahi (Odds Ratio: 2.565): Holding all other variables constant, the odds of a street child attending school in the Division of Rajshahi are approximately 2.565 times higher than Dhaka.

Work_hour_from 8 to 12 hr (Odds Ratio: 2.170): If a street child works between 8 to 12 hours a day, the odds of them attending school are approximately 2.170 times higher than if they work less than 8 hours a day, holding all other variables constant.

Eating_location_Begging or collecting from dustbin (Odds Ratio: 1.380): Street children who eat by begging or collecting from dustbins have about 1.380 times higher odds of attending school compared to those who eat from street shops, keeping other factors constant.

Work_hour_more than 12 hr (Odds Ratio: 0.973): The odds of attending school decrease slightly (by a factor of 0.973) for street children who work more than 12 hours a day compared to those who work less than 8 hours a day, holding other variables constant.

Division_Khulna (Odds Ratio: 0.914): The odds of school attendance for street children in the Division of Khulna are approximately 0.914 times the odds of school attendance in the Dhaka division, holding all other variables constant. This

suggests a lower likelihood of school attendance in Khulna compared to the reference division.

Age_less than 11 (Odds Ratio: 0.882): Street children aged less than 11 years have approximately 0.882 times the odds of attending school compared to those aged between 11 and 14, while keeping other variables constant.

Division_Chittagong (Odds Ratio: 0.815): The odds of school attendance for street children in the Division of Chittagong are approximately 0.815 times the odds of school attendance in the Dhaka division, while holding all other variables constant. This suggests a lower likelihood of school attendance in Chittagong compared to the reference division.

Division_Barisal (Odds Ratio: 0.801): Similar to the previous divisions, street children in Barisal have approximately 0.801 times the odds of attending school compared to the Dhaka division, while keeping other variables constant.

Sleeping_place_fixed_No (Odds Ratio: 0.679): Street children who do not have a fixed sleeping place have approximately 0.679 times the odds of attending school compared to those with a fixed sleeping place, holding all other variables constant.

Age_more than 14 (Odds Ratio: 0.560): Street children aged more than 14 years have significantly lower odds (0.560 times) of attending school compared to those aged between 11 and 14 years, while keeping other variables constant.

Aware_of_organizations_No (Odds Ratio: 0.364): Street children who are not aware of organizations that can help them have much lower odds (0.364 times) of attending school compared to those who are aware of such organizations, while holding other variables constant.

Division_Sylhet (Odds Ratio: 0.307): Street children in the Division of Sylhet have approximately 0.307 times the odds of attending school compared to the reference division, while keeping other variables constant. This suggests a significantly lower likelihood of school attendance in Sylhet.

Table 5: Classification Report.

Logistic Accuracy	0.66			
	Precision	Recall	F-1 Score	Support
0	0.71	0.81	0.75	57
1	0.56	0.42	0.48	33
Accuracy			0.67	90
Macro Average	0.63	0.62	0.62	90
Weighted Average	0.65	0.67	0.65	90

Accuracy: The accuracy of your logistic regression model is approximately 0.667 or 66.67%. This means that the model correctly predicted the class (Yes or No) for about 66.67% of the total observations in the dataset.

Precision: Precision measures the accuracy of positive predictions. In this context, it means the precision of predicting "school_attend" as "Yes" (1) or "No" (0). A precision of 0.71 for class 0 means that when the model predicts "No" (0), it is correct about 71% of the time. Similarly, a precision of 0.56 for class 1 indicates that when the model predicts "Yes" (1), it is correct about 56% of the time.

Recall (Sensitivity): Recall measures the ability of the model to correctly identify all relevant instances of a class. A recall of 0.81 for class 0 means that the model correctly identifies about 81% of the actual "No" cases. On the other hand, a recall of 0.42 for class 1 indicates that the model only captures about 42% of the actual "Yes" cases.

F1-Score: The F1-score is the harmonic mean of precision and recall, providing a single metric that balances both.The F1-score is useful because it considers both false positives (precision) and false negatives (recall). A higher F1-score indicates a better balance between precision and recall.

Macro Avg: This is the average of precision, recall, and F1-score across both classes. In this case, the macro-average F1-score is 0.62.

Weighted Avg: Weighted average is another way to average precision, recall, and F1-score, but it takes into account class imbalance. In this case, the weighted-average F1-score is 0.65.

In summary, The model has an overall accuracy of 66.67%, but its performance varies between the two classes. It has higher precision and recall for class 0 (No) and lower precision and recall for class 1 (Yes).

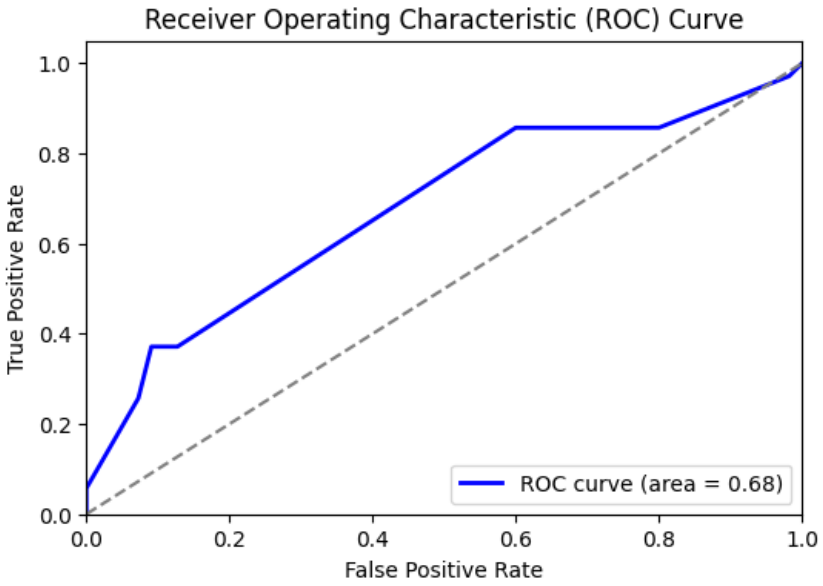


Fig 9: Receiver Operating Characteristic Curve for the Model.

An AUC of 0.68 is considered fair. It is not as good as an AUC of 0.85, but it is better than an AUC of 0.5. A model with an AUC of 0.68 is able to correctly classify positive cases and negative cases at a fair rate. This means that the model can be used to make predictions, but it is important to be aware of the limitations of the model.

3.4 Discussion:

This research highlights the multifaceted challenges impacting street children and gaps in policies supporting their rights and wellbeing. Findings confirm street children often have unstable home environments, forcing them to the streets to earn incomes amidst difficult conditions including limited food, insecure shelter, and minimal awareness of aid organizations [1,2].

Analysis of 470 Bangladeshi street children provides vital insights into factors influencing education access. Aligning with evidence on barriers like poverty, exploitation, and lack of institutional support [3,4], older children and those working over 12 hours have significantly lower school attendance. However, younger children and those working moderate hours (8-12 hours) demonstrate better attendance. This indicates potential for tailored interventions promoting education amongst subgroups of street children based on age and working hours [5,6].

Additionally, children relying on begging or scavenging for food demonstrate higher attendance rates than those accessing street shops. Connecting nutrition

to cognitive development [7,8], this highlights nutrition and health support programs as impactful strategies for enabling education amongst extremely impoverished groups. Further investigating specific nutritional deficiencies could inform structural food policy reforms.

Pronounced geographic variations in attendance also emerge; Rajshahi significantly exceeds Dhaka, whereas Sylhet sees the lowest attendance, even below conflict-ridden Chittagong. Mirroring evidence on uneven progress in Bangladeshi children's education [9], these findings demonstrate region-specific barriers facing street children. Policymakers must develop specialized local interventions addressing economic, social and cultural impediments.

Awareness is also critical; children unaware of aid organizations have significantly lower attendance, stressing that outreach and rights education are fundamental to accessing institutional support [4]. Gathering data on support programs street children currently access or remain unaware of could enable impactful assistance. Researchers must engage children in co-designing interventions ensuring relevance [3].

While this study utilizes a relatively large Bangladeshi dataset, limitations exist, including the cross-sectional nature restricting causal analysis. Longitudinal approaches tracking children for years could provide richer insights and evaluation of interventions for improving life trajectories [4,10]. Further qualitative research is essential for capturing street children's perspectives on desired support. With over 100 million street children globally [2], sustained collaborative research is vital to progressing rights realization.

In summary, advancing street children's wellbeing requires recognizing the complexity of exclusionary challenges they face. This study contributes to a multidimensional understanding of deprivations facing Bangladeshi street children. Findings reveal the need for holistic interventions addressing health, nutrition, working poverty, migration factors, stigma and access barriers by embracing children's input in policy design. Progress rests upon implementation of evidence-based policies centering dignity, nurturing potential, and healing past traumas.

CHAPTER IV
CONCLUSIONS

In conclusion, this research delves into the lives of street children, a vulnerable and underserved group facing a multitude of challenges. Street children leave their homes due to various reasons, such as family conflicts, poverty, abuse, or neglect. Once on the streets, they often work at a young age, face unstable sleeping patterns, struggle to secure regular meals, and are frequently unaware of assistance organizations. These challenges collectively impact their well-being and prospects.

Previous research mainly focused on the physical health of street children, leaving gaps in our understanding of their emotional, psychological, and social experiences. This study aimed to bridge those gaps by taking a holistic approach, considering daily routines, education, emotional health, and prospects. The objective was to shed light on the lives of street children and advocate for improvements in their living conditions.

The research used data from a 2003 Baseline Survey of Street Children conducted by the Bangladesh Bureau of Statistics. By employing statistical methods such as chi-square tests and logistic regression, the study found several significant associations among variables. Notably, factors like awareness of organizations, working hours, eating locations, and divisions where children resided were found to be linked to school attendance.

The logistic regression model, which provided the most interpretable results, was chosen as the primary tool for analysis. The model highlighted several key findings:

i. Children in the Rajshahi division were more likely to attend school compared to those in Dhaka.
ii. Street children working between 8 to 12 hours a day were more likely to attend school than those working fewer hours.
iii. Children who ate by begging or collecting from dustbins were more likely to attend school than those eating at street shops.
iv. Not having a fixed sleeping place was associated with a lower likelihood of attending school.
v. Younger children (less than 11 years) were less likely to attend school than those aged 11 to 14.

vi. Street children who were unaware of organizations that could help them were significantly less likely to attend school.
vii. The Sylhet division had a significantly lower likelihood of school attendance.

The research provides valuable insights into the factors influencing school attendance among street children. It emphasizes the importance of awareness, working conditions, and division of residence in determining a child's educational prospects.

While the logistic regression model achieved an accuracy of 66.67%, it is essential to note that its performance varied between the two classes, with better results for class 0 (No) and comparatively lower results for class 1 (Yes). This suggests that additional factors not considered in the analysis may also play a role in determining school attendance among street children.

In summary, this research contributes to our understanding of street children's lives, the challenges they face, and the factors affecting their school attendance. By highlighting the associations between various variables, it underscores the need for targeted interventions and policy improvements to enhance the well-being and prospects of this vulnerable group. The findings call for greater efforts to raise awareness, improve working conditions, and provide support for street children, ultimately working towards positive changes in their lives.

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