

SOCIO-ECONOMIC DETERMINANTS OF SMOKING PRACTICE OF STREET CHILDREN IN DHAKA CITY OF BANGLADESH: A LOGISTIC MODEL APPROACH

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ABSTRACT

The smoking practice of street children is one of the important issues of developing countries like Bangladesh. It is prevalent in the urban areas of Bangladesh like Dhaka City which may cause adverse effect on the socio-economic development in Bangladesh. To study the distributions, association and determinants of the street children by their smoking practice and background information χ^2 test and logistic regression model were used. It was found that types of street children, parent's composition, current age, sex of street children, place of birth, father's occupation, currently attending school and earning per day were associated with smoking practice of the street children. Logistic regression indicated that the types of street children, current age, sex of street children, place of birth and earning per day were the determining factors of the smoking practice of street children. The policy makers are advised to reduce the smoking practice of street children and to take care of above five determining factors for socio-economic development of Bangladesh.

Keywords: Street Children, Smoking, Determinant, Logistic Model, Bangladesh

1. INTRODUCTION

The issues of street children are common in developing countries. The street children are suffering from various problems which are in turn creating problems in the country itself. Some of these issues (smoking practice drug addiction, unsocial activities etc) are very much severe which may cause fetal death of future generation. If these issues are not addressed properly, these may create an adverse threat for the socio-economic development of the country like Bangladesh. A few researchers have conducted some studies regarding prevalence of street children of Bangladesh. But they did not attempt the issues of smoking practice of street children of Bangladesh. A published report estimated that the number of street children in Bangladesh was 445,226 of which 75% were in Dhaka city (UNDP, 2001). A recent official study estimated that 5, 00,000 children were living on the streets in the country's main cities of which 75% were living in Dhaka city (Khatun and Jamil, 2013). Another study found that overwhelming majority of the street children were living in Dhaka City. It was also found that 97.5% were males whereas around 3% were females. Again the average age of female children was 11.5 years which was younger than males (12.2 years) and average age of both sex was 12.1 years. Seventy percent (70%) of their fathers and 76% of their mothers were illiterate (Ahmed et al., 2003). It was found that over all smokers were 20% of whom 42% were males and 2.3% were females (Reiss et al., 2010). Based on the above findings, an attempt has been made here to study the various aspects of smoking practice of the street children in Dhaka City of Bangladesh.

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2. OBJECTIVES OF THE STUDY

As mentioned before that the smoking practice of street children in Dhaka City of Bangladesh was an important issue which was related to their background characteristics. So, studying inter-relation with the background characteristics and determinants of smoking practice was very much important. To do so, the following objectives have been undertaken in this study.

- (i) To study the distribution of street children by their socio-economic backgrounds.
- (ii) To study the inter-relationship between the smoking practice of the street children with their background characteristics.
- (iii) To identify the determinants of smoking practice of street children using logistic regression model.

3. METHODOLOGY

Various definitions of street children were available in different settings. Among those, four types of street children have been taken under consideration in this study based on UNICEF and WHO (UNICEF, 2003; WHO, 1993). These types are (i) Street Living Children (the children who ran away from their families and live alone on the streets) (ii) Street working Children (children who spend most of their time on the streets, fending for themselves, but returning home on a regular basis) (iii) Children from Street Families (children who live on the streets with their families) (iv) Children who are in institutional care (children who have come from a situation of homelessness and are at risk of returning to a homeless existence).

As it was mentioned before that this study concentrated with the street children in Dhaka city. A cross-sectional study was conducted in various places in Dhaka City during May-September 2014. As there is no concrete idea about the number of street children in Dhaka City but it was apprehended that approximately there were 3,00,000 street children in Dhaka City. Among them the information of 1108 (0.37%) street children were collected using purposive sampling technique with structured questionnaire. Data were placed in the computer for analysis using SPSS. Some tables and cross tables were prepared and some proportions and percentages were calculated to study the distribution of the street children. Again to study the association of the smoking practice and background characteristics some cross tables were prepared. In order to study the association between the attributes χ^2 statistic was used. A logistic regression model was also fitted to identify the determinants of street children in Dhaka City of Bangladesh. In this model, smoking practice is treated as dependent variable that is classified in the following way:

$$Y = \text{Smoking Practices} = \begin{cases} 1, \text{yes (if he / she smokes)} \\ 0, \text{otherwise} \end{cases}$$

On the other hand, types of street children, parent's composition, current age, sex of street children, place of birth, father's occupation, currently attending school and earning per day are considered as explanatory variables.

4. ANALYSIS AND FINDINGS

Distribution of street children in Dhaka city by their background characteristics have been presented in Table 1. It was observed that only 19.7% street children were smoker and 80.3% were nonsmoker which was very close estimate of Reiss et al. (2010). Table-1 showed that 73.8% of the street children had both father and mother, 12.3% had either only father or only mother, 11.6% had step parents and only 2.3% had no father or mother alive. The data revealed that 44.9%, 24.5%, 20.8% and 9.9% of the street children were street working children, street living children,

under institutional care and came from street families respectively. The study also revealed that the place of birth of 74% of the street children was rural and only 26% was urban. The table also indicated that 84.9% of the street children were male and only 15.1% were female which were also supported by Ahmed et al. (2003). It was also found that 19%, 65.8% and 15.2% of the street children were in the age group 5-9, 10-14 and 15-18 years respectively giving average age 11.73 years which was close to the estimate of Ahmed et al. (2013). It was also found that 52.3% of the street children's fathers were illiterate and 47% were literate. On the other hand, 56.8% of the street children's mothers were illiterate and 43.2% were literate. That is the mother's illiteracy was higher than the father's literacy rate which was also supported by Ahmed et al. (2003). It was also found that 25.7%, 22.1% and 13.8% of the street children's fathers were labour, rickshaw puller and businessman respectively. On the other hand, 39.9%, 27.1% and 12.3% of the street children's mothers were housewife, maidservant and labour respectively. The study revealed that 62.4% of the street children were able to go to school where as 37.6% were unable to go to school. It was also found that 29.8%, 33% and 37.3% of the street children were earning less than or equal to Tk.50, Tk.51- 100 and Tk.101 and above per day respectively.

Bivariate distribution of the street children's smoking practice with the background characteristics were presented in Table 2. It was found that 56.4% of the street children were smoker who had both father and mother and 31.2% of the street children were smoker who had step parents. It was also found that 59.2% of the street children were smoker who were street living and 28.0% of the streets children were smoker who were street working. Among the smoker street children 68.3% came from rural area and 31.7% came from urban area. It was found that 97.2% of the smoker street children were male while only 2.8% of the smoker street children were female. Among the smoker street children 49.1% were in the age group 5 to below 14 years where as 50.9% were in the age group 14 to 18 years. It was found that 54.6% of the street children were smoker whose fathers were illiterate while 45.4% of the street children were smoker whose fathers were literate. On the contrary, 53.7% of the street children were smoker whose mothers were literate where as 46.3% of the street children were smoker whose mothers were illiterate. It was found that 9.2%, 21.1% and 16.1% of the street children were smoker whose father's occupation was farming, labour and rickshaw/van puller respectively. On the other hand, 31.2% and 45.9% of the street children were smoker whose mother's occupation were service and housewife respectively. It was found that that 26.6% of the smoker street children who were able to go to school and 73.4% of the smoker street children who were unable to go to school. It was also found that 21.2% of the smoker street children who were earning below Tk.100 per day where as 78.8% of the smoker street children who were earning Tk.100 and above per day.

To study the inter-relations of the background information with the smoking practice of the street children χ^2 - statistic have been used and these were placed in the last column of Table-2. It was seen that smoking practice of street children was significantly associated with types of street children, parent's composition, current age, sex of street children, place of birth, father's occupation, currently attending school and earning per day respectively. But father's education level, mother's education level and mother's occupation are insignificant with smoking practice of the street children.

To identify the determinants of smoking practice of the street children in Dhaka City of Bangladesh a logistic regression model have been fitted. The important results were placed in the Table-3. In this model the smoking practice of the street children was considered as a response variable and the types of street children, parent's composition, current age, sex of street children, place of birth, father's occupation, currently attending school and earning per day were considered

as explanatory variables.

The regression coefficients for the street children who were street working children was -1.720 and the corresponding odds ratio was 0.179 (95% C.I. [0.102, 0.315]) respectively which indicated that the street children who were street working were 0.179 times less smoker than the street children who were street living and the result was statistically significant.

Current age of street children was the most significant factor affecting smoking practice of street children. The regression coefficient of street children whose age was 14 years and above was 1.526 with corresponding odds ratios was 4.600 (95% C.I. [3.135, 6.749]) which implied that the street children whose age were 14 years and above was 4.6 times more smokers than the street children whose age was below 14 years.

Sex of street children was the most significant factor, affecting smoking practice of street children. The regression coefficient for the children who were female was -1.469 with the corresponding odds ratios was 0.230 (95% C.I. [0.090, 0.591]) which implied that female street children was 0.230 times less smoker than the male street children.

Place of birth of street children was the significant factor, affecting smoking practice of street children. The regression coefficient of street children who had come from urban area was 0.428 with the corresponding odds ratios was 1.534 (95% C.I. [1.033, 2.277]) which implied that the street children who had come from urban area was 1.534 times more smokers than the street children who had come from rural area.

Earning per day was an important factor affecting the smoking practice of street children. The regression coefficient of street children who were earning Tk.100 and above per day was 0.632 with corresponding odds ratios was 1.882 (95% C.I. [1.240, 2.856]) which indicated that the street children who were earning Tk.100 and above per day was 1.882 times more smoker than the street children who were earning below Tk.100.

5. CONCLUSION AND RECOMMENDATIONS

In this study, data were collected from Dhaka City and some one way contingency tables were constructed to study the inter-relationship of smoking practice with their background characteristics. A logistic regression analysis was also performed to identify the determinants of smoking practice of the street children of Dhaka City. It was found that the smoking practice of street children were significantly associated with types of street children, parent's composition, current age, sex of street children, place of birth, father's occupation, currently attending school and earning per day. The logistic regression analysis indicated that the street children who were street working was 0.179 times less smoker than the street children who were street living and it was statistically significant. It was also found that the children whose age was 14 years and above was 4.6 times more smokers than the street children whose age was below 14 years and it was also statistically significant. It was observed that the female street children were 0.230 times less smoker than male street children which was also statistically significant. It was also found that the street children who came from urban area was 1.534 times more smokers than the street children who came from rural area and the it was also statistically significant. It was also found that the street children who earned Tk.100 and above per day was 1.882 times more smoker than the street children who earned below Tk.100 and it was also highly significant.

This study identified the above five factors which may be considered as determining factors of smoking practice of street children in Dhaka City of Bangladesh. Based on the above findings it is important to advise the planners and policy makers to draw attention to the street children who were from rural area and living in the street. It is also advisable to take care of male street children who are of 14+ years old and earning Tk.100 and above.

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APPENDIX-1

Table 1: Distribution of Street Children by Background Characteristics in Dhaka City

Background Characteristics	Number of respondents (%)	Background Characteristics	Number of respondents (%)
Smoking Practice		Mother's Education Level	
Yes	218 (19.7)	Illiterate	629 (56.8)
No	890 (80.3)	Literate	479 (43.2)
Types of Street Children		Father's Occupation	
Street living children	271 (24.5)	Farming	71 (6.4)
Street working children	497 (44.9)	Labour	285 (25.7)
Children from street families	110 (9.9)	Business	153 (13.8)
Children who are in institutional care	230 (20.8)	Service	88 (7.9)
Parent's Composition		Rickshaw puller	245 (22.1)
Both father and mother	818 (73.8)	Driver	51 (4.6)
Step parents	128 (11.6)	Others	215 (19.4)
Either only father or mother	136 (12.3)	Mother's Occupation	
None	26 (2.3)	Labour	136 (12.3)
Current Age (in years)		Business	66 (6.0)
5-9	211 (19.0)	Service	79 (7.1)
10-14	729 (65.8)	Maid Servant	300 (27.1)
15-18	168 (15.2)	Housewife	442 (39.9)
Sex of Street Children		Others	85 (7.7)
Male	941 (84.9)	Currently Attending School	
Female	167 (15.1)	Yes	463 (41.8)
Place of Birth		No	645 (58.2)
Rural	820 (74.0)	Earning per day (in Taka)	
Urban	288 (26.0)	≤ 50	319 (29.8)
Father's Education Level		51-100	353 (33.0)
Illiterate	579 (52.3)	101 ≤	399 (37.3)
Literate	529 (47.7)		
Note: () indicates percentage of respondents			

APPENDIX-2

Table 2: Bivariate Distribution of Street Children by Smoking Practice and Background Characteristics

Variables	Smoking practice			χ^2 values, p values
	Yes (%)	No (%)	Total (%)	
Types of Street Children				179.113, 0.000
Street living children	129 (59.2)	142 (16.0)	271 (24.5)	
Street working children	61 (28.0)	436 (49.0)	497 (44.9)	
Others	28 (12.8)	312 (35.1)	340 (30.7)	
Parent's Composition				69.646, 0.000
Both father and mother	123 (56.4)	696 (78.2)	819 (73.9)	
Step Parents	68 (31.2)	86 (9.7)	154 (13.9)	
Others	27 (12.4)	108(12.1)	135 (12.2)	
Current Age (in years)				102.834, 0.000
< 14	107 (49.1)	730 (82.0)	837 (75.5)	
≥14	111 (50.9)	160 (18.0)	271 (24.5)	
Sex of Street Children				32.181, 0.000
Male	212 (97.2)	729 (81.9)	941 (84.9)	
Female	6 (2.8)	161 (18.1)	167(15.1)	
Place of Birth				4.517, 0.034
Rural	149 (68.3)	671 (75.4)	820 (74.0)	
Urban	69 (31.7)	219 (24.6)	288 (26.0)	
Father's Education Level				0.591, 0.442
Illiterate	119 (54.6)	460 (51.7)	579 (52.3)	
Literate	99 (45.4)	430 (48.3)	529 (47.7)	
Mother's Education Level				1.062, 0.303
Illiterate	117 (53.7)	512 (57.5)	629 (56.8)	
Literate	101 (46.3)	378 (42.5)	479 (43.2)	
Father's Occupation				13.710, 0.003
Farming	20 (9.2)	51 (5.7)	71 (6.4)	
Labour	46 (21.1)	239 (26.9)	285 (25.7)	
Rickshaw / van puller	35 (16.1)	210 (23.6)	245 (22.1)	
Others	117 (53.7)	390 (43.8)	507 (45.8)	
Mother's Occupation				4.075, 0.130
Service	68 (31.2)	311 (34.9)	379 (34.2)	
Housewife	100 (45.9)	342 (38.4)	442 (39.9)	
Others	50 (22.9)	237 (26.6)	287 (25.9)	
Currently Attending School				25.714, 0.000
Yes	58 (26.6)	405 (45.5)	463 (41.8)	
No	160 (73.4)	485 (54.5)	645 (58.2)	
Earning per day (in Taka)				50.047, 0.000
< 100	46 (21.2)	408 (47.8)	454 (42.4)	
≥100	171 (78.8)	446 (52.2)	617 (57.6)	
Note: () indicates the percentages				

APPENDIX-3

Table 3: Results of logistic regression analysis for the effects of selected independent variables on smoking practice of street children in Dhaka City of Bangladesh

Explanatory variables	Coefficients (β)	S.E of estimates {S.E. (β)}	P values	Relative risk or odds ratio {EXP.(β)}	95% C.I. for EXP. (β)	
					Lower	Upper
Types of Street Children						
Street living children (r)	.....	.....	.....	1.000		
Street working children	-1.720	0.289	0.000	0.179	0.102	0.315
Others	0.062	0.291	0.831	1.064	0.601	1.884
Parent's Composition						
Both father and mother (r)	.....	.....	.....	1.000		
Step Parents	-0.114	0.297	0.702	0.892	0.498	1.598
Others	-0.967	0.325	0.003	0.380	0.201	0.719
Current Age (in years)						
<14 (r)	.....	.....	.....	1.000		
≥14	1.526	0.196	0.000	4.600	3.135	6.749
Sex of Street Children						
Male (r)	.....	.....	.....	1.000		
Female	-1.469	0.481	0.002	0.230	0.090	0.591
Place of Birth						
Rural (r)	.....	.....	.....	1.000		
Urban	0.428	0.202	0.034	1.534	1.033	2.277
Father's Occupation						
Farming (r)	.....	.....	.....	1.000		
Labour	0.387	0.339	0.254	1.472	0.757	2.863
Rickshaw / van puller	0.452	0.238	0.057	1.572	0.987	2.505
Others	0.347	0.256	0.175	1.415	0.856	2.340
Currently Attending School						
Yes (r)	.....	.....	.....	1.000		
No	0.035	0.221	0.873	1.036	0.672	1.598
Earning per day (in Taka)						
< 100 (r)	.....	.....	.....	1.000		
≥100	0.632	0.213	0.003	1.882	1.240	2.856
Model Summary:						
-2 Log likelihood = 790.762						
Cox & Snell R Square = 0.236						
Nagelkerke R Square = 0.372						
Note: r represents the reference category, CI represents the confidence interval						