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Impact of Some Key Factors on Health Complication of the Child Laborers During Work: A Study on Rangpur, Bangladesh

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Abstract: Child labour remains a widespread problem in the world today. It is evident that, though the child laborers work at various health hazardous situations but they have very little access to primary health care and the overall health condition and nutritional status are very low. This study aims at investigating the factors that influences the health complications of the child laborers during research. For this the primary data were collected using purposive sampling technique by scheduled questionnaire from some selected areas of Rangpur district, Bangladesh. Some statistical techniques like percentage distribution, χ^2 test and logistic regression method have been applied in this study. The percentage distribution represents the overall socio-economic, demographic and health related characteristics of the child laborers. The χ^2 test shows the degree of significance of the association between health complications and some selected explanatory variables. The logistic regression analysis shows that working hour per day, place of work and age at the time of entrance to work appeared to be the most significant factors in determining the likelihood of facing health complications during research.

Key words: Child labor, health complications, χ^2 test, logistic regression analysis, rangpur district, Bangladesh

INTRODUCTION

Child labor is a persistent problem through out the world, especially in developing countries (ILO, 1997). It is especially prevalent in rural areas of those countries where human and income poverty is widespread, coupled with the lack of capacity to enforce minimum age requirements for research and schooling. Among the variety of reasons for child labor the most important is the pressure upon them to escape the plight of poverty. Child labor has been around since the beginning of time but now it is a major challenge of our time. Child labor is simply the single most important source of child exploitation and child abuse in the world today.

The most unfortunate among them are those who are involved in different forms of hazardous occupations, which endanger their physical safety; impair their physical, mental, social and moral development. In spite of all success of the modern civilization, it is one of the most shameful dimensions of the mankind that it has been causing and tolerating irreversible damage to millions of innocent children on the face of this earth. The United Nations (UN) Convention on the Rights of the Child and International Labor Organization's (ILO) Minimum Age Convention, 1973 set out the objectives and the broad policy framework for the action to be taken to eliminate child labor. But the practical situation is painful; the number of child laborers has been increasing alarmingly. The ILO has recently estimated that some 217.7 million ages 5-17 are engaged in child labor around the world. Of these, some 126.3 million are caught in the worst forms of child labor. Roughly 122.3 million children ages 5-14 are economically active in Asia and the Pacific, 49.3 million in sub-Saharan Africa, 5.7 million in Latin America and the Caribbean and 13.4 million in other regions.

Among working children ages 4-14 in the world, 69% are employed in the agricultural sector. With 122.3 million economically active children ages 5 to 14, children the Asia and the Pacific region has the highest number of working children worldwide. Many worst forms of child labor are a problem in the region, including child trafficking, commercial sexual exploitation, bonded child labor, child domestic work, hazardous child labor and the recruitment and use of children for armed conflict or drug trafficking (ILO, 2005).

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Bangladesh is also a contested terrain in this context. Thousands of children in Bangladesh are forced into labor in order to sustain their family and in the process miss the chance to go to school. According to National Child Labor Survey conducted by the Bangladesh Bureau of Statistics, between 2002 and 2003 there are approximately 42.8 million children aged between 5-17 in Bangladesh of which 7.4 million are engaged in some sort of economic activity. On the other hand, 3.2 million children are directly selling their labor to earn a living and of them, 1.3 million children are engaged in the worst forms of child labour that leads to adverse effects on the child's safety, physical or mental health and moral development. Children engaged in hazardous research are said to face inhuman working conditions and most of them are compelled to work 12-14 h a day, earning no more than TK 15-TK 20 a day. According to the national child labour survey 2002-03 conducted by the International Labour Organization (ILO), majority of child labourers are said to earn nothing at all; worse still they are compelled to work year after year as unpaid apprentices. The earlier children can learn their work the earlier they become paid employees. Usually none of the children are paid in their first year. A research report by State of Child Labour 2001, Bangladesh Sishu Adhikar Forum and UNICEF identified some 430 forms of child labour and among them 67 are identified as hazardous. The report labelled seven sectors, including, leather factories, welding workshops, match factories, domestic help as excessively hazardous for children shown in Table 1.

Table 1: Percentage distribution of child laborers according to some selected socioeconomic, demographic and health related characteristics

Characteristics	Frequencies	(%)	Characteristics	Frequencies	(%)
Educational qualification of the respondents			**Educational qualification of the respondents' father**		
Illiterate	442	26.0	Illiterate	1271	74.8
Primary	1067	62.8	Primary	344	20.2
Secondary	190	11.2	Secondary	84	5.0
Total	1699	100.00	Total	1699	100.00
Educational qualification of the respondents' mother			**Monthly income of the respondents**		
Illiterate	1456	85.7	<3000 taka	1691	99.5
Primary	213	12.5	3000-6000 taka	3	0.2
Secondary	30	1.8	6000+ taka	5	0.3
Total	1699	100.00	Total	1699	100.00
Monthly income of the household head			**Place of work**		
<3000 taka	1588	93.5	Shop	336	19.8
3000-6000 taka	109	6.4	Home	143	8.4
6000+ taka	2	0.1	Workshop	167	9.8
Total	1699	100.00	Hotel	277	16.3
Age of the respondents			Agriculture	198	11.7
5-9 years	226	13.3	Chatal	57	3.4
9-13 years	767	45.1	Mill/Factory	447	26.3
13-17 years	706	41.6	Others	74	4.3
Total	1699	100.00	Total	1699	100.00
Sex of the respondents			**Age at the time of entrance to work**		
Male	1436	84.5	6-10 Years	1421	83.6
Female	263	15.5	10-14 Years	277	16.3
Total	1699	100.00	14-17 Years	1	0.1
Religion			Total	1699	100.00
Muslim	1528	89.9	**Types of family**		
Non-Muslim	171	10.0	Single	1543	90.8
Types of latrine			Combine	156	9.2
Kancha	1264	74.4	Total	1699	100.00
Pucca	233	13.7	Occupation of father		
Open Places	202	11.9	Agriculture	353	20.8
Total	1699	100.00	Business	282	16.6
Number of vaccines taken (immunization)			Day labor	777	45.7
Not at all	284	16.7	Others	287	16.9
Partial	853	50.2	Total	1699	100.00
Complete	562	33.1	**Use of soap after using latrine**		
Total	1699	100.00	No	1214	71.5
Use of soap before taking meal			Yes	485	28.5
No	1651	97.2	Total	1699	100.00
Yes	48	2.8	**Working hour per day**		
Total	1699	100.00	2-5 h	327	19.2
Presence of chronic diseases			6-9 h	535	31.5
No	622	36.6	10-13 h	645	38.0
Yes	1077	63.4	13+ h	192	11.3
Total	1699	100.00	Total	16699	100.00

Child labor is a pervasive problem throughout the world, especially in developing countries. For this the literature on child labor is extensive and a good number of studies have been carried out in the area of child labor. Such as: Khan (2000) points out in his study that by dint of hard labor they cannot change their life style throughout the whole childhood; situation compels them to pass the every day life in a miserable condition. They have very little access to primary health care and the overall heath conditions and nutritional status are very low and identified that poverty is the main cause of child labor. Early involvement of children in work leads to serious health and developmental consequences. Working children suffer significant physical growth deficits as compared with school children. They grow up shorter and lighter and their body size continues to be smaller even in adulthood (Hossain, 2003; Papalia *et al*., 1998). Many of them work under conditions that leave them alarmingly vulnerable to chemical and biological hazards. Child workers tend to develop muscular, chest and abdominal pain, headaches, dizziness, respiratory infections, diarrhea and worm infections (Hasnat, 1996; Shumba, 2003a). Poor working conditions make them more susceptible to infectious diseases, injuries and other work-related ailments. Moreover, children in certain occupations experience particular types of abuse. Child domestic workers are often found to be victims of verbal and sexual abuse, beating or punishment or other forms of violence (Hossain, 2003). Masum (1999) explained elaborately the different forms child exploitation and child abuse in the world. They are to work for a living, sacrificing their childhood as well as their future for bare survival of self and family. He found that child labor is sheer realities who are engaged in hazardous jobs, working under most unhygienic conditions in Bangladesh.

Many factors determine hazardous situation i.e., the economic stagnation, unemployment, rising cost of living and rural-urban differentials. The study on child labor is important not only for social reason but also for economic ones. The children are the most vulnerable group in our society. The employers employ them in various health hazardous conditions and do not provide sufficient care and treatment. Instead of care and treatment they get various types and physical torture from their employers. Little research work has been done on the health problems of the vulnerable child laborers, which does not provide in-depth understanding of the problem. But the child labor has a great contribution and plays a vital role in the Gross Domestic Product (GDP) of our country. So, the present study was conducted on a particular group of under-privileged working adolescents in an attempt to determine their health profile and to relate it to socio-economic or environmental risk factors. Data from the study could aid in the design of community-based interventions to alleviate the negative impact of child labor on health as well as producing policy recommendations.

MATERIALS AND METHODS

The data of this study was collected from 7 selected thanas of Rangpur district, Bangladesh by using purposive sampling technique by scheduled questionnaire. Relevant informations were collected from 1699 child laborers. In this study χ^2 test and logistic regression analysis have been adopted to study the impact of some key factors on the health complication of the child laborers where the dependent variable Y is a dichotomous one that indicates the health complications of the child laborers during work. It takes the value 1 (i.e. Y = 1) if the child lbourers face any kind of health complications during work i.e., the probability p and 0 (i.e. Y = 0) if the child lbourers do not face any kind of health complications during work i.e., the probability (1-p) shown in Table 2. In this model, the explanatory variables being used are age of the respondents, working hour per day, working since (years), immunization, place of work and age at the time of entrance to work. All of the explanatory variables are qualitative. The formula for the χ^2 test which is used to examine the association between various factors is as follows:

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{O_{ij}^{\ 2}}{E_{ij}} - N$$

Which follows χ^2 distribution with (r-1) (c-1) degrees of freedom.

Where,

O_{ij} = Observed number of observations.
E_{ij} = Expected number of observations.
N = Total number of observations.
r = Number of row.
c = Number of column.

Lastly, we compare the calculated value of chi-square with tabulated value of chi-square (χ^2) and give favorable comment on findings.

And the formula for the logistic regression is as follows:

$$p_i = \frac{1}{1+e^{-\left(\beta_0+\sum_j \beta_j X_j\right)}}$$

The dependent and independent variables which were used in the analysis are shown in Table 3.

Table 2: Results of association between physical complications during work and some selected attributes

Background characteristics	Physical complications during work		Values of χ^2, df and α
	Yes (%)	No (%)	
Age of the respondent			
5-9 years	44.6	14.9	$\chi^2 = 3.945$
9-13 years	42.7	38.8	df = 2
13-17 years	12.6	46.3	$\alpha = 0.160$
Total	100.0	100.00	
Working hour per day			
2-5 h	11.8	37.6	$\chi^2 = 8.757$
6-9 h	32.1	30.0	df = 3
10-13 h	18.0	22.3	$\alpha = 0.000$
Above 13 h	38.1	10.1	
Total	100.00	100.00	
Working since (year)			
1 year	12.2	13.1	$\chi^2 = 6.345$
2-4 years	49.6	3.6	df = 3
5-8 years	34.6	34.2	$\alpha = 0.160$
Above 8 years	3.8	49.1	
Total	100.00	100.00	
Vaccines taken (immunization)			
Not at all	49.2	14.3	$\chi^2 = 4.341$
Partial	33.1	33.0	df = 2
Full	17.7	52.7	$\alpha = 0.105$
Total	100.00	100.00	
Place of work			
Shop	10.9	18.5	$\chi^2 = 17.867$
Home	8.8	7.6	df = 7
Workshop	20.3	7.4	$\alpha = 0 .000$
Hotel	16.2	16.5	
Agriculture	12.2	10.3	
Chatal	3.5	3.0	
Mill/Factory	23.7	32.6	
Others	4.4	4.2	
Total	100.00	100.00	
Age at the time of entrance to work			
6-10 years	87.3	0.0	$\chi^2 = 9.767$
11-14 years	12.5	17.9	df = 2
15-17 years	0.2	82.1	$\alpha = 0.000$
Total	100.00	100.00	

Level of significance: * p<0.01; **<0.05; ***p<0.10

Table 3: Dependent and independent variables which were used in analysis

Variables	Type	Categories
Dependent variable		
Health complications during work	Categorical	0 = No, 1 = yes
Independent variables		
Age of the respondent	Categorical	1 = 5-9 years 2 = 9-13 years 3 = 13-17 years
Working hour per day	Categorical	1 = 2-5 h 2 = 6-9 h 3 = 10-13 h 4 = Above 13 h
Working since(years)	Categorical	1 = 1 year 2 = 2-4 year 3 = 5-8 year 4 = Above 8 year
Immunization	Categorical	1 = Not at all 2 = Partial 3 = Full
Place of work	Categorical	1 = Shop 2 = Home 3 = Workshop 4 = Hotel 5 = Agriculture 6 = Chantal 7 = Mill/Factory 8 = Others
Age at the time of entrance to work	Categorical	1 = 6-10 years 2 = 11-14 years 3 = 15-17 years

Table 4: Logistic regression estimates for the effect of some selected variables on physical complications of the child laborers during work as the dependent variable

Characteristics	Coefficient (β)	S.E of Coefficient	Significance	Odds ratio
Age of the respondent				
5-9 years (ref.)	-	-	-	1.000
9-13 years	-0.114	0.193	0.715	0.892
13-17 years	-0.338	0.226	0.839	0.713
Working Hour Per day				
2-5 hour (ref.)	-	-	-	1.000
6-9	1.314	0.335	0.000	3.721
10-13	0.798	0.570	0.064	2.221
Above 13	0.973	0.374	0.025	2.646
Working since (years)				
1 year (ref.)	-	-	-	1.000
2-4 year	-0.120	0.328	0.715	0.887
5-8 year	-0.047	0.296	0.872	0.954
Above 8 year	-0.029	0.296	0.922	0.971
Immunization				
Not at all (ref.)	-	-	-	1.000
Partial	-0.144	0.171	0.399	0.866
Full	-0.027	0.125	0.829	0.0973
Place of work				
Shop (ref.)	-	-	-	1.000
Home	0.858	0.470	0.065	2.382
Workshop	1.316	0.331	0.000	3.727
Hotel	0.843	0.380	0.026	2.324
Agriculture	-0.026	0.299	0.931	0.975
Chantal	-0.058	0.807	0.943	0.944
Mill/Factory	0.119	0.401	0.766	1.127
Others				
Age at the time of Entrance to work				
6-10 year (ref.)	-	-	-	1.000
11-14 year	-1.342	0.518	0.010	0.261
15-17 year	-2.059	0.717	0.005	0.120
Constant	-0.354	0.175	0.044	0.702

Note: (ref.) represent reference category

RESULTS AND DISCUSSION

From the collected data it is observed that, the socio-economic condition of the respondents and their families indicate a poor scenario. This is why they were compelled to work for long hours and in various health hazardous conditions. This means that poverty is the main factor for pushing the children in various hazardous works. The contingency analysis (χ^2 test) indicates that, working hour per day, place of study and age of the respondents at the time of entrance to work is strongly significantly (at 1% level of significance) associated with the health complications of the child laborers during research.

From the results of logistic regression analysis, it appears that, out of all the variables that are included in the logistic regression, working hour per day, place of work and age at the time of entrance to work appeared to be the most significant factors in determining the likelihood of facing physical complications during research. Table 4 suggests that, the working hour level 6-9 h, were 3.721 times, 10-13 h were 2.221 times and above 13 h were 2.646 times more likely to feel physical complications during work then the working hour level 2-5 h. Also, the working place of the child laborers being house were 2.382, times, workshop were 3.727 times, Hotel were 2.324 times and Mill/Factory were 1.127 times more likely to face physical complications during work than the working place being shop. In contrast, the working place agriculture and chatal were 2.5 and 5.6% less likely to face physical complications during work. Again, child laborers who entered in work at ages 11-14 and 15-17 years were 73.9 and 87.2% less likely to face physical complications during work than those who entered into work at age group 6-10 years.

CONCLUSION

It is observed that the socio-economic condition of the child laborers and their families lies at a very lower stage and most of them are very poor. That means poverty is the main reason for the involvement of the children in various hazardous works, which is similar as the findings of Fawzy M. Kishak. The contingency analysis (χ^2 test) shows that the three factors viz, working hour per day, place of work and the age of the respondents at the time of entrance to work are the most significant predictors of the health complications of the child laborers. The logistic regression model indicates

that, out of all the variables that are included in the analysis working hour per day, place of work and age of the respondents at the time of entrance to work were the most influential predictors of determining the likelihood of facing health complications of the child laborers during work. Table 4 suggests that, with the increase of the working hour level of the respondents the likelihood of health complication also increases. It also appears from the findings of the logistic regression analysis that the place of work of the child laborers is also closely related with the health problems i.e., the children who works at more hazardous sectors, faces more health problems than those who works at comparatively less hazardous sectors. Again, it appears from the findings of logistic regression analysis that the age of the child laborers at the time of entrance to work is also closely related with their health problems i.e., the children who entered into work at an early age, faces more health complications than those who entered at work at more ages.

RECOMMENDATIONS

Bangladesh is a densely populated country and her population is increasing day by day, but the resources are not growing at the same rate. As a result, the majority of the population of this country is becoming poorer gradually. This poverty leads to illiteracy, child labor and sometimes other serious problems. It has been well established now from our findings that primarily the lower socio-economic status of the child laborers and their family is responsible for their work at an early ages and health condition. As the problem is so complicated and deep rooted in the society, solutions are not easy but in the battle against child labor, different means of action are required which are given below:

- The main underlying cause of child labour is poverty; long-term strategies are needed to alleviate poverty.
- The government should take a initiative to provide extra facilities for education so that the rural children are eager to go to school instead of working in the agriculture.
- The landowner should provide proper wages against the children's work.
- The government should take a policy so that the rural landowner cannot involve the children in the working field violating working rules.
- Suitable operational techniques should be developed for measuring worst forms of child labor and take an initiative so that the landowner in agriculture sector and all the children are aware about this.
- A monitoring team should be built up and the team will responsible to find out the children who are working in hazardous condition and finally, submit the routine wise report to the concern authorities.
- Provision of health services for child laborers should construct.
- Making the child labor issue understood at the grassroots and mobilizing community support for such underlying.
- The government as well as the non-government organizations may take proper steps to establish especial saving bank for the child laborers, where they can save their daily or weekly amount of money which in turn may turned into a handsome amount with which they can start various types of business resulting in removing the child labor.

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