International Labour Organization

Health hazards of child labour in brick kilns of Bangladesh

International Programme on the Elimination of Child Labour (IPEC)

FPRW-IPEC

Health hazards of child labour in brick kilns of Bangladesh / International Labour Office, International Programme on the Elimination of Child Labour (IPEC) - Geneva: ILO, 2014

ISBN: 978-92-2-129399-6 (PRINT); 978-92-2-129400-9 (Web PDF)

International Labour Office; ILO International Programme on the Elimination of Child Labour

child labour / child worker / occupational health / occupational safety / hazard / working conditions / brick / earth / Bangladesh - 13.02.2

ILO Cataloguing in Publication Data

Acknowledgements

This publication was elaborated by the Bangladesh Institute of Labour Studies (BILS) for IPEC and coordinated by Susan Gunn from IPEC Geneva Office.
We would like to thanks the Core Research Team: Afzal Kabir Khan, Research and Project Development Officer (BILS); Aurongajeb Akond, Research Associate (BILS); Subrata Banarjee, Mawlana Bhashani Science and Technology University, Bangladesh; and Shafiur Rahman, Data Analyst(BILS).
Thanks also to the contributing Researchers: Md. Omar Faruk, Associate Professor, Mawlana Bhashani Science and Technology University, Bangladesh; and Dr. Md. Fazla Rabbi, Respiratory Medicine Specialist, and Md. Shahin, Respiratory Medicine Specialist, from the National Institute of Diseases of the Chest & Hospital & National Asthma Centre, Bangladesh.

Funding for this ILO publication was provided by the United States Department of Labor (Project GLO/09/56/USA).

This publication does not necessarily reflect the views or policies of the United States Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the United States Government.

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Photocomposed by IPEC Geneva

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Abbreviation

ADB:	Asian Development Bank
BBMOA:	Bangladesh Brick Makers Owners' Association
BBS:	Bangladesh Bureau of Statistics
BILS:	Bangladesh Institute of Labour Studies
BTK:	Bulls Trench kiln
CASE:	Clean Air and Sustainable Environment
DC:	District Commissioner
DoE:	Department of Environment
FCK:	Fixed Chimney Kiln
FGD:	Focus Group Discussion
FGD:	Focus Group Discussion
GDP:	Gross Domestic Product
GOB:	Government of Bangladesh
HHKs:	Hybrid Hoffman kilns
HK:	Hoffman kiln
ILO:	International Labour Organization
IZK:	Improved Zigzag Kiln
MOLE:	Ministry of Labor and Employment
NCLS:	National Child Labour Survey
OHS:	Occupational Health and Safety
SPSS:	Statistical Package for Social Science
TK:	Tunnel kiln
UNDP:	United Nations Development Program
VSBK:	Vertical Shaft Brick Kiln

Executive summary

Child labour in brick kilns is one of the major concerns in Bangladesh as the children working in the brick kilns have been suffering from various health hazards and occupational risks. In spite of this, there has been little oversight by the government and other stakeholders of this sector.

This is a cross sectional study, involving both qualitative and quantitative methods. Quantitative methods (sample surveys) have been used to document the hazards to which the children have been exposed and the health impacts experienced by the children working in the brick kilns of Bangladesh and qualitative methods (observation and measurements) have been used to measure the nature of working environment and health risks. The study sites selected were *Ashulia, Savar* of Dhaka District, an urban area, and *Jhinaidah Sadar* and its surrounding cluster of brick kilns have been selected to represent kilns in rural areas.

The study finds that about 80 per cent and 84 per cent of child[1] kiln workers respectively from urban and rural areas have attended school in the past but virtually none attend at present. The findings reveal that a notable number of the children started their work in brick kiln at a very early age: 32.90 per cent started their work between the age of 8-10 years, 30 per cent of them started their work at the age of 11 to 12 years and 37.1 per cent of them started their work at the age of 13 to 17. . Concerning the duration of work, it is found that 86 per cent of the total number of children usually work more than 8 hours in a day, 50 per cent of these work for 8-10 hours and 36 per cent work more than 10 hours. Of the youth workers, 94 per cent work more than 8 hours a day. The study also shows that more than half of the child (57.1 per cent) and youth workers (64.0 per cent) have to work for seven days in a week, which indicates that the pattern of work changes as workers become older, which is confirmed by 62.0 per cent of the youth workers who stated that they have to spend more time than before.

The data show that child and youth workers are generally more tired than the controls (31.4 per cent of child workers and 8.0 per cent of the controls said that they often experienced fatigue or exhaustion during the last month). Similarly, child workers had a higher number of injuries than the controls, for example 85.7 per cent of the cases experienced cuts or bruises whereas only 65.0 per cent of the controls. With regard to respiratory problems, the study found less variation (45.7 per cent for child workers, 40.0 per cent for youth workers and 40.0 per cent for controls experienced breathing problems or persistent cough.) In contrast, the incidence of skin problems was substantially higher among the workers (22.0 per cent for youth, 17.1 per cent for children) than the controls (7.5 per cent). Stomach problems or diarrhoea are also more prominent among brick kiln workers.

The observatory part of the study found that the brick kiln environment has a number of serious health hazards: dust, ash, smoke, bad smell, etc. Workers have to work under the direct sun with no place for shade or rest. The brick kilns generally start working in

[1] Child kiln workers means the child work in the brick kiln aged 11 to 17 years.

November and continue for four to six months. During this period, it rarely rains and the temperature remains quite high. Usually the children do not use masks over their nose or mouth. The whole area is without any trees and there is little wind. As a result, the heat of the sun is very high and makes the children tired and thirsty. In urban brick kilns, the soil for making bricks is brought from other places by truck or vehicles. Regarding water, there is tube well in the brick kiln and they drink pure drinking water.

1. Introduction

1.1 Introduction and background of the study

Child labour is common in Bangladesh and other developing countries, depending on the economic structure and level of development. UNICEF estimates that nearly one in six children aged 5–14 are engaged in child labour in the world.[2] It is estimated that there are 21.6 million children, aged between 5 and 14 years, working in south Asia out of a total of 300 million children in this age group.[3] Factors responsible for child labour in south Asia include parental poverty and illiteracy; social and economic circumstances; lack of awareness; lack of access to basic and meaningful quality education and skills, and high rates of adult unemployment and under-employment. Attitudes towards child labour also play an important role. In south Asia, children are perceived as 'adults' at an early stage. Children are expected to perform physical work equivalent to an adult as early as 10 years old in some countries. Many of the same forms of child labour are found throughout south Asia, e.g. child domestic labour; children working in hazardous industries; children working in export industries; child trafficking (both internally and across borders); child bonded labour in agriculture and certain parts of the industrial and informal sectors.[4]

In this research our main concern is to determine occupational health hazards and risks of those children who are involved in various types of work in the brick kilns of Bangladesh. This study assesses the health impacts associated with the work, and documents the physical and psychological conditions of the child labour in brick kiln. It is a cross sectional study which includes direct observation, face to face interviews and focus group discussion.

The brick kiln is a place where bricks are made and sold. Brickfields are situated both in urban and rural areas of Bangladesh. (This study includes brick kilns from both the urban and rural areas.) No doubt brick kilns are an unsafe and hazardous workplace especially for children. The nature of the work exposes the workers to a dangerous environment and working conditions. Dust can lead to pulmonary diseases (e.g. asthma, wheezing) as well as silicosis (silica is found in the soil used for bricks in Bangladesh[5]). The brick kilns emit toxic fumes containing suspended particulate matter rich in carbon and containing a high concentration of carbon monoxides, as well as 8.8 per cent nitrogen oxide and oxides of sulphur (28.8 per cent) that are harmful to eyes, lungs and throat.[6],[7] Brick kilns in

[2] Unicef, (2013). *World Day Against Child Labour shines spotlight on plight of domestic workers*. (Retrieved from http://www.unicef.org/protection/57929_69606.html on 26 December 203).

[3] ILO, (2004).Child Labour and Responses, Overview Note-South Asia, International Programme on the Elimination of Child Labour.

[4] ILO, (2004).Child Labour and Responses, Overview Note-South Asia, International Programme on the Elimination of Child Labour.

[5] Sand fraction contains a high proportion of Si (0 and II), Fe (0 and II), Cu (II) and Na (I). Silt fraction.
also contains a high proportion of Si (II) and Fe (0 and II). Cu (II) and Na (I) are also present in silt. Clay fraction contains a high proportion of Si (0) and Fe (0 and II). Ti (0), Cu (II) and Na (I) are also present in clay. Spectro-Chemical Characterization of Rangpur (Sabjibari) Soil Fractions of Bangladesh Zaker Y., Hossain M.A.*, Paul P. and Islam T.S.A. / Research Journal of Chemical Sciences ISSN 2231-606X Vol. 3(9), 10-17, September (2013).

[6] The Daily Prothom- alo, 05-03 -2004.

Bangladesh burn not only wood and coal but also plastic and tires. A low-grade coal is the main fuel used for burning bricks. The environment and living conditions such as bathroom, latrine, cooking and eating places, etc. are also responsible for health hazards of children.

Childhood is an important stage of life for growth and development, but hazardous and harmful substances can hamper this process. In addition, working in a brick kiln can create mental stress for a child mentality and has been associated with such conditions as depression, mania, personality disorders which may be problematic for a child's future.[8]

In Bangladesh, child labour projects include a wide range of interventions like education, legal reform, and income generation, etc. but few include health-related activities, which are limited to a health check-up or some temporary medical care. Consequently, while economic aspects of child labour are well understood and addressed, health aspects are not. In Bangladesh, several studies have been conducted of the environmental impacts of brick kilns and the brick manufacturing industries. However, there no studies which examine in any detail the health hazards and associated risks for child workers in brick kilns. Therefore, it is very important to identify the magnitude of hazards and health impact of the working child in brick kiln. The outputs of the study will be helpful to initiate a future action plan to remove hazardous child labour from the brick kilns in Bangladesh.

1.2 Rationale of the study

Childhood is the most crucial stage of physical and mental development of a human being, so this stage needs extra care and support. The writings of scholars in various books, journals, articles and the daily newspaper show that the conditions of child workers in Bangladesh are some of the worst. According to the Bangladesh Bureau of Statistics (BBS) National Child Labour Survey (NCLS) in 2002 – 03, the total number of economically active children aged 5-17 years in Bangladesh is estimated 7.42 million. Among them 3.18 million children are considered as child labour which is 43 per cent of the total economically active children. It is also estimated that 2.2 million child labour belong to the age group of 10-14 years. Bangladesh Bureau of Statistics (BBS), conducted a survey on worst form of child labour in Bangladesh which estimated that 1.3 million child are engaged in hazardous work. The child involved in hazardous work among them 57 per cent belongs to the age group 15-17 years and 40 per cent of the total aged between 10-14 years.[9] . About 93.3 per cent of all working children in the age group of 5-17 years work in the informal sector. The informal sector is outside the legal framework and therefore unregulated. Children in the informal economy are often found to be working in marginal activities, for long hours and in hazardous conditions. A total of 1.3 million children are estimated to be working 43 hours or more per week. More boys than girls are engaged in this form of child labour across all age groups.[10]

In 1998, three brick kiln workers were injured and four suffered severe injuries.[11] The Occupational health and safety survey, 2002 by BILS reported the death of one brick kiln

[7] "Toxic fumes from brick kilns: A threat to health" available at www.sosarsenic.net accessed on December 09, 2012.
[8] The Daily Ajker Kagoj, 08 February 2004).
[9] Ministry of labour and Employment, Bangladesh Governmet/ Child Labour Hand Book/April 2013.
[10] ILO (2009). Child Labour and Responses in South Asia (Available at http://www.ilo.org/legacy/english/regions/asro/newdelhi/ipec/responses/bangladesh/index.htm)
[11] BILS, (2000). Sector-wise occupational accident statistics.

worker, and again in 2004 another worker died due to brick kiln hazards.[12] Nine workers were killed in a workplace accident in a brick kiln of Bangladesh in 2012.[13]

Although there is a law regarding "Brick Kilns" it contains no clause regarding child labour,[14] despite brick kilns being listed in an ILO study on hazardous child labour in Bangladesh which documented over 40 types of economic activities carried out by children which were hazardous to them.[15]

The aim of this study is to provide the information needed to inform policy and practical interventions that will (a) protect the health and safety of adolescent workers and (b) enable the removal of younger children (below age 14) from exploitation in the brick kilns.

The results of this study may be used to:

- Guide the stakeholders and policy makers to take necessary initiatives to prevent and eliminate child labour from this hazardous sector;
- Sensitize the employers about the risks associated with the work and measures put in place to reduce the risks;
- Sensitize the trade unions to protect health of the children at risk of work in brick kilns.

1.3 Objectives of the study

The main objective of the study is to determine hazards, risk reduction measures, and health impacts of child labour in the brick industry in order to guide both national policy & local action in Bangladesh. Specifically the objectives of study are;

- To know the working environment of the brick kiln
- To know the overall tasks and daily activities of child workers in brick kiln
- To identify the hazards & risk associated with each of the task
- To measure the health and nutritional status of the child workers and compare it with youth and non-working children of the homogenous group.
- To find out the negative effect of hazardous work on child's mental health

1.4 Operational definitions

Ashulia: A *Thana* of *Savar Upozella* under Dhaka District of Bangladesh

Brick: A brick is a block or single unit of a ceramic material used in masonry construction. Typically, bricks are stacked together or laid as brick work using various kinds of mortar to hold the bricks together and made a permanent structure.

[12] BILS, (2005). Workplace accident statistics-2004.
[13] BILS.(2012). Newspaper Survey, OHS Statistics.
[14] For details see the law regarding "Brick Kiln" 1989, Government of the Peoples Republic of Bangladesh.
[15] Rahman, 1996.

Brick Kiln/Field: Brickfield is a place where bricks are made and sold. The study includes all the activities of brick manufacturing and others activities related to brick executed within the brick filed.

Child: The persons under the age of 18.

Child labour: The term "child labour" is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development.

It refers to work that:

- is mentally, physically, socially or morally dangerous and harmful to children; and
- interferes with their schooling by: depriving them of the opportunity to attend school;
- obliging them to leave school prematurely; or
- requiring them to attempt to combine school attendance with excessively long and heavy work.

Child worker: The word "Child workers" means any person within the age group of 11 to 17 works in the Brick kiln

Hazardous Child Labour: The worst forms of child labour which comprises: (a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict; (b) The use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; (c) The use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; (d) Work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children.

Jhinaidah Upozilla: The main sub-district of *Jhinaidah*[16] District.

Kiln: A kiln or furnace is such a place where bricks are baked or burned. But actually kiln is a place of round brick burning place.[17]

OHS: Occupational safety and health (OSH) is generally defined as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment.

Parent/Guardian: A knowledgeable adult who is member of the same household (not necessarily family) of the working child(ren), or is a member of a control group household.

Rural Area: The rural area means the brick kiln of *Jhinaidah Sadar Upozella* & surroundings.

[16] A district of Khulna Division in Bangladesh.
[17] Webster's dictionary, p.n. 184.

School Child: The school going non-working child of homogenous socio economic condition residing at the same locality.

Urban Area: The Urban Area means brick kiln of *Ashulia* of *Savar Upozella* .

Youth: The persons aged between 18 to 24 years works in Brick kiln.

2. Methodology

2.1 Methodology of the study

This is a cross sectional study. Both qualitative and quantitative methods have been used to conduct the study. Quantitative methods (sample survey) have been used to know the hazards and health impacts experienced by the children working in brick kilns of Bangladesh and qualitative methods (observation) have been used to measure the nature of the working environment and health hazards. For the purpose of study *Ashulia, Savar* of Dhaka District has been selected as the urban site and *Jhinaidah Sadar* and the surrounding brick kiln cluster have been selected as the rural study area.

Girls and boys (11-17 years) who worked at least 2 years in the brick kilns, youth (18-24 years) who had worked at least 2 years prior to age 15, and children who live in the nearest village were the basic criteria for sample selection. Using purposive sampling; verifying their age, period of work involvement and upholding the study purposes a total of 160 samples have been selected; individual child and youth workers are the unit of analysis in the sample. School-going children with the same socio economic condition and characteristics form the control group for the study. The respondents totalled 70 working children (50 at the rural site and 20 in the urban site), 50 working youth (25 rural and 25 urban) and 40 school going children (20 rural and 20 urban). Six brick kilns (urban and rural) were treated as a single unit for the observational risk assessment component to know about the overall working environment and health hazards encountered by the child worker.

Separate structured questionnaires for the child and youth workers, Focus Group Discussion (FGD) and Observation Checklist were used to collect the data. The clinical data were collected (spirometry, hemoglobin, weight, height and temperature) test) and recorded both digitally and manually.

Face to face interviews, using a pre-tested structured questionnaire, test), was used for collection of quantitative data. The individual child was interviewed and an adult of his/her household was also interviewed for the respective parts of the questionnaire. In cases where the child lives alone at the workplace or had migrated with relatives then the adult parts of the questionnaire were filled up by the child's close adult workers. Separate structured questionnaires were used for the child and youth workers (Module 2 for Child, Module 8 for Adult and Module 6 for Youth). Observation method has been used to know the overall activities according to the age group and sex of the working child in the brick kiln and to measure the hazards associated with the work.

Data has been entered and cross-checked using Epi-info version 3.5.1 and analysis is performed using SPSS version 20.0 for this study. Frequency table, percentages and contingency tables, different diagrams has been used for descriptive analysis. The formula of incidence rate is used to measure the incidence of various health hazards.

3. The brick industry in Bangladesh

3.1 Overview

The brick kilns of Bangladesh are expanding rapidly. Brick is the primary construction material in Bangladesh due to the unavailability of stone aggregate. The demand for bricks has been rising over the past decade. In Bangladesh, with the rapid economic and population growth, the construction sector is expected to continue to expand at the current rate of 8 per cent-9 per cent per year.[18] Since bricks constitute 44 per cent of total construction materials, the demand for bricks is likely to grow at least 5.6 per cent per year.[19] At present in our country, the annual demand for shelter varies from 0.3 millionto .0.55 million units. Bangladesh will need to construct approximately four million new houses annually to accommodate the growing population.[20]

Government statistics indicate that there are at least 4,234 brick kilns, both legal and illegal, in Bangladesh. However, the Bangladesh Brick Makers Owners' Association (BBMOA) estimates that there are around 8 thousand registered and unregistered brick kilns in the country. The brick kilns are situated in all seven Divisions of the country. On the basis of number, the official statistics show Chittagong Division having the highest number of brick kilns followed by Khulna, Dhaka, Rajshahi, Rangpur, Barishal and Sylhet Divisions.[21]

Table 3.1: Number of brick kilns in Bangladesh (official statistics)

Name of Division	Number of brick Kiln
Barisal	258
Chittagong	1037
Dhaka	685
Khulna	866
Rangpur	502
Rajshahi	651
Shylhet	235
Total	4234

The Bangladesh brick kilns are producing over 12 billion bricks annually.[22] A recent study shows that brick making contributes about 1 per cent to the country's gross domestic product and generates employment for about 1 million people.[23] However, due to the lack of relevant policy and legislations, the brick sector is poorly regulated. Despite the importance of brick making, the vast majority of kilns use outdated, energy intensive

[18] World Bank, (2011). Introducing Energy-efficient Clean Technologies in the brick sector of Bangladesh.

[19] Rahman, Dr. Atiur.(2011). Workshop on "*Business Opportunities to Develop Energy Efficient Brick Kilns in Bangladesh*" November 27.

[20] Maksuda, Hossain. & Abu, Md. Abdullah., (2012). "*Securing the Environment: Potentiality of Green Brick in Bangladesh*". BUP JOURNAL, Volume 1, Issue 1, September 2012, ISSN: 2219-4851.

[21] Department of Environment, (2011). **List of All Divisional Bricks Field**.(retrived from http://www.doe-bd.org/).

[22] UNDP.(2013). "Project Fact Sheet, *Improving Kiln Efficiency in the Brick Making Industry*/http: www.undp.org.bd/projects/proj_detail.php?pid=83/ (Accessed July 1, 2013).

[23] Lelia, Croitoru. & Maria, Sarraf. (2012). *Benefits and Costs of the Informal Sector: The Case of Brick Kilns in Bangladesh*; (Journal of Environmental Protection, 3, 476-484.

technologies that are highly polluting.[24] They are estimated to burn about 6 million tons of coals and emit about 9.8 million tons of CO_2.[25] Instead of a small number of highly efficient modern brickfields, a large number of unqualified small businesses operate on the back of outmoded technologies, severe industrial pollution, and poor labour standards.

There are six basic types of brick kilns in Bangladesh: (i) bull trench kiln (BTK), (ii) fixed chimney kiln (FCK), (iii) improved zigzag kiln, (iv) vertical shaft brick kiln (VSBK), (v) Hoffman kiln, and (vi) tunnel kiln. In addition, there are modified (or improved) zigzag and hybrid Hoffman kilns (HHKs). Currently, 92 per cent of the 4,880 brickfields in Bangladesh are using the highly polluting FCK design. Improved zigzag kilns, VSBKs, HHKs, and tunnel kilns are rare because of the lack of awareness of these technologies and inadequate market funding support.[26]

Table 3.2: Bangladesh's brick sector: at a glance

Parameter	Value
Estimated total number of coal fired kilns	5000
Duration of Operation	5-6 months/year
Number of natural gas fired kilns	20
Annual brick production	17.2 billion
Value of output	TK 83 billion (~US$1.2billion)*
Contribution to GDP	1%
Coal consumption	3.5 million tons
Value of imported coal	TK 22.6 billion (~US$322 million)
Firewood consumption	1.9 million tons
Emissions CO2	9.8 million tons
Clay consumption	45 million tons
Total employment (incl. supply of clay and coal, transport of bricks)	~1 million people
Types of Job	Contractual & Production Basis
Estimated future growth rate of the brick sector over the next ten years	2-3%

Sources: World Bank,)June 2011), BUET (2007), Gomes and Hossain (2003) and World Bank (2011b)
** Estimated at a per-brick price of TK5.5*

3.2 Legal and regulatory authority

The brick industry of Bangladesh is governed by the Brick Kiln (Control) (Amendment) Act, 2001, the main law which is the amendment of Act No.8 of 1989 made to control the burning of bricks following the amendment of Brick Kiln (Control) (Amendment) Act, 1992. Brick Kiln (Control) Act, 1989 which came into force on the 17th Asharh, 1396/1st July, 1989, and was the first legal provision concerning brick kilns. Prior to 1989, bricks were an unregulated industry in Bangladesh.

Brick Kiln (Control) (Amendment) Act, 2001, includes that;

- No person shall establish brick kiln, manufacture and burn the bricks without a license given under this Act.
- An application must be put forward to District Commissioner (DC) of the respective district in which bricks are to be burnt, for a license in a form determined by rule, and by paying a fee.

[24] (World Bank, (2011). Introducing Energy-efficient Clean Technologies in the brick sector of Bangladesh.
[25] ADB, (2013). Financing Brick Kiln Efficiency Improvement Project Bangladesh.
[26] ADB, (2013). Project data sheet, Financing Brick Kiln Efficiency Improvement Project Bangladesh

- The District Commissioner (DC) of the respective district shall grant the license in a form specified by rule being satisfied with the accuracy of the matters mentioned in the application with an investigation by a team composed of a nominated persons of DC not below the rank of ADC, Upozilla Health Administrator, Officer of the Forest Department or Forest officer, and the Upozilla Parishad Chairman of the respective Upozalla.

According to Environment Preservation Regulation of 1997, brick kilns are determined to be a 'B' grade industry, which is not permitted in residential areas.

3.3 Stakeholder concern on brick manufacturing industries

Department of Environment, GOB provides Environmental Clearance Certificate under the rule of 7(5)] of the Environment Conservation Rules, 1997. The Environmental Clearance Certificate is issued to evaluate the consent of local authority (Mayor/Commissioner), Registration in Investment board and the certification of -fire service & Civil Defence authority.

Bangladesh Brick Manufacturers Owners Association (BBMOA): An association which represents the interests of brick manufacturing owners throughout Bangladesh. They have approximately 4,000 members representing about 4,000 operations, roughly 90 per cent of all of these brickfields in Bangladesh;

UNDP: Improving Kiln Efficiency in the Brick Making Industry

The project aims to reduce greenhouse gas emissions from the brick making industry by promoting and demonstrating the latest energy efficient kiln technology, and removing barriers that have so far hampered adoption of cleaner and better kiln technologies. This goal will be achieved by investing in 16 demonstration kilns to validate the new technology, combined with awareness-raising of its benefits, capacity building and practical training for those working in the industry, financing options, as well as policy and institutional support.

World Bank: Clean Air and Sustainable Environment (CASE)

The Government of Bangladesh is implementing a project titled Clean Air and Sustainable Environment (CASE) with assistance from the World Bank, with an objective to reduce emissions from brick kilns by piloting new energy efficient brick making technologies. The GOB is also working with the World Bank and the Bangladesh Brick Manufacturers and Owners Association (BBMOA) to identify other initiatives which support the brick sector

3.4 Brick manufacturing process

Production & employment

The brick production in Bangladesh is seasonal constrained to the five to six dry months of the year, basically from October to March. The workers are employed for the duration of the production period, maximum six months. Most are employed on a contractual basis with very few permanent staff. The majority of workers have migrated from the southern and

northern part of the country mainly from Khulna, Bagerhat, Shatkhira, and Jessore. A brick kiln employs up to 300 to 400 workers depending on the size and production of the kiln.

Steps in the brick making process

Brick making includes several steps and various types of activities and requires a variety of skills, within two main categories as follows;

- Preparing the green brick
- Burning the bricks

Preparation of the green bricks includes the following steps;

Collection of clay

The main raw material of Brick is the clay which is collected mainly from the agricultural land around the brick kiln or from the nearest available land. A separate group of workers is contracted to carry out the work. The clay is transported by truck/lorry. Collecting clay commences at the very beginning of the season and continues as long as conditions are favourable even though other function of the brick kiln end. Collecting clay for the current season and storing it for the next season are the main responsibilities of the workers engaged in this section. At least 10 to 20 trucks are used to carry the clay at a time, depending on the size and production of the brick kiln, and at least 10 workers of a variety of ages are assigned to each truck to carry out the total process of clay collection and storing. A notable number of child workers were observed participating in this work. The workers are divided into two groups. One group stays at the spot digging out the clay and loading the truck; and another group stays at the brick kiln to unload the truck and to store the clay. This work is conducted on a sub-contract basis. A sub-contractor takes the responsibility of providing clay for the whole season and he supervises the workers. The owner deals only with the sub-contractor. *Kushadi* & *Ashulia chalk* are the main sources of clay for the brick kiln of *Ashulai* where the farm land surrounding the brick kiln are the main sources of clay in *Jhinaidah*.

Sourcing water

Water is another fundamental material for brick manufacturing. In urban areas, such as Jhinaidah, a deep tube well operated by an electric motor is used as the main source of water. A long plastic pipe is used to supply the water to the required area of the brick kiln.

In Ashulia, the brick fields are situated on the bank of the Turag river and the river is used as the main water source. However, it was observed that there is also a water reservoir near the kiln.

Preparation of clay

Preparation of clay involves taking the clay from where it is stored, then shovelling, cleaning, weathering and mixing the earth. The clay is dug out either with manual labour or with the help of a power excavator. Next, it is spread on the level ground and weathered. After

weathering, the clay is carried to a pug mill where it is thoroughly mixed with water until it becomes a homogeneous mass.

Carrying of clay

The prepared clay is carried out manually by a one wheeled carrier locally named a “Van Top” to the platform where the brick is moulded.

Moulding

This step is to make the material into the shape of the brick. Moulds are made out of wood which are slightly larger than the standard size of the brick. In Bangladesh the moulding is done by hand.

Drying

The moulded wet bricks are dried in the sun by placing them in a flat space and stacked but leaving sufficient space for free air circulation. The wet bricks are turned several times so that they dry evenly. It takes 5-10 days for the bricks to dry, depending on the temperature.

Burning

Burning is the most important step in manufacturing of bricks. Labourers carry the dry bricks on their heads or use a Van (Three Wheeler manual car) to bring the brick to the kiln The dry bricks are covered with 3rd class brick, and then in turn with a layer of sand and earth. Then the kiln is lit. It takes 20-25 days to burn a full chamber of bricks.

Storing finished products

The burnt bricks are collected by the labourers and stored in different area.

4. Findings of the study

4.1 Socio-demographic characteristics of the respondents

4.1.1 Age of the respondents

More than half (65 per cent) of the sample of working children in the urban site are in the age range 11-14 years , whereas only twenty six per cent (26 per cent) are in this age range in the rural area. Among the youth workers, most (80.0 per cent in the urban area) 72.0 per cent in the rural are aged between 22 to 24 years old. From the analysis we found that working children belonging age group 11-14 years are more in the urban brick kiln. The reason is most of them come with their family members and lives there for a particular period of the year and get back to their native village while the brick making season finishes. So when the earning members of a family move for work, their children also come with their parents in many cases and they get involved with the works.

4.1.2 Sex of the respondents

All child brick kiln workers (100 per cent) in the rural sites were male. In the urban site, 90 per cent of the child workers were male. In the socio economic context of Bangladesh, female are less involved in outside works. Traditionally female children are more involved with household works in Bangladesh. More over the patterns of work in brick kiln requires male children. The tasks like driving van for transferring soil and bricks, carrying bricks and other goods are more suitable for male children.

Table 4.1.1: Demographic characteristics of respondents

Characteristics	Working Child			School Child			Youth worker		
Age	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
11-14 years	13 (65.0%)	13 (26.0%)	26 (37.14%)	8 (40.0%)	7 (35.0%)	15 (37.5%)	-	-	-
15-17 years	7 (35.0%)	37 (74.0%)	44 (57.14%)	12 (60.0%)	13 (65.0%)	25 (62.5%)	-	-	-
18-21 years	-	-	-	-	-	-	5 (20.0%)	7 (28.0%)	12 (24.0%)
22-24 years	-	-	-	-	-	-	20 (80.0%)	18 (72.0%)	38 (76.0%)
Total	20 (100%)	50 (100%)	70 (100%)	20 (100%)	20 (100%)	40 (100%)	25 (100%)	25 (100%)	50 (100%)
Sex									
Male	18 (90.0%)	50 (100%)	68 (97.14%)	20 (100%)	20 (100%)	40 (100%)	25 (100%)	25 (100%)	50 (100%)
Female	2 (10.0%)	-	2 (2.86%)	-	-	-	-	-	-
Total	20 (100%)	50 (100%)	70 (100%)	20 (100%)	20 (100%)	40 (100%)	25 (100%)	25 (100%)	50 (100%)

4.1.3 Migrant status

Most rural child workers in the brick fields were born in the district where they work, although within that district they move around to take advantage of work opportunities. On the other hand, 95 per cent of the urban area child workers were born outside of their working area, and most have moved at least once during the last year, almost a quarter (23 per cent) moved more than four times for their work. Since all of the control group in both

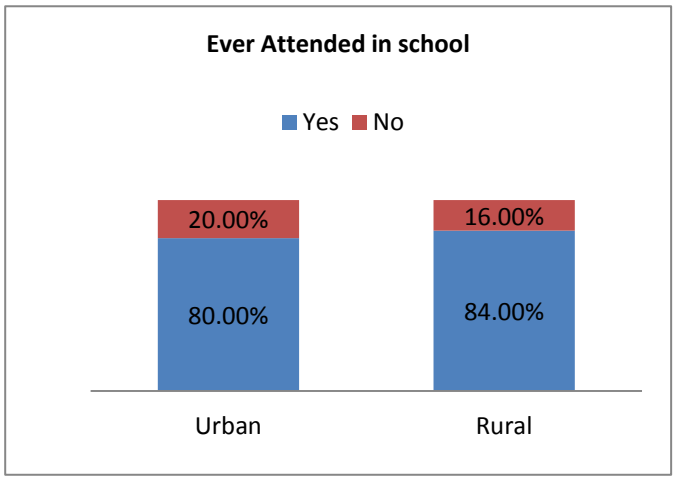
the rural and urban areas reside more or less permanently in the areas where they were studied, i.e. they are not migrants, this could be a source of bias in the data. Here mainly, two kinds of factors work for their migration in brick kilns of urban areas-push factor and pull factor. In case of push factors, lack of employment, frequent natural disaster forces them to migrate in urban areas. Pull factors like hope for better employment, more opportunity of income motivate them to migrate in brick kilns of urban areas.

Table 4.1.2: Migrant status

Factors	Working Child			School Child		
	Urban	Rural	Total	Urban	Rural	Total
Place born						
Within this district	1(5.0%)	33 (66.0%)	34 (48.5%)	13 (65.0%)	20 (100%)	33 (82.5%)
Outside this district	19 (95.0%)	17 (34.0%)	36 (51.4%)	7 (35.0%)		7 (17.5%)
Live here always or move from time to time						
Live here always		20 (40.0%)	20 (28.57%)	20 (100%)	20 (100%)	40 (100%)
Move	20 (100%)	30 (60.0%)	50 (71.43%)			
No. of times moved in the last 2 years						
1-2 times	17 (85.0%)	18 (60.0%)	35 (70.0%)	n/a	n/a	n/a
3-4 times	3 (15.0%)	5 (16.7%)	8 (16.0%)			
4^{+} times		7 (23.3%)	7 (14.0%)			

4.1.4 School attendance

Figure 4.1: Percentage distribution of ever attendance in school.



The study confirms a pattern found in other research in Bangladesh that while most child workers have been enrolled in school at some point, none of them are currently attending. The majority appear to drop out during or just after primary school. In urban areas, maximum children stay with their family in brick kiln and most of them works in brick kiln in day time. So they do not prefer to go school. The other key reason is that maximum workers come in urban brick kilns for a particular duration of the year and leaves the area when the brick making season finishes. So during this period there is no scope for the children to be admitted in school. Moreover, the parents and other family members of the child workers are not aware about education. In case of rural children, the rate of receiving education is comparatively higher. Here the children get involved with work in a later stage compared to rural area. So many of them receive primary or basic education but later poverty, educational cost forces them to leave school and involve with work.

Table 4.1.3: School status

Factors	Working Child			School Child		
	Urban	Rural	Total	Urban	Rural	Total
Ever attended school						
Yes	16 (80.0%)	42 (84.0%)	58 (82.86%)	20 (100%)	20 (100%)	40 (100%)
No	4 (20.0%)	8 (16.0%)	12 (17.14%)			
Attending school right now						
Yes		4 (9.5%)	4 (6.89%)	20 (100%)	20 (100%)	40 (100%)
No	16 (100%)	38 (90.5%)	54 (93.1%)			
Attend school when the brick kilns are closed for the season						
Yes	5 (31.2%)	6 (15.8%)	11 (20.4%)	n/a	n/a	
No	11 (68.8%)	32 (84.2%)	43 (79.6%)			
Level of school reached						
1-5	11 (68.8%)	26 (61.9%)	37 (63.7%)	3 (15.0%)	3 (15.0%)	6 (15%)
6-8	5 (21.2%)	15 (35.7%)	20 (34.4%)	11 (55.0%)	6 (30.0%)	17 (42.5%)
8-11		1 (2.4%)	1 (1.7%)	6 (30.0%)	11 (55.0%)	17 (42.5%)

4.1.5 Living situation

The fact that a majority of the working children in the urban areas (65 per cent) live with their parents suggests that they are migrating to the city with their whole family (65 per cent), and a significant number are sent to the city to live with relatives. However, the fact that the data indicate a very high number of the rural child workers in the brick kiln lives alone in brick field. The main reason is that in rural areas children with age group of 15-17 years are more in number and they prefer to stay in brick kiln in order to save transportation cost as many of them come from distance places of the districts. Besides, the nature of work in brick kiln requires staying in the area so that they can perform their tasks easily.

Table 4.1.4: Living arrangements

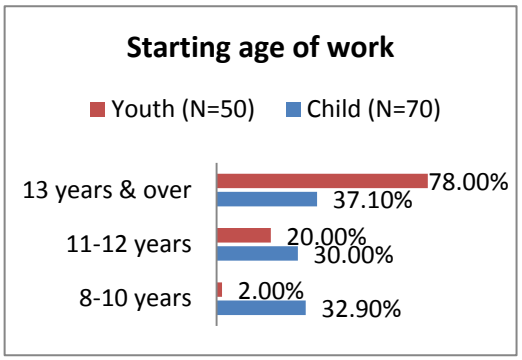
Factors	Working Child			School Child		
	Urban	Rural	Total	Urban	Rural	Total
Living with						
With parents	13 (65.0%)	18 (36.0%)	31 (44.3%)	20 (100%)	19 (95.0%)	39 (97.5%)
With relatives	4 (20.0%)		4 (5.7%)		1 (5.0%)	1 (2.5%)
With friends	1 (5.0%)	4 (8.0%)	5 (12.5%)			
Alone	2 (10.0%)	28 (56.0%)	30 (42.8%)			

4.2 Profile of the respondents

4.2.1 Starting age of work

Child labour is work that exceeds a minimum number of hours, depending on the age of a child and on the type of work [27]Bangladesh Labour Act 2006 explains that a child is a person not attaining the age of 14[28]. But the study reveals that a notable number of the children have started their work in brick kiln at a very early age between 8 and 13 years. 78 per cent youth workers and 37.10 per cent children have stated that they started their work in brick kiln at their childhood ranged between ages 13 years to 17 years. Similar findings were established earlier in child and child labour related literature. Bunnak have found out that child workers in brick factories who live in the compound tend have started work at a very early age. About 57 per cent have started under 12 years of age[29]. 12.8 per cent children aged of 5-14 years engaged nationally (2006) in child labour[30]. Thus it can be said that social norms and economic realities mean that child labour is widely accepted and very common in Bangladesh. Approximately 5 million working children (aged 5-14 years) are economically active in Bangladesh[31]. Children are deprived of future income generating capacities and their lifetime earning ability is reduced by 13-20 per cent because of entering into the workforce at a young age[32].

Figure 4.2: Starting age of work



4.2.2 Duration of work in brick kiln

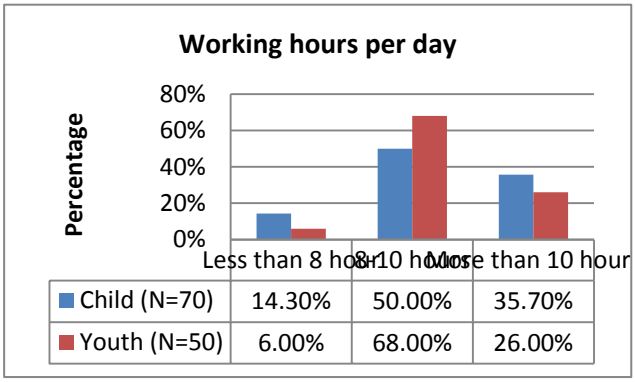
Table 4.2.1: Duration of work in brick kiln

Variables	Child (N=70)	Youth (N=50)
Working days per week		
Less than 6 days	5 (7.1%)	1 (2.0%)
6 days	25 (35.7%)	17 (34.0%)
7 days	40 (57.1%)	32 (64.0%)
Working hours per day		
Less than 8 hour	10 (14.3%)	3 (6.0%)
8-10 hours	35 (50.0%)	34 (68.0%)
More than 10 hours	25 (35.7%)	13 (26.0%)
Working hours per week		
Less than 50 hour	22 (31.4%)	8 (16.0%)
50-80 hours	34 (48.6%)	35 (70.0%)
More than 80 hours	14 (20.0%)	7 (14.0%)

[27] Biswas, Joanna and Rioux, Dr. Kevin S. (2011). *Child Labour in Bangladesh.*
[28] Bangladesh Labour Act 2006 (Act XLII of 2006).
[29] Bunnak, Dr. Poch., (2007). *Child Labour in Brick Factories- Causes and Consequences,* Cambodia: Centre for Population Studies at Royal University of Phnom Penh.
[30] BBS/ Unicef, Multiple Indicator Cluster Survey 2006, October 2007.
[31] ibid , BBS/Unicef, 2007.
[32] Ilahi, N. Orazem., P.., & Sedlacek, G. (2005). *How does working as a child affect wage, income and poverty as an adult*? Social Protection Discussion Paper Series, No. 0514. Washington, DC: World Bank.

Child workers in brick-making factories can work on a contract (usually based on the amount of work to be done), daily, on weekend, or anytime they are free to come to work[33] . The provisions of employment of adolescent worker are described in Chapter 3 of the Bangladesh Labour Act, 2006. According to article 41-Working hours for adolescent: (1) No adolescent shall be required or allowed to work in any factory or mine, for more than five hours in any day and thirty hours in any week; (2) No adolescent shall be required or allowed to work in any other establishment, for more than seven hours in any day and forty-two hours in any week. (3) No adolescent shall be required or allowed to work in any establishment between the hours of 7.00 p.m. and 7.00 a.m. The findings of this study show a clear conflict between the findings from the empirical data and the legal provisions of Bangladesh Labour Act, 2006. There is also no existence of such contract. The study found that about 86 per cent of the child workers usually work more than 8 hours in a day, 50 per cent of them work for 8-10 hours and about 36 per cent work for more than 10 hours. In case of youth workers it is found that 94 per cent work more than 8 hours in a day, of which 68 per cent work for 8-10 hours daily. And similar findings are being found in the literature. Bunnak (2007) has found out that working hours ranges from a minimum of 3 hours to 10 hours daily[34]. Section 41 (7) of the same act explains the provision of the holidays. According to this section the provisions of weekly holiday shall apply also to adolescent workers, and no exemption from the provisions of that section shall be granted in respect of any adolescent. The reality shows that more than half of the child (57.1 per cent) and youth workers (64.0 per cent) have to work for seven days in a week. The youth workers stated that they have to spend even more time working than they did when they were younger. UNICEF has found out that children of 5-11 years work at least 1 hour of economic work or 28 hours of domestic work, of 12-14 years work at least 14 hours of economic work or 28 hours of domestic work and of 15-17 years work 43 hours of economic or domestic work per week.

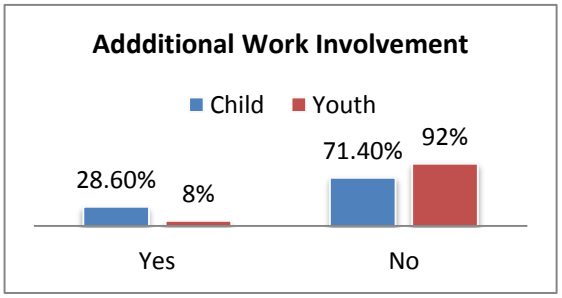
Figure 4.3: Percentage distribution of working hours per day



4.2.3 Additional work involvement

The graph shows that in the previous week, 28.6 per cent of the child workers performed work in addition to their regular brick kiln work. Only 8 per cent of the youth workers do outside work, but this may be due to the fact that they work longer hours in the brick kilns and simply have no time to spare for additional work involvement**.** Of the children

Figure 4.4. Percentage Distribution of Additional work involvement



[33] Bunnak, Dr. Poch., (2007). *Child Labour in Brick Factories- Causes and Consequences,* Cambodia: Centre for Population Studies at Royal University of Phnom Penh.
[34] ibid, Bunnak (2007).

who have an additional job, 25 per cent help in their family business, 20 per cent do paid domestic work for the other people, 10 per cent do agricultural work, and 10 per cent collect firewood for the family. Most of the child workers (70 per cent) spend 1-2 hours in a day to do these jobs and significantly 45 per cent of the brick kiln child workers have to do their additional work every day and 35 per cent of them work for 4-5 days in a week. In comparison, the youth are only involved in agricultural work, taking care of livestock (4 per cent) and fishing (4 per cent).

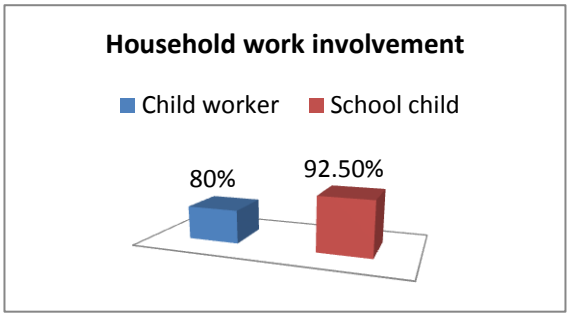
Table 4.2.2: Percentage distribution of additional work duration

Variables	Child Worker	Youth Worker
Hours per day		
1-2 hours	14 (70.0%)	2 (50.0%)
More than 2 hours	6 (30.0%)	2 (50.0%)
Days per week		
2-3 days	4 (20.0%)	
4-6	7 (35.0%)	3 (75.0%)
Everyday	9 (45.0%)	1 (25.0%)
Total (hour) worked per week		
3-10 hours	10 (50.0%)	2 (50.0%)
More than 10 hours	10 (50.0%)	2 (50.0%)

4.2.4 Involvement with household work

The diagram shows that the school going children do more household chores (92.50 per cent) than the working children (80 per cent). Their tasks include: shopping for daily necessities, washing clothes, repairing household equipment and cooking. The child workers are mainly involved in shopping for the household (55.7 per cent), washing clothes (51.4 per cent) and repairing household equipment (25.7 per cent).

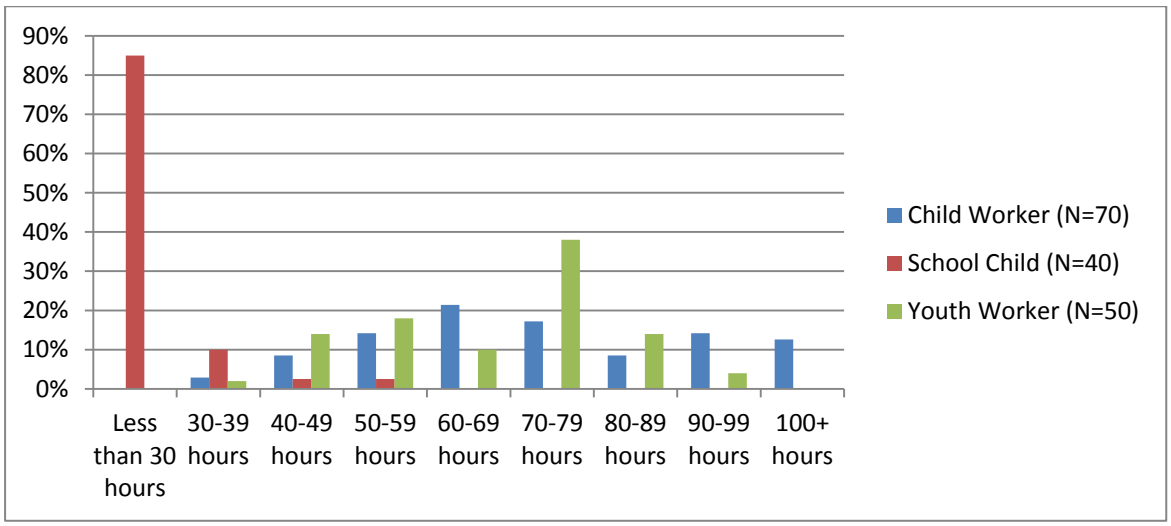
Figure 4.5: Percentage distribution of household work involvement



About 64.3 per cent of the child workers spend 1-2 hours per day for the household chores where more than half of the school going child (51.6 per cent) spend more than three hours in a day doing this work. It is estimated that 40 per cent of the child workers have to work for 4-6 days doing household chores in a week beside their regular activities in brick kiln.

4.2.5 Total working hours per week

Figure 4.6: Percentage distribution of total working hours per week



The table compares the distribution of total weekly working hours which includes the all types of work performed in the previous week by the child worker, youth workers and school going child.

Table 4.2.3: Percentage distribution of total working hours per week

Working hours	Child Worker (N=70)	School Child (N=40)	Youth Worker (N=50)
	Frequency (%)	Frequency (%)	Frequency (%)
Less than 30 hours	-	34 (85.0%)	-
30-39 hours	2 (2.9%)	4 (10.0%)	1 (2.0%)
40-49 hours	6 (8.5%)	1 (2.5%)	7 (14.0%)
50-59 hours	10 (14.2%)	1 (2.5%)	9 (18.0%)
60-69 hours	15 (21.4%)	-	5 (10.0%)
70-79 hours	12 (17.2%)	-	19 (38.0%)
80-89 hours	6 (8.5%)	-	7 (14.0%)
90-99 hours	10 (14.2%)	-	2 (4.0%)
100+ hours	9 (12.6%)	-	-

It shows that 35.3 per cent of the working children spend more than 80 hours per week doing a combination of brick kiln work, other jobs, and household chore. A significant number (12.6 per cent) of them work more than 100 hours which is very alarming for their physical and mental health. In comparison, the majority of the school children (83.8 per cent) work less than 30 hours per week and the maximum that youth workers work in total is 70-79 hours per week.

4.3 Occupational health hazards

Due to lack of proper monitoring, brickfields have sprung up like mushrooms and the situation has created a serious threat to environment and biodiversity while the people in the neighbouring areas face health hazards and fertility of farms is going down.[35] Villagers living near the brickfields, especially children and elderly people are often affected with various diseases including bronchitis and asthma due to environmental pollution.[36]

4.3.1 Recent health events

All most half (47.1 per cent) of the child workers, compared to 37.0 per cent of the school children sometimes experience fatigue or exhaustion, and this is even more pronounced with those who say they often experience this (31.4 per cent child workers as compared to 8.0 per cent school children). This clearly demonstrates that the work is tiring for the child workers.

Figure 4.7: Percentage distribution of respondents experienced minor cuts or bruises

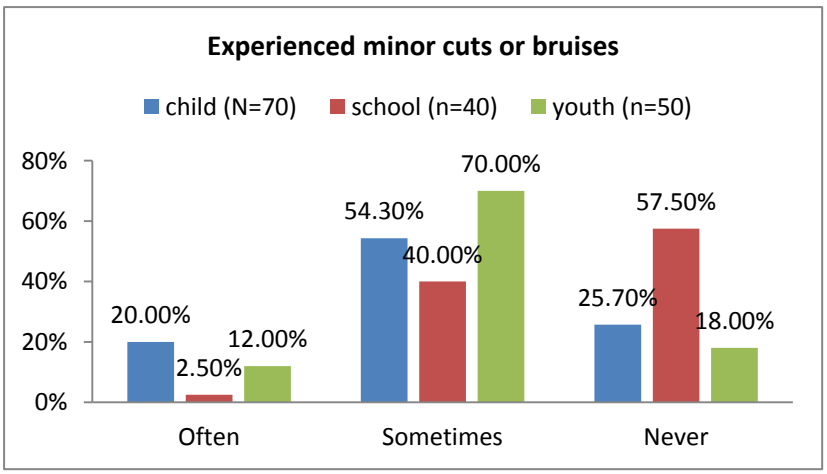
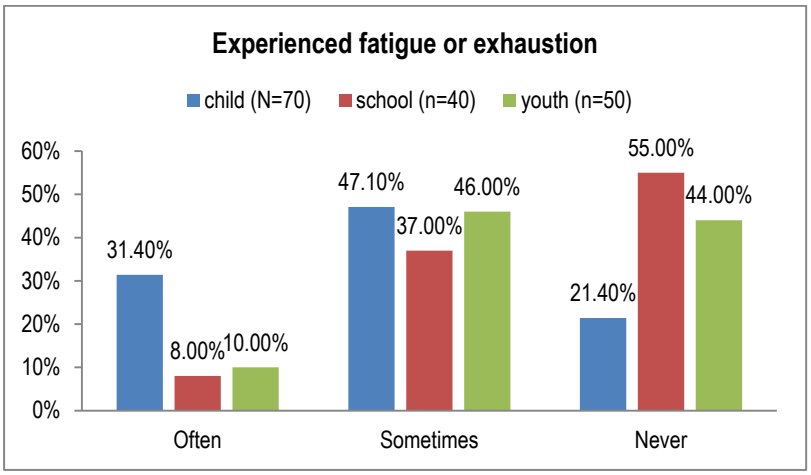


Figure 4.8: Percentage distribution of respondents experienced fatigue or exhaustion



[35] **Securing the Environment: Potentiality of Green Brick in Bangladesh,** BUP JOURNAL, Volume 1, Issue 1, September 2012, ISSN: 2219-4851/ Maksuda Hossain *Abu Md. Abdullah **

[36] The Daily Star. (2011, April 20). Brick kilns burn firewood, destroying CHT forest. Retrieved from http http://archive.thedailystar.net/newDesign/news-details.php?nid=182300.

A higher percentage of child worker (54.3 per cent) and youth worker (70.0 per cent) have sometimes experienced minor cuts or bruises. However the percentages of child and youth worker that often experienced minor cuts or bruises is low (20.0 per cent for child worker and 12.0 per cent for youth worker) but not negligible. More than half of child (52.0 per cent) and youth workers (64.0 per cent) sometimes felt pain in their body, whereas more than one-third of child workers (37.1 per cent) and around one-fourth of youth worker (24.0 per cent) often felt pain in their body during last one month.

Table 4.3.1: Percentage distribution of recent health events

Recent health events (last 1 month)	Child worker (N=70)			School child (N=40)			Youth worker (N=50)		
	Often	Sometimes	Never	Often	Sometimes	Never	Often	Sometimes	Never
Experienced fatigue or exhaustion	31.4%	47.1%	21.4%	8.0%	37.0%	55.0%	10.0%	46.0%	44.0%
Experienced minor cuts or bruises	20.0%	54.3%	25.7%	2.5%	40.0%	57.5%	12.0%	70.0%	18.0%
Felt pains in body	37.1%	52.0%	10.9%	2.5%	50.0%	47.5%	24.0%	64.0%	12.0%
Felt anxiety or fear	17.1%	34.3%	48.6%	12.5%	40.0%	47.5%	20.0%	26.0%	54.0%

4.3.2 Injuries during last 1 year

Among the child workers, 85.7 per cent experienced cuts or bruises, 10.0 per cent experienced sprains, strains or dislocation, 10.0 per cent experienced burns or scalds and 7.1 per cent experienced broken bones during the last year.

Figure 4.9: Percentage distribution of respondents experienced bad cuts or bruises

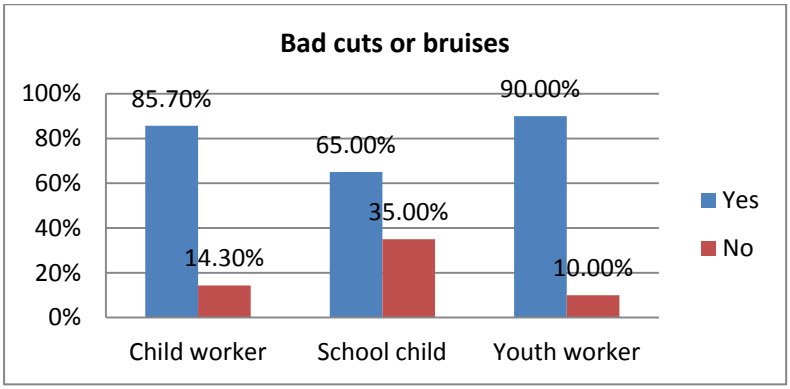
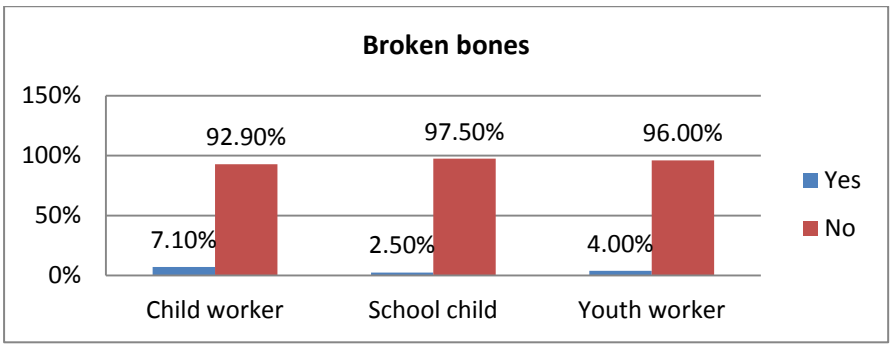


Figure 4.10: Percentage distribution of respondents experienced broken bones



In comparison with the school children, the working children have experienced more injury and, the percentage of youth worker who have experienced bad cuts or bruises is quite high (90.0 per cent).

Table 4.3.2: Percentage distribution of respondents experienced different injuries during last one year

Injuries during last 1 year	Child worker		School child		Youth worker	
	Yes	No	Yes	No	Yes	No
Bad cuts or bruises	60 (85.7%)	10 (14.3%)	26 (65.0%)	14 (35.0%)	45 (90.0%)	5 (10.0%)
Broken bones	5 (7.1%)	65 (92.9%)	1 (2.5%)	39 (97.5%)	2 (4.0%)	48 (96.0%)
Sprains, strains, dislocation	7 (10.0%)	63 (90.0%)	4 (10.0%)	36 (90.0%)	6 (12.0%)	44 (88.0%)
Burns or scalds	7 (10.0%)	63 (90.0%)	-	40 (100%)	7 (14.0%)	43 (86.0%)

The legs and hands are the part of the body of these child worker, youth worker and control group which are most likely to be injured. Of the school children who experienced injuries, about half were legs and half were hands.

Table 4.3.3: Parts of body that injured during last 1 year

	Child worker				School child			Youth worker			
Parts of body that injured	Bad cuts or bruises (N=60)	Broken bones (N=5)	Sprains, strains, dislocation (N=7)	Burns or scalds (N=7)	Bad cuts or bruises (N=26)	Broken bones (N=1)	Sprains, strains, dislocation (N=4)	Bad cuts or bruises (N=45)	Broken bones (N=2)	Sprains, strains, dislocation (N=6)	Burns or scalds (N=7)
Leg or foot	75.0	40.0	71.43	57.14	50.0	100.0	50.0	84.44	-	16.67	57.14
Arm or hand	50.0	40.0	42.86	42.86	50.0	-	50.0	62.22	100.0	83.33	28.57
Head	3.33	-	-	14.29	11.54	-	-	11.11	-	-	-
Neck	3.33	-	-	-	-	-	-	-	-	-	-
Back	5.0	-	-	-	-	-	-	-	-	-	14.29
Abdomen	1.67	20.0	-	-	-	-	-	4.44	-	--	-
Shoulder	1.67	-	-	-	-	-	-	4.44	-	-	-

Table 4.3.4: Place of occurrence of injury

	Child worker				School child			Youth worker			
Place of occurrence of injury	**Bad cuts or bruises (N=60)**	**Broken bones (N=5)**	**Sprains, strains, dislocation (N=7)**	**Burns or scalds (N=7)**	**Bad cuts or bruises (N=26)**	**Broken bones (N=1)**	**Sprains, strains, dislocation (N=4)**	**Bad cuts or bruises (N=45)**	**Broken bones (N=2)**	**Sprains, strains, dislocation (N=6)**	**Burns or scalds (N=7)**
Brick kiln	86.7	60.0	57.1	71.4	-	-	-	93.33	-	83.3	100.0
Home	13.3	40.0	42.9	28.6	84.6	100.0	25.0	6.67	50.0	16.7	-
Other place	-	-	-	-	15.4	-	75.0	-	50.0	-	-

Majority of the child worker was injured at brick kiln, about 86.7 per cent experienced bad cuts or bruises, 60.0 per cent experienced broken bones, 57.1 per cent experienced sprains, strains or dislocation and 71.4 per cent experienced burns or scalds at brick kiln. Most of the youth workers experienced broken bones (93.33 per cent), sprains, strains or dislocation (83.3 per cent) and burns (100.0 per cent) in brick kiln. In case of school child, about 84.6 per cent experienced bad cuts or bruises at home, whereas 75.0 per cent of school child experienced sprains, strains or dislocation at other places.

Table 4.3.5: Types of work responsible for injury

	Child worker				School child			Youth worker			
What were you doing when this happened	Bad cuts or bruises (N=60)	Broken bones (N=5)	Sprains, strains, dislocation (N=7)	Burns or scalds (N=7)	Bad cuts or bruises (N=26)	Broken bones (N=1)	Sprains, strains, dislocation (N=4)	Bad cuts or bruises (N=45)	Broken bones (N=2)	Sprains, strains, dislocation (N=6)	Burns or scalds (N=7)
During carrying brick	36.7	60.0	42.9	-	-	-	-	33.3	-	66.7	-
While using moulding machine	1.7	-	-	-	-	-	-	2.2	-	-	-
During brick making	6.7	-	-	14.3	-	-	-	2.2	-	-	-
During carrying green brick	8.3	-	28.6	-	-	-	-	11.1	-	-	-
During cutting firewood	1.7	-	-	-	-	-	-	6.7	-	-	-
During carrying firewood	28.3	-	-	-	-	-	-	28.9	-	16.7	-
During brick burning	1.7	-	-	71.4	-	-	-	11.1	-	-	100.0
During household work	10.0	20.0	-	14.3	34.6	-	-	4.4	-	16.7	-
During pot work	3.3	-	-	-	-	-	-	-	-	-	-
During playing	1.7	20.0	28.6	-	46.2	-	-	-	50.0	-	-
Road accident	-	-	-	-	3.8	-	-	-	50.0	-	-
During agricultural work	-	-	-	-	11.5	-	-	-	-	-	-
Others	-	-	-	-	3.8	100.0	100.0	-	-	-	-

Most of the child worker experienced bad cuts (36.7 per cent), broken bones (60.0 per cent) and sprains, strains or dislocations (42.9 per cent) while carrying brick from the kiln to where the fired bricks were stacked outside. A higher percentage of child workers (71.4 per cent)

experienced burns while burning green bricks. Majority of the school child experienced bad cuts while playing (46.2 per cent) or doing household work (34.6 per cent). Similar findings are observed in case of youth workers, indicating about 33.3 per cent experienced bad cuts and 66.7 per cent experienced sprains while carrying brick form kiln to outside place for stacking. Additionally 28.9 per cent experienced bad cuts while carrying firewood. Surprisingly, almost all cases of burns among youth worker were reported burning brick in kiln as the cause of burn or scalds.

Table 4.3.6: Impact of injury in normal activities and treatment procedure

	Child worker				School child			Youth worker			
Variables	**Bad cuts or bruises (N=60)**	**Broken bones (N=5)**	**Sprains, strains, dislocation (N=7)**	**Burns or scalds (N=7)**	**Bad cuts or bruises (N=26)**	**Broken bones (N=1)**	**Sprains, strains, dislocation (N=4)**	**Bad cuts or bruises (N=45)**	**Broken bones (N=2)**	**Sprains, strains, dislocation (N=6)**	**Burns or scalds (N=7)**
Injury kept from normal activities for at least 3 days											
Yes	13.3	80.0	42.9	28.6	30.8	**100.0**	**25.0**	**11.1**	100.0	66.67	28.57
No	86.7	20.0	57.1	71.4	69.2	**-**	**75.0**	**88.9**	-	33.33	71.43
Take care of injury through											
Did nothing	30.0	-	-	-	34.6	-	25.0	22.22	-	-	28.6
Took care of it myself	40.0	-	28.6	42.9	38.5	-	-	55.56	-	16.7	-
Brick kiln owner/parent/other gave 1st aid	10.0	-	-	28.6	11.5	-	-	4.44	-	-	14.3
Went to a local healer	20.0	40.0	42.9	14.3	-	-	50.0	13.33	-	50.0	28.6
Went to a clinic or hospital	-	60.0	28.6	14.3	15.4	100.0	25.0	4.44	100.0	33.3	28.6

These injuries kept child worker from normal activities for at least three days. About 80.0 per cent child workers were kept out of work due to broken bones, 42.9 per cent due to sprains, strains or dislocation, 13.3 per cent due to bad cuts or bruises and 28.6 per cent due to burns or scalds. This is also similar for youth workers, where almost all were absent from their work due to broken bones, 66.67 per cent due to sprains and 28.57 due to burns.

Among the child workers who experienced bad cuts or bruises, 30.0 per cent did nothing, 40.0 per cent took care by himself, and 20.0 per cent went to local healer. For broken bones, majority of injured child worker s (60.0 per cent) went to a clinic or hospital, but for burns or scalds, the majority of child workers (42.9 per cent) took care of it by himself. Health care seeking behaviours for these injuries is nearly the same for school children and youth workers.

Table 4.3.7: Payment for treatment of injuries among child workers

Payment for treatment or medicine accomplished by/ Did you or your relative/parents pay for the treatment or medicine?	Child worker				School child		
	Bad cuts or bruises (N=60)	Broken bones (N=5)	Sprains, strains, dislocation (N=7)	Burns or scalds (N=7)	Bad cuts or bruises (N=26)	Broken bones (N=1)	Sprains, strains, dislocation (N=4)
Yes	28.3	80.0	85.7	28.6	30.8	100.0	75.0
No	71.7	20.0	14.3	71.4	69.2	-	25.0

For broken bones, sprains, strains and dislocation, most of the injured child workers and school children's parents or relatives have paid for treatment, whereas, in case of bad cuts, burns or scalds, no payments were provided for treatment. The situation is similar for youth workers. This study also observed that, most of the injured youth workers have paid for treatment of burns or scalds, sprains or dislocation, and bad cuts or bruises. But for a small percentage, the kiln owner paid for these injuries (28.6 per cent for burns or scalds, and 16.7 per cent for sprains, strains or dislocations).

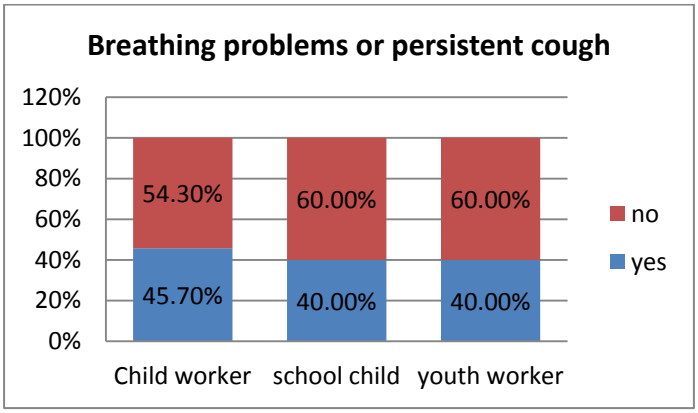
Table 4.3.8: Payment for treatment of injuries among youth workers

	Youth worker			
	Bad cuts or bruises (N=45)	Broken bones (N=2)	Sprains, strains, dislocation (N=6)	Burns or scalds (N=7)
Payment for treatment or medicine accomplished by				
Self	24.44	100.0	66.7	42.9
Relative	2.22	-	-	-
Kiln owner	2.22	-	16.7	28.6
No payment	71.11	-	16.7	28.6

4.3.3 Specific illness during last 1 year

The study investigated some specific illnesses, namely breathing problem or persistent cough, ear problems, skin problems, and stomach problems or diarrhoea among child workers, youth workers and control group.

Figure 4.11: Percentage distribution of respondents having breathing problems or persistent cough



The study found that respiratory problems occurred at a similar rate among the child workers (45.7 per cent), youth workers (40 per cent) and school children (40 per cent)

suggesting that general environmental conditions may be having more effect than the direct work at the kiln.

About 15.7 per cent child worker, 12.0 per cent youth worker and 17.5 per cent school child have reported about eye or ear problem.

One clearly marked difference between the working children, youth and controls was that long term work in the brick kiln has a negative impact on skin, since this study found that, 22.0 per cent youth worker and 17.1 per cent child worker have skin problems, while only 7.5 per cent school child have such problems.

Stomach problems or diarrhoea are also more prominent among brick kiln workers. About 54.0 per cent youth worker and 42.9 per cent child worker have stomach problems or diarrhoea. This may be due to the quality of the drinking water at the kiln sites. Interestingly, it was the gastric problems which kept the working children and youth from undertaking their normal activities for the threshold period (3 days), whereas breathing problems, eye or ear problems, and skin problems did not.

Table 4.3.9: Percentage distribution of respondents having specific illness during last one year

Specific illness	Child worker		School child		Youth worker	
	Yes	No	Yes	No	Yes	No
Breathing problems or persistent cough	32 (45.7 %)	38 (54.3%)	16 (40.0%)	24 (60.0%)	20 (40.0%)	30 (60.0%)
Eye or ear problem	11 (15.7%)	59 (84.3%)	7 (17.5%)	33 (82.5%)	6 (12.0%)	44 (88.0%)
Skin problems	12 (17.1%)	58 (82.9%)	3 (7.5%)	37 (92.5%)	11 (22.0%)	39 (78.0%)
Stomach problems or diarrhoea	30 (42.9%)	40 (57.1%)	12 (30.0%)	28 (70.0%)	27 (54.0%)	23 (46.0%)

Health care seeking behaviour for ill child worker and youth worker is very bad. Half of the child workers (50.0 per cent) who had breathing problems or persistent cough did nothing to take care of this injury, only 21.9 per cent went to a local healer and 3.1 per cent went to clinic or hospital. Similar care seeking behaviour is seen in case of youth worker who had breathing problems. In case of eye or ear problems, and skin problems, 72.7 per cent child worker, 50.0 per cent youth worker, and 14.3 per cent school child did nothing. However, 9.1 per cent of the child workers, 42.9 per cent of the school children and 50.0 per cent of the youth workers went to a clinic or hospital for treatment of this illness. Most of the child and youth workers did nothing or took care of skin problems by himself/herself or were treated by a family member. For treatment of stomach problems or diarrhoea, a relatively small percentage went to a clinic or hospital, the rest preferring to care for the condition by himself or by their family members.

Figure 4.12: Percentage distribution of respondents having eye or ear problems

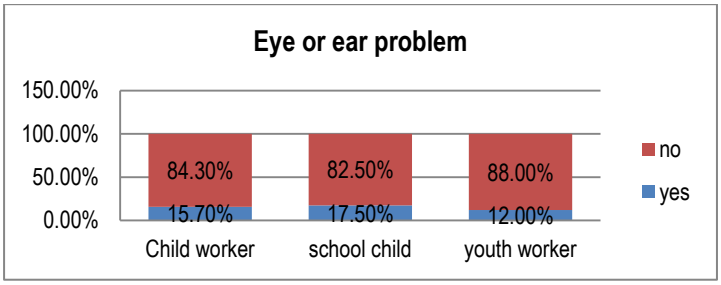


Table 4.3.10: Impact of illness in normal activities and treatment procedure

	Child worker				School child				Youth worker			
	Breathing problems (N=32)	Eye or ear problem (N=11)	Skin problems (N=12)	Stomach problems (N=30)	Breathing problems (N=16)	Eye or ear problem (N=7)	Skin problems (N=3)	Stomach problems (N=12)	Breathing problems (N=20)	Eye or ear problem (N=6)	Skin problems (N=11)	Stomach problems (N=27)
Injury kept from normal activities for at least 3 days												
Yes	18.8	18.2	8.3	30.0	37.5	42.9	-	58.3	25.0	16.7	-	44.4
No	81.2	81.8	91.7	70.0	62.5	57.1	100.0	71.7	75.0	83.3	100.0	55.6
Take care of injury through												
Did nothing	50.0	72.7	41.7	20.0	31.2	14.3	-	16.7	55.0	50.0	54.5	11.1
Care by self or family member	25.0	18.2	41.7	40.0	31.2	14.3	33.3	58.3	15.0	-	45.5	44.4
Went to a local healer	21.9	-	8.3	36.7	12.5	28.6	-	16.7	30.0	-	-	33.3
Went to a clinic or hospital	3.1	9.1	8.3	3.3	25.0	42.9	66.7	8.3	-	50.0	-	11.1

4.3.4 General health issues

The study shows that, fever is quite common among all respondents of this study. About 80.0 per cent child worker, 72.5 per cent school child and 72.0 per cent youth worker have reported that they have suffered from fever during last one year.

However, the incidence of headache is higher among school children (70.0 per cent) than working child (58.6 per cent) and youth workers (62.0 per cent). Conversely, feeling weak and bad all over was much more common among child workers (55.7 per cent) and youth workers (48.0 per cent).

Figure 4.13: Percentage distribution of respondents experienced fever during last one year

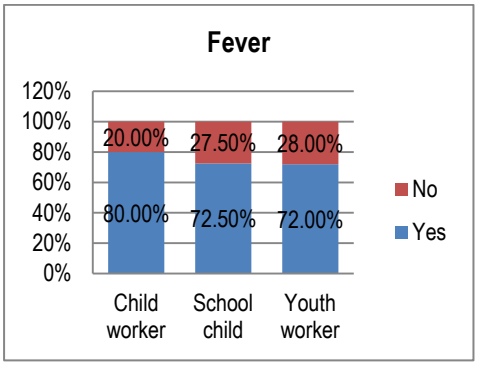


Figure 4.14: Percentage distribution of respondents experienced headache

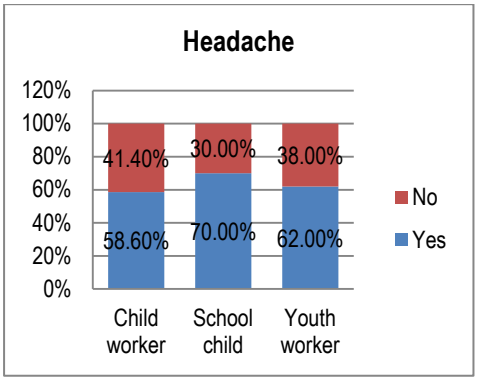


Figure 4.15: Percentage distribution of respondents felt week during last one year

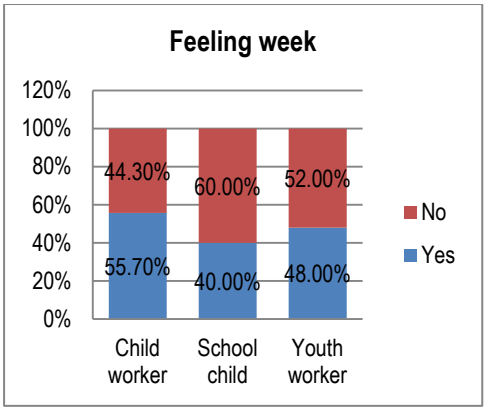


Table 4.3.11: Percentage distribution of respondents having general health problems during last one year

General health	Child worker		School child		Youth worker	
	Yes	No	Yes	No	Yes	No
Fever	56 (80.0%)	14 (20.0%)	29 (72.5%)	11 (27.5%)	36 (72.0%)	14 (28.0%)
Headache	41 (58.6%)	29 (41.4%)	28 (70.0%)	12 (30.0%)	31 (62.0%)	19 (38.0%)
Feeling weak	39 (55.7%)	31 (44.3%)	16 (40.0%)	24 (60.0%)	24 (48.0%)	26 (52.0%)
Feeling bad all over	14 (20.0%)	56 (80.0%)	-	40 (100%)	5 (10.0%)	45 (90.0%)

Table 4.3.12: Impact of general health problems in normal activities and treatment procedure

	Child worker				School child				Youth worker			
	Fever (N=56)	Headache (N=41)	Feeling weak (N=39)	Feeling bad (N=14)	Fever (N=29)	Headache (N=28)	Feeling weak (N=16)	Feeling bad (N=0)	Fever (N=36)	Headache (N=31)	Feeling weak (N=24)	Feeling bad (N=5)
Injury kept from normal activities for at least 3 days												
Yes	66.1	34.1	10.3	21.4	79.3	28.6	18.8	-	75.0	71.0	91.7	80.0
No	33.9	65.9	89.7	78.6	20.7	71.4	81.2	-	25.0	29.0	8.3	20.0
Take care of injury through												
Did nothing	23.2	26.8	71.8	57.1	10.3	53.6	68.8	-	11.1	19.4	58.3	40.0
Care by self or family member	23.2	24.4	15.4	14.3	24.1	7.1	18.8	-	38.9	54.8	25.0	20.0
Went to a local healer	10.7	4.9	2.6	14.3	24.1	7.1	12.5	-	5.6	3.2	8.3	20.0
Went to a clinic or hospital	42.9	43.9	10.3	14.3	41.4	32.1	-	-	44.4	22.6	8.3	20.0

About half of child worker (50.0 per cent) and school child (52.5 per cent) sleep more than eight hours at night. However 14.28 per cent child worker and 15.0 per cent school child sleep less than eight hours.

Table 4.3.13: Hours of sleep at night

Hours of sleep at night	Child worker	School child
Less than 8 hours	10 (14.28%)	6 (15.0%)
8 hours	25 (35.71%)	13 (32.5%)
More than 8 hours	35 (50.0%)	21 (52.5%)

A total of 37.1 per cent of child workers were suffering from insomnia during last one year, which percentage is higher than that for school child (27.5 per cent). About 71.4 per cent child worker and 90.0 per cent school child have reported that they take rest during the day. More than half of child worker (60.0 per cent) and school child (60.0 per cent) feel hungry a lot of time.

Figure 4.16: Percentage distribution of respondents with trouble of insomnia

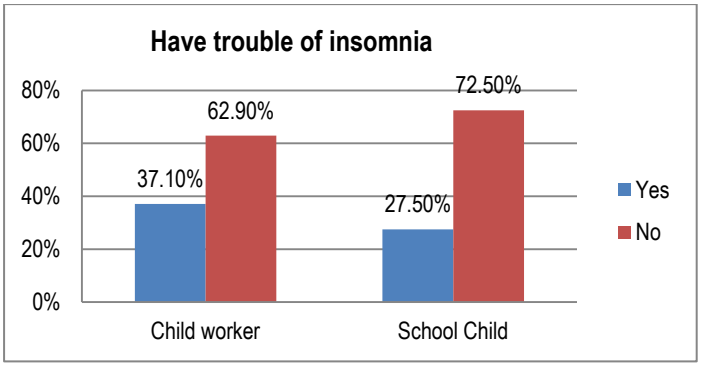


Table 4.3.14: General health issues among child workers

Other General Health Issues	Child worker		School Child	
	Yes	No	Yes	No
Have trouble of insomnia	26 (37.1%)	44 (62.9%)	11 (27.5%)	29 (72.5%)
Have a nap or rest during the day	50 (71.4%)	20 (28.6%)	36 (90.0%)	4 (10.0%)
Feel hungry a lot of time	42 (60.0%)	28 (40.0%)	24 (60.0%)	16 (40.0%)

4.3.5 Serious Health Issues

About 15.7 per cent of child workers and 10.0 per cent of youth workers have had other very bad injuries at work. About one-fifth of child workers (21.4 per cent) and one-third of youth workers (32.0 per cent) know other people of their age who were injured very badly at work. A few respondents (5.7 per cent child worker and 14.0 per cent youth worker) know about some people who died because of injuries at the brick kiln. More than half of youth workers (58.0 per cent) and 38.6 per cent of child workers have noticed that young people use tobacco products.

Table 4.3.15: Serious health issues among child and youth workers

Serious Health Issues	Child worker		Youth worker	
	Yes	No	Yes	No
Ever had any other injury that was really, really bad at work	11 (15.7%)	59 (84.3%)	5 (10.0%)	45 (90.0%)
Other people of their age have been hurt very badly at work	15 (21.4%)	55 (78.6%)	16 (32.0%)	34 (68.0%)
Other persons died because of an injury at the brick kilns	4 (5.7%)	66 (94.3%)	7 (14.0%)	43 (86.0%)
Knows that young people use drugs or alcohols	27 (38.6%)	43 (61.4%)	29 (58.0%)	21 (42.0%)
knows young people use tobacco products	49 (70.0%)	21 (30.0%)	50(100.0%)	-
Know young person (under 18) has been sexually/physically abused or had bad things done to them	-	70 (100.0%)	-	50(100.0%)

4.3.6 Focal health issues

About 48.6 per cent of child worker and 40.0 per cent of youth worker have reported pain in neck or back, whereas the percentage is lower in case of school children (15.0 per cent). However among them, 17.6 per cent of child workers and 10.0 per cent of youth workers have mentioned that the level of pain in the neck or back is very bad.

Table 4.3.16: Focal health issues among child and youth workers

Focal Health Issues	Child worker	School child	Youth worker
Neck or back has been bothering			
Yes	34 (48.6%)	6 (15.0%)	20 (40.0%)
No	36 (51.4%)	34 (85.0%)	30 (60.0%)
Level of pain or bother by back or neck			
Very bad	6 (17.6%)	-	2 (10.0%)
Medium	25 (73.5%)	5 (33.3%)	13 (65.0%)
Not bad	3 (8.8%)	4 (66.7%)	5 (25.0%)
Trouble in breathing or cough a lot			
Yes	24 (34.3%)	9 (22.5%)	10 (20.0%)
No	46 (65.7%)	31 (77.5%)	40 (80.0%)
Level of trouble in breathing or cough			
Very bad	8 (33.3%)	-	1 (10.0%)
Medium	11 (45.8%)	7 (77.58%)	6 (60.0%)
Not bad	5 (20.8%)	2 (22.2%)	3 (30.0%)

Troubles in breathing or cough are more prominent among child workers (34.3 per cent) than among school children (22.5 per cent). Among these child workers, 33.3 per cent have reported that the breathing problems or cough are very bad.

4.3.7 Nutritional status and anaemia

The study found that about 16.0 per cent of youth workers are underweight, 8.0 per cent have overweight and 76.0 per cent have normal weight.

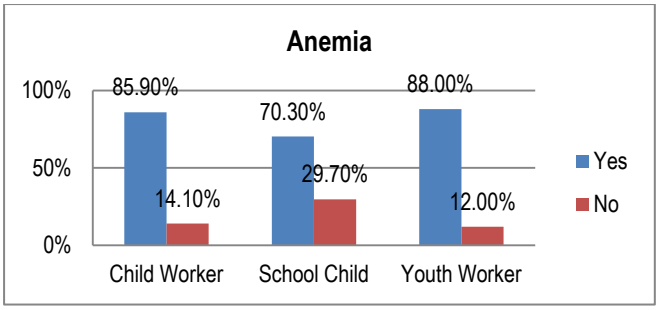
Table 4.3.17: Nutritional status of youth workers

Factor	Youth Worker
Nutritional status of Youth worker	
Underweight	8 (16.0%)
Normal weight	38 (76.0%)
Overweight	4 (8.0%)
Total	50 (100.0%)

4.3.8 Clinical findings

4.3.8.1 Anaemia

Figure 4.17: Percentage distribution of anaemia among child and youth



About 85.9 per cent of child worker, 88.0 per cent of youth worker and 70.3 per cent of school child are anaemic.

4.3.8.2 Spirometry results

Spirometry revealed restrictive airway disease in 21.3 per cent and 36.0 per cent cases in child worker and youth worker respectively. It was only 2.7 per cent in school children, with obstructive airway disease detected in 1.6 per cent child workers and 2.7 per cent of school children. However, the rest 77.0 per cent child worker, 64.0 per cent youth worker and 94.6 per cent school child's spirometry indicated normal airway.

Table 4.3.18: Spirometry Results of the respondents

	Child Worker	School Child	Youth Worker
Lung function			
Normal	47 (77.0%)	35 (94.6%)	32 (64.0%)
Restrictive	13 (21.3%)	1 (2.7%)	18 (36.0%)
Obstructive	1 (1.6%)	1 (2.7%)	0 (0%)
Total	61 (100%)	37 (100%)	50 (100.0%)

Among the child workers, who had normal airway function, the mean value of FVC (L) was 3.26±0.81. In case of FVC (per cent), the mean volume was 95.70 ±11.11. In case of FEV1 (L), mean value was 2.82±0.72. The mean value of FEV1 (per cent) was 94.65±11.59. The mean value of FEV1/FVC (per cent) was 100.29±8.13. In child worker having restrictive airway disease, the mean value of FVC (L) was 2.59±0.95 & it was 67.23±18.74 in case of FVC (per cent). The mean value of FEV1/FVC (per cent) was 97.46±9.19. Only one child worker had obstructive airway disease with FEV1 (L) and FEV1 (per cent) were 2.05 and 61% respectively.

Table 4.3.19: Descriptive statistics of spirometry results among child workers

Disease		Frequency	Minimum	Maximum	Mean	Std. Deviation
Normal	FVC(L)	47	1.40	4.87	3.26	0.81
	FVC (%)	47	81.00	126.00	95.70	11.11
	FEV1(L)	47	1.15	4.34	2.82	0.72
	FEV1 (%)	47	71.00	127.00	94.65	11.59
	FEV1/FVC (%)	47	77.00	118.00	100.29	8.13
	Total	**47**				

Disease		Frequency	Minimum	Maximum	Mean	Std. Deviation
Restrictive	FVC(L)	13	0.32	4.44	2.59	0.95
	FVC (%)	13	8.00	79.00	67.23	18.74
	FEV1(L)	13	0.25	2.97	2.15	0.72
	FEV1(%)	13	7.00	81.00	65.30	19.28
	FEV1/FVC(%)	13	78.00	106.00	97.46	9.19
	Total	**13**				
Obstructive	FVC(L)	1	1.66	1.66	1.66	.
	FVC(%)	1	88.00	88.00	88.00	.
	FEV1(L)	1	2.05	2.05	2.05	.
	FEV1(%)	1	61.00	61.00	61.00	.
	FEV1/FVC(%)	1	69.00	69.00	69.00	.
	Total	**1**				

Among school children who had normal airway function, the mean value of FEV1/FVC (per cent) was 103±8.14. The mean FVC in liter and in percentage were 3.41±0.61 and 93.80±9.15 respectively. The mean FEV1 in liter and in percentage were 3.01±0.54 and 96.57±10.90 respectively. Only one school child had restricted airway abnormality and the value of FVC in liter and in percentage were 1.85 and 65 respectively. One school child had obstructive airway disease and the value of FEV1 in liter and percentage were 1.45 and 77 respectively.

Table 4.3.20: Descriptive statistics of spirometry results among school child

Disease		Frequency	Minimum	Maximum	Mean	Std. Deviation
Normal	FVC(L)	35	1.84	4.51	3.41	0.61
	FVC(%)	35	79.00	115.00	93.80	9.15
	FEV1(L)	35	1.62	4.08	3.01	0.54
	FEV1(%)	35	77.00	123.00	96.57	10.90
	FEV1/FVC(%)	35	81.00	116.00	103.00	8.14
	Total	**35**				
Restrictive	FVC(L)	1	1.85	1.85	1.85	
	FVC(%)	1	65.00	65.00	65.00	
	FEV1(L)	1	1.65	1.65	1.65	
	FEV1(%)	1	72.00	72.00	72.00	
	FEV1/FVC(%)	1	110.76	110.76	110.76	
	Total	**1**				
Obstructive	FVC(L)	1	4.05	4.05	4.05	.
	FVC(%)	1	150.00	150.00	150.00	.
	FEV1(L)	1	1.45	1.45	1.45	.
	FEV1(%)	1	77.00	77.00	77.00	.
	FEV1/FVC(%)	1	51.00	51.00	51.00	.
	Total	**1**				

Among youth workers who had normal airway function the mean value of FEV1/FVC was 97.88±8.78; the mean value of FVC in liter and percentage were 3.95±0.56 and 91.19±8.41 respectively; the mean value of FEV1 in liter and percentage were 3.29±0.47 and 88.13±7.66 respectively. Among youth workers, 18 workers had restrictive airway disease and the mean value of FVC in liter and percentage were 3.46±0.33 and 75.06±4.69 respectively.

Table 4.3.21: Descriptive statistics of spirometry results among youth workers

DISEASE		Frequency	Minimum	Maximum	Mean	Std. Deviation
Normal	FVC(L)	32	3.19	5.13	3.95	0.56
	FVC(%)	32	81.00	112.00	91.19	8.41
	FEV1(L)	32	2.48	4.55	3.29	0.47
	FEV1(%)	32	74.00	109.00	88.13	7.66
	FEV1/FVC(%)	32	82.00	113.00	97.88	8.78
	Total	32				
Restrictive	FVC(L)	18	2.80	3.97	3.46	0.33
	FVC(%)	18	65.00	79.00	75.06	4.69
	FEV1(L)	18	2.59	3.56	2.98	0.31
	FEV1(%)	18	68.00	85.00	75.72	5.63
	FEV1/FVC(%)	18	90.00	114.00	101.67	6.56
	Total	18				

4.4 Psychosocial functioning

4.4.1 Self-esteem

This was very crucial that the respondents evaluated their activities between their real self and ideal self. Some of them are somehow satisfied with their involvement with brick kilns whereas most of the worker looks on the others' attitude towards their work. But, whatever the attitude towards them, the workers engaged themselves due to their family and livelihood necessity.

Table 4.4.1: Self-esteem of the respondents

Factors	Child worker (N=70)				Youth worker (N=50)			
	Never	sometimes	often	always	never	sometimes	often	always
Proud for work	55.7	24.3	8.6	11.4	48.0	44.0	6.0	2.0
Self-assessment about skills need to work	50.0	25.7	10.0	14.3	30.0	56.0	0.0	14.0
Appreciation by others about work	45.7	27.1	18.6	8.6	38.0	42.0	14.0	6.0
look down because of the work	21.5	44.3	17.1	17.1	32.0	46.0	12.0	0
Family relies on and needs help	8.5	22.9	22.9	45.7	16.0	30.0	28.0	26.0

4.4.2 Stress

Occupational stress is very important in any psychological setting. It is accounted for the physical illness, substance abuse, and family problems experienced by blue and white-collar workers in the world. Child workers involved in brick kilns areas really feel their physical and mental pressure than their elder groups. Some of their prolonged stress like harder and faster work creates some long-term effects on their mind and body.

Table 4.4.2: Stress among the respondents

Factors	Child worker (N=70)				Youth worker (N=50)			
	never	sometimes	often	always	never	sometimes	often	always
Pressure of work: faster and harder	18.6	47.1	12.9	21.4	12.0	50.0	26.0	12.0
Feel bored because there is not enough to do	17.1	40.0	28.6	14.3	28.0	42.0	28.0	2.0

Factors	Child worker (N=70)				Youth worker (N=50)			
	never	sometimes	often	always	never	sometimes	often	always
Family, employer or others asking too much for work	34.3	42.9	15.7	7.1	20.0	56.0	18.0	6.0
Fell bored because for doing same work for many hours in a row	11.4	44.3	25.7	18.6	14.0	40.0	32.0	14.0
Feel tired because of the long working hours or heavy work load	4.3	38.6	30.0	27.1	2.0	36.0	38.0	24.0

4.4.3 Personal agency

Personal agency usually functions three levels of human interactions which include human nature and human condition, human behaviour and professional practice. Among the brick kiln workers, youth workers gave their matured response than the child workers in the study. Labour's free will and self-actualization may not present the appropriate scenario in the study areas, but of course draw a conscious experience of the brick kiln workers.

Table 4.4.3: Personal agencies among the respondents

Factors	Child worker (N=70)				Youth worker (N=50)			
	Never	sometimes	often	always	never	sometimes	often	always
Feel that this work prevents from doing things you would like to do	12.9	48.6	25.7	12.9	22.0	56.0	16.0	6.0
Do you feel that, if you wanted to, you could choose what to do and what not to do	17.1	42.9	28.6	11.4	16.0	60.0	12.0	12.0
Does the environment in which you are working bother you at all	14.3	42.9	31.4	11.4	20.0	54.0	24.0	2.0

4.4.4 Relationships

Table 4.4.4: Relationship with surroundings

Factors	Child worker (N=70)				Youth worker (N=50)			
	Never	sometimes	often	always	never	sometimes	often	always
Does the environment in which you are working bother you at all	14.3	42.9	31.4	11.4	20.0	54.0	24.0	2.0
Are you comfortable with the people you work with	22.9	22.9	21.3	32.9	20.0	38.0	20.0	22.0

Workplace relationship is usually defined the voluntary interdependence between two persons over time. The study tried to explore the experiences of child and youth workers with work setting and other employees. The respondents did not mention their misery caused directly by the owner, but their answers indicate some misfortune with their works.

4.4.5 Supervision & training

Table 4.4.5: Supervision & training of the respondents in the brick kiln

Factors	Child worker (N=70)				Youth worker (N=50)			
	Never	Sometimes	Often	Always	Never	Sometimes	Often	Always
At work, do you feel that people watch over you to make sure you don't get hurt	22.9	38.5	18.6	20.0	36.0	34.0	20.0	10.0
Do people at work teach you what to do and how to do it	14.3	38.6	17.1	30.0	32.0	46.0	12.0	10.0

In any workplace, training, supervision and protection are the prime concerns in a safety environment. In the brick kiln sector, the child labours (as the data mentioned in the table) get more concentration to learn a new work whereas youth workers do not get it. On the other hand, the supervision is very strict at any level with their works. There are some levels of supervisors in the brick kiln industry in the country. This is very unfortunate that the labours have no protection training or instruction in the study area. They only learn it from their senior colleagues.

4.4.6 Leisure

Table 4.4.6: Leisure period of the respondents

Factors	Child worker (N=70)				Youth worker (N=50)			
	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot
Free time each day to do just what wanted	18.6	42.9	30.0	8.6	16.0	56.0	28.0	-

Children differ from adult workers, for that they have special needs that must be taken into consideration, when defining psychological functioning. The amount and quality of leisure time is important for the child labour's well-being and satisfaction. Leisure also contributes to the well-being of the children. But from the study, the amount of leisure time spent by the child labour is a matter of concern. Child labour reported that they get few hours of leisure time in a week. For this, the children in the workplace suffer different types of psychological effect. Such as, emotional distress, frustration, reduced productivity, posts traumatic stress disorder, anxiety, chronic depression etc.

Figure 4.18: Percentage distribution of the respondents feeling tension in the body

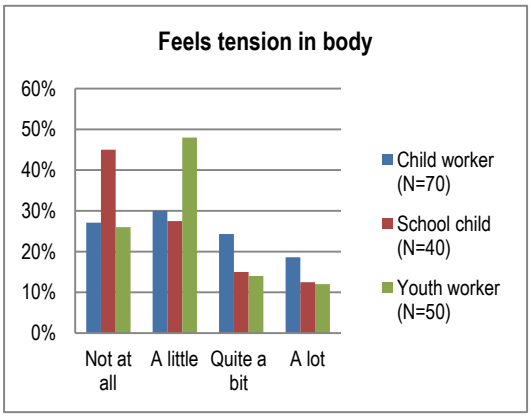
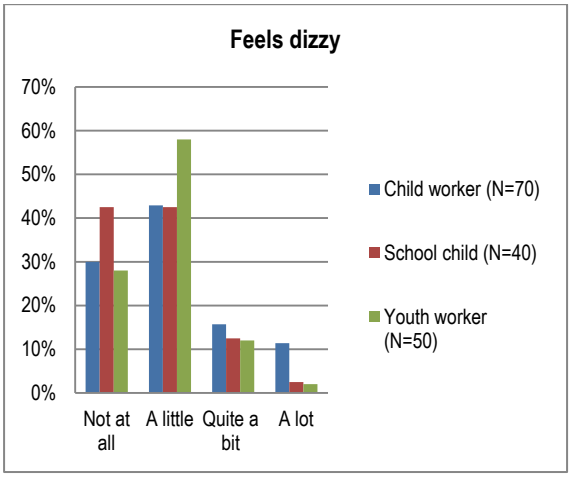


Figure 4.19: Percentage distribution of the respondents feeling dizzy



4.4.7 Chronic fear & anxiety

Chronic fear and anxiety are two integral parts of any psychological settings whereas child and youth labour feel it as a burden while they work. The study explores the responses from three categories of respondents with the answers about their nervousness, worry and fortunes.

Table 4.4.7: Chronic fear & anxiety among the respondents

Factors	Child worker (N=70)				School child (N=40)				Youth worker (N=50)			
	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot
Do you feel afraid or nervous	44.3	20.0	18.6	17.1	47.5	22.5	27.5	2.5	62.0	22.0	14.0	2.0
Do you worry and think a lot	24.3	35.7	24.3	15.7	45.0	17.5	15.0	22.5	36.0	40.0	14.0	10.0
Do you think back about all the bad things that have happened to you	32.9	40.0	21.4	5.7	62.5	17.5	12.5	7.5	44.0	32.0	18.0	6.0

4.4.8 Hopelessness & helplessness

Table 4.4.8: Hopelessness & helplessness among the respondents

Factors	Child worker (N=70)				School child (N=40)				Youth worker (N=50)			
	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot
Do you think your life will get better some day	10.0	37.1	21.5	31.4	17.5	5.0	30.0	47.5	20.0	54.0	22.0	4.0
Do you think your life is worse than that of other children	8.6	45.7	37.1	8.6	50.0	25.0	17.5	7.5	20.0	52.0	24.0	4.0
Do you think life isn't worth living	45.7	25.7	15.7	12.9	42.5	25.0	20.0	12.5	52.0	22.0	14.0	12.0

Hopelessness and helplessness is a universal cause of job stress**.** Hopelessness & helplessness are ***two integral parts of any psychological settings. This study explore this***

psychological functioning among the child and youth labour. Child and youth labour feel hopelessness and helplessness in their job for unfair labour practices, pressures of work, low salary. Work setting (noise, dangerous working situation, lack of privacy, poor lightening, inadequate sanitary facilities, poor ventilation, poor temperature control) also creates powerlessness and hopelessness among child labour. For this cause children in the workplace suffer very much. Three to four million children in the world suffer hopelessness and helplessness due to their job stress and nature of the job.

4.4.9 Social factors

Negative influences on a child can affect psychological development. These factors can come from a number of different sources such as family, friends etc. This study also explores the psychological setting from social factor. The child and youth labour in Bangladesh, negatively affected by the conflict environment in the family (Such as conflict between parents, death of a family member or by divorce, etc.). Psychological development also affect by the peers of the children. Negative influences in this category include having no friends, not feeling accepted, being picked on or bullied and losing previously established friendship affect the children psychologically.

Table 4.4.9: Social factors among the respondents

Factors	Child worker (N=70)				School child (N=40)				Youth worker (N=50)			
	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot
Do you feel supported and loved by your family	4.3	30.0	18.6	47.1	15.0	12.5	15.0	57.5	12.0	42.0	26.0	20.0
Is there conflict in your family	55.7	32.9	5.7	5.7	57.5	25.0	5.0	12.5	58.0	30.0	10.0	2.0
Do you feel accepted by the other families around here	7.1	38.6	24.3	30.0	15.0	7.5	22.5	55.0	18.0	48.0	22.0	12.0
Do you have one or more good friends that support you	8.6	28.6	21.4	41.4	7.5	10.0	27.5	55.0	30.0	36.0	22.0	12.0
Do you people reject or tease you or call you names	51.4	35.7	11.4	1.4	60.0	37.5	2.5	0.0	58.0	34.0	8.0	0.0
Do you play games or sports with friends	20.0	24.3	24.3	31.4	5.0	10.0	27.5	57.5	66.0	32.0	2.0	0.0
Do you feel very different from other children your age	28.6	45.7	17.1	8.6	82.5	12.5	5.0	0.0	52.0	40.0	6.0	2.0

4.4.10: Abuse & maltreatment

Abuse and maltreatment also affect the youth and child labour psychologically. In Bangladesh, child and youth labour, face different types of abuse and maltreatment. In the families, where child abuse and neglect occurs (scold, beating) suffer psychologically. Sexual harassment also make the child and youth worker psychologically weak and put them in depression.

Table 4.4.10: Abuse & maltreatment among the respondents

Factors	Child worker (N=70)				School child (N=40)				Youth worker (N=50)			
	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot	Not at all	A little	Quite a bit	A lot
Do you get scolded, or criticized or made to feel small or stupid	34.3	35.7	25.7	4.3	62.5	22.5	15.0	0.0	50.0	42.0	6.0	2.0
Do you get beaten at home or work	61.4	25.7	12.9	0.0	65.0	27.5	7.5	0.0	74.0	20.0	6.0	0.0
Has anyone at work tried to touch you in a bad way	67.1	18.6	10.0	4.3	85.0	12.5	2.5	0.0	82.0	14.0	4.0	0.0
Have you been severely punished for mistakes made at your work	51.4	31.5	15.7	1.4	57.5	35.0	7.5	0.0	82.0	14.0	4.0	0.0
In your day-to-day life do you feel safe	20.0	22.9	34.2	22.9	37.5	15.0	10.0	37.5	22.0	64.0	10.0	4.0

The above-mentioned table shows that there are some persistent a substantial abuse from the co-workers towards the child and youth workers in the brick kiln industry of the study areas. The child workers feel their insecurity when they are harassed by the supervisors and/or other co-workers. As the child and youth workers have no work experience, they are easily treated wrongly by their dominant work partners.

4.5 Observation findings

Socio-economic background of brick kiln labour

Mainly, vulnerable people of the society come to work in brick kilns. The people are vulnerable both economically and socially.. Besides this, they are enmeshed in debt because they have to carry a large family with limited resources sometimes without any productive resources like farm land. These people have to work both shifts of the day, which means they have to work daytime and evening in order to earn enough to cover their family expenditures. Many members of their family are engaged in such a type of work.

Socially, these people are disadvantaged sections of society or community. The main reason of their social disadvantage is illiteracy and landlessness. Many workers engaged their children in Brick Kiln as direct labour or as an assistance and many of them have been engaged by their relatives. The children are deprived of many basic needs such as:, nutrient foods, education proper treatment, entertainment etc.

These people are not so conscious about their health. In fact, they have very little opportunity to get proper treatment. Most of them take treatment from a local doctor (quack doctor). They have superstitions and it is 'almighty having for poor people'.

Risks: Child labourers encounter many risks while working. In addition to the dust, heat, and fumes, there are physical risks, such as bricks falling down from the stack. Normally the children do not wear any kinds of footwear or gloves during work. The labourers who are associated with the task of burning bricks stay on duty at the brick kiln all night. The condition of the latrines at the brick kilns is not even sub-standard, and consequently the workers do not use it, instead they feel more comfortable to use open space. Women and

girls do not have any private space for washing. Usually, workers get only one break in a day and it is for lunch. The duration of the break ranges from 1-2 hours.

Home work environment: The residence of the workers is situated also at the brick kiln. Almost all the workers come here from distant places and they stay in the brick kiln for 4-5 months and reside in the brick kiln in temporary houses. The houses are small in size and made of bricks and tensed. Five to six workers reside in one room. There is no window in the room, only the door. There is also no electricity in the room. Regarding drinking water, they use tube-well water which is near to their houses. The workers normally eat vegetables but do not eat meat or fish regularly and the food is the same for both adults and children.

Vehicles: Vehicles of the brick kiln (truck, tractor, trailer) are responsible for multiple health related problems. Brick kiln vehicles mainly carry three materials: bricks, soil and wood. The bricks and soil are the source of dust. New bricks contain huge amounts of rubbish and when they are being transported this is discharged and pollutes the air. Besides this, brick kiln vehicles carry muddy soil which falls on the road during transport, transforming into thick dust when it becomes dry. Besides the dust, the vehicles also create smoke and noise. A brick kiln normally has about seven vehicles which makes an average of seven trips per day. Tractors produce more smoke than the trucks. Besides this, there have a potential risk of accident.

Risk Assessment: Hazards and Risk in the Brick Kiln

A. General Environment

Main Areas	Presence of hazardous materials	Remarks
Air	It is observed that there is visible dust being produced from the burned bricks during the loading and unloading of the burned bricks. The dust mainly contains particles of burned brick and is red in colour. The dust is also seen when red coloured dirt is put on the layer of bricks before it goes into the kiln. Beside this, the moving vehicles are also another main source of dust in the brick kiln.	No one is seen with masks and Handkerchief
Temperature	The workers have to work the day long depending on the nature of the work. The workers involved in clay preparation, moulding, carrying green bricks into the kiln and burned bricks from the kiln are seen to work during the hottest part of the day.	There is no shade or existence of tree.
Landscape	The ground of the kiln is dry and dusty and rough. There are also a lot of sharp tiny burned brick particles which may cause of cut and injury for the foot or leg.	Frequent moving of motor vehicle with heavy load creates a rough landscape.
Water	There are water reservoirs to hold alongside the main water sources such as the river or canal.	As in Ashulia most of the brick kilns are situated on the bank of the river so they can use the river as a water source.
Location	The brick kilns of urban area are visible and accessible from the outside and the brick kilns of the rural areas are also the same. Specially, it is noted that in rural area the brick kilns are situated inside of the residential area.	Urban area brick kiln is more polluted than those in the rural area because of environment problem.
Biological	Dogs, Snakes, Scorpions, insects, mosquitoes, water born disease are the common phenomenon of the brick kiln in both urban areas.	The location like bank of the river, congested areas and open access facilitates the presence of dangerous animals.

B. Hazards in Work process (Equipment Risk & effect on body)

Steps of Work		Machine /Tools Uses	Hazards & Risks associated
Collection of Clay	Digging out Clay	Excavators, Spade	Cutting of fingers on leg
	Load onto the Car		Back pain, headache
	Transportation	Truck	Falling from the truck
	Unload	Spade	Cutting of fingers on leg, Chance of injured by the spade of others in any part of the body
Preparing Clay	Digging out clay	Spade	Bad cuts & feel pains in hand & neck.
	Hauling clay	Vantop (One wheel cart)	Bad cuts, sometimes sprains & broken bones also
	Hauling water to make mud	Through plastic pipe joined in a motor	Bad cuts.
	Mixing soil with water	Pugg machine	Cutting of fingers, hearing problems.
	Kneading clay	Pugg machine	Pain in shoulder,
Moulding	Packing clay in mould	Mould made by timber or steel and thin yarn	Minor Cuts.
	Emptying clay from mould	Mould made by timber or steel and thin yarn	Bad cuts, skin problems, eye problems.
Drying	Arranging brick to dry	Manually	Minor cuts or skin burns in sun, feeling weak.
	Turning bricks as they dry	Manually	Minor Cuts, pain in hand.
	Sprinkling sand over bricks	Manually	Breathing problems, skin problems.
Burning	Transporting bricks to kiln	Mainly by head, sometimes with push cart or pull cart	Bad cuts or bruises, dislocation & Broken bones.
	Placing brick in the kiln	Manually	Falling of brick in body, Breathing problems, skin problems, bad cuts, & sometimes broken bones.
	Taking bricks out of the kiln	Manually by head	Breathing problems, skin problems, bad cuts, & sometimes broken bones.
	Stacking bricks	Manually	Feeling of pains in body, skin & breath problems, week feeling.
Transportation	Lifting bricks onto cart/animal	Manually	Broken bones, Sprains, strains, dislocation
	Herding animals that transport bricks	Manually	feeling weak in body,
	Driving cars to transport the bricks	Motor driven car specially locally made for brick transportation	Any types of accident can occur

C. Brick Making Environment

Main Areas	Observation factors	Findings
Fall risks	Stacks of Bricks, Piles of coal	There are stack of bricks in all of the brick kiln and height of a stack ranges from 60 to 96 inches. The bricks are arranged systematically but it has a high risk of falling on the workers. Alarmingly both in urban and rural areas the child workers are mainly involved with the work of transferring green brick from the stack to the kiln. Though the coal is the main fuel of brick burning the observation did not found any notable piles of coal in the rural area, instead of coal it is observed that there was a stacks of firewood in the rural area which have the higher probability to fall on the workers. Piles of coal are observed in the urban area but there was not found any risk of fall as it is in the form of small pieces and dust.
	Holes in the ground	There were not found any notable holes in the ground that the workers can fall into.
	Open wells or water sources	In urban area there was the existence of open water sources connected to the river "Turag". They mainly use the deep pump machine as water source so both in the urban and rural areas there were no existence of open wells.
Equipment Risks	Moving Motor Vehicles	Moving vehicle is the common scenario of the brick kiln in both the areas. Mainly the vehicles are used for transporting the clay, the burned brick, coal and firewood. The vehicles are seen to move roughly and alarmingly it observed that sometimes the helper of the truck drives the car. The driver uses this technique in order for the helper to learn how to drive, but this is obviously highly risky.
	Noisy Equipment	The pug machine, the pump machine, excavators and the generator (which is used as an alternative of electricity during the night) are the main noisy equipment.
	Equipment that has moving parts	The pug machine is the most risky equipment which has a higher probability of trapping hand, leg and clothes. (Annex-Pic)
	Electricity	Electricity is only available in the office room where cords and electric sockets were observed.
Air Quality	Low visibility	The low visibility due to the dust is concentrated in one area. It is observed that when the workers are taking out the burned brick from the burning chamber the places become low visible due to the dust arises from the dirt previously spread out on the green brick before burning. It is also created when vehicles are moving around the area.
	Smoke	There was no observation of smoke on the ground.
	Fired with plastic, old tires, toxic materials	There was no observation of such types of activities during the observation period.
Workers need	Work at night	The workers involved in brick burning are seen to work at night. Beside this the workers involved in brick transporting the brick kiln out of the kiln are observed to work at night.
	Source of abundant clean water for drinking	Deep tube well is the main source of drinking water in both urban and rural areas; it uses a motor regulated pump.
	Latrines	The most miserable scenario of the brick kiln. It is not only unhygienic but also likely to fall. In urban area it is observed that the latrine is situated on the bank of river and very poorly protected. It is totally unusable for workers especially for the women and child.
	Private areas for women	There was no private area for the women.
	Shoes for protect the feet	The observation did not find any special protection measure for feet except the workers involved in burning. The workers involved in brick burning use shoes but the other workers have not any protective measure including normal shoes.
	Rest break	The work is shift basis and as the payments depend on production there is limited scope to take rest. They work continuously and only rest when they reached at the highest limit of strength but it is not over 5 mins.
	Lunch break	They take lunch break for the period of 40-60 mins not more in anyway.

Conclusion

Finally, the study tries to identify the overall impact of child labour in brick kilns and assesses the condition of brick kiln industries. From the study, it is evident that child workers in the brick kiln are suffering from various health hazards and their living condition is not even sub-standard. They have to do hard work and sometimes very risky task. As a result they suffer from various injuries and major health problem and it is hampering their normal physical and mental growth. Even, they do not have the facility to get proper treatment. Government has already identified child labour in brick kiln as an worst form of child labour. But in reality, still child labour in brick kiln is being practicing in alarming rate. The owners are not still aware about this concern, rather they are depriving child from their basic rights in work and involving them in risky tasks. The government, NGOs, civil society, media and all stakeholders should come forward and take necessary steps immediately to eliminate the child labour in brick kiln in Bangladesh and thus ensuring the proper growth of children.

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For details see the law regarding "Brick Kiln" 1989, Government of the Peoples Republic of Bangladesh.

Annex 1. Child labour: constitutional and legal provision

(a) The fundamental rights of the citizens including the children are spelled out in the Constitution of the People's Republic of Bangladesh. Articles 11, 14, 15, 16, 17, 18, 19 and 20, constituting the fundamental principles of state policy of the Constitution have laid emphasis on ensuring compulsory primary education for the children as well as adopting special measures for the children who are physically and mentally challenged. The Constitution has guaranteed the fundamental rights of citizens in Articles 27, 28, 29, 31, 34, 37, 38, 39, 40 and 41. Particularly, forced labour is completely prohibited and access to legal remedy is assured in case of violation of fundamental rights.

(b) After independence, Bangladesh enacted the Children Act 1974 (Act XXXIX of 1974) for the protection of the children and their rights. It appears from the title of the Act that it focuses mainly on the children. The Act clearly delineates the definition of a child, his or her age, scope of the child's rights, childhood, guardianship, protection of child's property, provision of protection for children in civil and criminal proceedings and legal custody. This act is a remarkable milestone to establish the rights of children.

(c) The definition of child and the adolescent is further elaborated in the labour act 2006 (Act XLII of 2006). Sections 34-44 in Chapter 3 of the Act have dealt with employment of children and adolescents as worker. The Act prohibits appointment of any children in formal sector. The Act also envisages that government from time to time through gazette notification would publish the list of hazardous occupations and the list would come within the ambit of the prohibitory clause. However, it provides provision for engaging a child or an adolescent in light work under special circumstances for specific working hours subject to the certification by a physician.

(d) Birth and Death Registration Act 2004 (Act XXIX of 2004) is a major safeguard for the protection of rights of children. This Act has made it compulsory to register the birth of a child which would resolve the future complexity relating to the determination of the age of a child.

(e) The National Children Policy 1994 focuses on the attainment and protection of rights of children, definition of child, age of the child, the extent of his or her rights, childhood, guardianship, protection of the child's property, provision of protection for children in civil and criminal proceedings and in legal custody. The initiatives and efforts towards the elimination of child labour of Bangladesh have also been acknowledged and appreciated by the international communities. The Government of Bangladesh has ratified 33 Conventions related to labour issues including the United Nations Convention on the Rights of the Child (UNCRC) and ILO Convention No. 182(Worst forms of child labour). Along with the mentioned legal provisions it is important that these Acts be appropriately and systematically enforced.

Annex 2. Bangladesh labour Act, 2006
Chapter: III, Employment of adolescent

34. Prohibition of employment of children and adolescent: (1) No child shall be employed or permitted to work in any occupation or establishment.

(2) No adolescent shall be employed or permitted to work in any occupation or establishment unless

(a) a certificate of fitness in the prescribed form and granted to him by a registered medical practitioner is in the custody of the employer ; and

(b) he carries , while at work, a token giving a reference to such certificate.

(3) Nothing in this sub-section (2), shall apply to the employment of any adolescent in any occupation or establishment either as an apprentice or the purpose or receiving vocational training therein:

(4) The Government may, where it is of opinion that an emergency has arisen and the public interest so requires, by notification in the official Gazette, declare that the provisions of this sub-section (2), shall not be in operation for such period as may be specified in the notification.

35. Prohibition of certain agreement in respect of children: Subject to the provisions of this chapter, no person, being the parent or guardian of a child, shall make an agreement, to allow the service of the child to be utilized in any employment.

36. Disputes as to age: (1) If any question arises as to whether any person is a child or an adolescent, the question shall, in the absence of a certificate as to the age of inspector for decision to a registered medical practitioner.

(2) A certificate as to age of a person granted by a registered medical practitioner as mentioned in sub-section (1) shall be conclusive evidence as to age of the person to whom it relates.

37. Certificate of fitness: (1) A registered medical practitioner shall, on the application of any adolescent or his parent or guardian or by the employer whether the concerned adolescent is fit to work in any occupation or establishment, examine such person and shall give his decision as to his fitness:

Provided that when such application is made by the adolescent or his parent or guardian, the application shall be accompanied by a document signed by the employer in whose establishment the adolescent is an applicant, stating that such person will be employed if certified to be it for work.

(2) Any certificate of fitness granted under this section shall remain valid for a period of twelve months from the date on which it was issued. (3) Any Fee payable for a certificate under this section shall be paid by the employer and shall not be recoverable from the adolescent or his parents or guardians.

38. Power to require medical examination: Where an Inspector is of opinion

(a) that any person working in an establishment is an adolescent, but he has no certificate of fitness, or

(b) that an adolescent working in an establishment with a certificate of fitness is no longer fit to work in the capacity stated therein,

he may serve on the employer a notice requiring that such adolescent shall not, be allowed to work until he has been so examined and has been granted a certificate of fitness or has been certified by the registered medical practitioner not to be an adolescent.

39. Restriction of employment of adolescent in certain work: No adolescent shall be allowed in any establishment to clean, lubricate of adjust any part of machinery while that part is in motion or to work between moving parts, of any machinery which is in motion.

40. Employment of adolescent on dangerous machines: No adolescent shall work at any machine unless-

(a) he has been fully instructed as to the dangers arising in connection with the machine and the precautions to be observed, and

(b) has received sufficient training in work at the machine, or is under adequate supervision by a person who has thorough knowledge and experience of the machine, 36

(2) This provision shall apply to such machines as may be notified by the government to be of such a dangerous character that an adolescent ought not to work at them unless the requirements of sub-section (1) are complied with.

(3) The Government may from time to time publish in the official gazette the list such of hazardous works where, no adolescent shall be employed.

41. Working hours for adolescent:

(1) No adolescent shall be required or allowed to work in any factory or mine, for more than five hours in any day and thirty hours in any week;

(2) No adolescent shall be required or allowed to work in any other establishment, for more than seven hours in any day and forty-two hours in any week.

(3) No adolescent shall be required or allowed to work in any establishment between the hours of 7.00 p.m. and 7.00 a.m.

(4) If an adolescent works overtime, the total number of hours worked, including overtime shall not exceed-

(a) in any factory or mine, thirty six hours in any week;

(b) in any other establishment, forty eight hours in any week.

(5) the period of work of an adolescent employed in an establishment shall be limited to two shifts which shall not overlap or spread over more than seven and a half hours each.

(6) An adolescent shall be employed in only one of the relays which shall not, except with the previous permission in writing of the Inspector, be changed more frequently than once in a period of thirty days.

(7) The provisions of weekly holiday shall apply also to adolescent workers, and no exemption from the provisions of that section shall be granted in respect of any adolescent.

(8) No adolescent shall be required or allowed to work in more than one establishment in any day.

42. Prohibition of employment of adolescent in underground and under-water work: No adolescent shall be employed in any underground or underwater work.

43. Notice of periods of work for adolescent: (1) In every establishment in which adolescent are employed, there shall be displayed in the manner prescribed by rules, a notice of specified periods of work for adolescent.

(2) The periods shown in the notice under sub-section (1) shall be fixed beforehand in the manner laid down for adult workers and shall be such that adolescent working on those periods would not be working in contravention of this Act.

(3) The relevant provisions laid down for adult workers in the occupation or establishment shall also apply to the notice under sub-section (1). (4) The Government may make rules to prescribe the form of such notice and the manner in which it shall be maintained.

44. Exception in certain cases of employment of children : (1) Notwithstanding anything contained in this chapter, a child who has completed twelve years of age, may be employed in such light work as not to endanger his health and development or interfere with his education;

Provided that the hours of work of such child, where he is school going, shall be so arranged that they do not interfere with is school attendance.

(2) All provisions applicable to an adolescent workers under this chapter shall mutatis-mutandis apply to such child workers.