

**EPIDEMIOLOGICAL STUDY OF HEALTH HAZARDS & WORKING CONDITIONS OF
BRICK KILN WORKERS IN RURAL AREA OF NORTH MAHARASHTRA****Dr. Pagar Vikrant^{1*}, Dr. Bawa Mukesh S²., Dr. Vyas Parth H³ and ⁴Dr. R. R. Shinde**^{1,2,3}Asst. Prof. Department of Community Medicine, SBHGMC, Dhule.⁴Professor and Head, Department of Community Medicine, Seth GSMC, Mumbai.***Corresponding Author: Dr Pagar Vikrant**

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ABSTRACT

Background: Brick-making is one of the most ancient industries. India is the second largest producer of clay fired bricks, accounting for more than 15 percent of global production. **Aim:** To assess the health status of brick kiln workers & to review working conditions and safety measures practiced at brick kilns. **Setting & design:** The present cross sectional study was carried out among the brick kiln workers of Northern Maharashtra. **Methods & material:** The research was carried out during January-February 2015. Universal sampling was done. Total 86 patients were interviewed. Data such as socio-demographic profile, clinical history and examination findings were collected. Field checklist for presence of basic amenities and safety conditions was used at the brick-kiln sites. **Statistical analysis:** Data analyzed using SPSS 20.0. **Results:** 70% of workers receiving daily income less than 150 rupees, 11% of workers were below 14 years of age in contradiction with child labor act, Majority (83%) of the workers were working above 8-9 hours against limits of 48 hours per week (Factory act). Musculoskeletal problems like joint pain, bodyache, backache(58.7%) was the commonest morbidity. **Conclusion:** The present study shows prevalence of Child labour, illiteracy, and low income among the workers. Also displays lack of basic amenities & safety conditions for workers with high prevalence of musculoskeletal problems.

KEYWORDS: Brick Kiln workers, working conditions, occupational health hazards.**INTRODUCTION**

Brick-making is one of the most ancient industries. India is the second largest producer of clay fired bricks, accounting for more than 15 percent of global production. India is estimated to have more than 100,000 brick kilns producing about 150 – 200 billion bricks annually.^[1]

Brick is very important building material for a developing country, especially like India. Brick industry in India is employing large number of migrant workers including men & women and even children who work in the kiln on a temporary contract and low wages.

Brick workers are known for poor health and poor access to health care. Though one of the oldest industries in the history of mankind brick industry is remains unorganized and no official authentic data is available regarding its status. Objective of present study were to study the morbidity profile of brick kiln workers & to review working conditions and safety measures practiced at brick kilns.

MATERIALS AND METHODS

The present cross sectional study was carried out among the brick kiln workers of rural area of North Maharashtra. The research was carried out during January-February 2015. Six brick kilns were randomly selected from Malegaon taluka of Nashik district for the study. Universal sampling was done & all 86 workers were included in the study. Face to face interviews were conducted and a preformed semi-structured questionnaire was used for collection of data such as socio-demographic profile, clinical history and examination findings. Field checklist for presence of basic amenities and safety conditions was used at the brick-kiln sites. Frequency analysis was done for socio demographic variables, qualitative test like Chi square was applied to analyze relation between socio demographic variables, working condition & health hazards.

RESULTS**Socio demographic profile of brick kiln workers**

Among 86 brick kiln workers 49 workers were female and 37 were male, Children were also employed and

comprised of about 11% population. Young adults in the age group of 20-30 formed majority of the working population (42%). Majority of the workers were illiterate (90%), among 11 child workers, 10 have never attended school. Illiteracy was found more common in women workers (91.8%) than men (86.4%). Literate workers were educated only up to 4th standard. 80% working population was married. 50% workers were from Malegaon Taluka and rest were from Nandgaon, Dhule, Satana, Nandurbar, Bihur. Brick making is carried out during November to June while people return to their homeland during rainy season. About 83% of people work during rainy season in farming (67%), Textile factory work (14%), house

work (2%) while 17% workers remain unemployed in other season. 19% working population had some or another form of addiction (Tobacco, Alcohol etc.) Majority of the workers were earning wages between 100-150 rupees (52.30%), 27% of workers were receiving wages below 100 rupees. Only 9.3% workers were earning 251-350 rupees.

Working conditions & safety at workplace

Majority of workers (59.2%) have been working in brick kiln for more than 5 yrs. 11.5% workers were having experience more than 15 years in brick kilns. 83% of the workers were working beyond recommended daily working hours (8-9 hrs.) (Table 1).

Table 1: Distribution of working hours of brick kiln workers.

Total Working hours in a Day	Frequency	Percentage
5-7	6	7%
8-9	8	9.3%
10-11	11	12.8%
12-13	43	50%
14-15	18	20.9%
Total	86	100%

Majority of the workers were not aware about safety measures (gloves, mask, cap etc) and none was practicing such measures. All the workers were residing at brick kilns and there was no segregation of residential and working area. Basic amenities like provision of water, separate place for food were not provided.

Toilet facility were not provided and open air defecation was common among all workers. No provision of rest intervals for work shift from 12 midnight-9 am and again from 2pm - 6 pm in 24hrs. Weekly off days not provided and workers used to get off days after working 9-10

days. Leave with wages not provided to these workers. No provision of emergency medical aid for mishaps at the worksite. No Monitoring and supervision of safety and working condition of brick kilns by labour officer.

Morbidity profile of brick kiln workers

26.7% of workers had no health problems. Majority (58.7%) of workers complained of musculoskeletal problems. Significantly (Chi square value: 7.60 & p=0.05). It was found that as work hours of brick kiln workers are increased the frequency of musculoskeletal complaints is increased (Table 2).

Table 2: Distribution of work hours & musculoskeletal symptoms of brick kiln workers.

Work hours	Number of workers without musculoskeletal symptoms	Number of workers with musculoskeletal symptoms
5-8	8	4
8-10	7	13
10-12	7	13
12-15	8	27

Digestive disorders (19%) like Acid peptic disease, worm infestation, constipation and intermittent increase frequency of bowel habit. Fever (12.6%), Generalized weakness (12.6%) and respiratory problems (11.1%) like cough, breathlessness were other common morbidities found in these brick kiln workers.

Neurological problems (9.5%) like neuropathies of upper and lower limb, Dermatological (7.9%) like skin rashes, scabies and tinea cruris. Headache (6.3%), migraine and

tension headache and ENT problems (4.7%) also contributed to the morbidity of these brick kiln workers. 3.1% of workers were having hand and foot injuries in the form of minor abrasions. (Fig1)

FIGURE

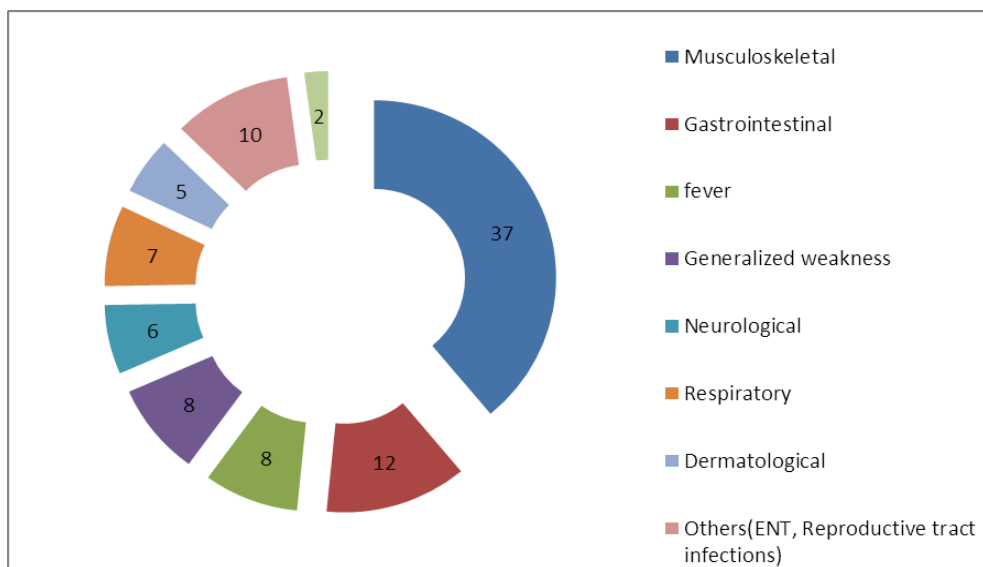


Fig 1: Morbidity profile of brick kiln workers.

DISCUSSION

The workers in the brick industry are subjected to extreme working conditions and poor remuneration. Currently in India, brick manufacturing is a labour-intensive sector, with crude techniques causing considerable worker drudgery.^[1] Even though the brick workers are exposed to these occupational hazards, coverage under any sort of insurance or medical facilities is virtually unheard of. In the brick sector, labour is brought in through a contractor (from distant places). Since they are not on the payrolls of the kiln owner, they are not covered under the current labour laws, e.g. Minimum Wages Act. Brick kiln workers who comprise a part of the unorganized work sector in rural India are in a disadvantageous position and literature regarding their health problems and needs are largely unavailable.^[2] The present study objective was to study the morbidity profile of brick kiln workers & to review working conditions and safety measures practiced at brick kilns.

In present study 11% of workers were below 14 years of age in contradiction with child labor act (1986) which states that no child should be employed below 14 years of age. 10 children out of 11 (<14 years) never had opportunity to attend school. Similarly in study conducted by D K Sharma, Arun Varun, Mansi Patel in Gujrat child workers never attended the school.^[3] This assumes importance in view of Right to Education (RTI) for universal education for all children up to 14 years of age.

70% of workers were receiving daily income less than 150 rupees, lower than minimum wages under minimum wages act. 27% of workers were earning wages below 100 rupees which is less than daily wages provided to workers under MNREGA Act 2005.^[4] Majority (83%) of the workers were working above 8-9 hours against limits

of 48 hours per week (Factory act). While in Gujrat study workers were working almost 18 hours a day.^[3]

Musculoskeletal problems like joint pain, bodyache, backache (58.7%) was the commonest morbidity. This is similar to the study finding among brick kiln workers in Ahmedabad (25%).^[5] This could be due to long working hours, malnutrition and poor working condition taking heavy toll on their health. Digestive disorders like acid-peptic disease, diarrhea, abdominal pain, worm infestation, vomiting was common (19%) This could be due to lack of safe water & sanitation facilities. Respiratory problems like cough, cold, Asthma (11.1%) were common, but study conducted by Monga et al showed that 46% male & 66% female had respiratory problems.^[6] This may be due to lack of safety measures to prevent exposure to respirable dust. The brick kiln workers did not have access to even basic (like safe water, separate place for food, toilet facility etc.) and social security measures. This finding matches with studies conducted by Deepak Kumar Sharma^[3], Dr. R. Santha.^[1]

CONCLUSION

The present study shows prevalence of Child labour, illiteracy, and low income among the workers. Also displays lack of basic amenities & safety conditions for workers. This highlights poor enforcement of existing labor laws regarding child labour, minimum wages, working hrs, safety precautions. Hence it is recommended that there should be stricter enforcement of labor laws regarding prevention of Child labor, appropriate working hours for laborers, Provision of Minimum wages Provision of Basic Living and safety conditions at work site & Provision of educational opportunities for children of workers. Also education programme for workers of the workers about use of safety measures should be started & referral services are

needed for the workers to nearby Health facilities for morbidities.

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