



A CROSS-SECTIONAL STUDY TO FIND THE WORKING CONDITIONS OF BRICK KILN WORKERS

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ABSTRACT

Context: Not much is known about the working conditions at brick kiln industry as it has been an untapped area of research. Understanding this would serve as the starting point for developing strategies and sets of services tailored to

their needs.

Aim: To find out working condition of workers.

Settings and Design: Observational study, Descriptive epidemiology

Methods and Material: 420 brick kiln workers who were eligible for the study were interviewed using a semi structured, pre-designed, pre-tested interviewer administered questionnaire.

Statistical analysis used: SPSS version 20.

Results: 89.5% of the workers employed in the brick kilns were migrants. Majority i.e. 62.1% were working as Paatlas. Majority i.e. 60.5% were working for less than 5 years at the present brick kiln. 37.1% were working for less than/equal to 5 years, 35.7% were working for 6 to 10 years and 27.2% were working for 10 years or more. 95.5% were involved in brick making every season.

Conclusion: Poverty, indebtedness, irregular availability of work etc. compel the workers to migrate every year from October to May, to the brick kiln, build temporary houses and work for 15-16 hours, under degrading working conditions with poor wages and job insecurity.

KEYWORDS : Brick Kiln, Working Conditions, Brick Making, Migrants.

INTRODUCTION:

India's brick industry contributes to around 3 bn Pounds to the country's economy every year with an estimated demand of 120 billion bricks per year. [1] There are over 1,50,000 brick production units in the country which together employ near about 10 million workers. [2] Brick production in India takes place in small units generally confined to rural and peri urban areas relying mainly on the rural migrant labour, which is amongst the most neglected sections of the society burdened with many health, social and economic issues. [3]

There is no proper documentation to highlight the adverse working conditions of these workers. Hence, this study had been planned to document the working conditions of the Brick-Kiln Workers.

SUBJECTS AND METHODS:

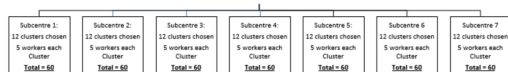
This was a cross sectional study carried out for a period of 10 months from December 2016 to October 2017 in the rural field practice area of the medical college near Ganeshpuri after approval from the ethics committee. The study area was mapped with the help of health workers prior to starting the study.

A previous study reports a morbidity of around 50 % ,[9] which has been used for sample size determination in the study using the formula, Sample Size = $4pq/12$. The final sample size came to 420.

Sample selection had been done using Multi-stage cluster sampling method. Monthly wise data of the workers are usually recorded by the concerned Primary Health Centre (PHC) of that area. There are 7 subcentres under the PHC in the study area. Each subcentre was included in the study. Cluster was defined as assemblage of at least more than or equal to 10 labourers at a work place as reported by the in charge of the PHC and verified by the brick kiln owner.

To acquire a sample size of 420, about 60 labourers were needed from areas covered by each of the seven sub centres. 12 clusters were selected from each of the 7 sub centre areas and from each cluster 5 labourers was selected and interviewed.

PHC



Total = 420

The labourers were selected from the cluster on the basis of their availability, duration of work (more than or equal to 6 months) and permission given by the employer/ contractor. In the case of non-response from the migrant, the next migrant labourer was selected. In the case of non-availability of cluster in one place, that cluster was selected from another sub centre area within the PHC area.

After having taken informed consent the study subjects were interviewed using a semi-structured questionnaire. The responses given by the participants were entered in Microsoft Excel 2010 and analyzed using SPSS version 20.

RESULTS:

1. The workers are involved in the brick making process every year from the months of October to May. The workers generally migrate from their native village during this season and build temporary huts at the site. 89.5% of the workers working in the kilns were migrants while 10.5% were locals.

2. Labour employed in the kilns was found to be four categories:

- Paatla- Involved in the process of brick making.
- Mhaapa- Carry the bricks made by the paatla to the furnace.
- Bigaari- Labourers involved in carrying raw materials to the paatla for the brick making, breaking stones, coal and sorting the raw materials. They also carry the baked bricks for the purpose of transportation to the vehicle.
- Bhatkar- Readyng the furnace for the purpose of baking bricks.

The work of paatla is generally done by a couple (husband and wife) and they are exclusively involved in this work. Mhaapa can also be employed by the owner to work as bigaari when the production of new bricks lag. Bhatkar are few in number and they build up the furnace.

3. Process of brick making:

- Raw Materials needed for brick making:
 1. Mud (maati)
 2. Coal Dust (raakh)
 3. Rice husk (toos)
 4. Old brick powder (raabit)
 5. Water

- Approximate quantity of the raw materials for making 1000 bricks:

Mud (maati)	30 Ghamelas
Coal Dust (raakh)	5 Ghamelas
Rice husk (toos)	1 sack(goni)
Old brick powder (raabit)	5 Ghamelas
Water	As per requirement

• **Source of raw materials:**

Mud (maati)	Mostly agricultural soil which comes from paddy fields or areas suitable for agriculture
Coal Dust (raakh)	From the coal industry
Rice husk (toos)	From rice processing factories
Old brick powder (raabit)	From unsold or discarded bricks from the previous year's production.
Water	Bore-well/Well

The process of brick making begins with digging a trench measuring 4 x 5 x 3 feet. (For 1000 bricks)

Half a foot is first filled with water and one and half foot is filled with raw material. This mixture of raw materials is mixed well and soaked overnight. The next morning it is processed by the paatlal and put into ready-made moulds as per the required dimensions. The processing of the raw materials is similar to the process of kneading dough as done before making chapatis. Once moulded, they are kept out in the sun till they become hard and can be lifted without causing damage for transportation which is generally for 5 to 6 days.

Once sufficient number of bricks are made the process of igniting the furnace is done. The foundation of the furnace is laid with old bricks placed vertically at the lowest level to achieve the required dimensions of the furnace depending upon the number of bricks ready to be baked. This number can be up to 6000 depending upon the overall turnover of the kiln.

This is laid for a few layers. Salt, coal and ash are mixed together and added at regular intervals to keep the furnace ignited for long. Once the base is prepared, the newly made bricks are piled one above the other. A bed of coal and salt is prepared in the middle of the furnace. Coal is distributed between each layer to ensure the burning of all bricks. Once the furnace is ready, it is ignited and kept burning for 8-15 days.

When it cools down, the bricks are ready for transport and use. There is use of mechanical aid like wheel barrows and trucks for carrying these bricks.

4. Working Environment:

Brick kiln walk through revealed increased risk for slips trips and falls with uneven mud floors, lack of designed walkways and narrow passages between work areas. There was no artificial lighting in the work area and the natural lighting was found to be inadequate. The paatlal works for 10-15 hours a day. Their work typically begins from 2 am in the morning. They work till 8 am and then rest for 2 hours. They then begin work from 10 am and continue till 2 pm after which they take a lunch break for one hour. Once again they work from 3 pm to 8 pm. At 8 pm they retire for the day and do their miscellaneous work. Mhaapa, Bhatkar and Bigari work 8-10 hours a day. Their work is mostly during the day time.

The workforce at the kilns works continuously for 8 days in a row after which the 9th day is a holiday which they use to fill their weekly ration and rest and prepare for the next 8 days of labour.

Job Category	No. of hours per day	Breaks per day
Paatlal	15-16 hours	3
Mhaapa	8 - 10 hours	2
Bigari	8 - 10 hours	2
Bhatkar	8 - 10 hours	2

The workplace does not have sanitary latrines or bathrooms. They build a temporary bathroom for themselves which the use for bathing. But to urinate or defecate they go to the nearby fields or open spaces.

For drinking water the brick kiln owner generally provides the workers with a bore-well or a well. Table 1 shows the distribution of the workers according to the source of drinking water.

First aid facilities are not available at their workplace. In case of any accident at the site while working or in case of medical emergencies, the medical expenses or hospitalization charges incurred by the injured labourer are initially paid for by the owner but later adjusted from the wages. The same holds true for ANC and lactating mothers and children less than 5 years.

When not working at the kilns (June- September), they look for alternative sources of income. Table 2 shows distribution of workers according to their source of income when not working in the brick kiln. Payment of the workers: They are of two types:

1. Piece rated workers- i.e. the Paatlal and Mhaapas. They receive payment in terms of per 1000 bricks made.
2. Time rated workers - i.e. the Bhatkars and the Bigari. They receive payment on a daily basis.

1. Paatlal	Rs. 600 per 1000 bricks
2. Mhaapa	Rs. 150-250 per 1000 bricks
3. Bhatkar	Rs. 250 per day
4. Bigari	Rs. 150 per day

The workers receive some amount of advance from the kiln owners at the time of recruitment. This amount varies from Rs. 5000- Rs. 20000 depending on the workers' needs and the interpersonal relationship the worker shares with the owner. In addition the workers receive small instalments on the 9th day after 8 days of rigorous labour for their daily maintenance. An informed record of sorts is maintained by the owner wherein they mention each worker's record regarding bricks produced, number of days worked, money lended, advance payment, etc.

At the end of the season, the advance taken at the time of recruitment and during their employment for their maintenance or medical expenses (if any) is deducted from their stipulated payment. The remaining amount is paid in cash at the end of the season.

A paatlal couple makes about 1000 bricks per day.

5. Living Conditions: The workers were staying in multiple homes which were clubbed together each measuring approximately 8×10×12 cubic feet. There was overcrowding and lighting and ventilation was inadequate. Kitchen was inside the home which had no raised platform for cooking. Fire wood was used for cooking.

6. Process of Recruitment of the workers:

Table 3 shows distribution of the workers according to their recruitment at the brick kilns.

B. Perception of the worker's working condition:

69.3% were satisfied with their working condition and 83.6% were aware of the working conditions and of these 83.5% said the expectations were met.

Table 4 shows perception of the workers regarding their working condition.

C. Job Profile of the Participants:

Majority (62.1%) of the participants were employed as Paatlal and were working for less than 5 years at the present kiln (60.5%). Table 5 shows the job profile of the workers.

DISCUSSION:

Migration season for brick kiln workers is from October to May. Brick manufacturing usually begins every year after Diwali, in the month of October-December, and continues till before the onset of the monsoon in June. This was similar to the findings in the various literatures.^[4]

As the brick kilns are closed down during the monsoons, many of the workers return to their villages, where they either work as agricultural labour or do some other casual manual work. Sometimes they are forced to borrow money from the local moneylender at exorbitant rates of interest which forces them to go back to the brick fields in the following season to pay off their debts.

89.5% of our workers were migrants from nearby villages and districts. Migration in brick industry is affected by many factors. These factors can be classified into 2 basic categories namely Push and Pull factors. The push factors are those that compel a person to leave the original place of work and go to some other place in search of employment. Some factors like poverty, irregular availability of the works, indebtedness etc may force a person to leave his native place and go to some other place in search of work.

The pull factors are those factors which attract a person to move to an area where he has the opportunities of getting higher wages for the same work that he would have received in his native place, better employment opportunities, better working condition etc. Pull factors do not compel a person to leave his native place; rather it attracts a person move to another place.^[5] In our study, the push factors seemed to play a major role in leading to their migration.

Labour in our brick kilns was categorized as Paatlal, Mhaapa, Bigari

and Bhatkar. (Table 5) In our study, the moulders (paatla) are the largest category of workers. The moulders' job is labour intensive and forms the base of the kiln. The pace at which the kiln will operate, the number of rounds that the kiln would make in a season and the optimization of production all depends on the speed at which the moulders work. Hence, the paatlas are recruited in large numbers at the brick kilns. Transporters and carriers (mhaapa) who transport the raw bricks to Kilns and the baked bricks from the kilns form second largest category of workers in the kiln. In Kotra in Gujrat, ^[6] Paatla and Khadkan were used to categorize the work in the process of brick preparation while in the North, categorization includes Pathers (those workers involved in soil preparation stage of brick making) ; rehriwalas (lift the prepared soil with the help of a rehri which is a wooden cart with two long handles attached to it); Jalaivalas keeps the kiln burning; Keriwalas plugs all holes in the vessel to prevent heat leakage while baking bricks and nikasiwalas unloads the baked bricks from the kiln. ^[3]

60.5% of the workers were working for less than 5 years at the present factory which means that the workers keep changing their employers. (Table 5) This could be due to conflict with the employers regarding payment, working conditions, living conditions or abuse or torment by the employers. Majority of the workers (37.1%) had been employed for less than 5 years at the brick kilns in total. This could be due to the fact that majority of the workers were in the younger age group and had joined the kiln in the second or third decade of their lives.

Brick kiln workers work for 15-16 hours a day in the open without any shade or shelter. Piece-rated workers do not have fixed working hours. Workers have to work more in a given day to increase their earning. Depending on the work allotted to them, they spend their entire time in hard labour. Living in the kiln fields, these labourers are like captive workers for their contractors and kiln owners. Long working hours, poor work conditions and an absence of basic facilities are all indicators of exploitation.

First aid facility was not available at any of the work sites. Any medical expenses or hospitalization charges incurred by injured labourers during the process of brick making are initially paid for by the owner but later on adjusted from their wages. Such unforeseen expenses can eat into a considerable per cent of the season's earnings of a labourer, including the number of work-days lost due to forced rest.

The brick moulders in our study area were paid upto Rs. 600 per 1000 bricks. However, there were instances of the labour being cheated in some cases – especially in the counting of bricks which meant that the labourer end up working more for lesser money leading to conflicts regarding the payment.

The study helps to capture the vulnerability of the brick kiln workers in Maharashtra. The data has been gathered through field visits at the brick kilns which was sometimes met by resistance from the owners as they feared action from the higher authorities. In some of the kilns the owners or the contractors would accompany the investigator which made the respondents careful in their responses. Also, since the present study was restricted only to a particular rural field practice area of Maharashtra only, the socio-economic characteristics of workers may be different in other parts of the country. This research will however help decision makers to review what options exist for improving and humanizing the brick worker's conditions in the brick kilns.

Tables:

Table 1: Distribution of the workers according to their source of drinking water

Source of Drinking Water	Frequency(N=420)	Percentage
1. Borewell	376	89.5
2. Well	44	10.5

Table 2: Distribution of the workers according to their source of income when not working in the brick kilns

Activity	Frequency (N=420)	Percent (%)
Agriculture Labour	246	58.5
Farming	88	20.9
Domestic Work	14	3.3
Labourer/ Odd Jobs	49	11.7
Works in a Company	8	1.9
Nothing	15	3.7
Total	420	100

Table 3: Distribution of the workers according to recruitment of the brick kiln workers:

Recruited By	Frequency(N=420)	Percent(%)
Kiln Owner	141	33.6
Recruiter	70	16.7
Family Member	146	34.7
Neighbour/Friend	28	6.7
Came Looking a job	35	8.3
Total	420	100

Table 4: Perception of the workers regarding their working condition:

Variable	Frequency (N=420)	Percent (%)
1) Are you satisfied with the working conditions at the kiln?		
Satisfied	291	69.3
Not Satisfied	129	30.7
2) Were you aware of the working conditions at the kiln before you started working?		
Yes	351	83.6
No	69	16.4
3) Were they same/better/worse than your expectations? (N=351)		
Same	293	83.5
Worse	58	16.5

Table 5: Job Profile of the Brick Kiln Workers:

Variable	Frequency (N=420)	Percent (%)
1) Job Category		
Paatla	261	62.1
Mhaapa	103	24.5
Bigarii	39	9.3
Bhatkar	17	4.1
2) Years of Working in the present factory		
Less than 5	254	60.5
5 or More Years	166	39.5
3) Total number of Years of Working in the brick industry :		
Less than/Equal to 5	156	37.1
6 to 10 years	150	35.7
More than 10 years	114	27.2
4) Are You Involved in brick making every season?		
Yes	401	95.5
No	19	4.5

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