

1724e HEALTH STATUS OF BRICK KILN WORKERS IN NORTH EAST INDIA

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Introduction India produces 200–250 billion clay bricks annually, the second largest producer of clay fired bricks, accounting for more than 10% of global production, in 1 50 000 to 2 00 000 brick kilns. Each brick kiln employs between 250–300 workers, bringing the total number of workers to approximately 20 million, which is roughly 4 per cent of a total of 459 million workers in India, of which almost 40% are women. The Brick Industry in India is characterised by traditional methods of production technology and seasonal work.

Methods The study was done in Tripura, a state in North East India to assess the impact of traditional brick manufacturing technology on the health of the workers. A convenient available sample of 94 workers from 4 brick kilns who have worked for 5 years or more were taken from the total population of 280 (including children) of these kilns. The workers were interviewed to obtain information on demographics and personal habits followed by a general physical medical examination, blood test with complete haemogram, random blood sugar levels and pulmonary function test. The data were analysed using MS Office Excel 2007 & Epi. Info 7.2.1.0 version.

Results The average age of workers is 34 years, 27% were female and 73% male workers. 55% worker are loaders, 29% moulders and 7% fire-workers, 75% being migrant workers, 49% being underweight, 51% anaemic, 78% have eosinophilia (younger workers were more affected, *p* value 0.04), 66% have low back pain.

Conclusion Brick kiln workers are suffering from high morbidity in Northeast India because of their work. This demands urgent attention for health and safety programs and should include regular in-service training emphasising health risks of brick kiln work, preventive measures, technological interventions etc. Health surveillance of workers would be highly beneficial in achieving better health status.

1634 SILICA EXPOSURE AMONG YOUNG NEPALI BRICKWORKERS

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Aim of special session In Nepal there are approximately 1169 registered brick kilns in Nepal employing 2,50,000 people and up to 30% of workers are <16. Although there are a few studies of brick kiln workers, both historic and recent data indicate that silica exposure is a problem with exposures often exceeding 15 times the threshold limit value (TLV).

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1634a SILICA AND PAEDIATRIC PULMONARY DEVELOPMENT

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When families live and work in the same environment, respirable silica places all family members at high risk for developing chronic non-communicable respiratory diseases. Individuals exposed to silica are one of only a few high-risk groups that the World Health Organisation (WHO) recognises as being at substantial risk and in need of population-based screening for TB. According to the National Institute for Occupational Safety and Health (NIOSH), the association between TB and silicosis has been firmly established. Increased risk of TB has been repeatedly demonstrated in surveillance, case-control, and cohort studies from around the world. When compared with the general population, estimates of increased risk range from just over 2-fold to almost 40-fold, and increased risk of extra-pulmonary TB is almost 4-fold greater.

The failure to place a greater emphasis on occupational health in dusty trades may be a lost opportunity of enormous magnitude. While limited, data from several nations indicate that pneumoconioses are a large and persistent problem. We were not able to find any data on the risk of silica exposure to young workers or children living in silica-contaminated environments. However, work in dusty occupations, such as brick making, and living and working in a brick-kiln environment are common to children. The risk of silicosis increases with increased intensity and/or duration of exposure, and chronic silicosis may develop or progress even after exposure to silica has ended. Hence, it is important to understand the impacts of both childhood and cumulative lifetime exposure.

Although there are few studies of brick-kiln workers, both historic and recent data indicate that silica exposure is a problem. For example, in mechanised South African brickyards among workers with <10 years of service, the prevalence of silicosis was 1%, 4.5%, and 8.6% for those whose exposures had been rated as low, medium, and high, respectively. There was radiographic evidence of TB in 9.3% of workers. There are approximately 1200 brick kilns in Nepal and 1,40,000 in India employing an estimated 2 50 000 and 9 million workers, respectively. Between 10% and 30% of workers are <16 years old, although estimates vary greatly. The number of individuals living at the kiln itself is likely to be many orders of magnitude higher. In addition to work-related exposure, parents are compelled to bring their children and infants to the workplace due to a lack of childcare, thereby resulting in high dust exposures to this especially vulnerable population.

1634b BRICK KILNS OF NEPAL: RECOGNISING THE HAZARDS

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Objective To evaluate the airborne exposure concentrations of TSPM, RSPM and silica among brickfield workers including exposure of children workers (age >18 years).

Methods Personal samples for silica, respirable and total particulate and silica were collected following NIOSH methods. Logistic regression analysis adjusting age, duration of work and smoking practices was carried out at 0.05 level of significances.