



# “A CROSS SECTIONAL STUDY ON LIVING CONDITIONS AND HEALTH PROFILE OF UNORGANIZED CONSTRUCTION WORKERS IN BANGALORE CITY”

Priya T Nandimath,<sup>\*1</sup>,

*\* Associate Professor, Padmashree School of Public Health, Bangalore, INDIA*

NSN Rao,<sup>2</sup>

*Professor Emeritus, Padmashree School of Public Health, Bangalore, INDIA*

## ABSTRACT

**Background:** Construction workers are victims of different health problems and the data regarding their health and living conditions are scanty in India. Unorganized workers do not have fixed working hours and the working conditions are non-congenial and risky. Common hazards include exposure to harsh environmental conditions resulting in accidents and adverse health conditions.

## Objectives:

- To study the living conditions of unorganized construction workers.
- To identify the common health problems among unorganised construction workers
- To assess the awareness levels on social security schemes available to unorganised construction workers

**Methods:** A cross-sectional study was conducted on 104 workers using multistage sampling in Nagarbhavi block in Bangalore. A predesigned and pretested questionnaire was used to collect the data by interview method. Informed consent was taken from all the respondents.

**Results:** Majority of the participants (43.2%) was in the age group of 20- 29 yrs. 57(54.8%) were males and 47(45.2%) were females. About 33.0 % of the families stayed at construction building, 30.7 % at rented house and 29.8 % in tents. Nearly 76% of the families did not have toilets and practiced open defecation.

**Health problems:** Majority of the participants had lower limb pain (68.3%) and body ache (43.2%) followed by cough, cold, fever and back pain as common health problems. Cuts and injuries (87.5 %) were the most common accidents encountered.

Awareness about Social security schemes: 95.1 % families did not have ration card and none had BPL card. Only 13.5 % were aware about health insurance and benefit schemes.

**Conclusion:** Living conditions of construction workers was poor with high prevalence of health problems and accidents among the workers and their children. Awareness about the social security schemes was very poor.

**Key Words:** Construction Workers, Living Conditions, Health Problems

## INTRODUCTION

Construction industry is one of the important industries employing a large number of people as its workforce.<sup>1</sup> Due to the advent of industrialization; construction industry is taking a pivotal role for development of the country<sup>2</sup>. Construction industry in India is considered as the fastest growing industry with annual growth rate of 10%.<sup>3</sup> Construction workers in India, belong to the organized and unorganized sectors. 92% (340 million) workers in India belong to unorganized sector and around 50% of these unorganized workers belong to construction industry.<sup>4,5,6,7</sup> The term ‘unorganized sector’ has been defined by the National Commission for Enterprises in the Unorganized Sector (NCEUS) Government of India as the sector which “consists of all unincorporated private enterprises owned by individuals or households engaged in the sale or production of goods and services operated on a proprietary or partnership basis and with less than ten total workers”.<sup>8</sup>

The nature of unorganized sector is characterized by the factors such as easy entrance into the jobs, ambiguous legal standing, ready requirement of labor, education and skill deficit, no fixed regulations of working hours or payment, poor rate of reparation, ignorance regarding and lack of possible government intervention and help. The unorganized sector is basically comprised of workers involved in domestic helps, construction labor (migrant or otherwise), drivers, masons, carpenters, street vendors, incense sticks as well as beedi makers etc. These workers have lower job security and minimal or no chance of growth and no leaves and paid holidays, they have lower protection against employers indulging in unfair or illegal practices.<sup>9</sup> The workers engaged in this industry are victims of different occupational disorders.

The construction industry is under code 5. The workers of the building construction industry are placed in code 7 and 9 of the National Classification of Occupation according to the National Classification of Industry.<sup>1</sup>

National Sample Survey Organization in the year 1999-2000, states that 1.7crore people are employed in construction work.<sup>8</sup> It is evident that a sizable number of the workforce is from the unorganized construction sectors where the working hours are more than the stipulated hours of work; the work place is not proper, the working conditions are non-congenial in most of the cases and involve risk factors. Their wages are not adequate, making it difficult for them to run their families.<sup>10</sup>

“Building worker” means a person who is employed to do any skilled, semi-skilled or unskilled, manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment be expressed or implied, in connection with any building or other construction work. Construction jobs are highly labor intensive and also highly mechanized. The entire activity is mobile, seasonal, and intermittent and mostly inter-connected. The duration of employment, quantum of work (work pressure) and arduousness differ from one extreme to another.<sup>8</sup> The major features of construction industry is that it is prone to risks of accidents. Due to non-detection and non-reporting, accurate statistics of the number of such accidents is difficult to obtain.

The construction workers’ living conditions are poor with denial of basic amenities to maintain the standard of living.<sup>11</sup> The hazards also include handling of different materials required for construction, and exposure to harsh environmental conditions like sun, rain, and so on. Exposures to such hazardous working conditions adversely affect

the health of the workers. These workers suffer of headache, backache, joint pains, and skin. The repetitive nature of the work causes boredom. Low nutrition and heavy physical labor increase the health problems. Low economic conditions and inability to pay for the health care pushes the workers in debt.<sup>12</sup>

To safeguard the benefits of the construction workers and their health, the Central and State Governments in India have enacted various Acts, rules and schemes. Social security for unorganized sector workers is very meager.<sup>1</sup> The Factories Act, 1948, states that no adult worker shall be required or allowed to work in a factory for more than eight hours per day or forty hours a week.<sup>13</sup> The Buildings and Other Construction Workers (regulation of employment and conditions of service) Act, 1996, Act no. 27 of 1996 (19 August, 1996) was enacted by the Parliament in 1994: the Act regulated the employment and condition of the service of buildings and other construction workers, to provide for their safety, health, and welfare measures and for other matters connected therewith or incidental thereto.<sup>13</sup>

The Unorganized construction sector will continue to expand in the future as a consequence of development of infrastructure in urban areas. This needs to be addressed with strengthening the system so as to enable the workers to live a socially and economically productive life.<sup>11</sup> In the same quest, a cross-sectional study was planned in the city of Bangalore to study the socio-demographic profile and morbidity pattern, living and working conditions, and awareness about the social security measures and schemes available to the construction workers.

## OBJECTIVES

- To study the living conditions of unorganized construction workers.
- To identify the common health problems among unorganised construction workers
- To assess the awareness levels on social security schemes available to unorganised construction workers.

## MATERIALS AND METHODS

The present cross-sectional study was conducted on the unorganized construction workers employed at different construction sites in one of the blocks of Nagarbhavi village of Bangalore city. This place is considered to be fast developing area as compared others in the recent years. Multistage sampling was done to select the samples. At first stage the construction sites were selected, and at second stage construction workers were selected. Generally there is a practice that these construction workers do stay at the construction site with the family. One worker from each family who was available at the time of the interview was selected for the study. 104 construction workers were selected for the study.

A predetermined and pretested questionnaire was used to collect the data. Interview technique was used and the data regarding demographic characteristics, occupational characteristics, self reported health conditions among adults and children, living conditions and awareness about the social security schemes was recorded on a predesigned Performa. The questionnaire also included the question regarding the health condition of women during pregnancy, utilization of health facility and immunization status of their children. The personal particulars included age, sex education, marital status, place of residence. A participant who was staying in the study area for more than 5 years was considered as permanent resident.

## RESULTS

### SOCIODEMOGRAPHIC FINDINGS (Table 1 and Table 2)

Out of 104 workers 57(54.8%) were males and 47(45.2%) were females. 43.2% were in the age group 20- 29years, 26.5% were in the age group 30-39years, 11.5% were up to the age of 19years, 13.5% were in the age group 40-49

years, only 5.8% were in the age group 50-59yrs, none were above 60 years. 89(85.6%) workers were married and 15 (14.4%) were unmarried. About 85.6% families were nuclear and 14.4% were joint families. 80.8% of workers had annual income 60,000/- to 1,00,000/-, and only 19.2% of workers had annual income above 1,00,000/-. Females had an average annual income of 60,000rs. Maximum annual income ranged around 1, 20,000rs. 75 (72.1%) workers were illiterate and 29(27.9%) were literate, and out of 29 educated workers, 19 workers had secondary education, 10 workers had primary education. (Table 1)

84.6% of workers were permanent residents of Bangalore (staying for more than 5 years) and only 15.4% were not permanent residents of Bangalore. About 43.3% were originally from Tamilnadu, 28.8% were from Andrapradesh and 27.9% were from Karnataka. (Table 2)

91.3 % workers stayed with their family and 8.7% did not stay with their family. The average length of stay of these workers at one place was around 6-12 months, about 87.5% workers stayed for about 6-12 months at one place and 12.5% of workers stayed for less than 6 months at one place. Almost all the workers worked with in Bangalore in past 5 years with an average length of stay of about 6-12 months.

**Table 1: Socio Demographic Characteristic of the respondents:**

<b>Age of the Respondents:</b>		
<b>Age group</b>	<b>Frequency</b>	<b>Percent</b>
Upto 19years	12	11.5
20- 29years	45	43.2
30-39years	27	26.0
40-49 years	14	13.5
50-59yrs	6	5.8
above 60 years	0	0
<b>Total</b>	<b>140</b>	<b>100</b>
<b>Sex of the respondents</b>		
<b>Sex</b>	<b>Frequency</b>	<b>Percent</b>
Male	57	54.8%
Female	47	45.2%
<b>Total</b>	<b>104</b>	<b>100.0</b>
<b>Marital status of the respondents</b>		
<b>Marital status</b>	<b>Frequency</b>	<b>Percent</b>
Married	89	85.6
Unmarried	15	14.4
<b>Total</b>	<b>104</b>	<b>100.0</b>
<b>Type of family</b>		
<b>Frequency</b>	<b>Percent</b>	
Nuclear	89	85.6
Joint	15	14.4
<b>Total</b>	<b>104</b>	<b>100.0</b>
<b>Annual Income Of Workers In Rs</b>		
<b>Frequency</b>	<b>Percent</b>	
Less Than 60,000	0	0.00
Upto 1,00,000	84	80.8
More Than 1,00,000	20	19.2
<b>TOTAL</b>	<b>104</b>	<b>100.0</b>

<b>Education of the respondents:</b>		
<b>Education</b>	<b>Frequency</b>	<b>Percent</b>
Illiterate	75	72.1%
Literate	29	27.9%
<b>Total</b>	<b>104</b>	<b>100.0</b>

**Table 2: Residency of the workers:**

<b>Residency of the workers</b>	<b>Percent</b>
Permanent residents of Bangalore (staying for more than 5 years)	84.6%
Not permanent residents of Bangalore	15.4%
<b>TOTAL</b>	<b>100.0</b>

## **PROFILE AND LIVING CONDITIONS OF CONSTRUCTION WORKERS**

70.3% families had two persons in their home working as construction workers, 11.5% families had 3 and 4 persons each working as construction workers and 6.7% had only 1 person working as construction workers. Construction work was a major family occupation.

77.9 % (81) workers had construction work as main occupation, 18(17.3) workers did farming as other occupation along with construction work, and only two women did tailoring and three male workers did driving along with construction work. It was found that construction was a primary occupation and very few had other occupation.

72.1% workers worked at 1-2 places on average per year, 15.4% workers worked at 3-4 places on average per year, only 12.5% workers worked at more than 4 places on average per year. It was found that these workers were moving around for work.

Out of 89 married workers, 83 workers had children. Out of these 83, 48(57.8%) workers had 2 children, 15(18%) workers had 1 child, and 10 (12.1%) workers had 3 and 4 children each.

Out of 83 families only 9 families had children below the age of schooling. Out of remaining 74 families, children of 17 families were illiterate, children of 33 families had primary education, children of 24 families had secondary education, and none had degree level education.

Only 2 respondents responded that they readmit their children when they move to new place, and 8 respondents responded that they do not readmit their children.

Out of 83 families who had children only 27 (32.5%) families brought their children to the work place, and they brought their children almost all throughout the week to the work place.

## **FINDINGS ON AWARENESS ABOUT OCCUPATIONAL SAFETY MEASURES**

Out of 104 workers 60 workers were not aware about occupational safety measures and 44 workers were aware but did not follow.

## **FINDINGS ON LIVING CONDITIONS**

35 families stayed at construction building, 32 families stayed at a rented house, 31 families stayed at tent, and 6 families stayed at kuccha house.

65.4%(68) had electricity at their home, and 34.6%(36) families did not have electric facility and used kerosene lamps as alternative. About 78.8% (82) families did not have electric appliances, and 21.2 %( 22) families had electric appliances at home.

77.9% (81) families had bore well as nearest drinking water facility and 22.1 %( 23) families had public water supply as drinking water facility. About 76 %( 79) families did not have sanitary facilities and practiced open defecation.

60 %( 62) families cooked with fire wood, 38.5 %( 40) families cooked with kerosene burner and only 1.9 %( 2) families cooked with LPG gas burner. About 78.8% (82) families did not have electric appliances, and 21.2 %( 22) families had electric appliances at home.

### **FINDINGS ON COMMON HEALTH PROBLEMS AMONG WORKERS AND THEIR CHILDREN**

66.3% of workers had lower limb pain as the most common health problem, followed by body ache 43.2%, fever 35.6%, and cough 34.6%, back pain 28.8%, and tiredness 19.2%.

Most common health problem among the children were cough, cold and fever. All the children suffered from cough, cold and fever in the past three months. (Table 3)

Common accidents reported were minor cuts, injuries, falls and fractures. 87.5% workers had minor cuts and injuries, 9.6% had cuts, injuries and falls, and 2.9% cuts, injuries, falls and fractures. (Table 4)

Common accidents among children were also minor cuts, injuries, falls, fractures. 81.5% had cuts, injuries and falls, 18.5% had cuts, injuries, falls and fractures. (Table 5)

Among 47 females 2 were unmarried 2 married since 1 year and not pregnant. Among 43 women, 41 responded regarding the complication during the pregnancy and immunization status of their children. Among 41 women 36 had no problems during pregnancy, 2 women had weakness, 2 women had blurring of vision, and one had blackouts.

Among the 41 women, 31 women had home deliveries which were normal deliveries, and 10 women had institutional deliveries.

Out of 41 women only 33 women had got their children immunized and among them only 17 women had immunization cards for their children.

**Table 3: Health problems reported among the workers.**

<b>Health Problems Reported</b>	<b>Percent</b>
Lower Limb Pain	66.3%
Body Ache	43.2%,
Fever	35.6%,
Cough	34.6%,
Back Pain	28.8%,
Tiredness	19.2%.

**Table 4: Common accidents reported among the workers.**

Common accidents	Percent
Minor Cuts And Injuries	87.5%
Cuts, Injuries And Falls	9.6%
Cuts, Injuries, Falls And Fractures.	2.9%

**Table 5: Common accidents reported among the children of workers.**

Common accidents	Percent
Cuts, Injuries And Falls	81.5%
Cuts, Injuries, Falls And Fractures.	18.5%

### FINDINGS ON UTILISATION OF HEALTH FACILITIES

About 52 (50%) workers utilized government hospital, 44(42.3%) workers utilized private clinic and 8(7.7%) workers utilized private hospital when they were ill. 87.5% responded that the health facilities were within 1-2 km from the dwelling place.

About 88.5% (92) workers said they will not get any compensation from their contractor or owner and only 11.5% (12) workers said they get compensation on requesting to their owner or contractor for the illness. (Table 6)

**Table 6: Type of health facility utilized**

Type of health facility utilized	Frequency	Percent
Government health care	52	50%
Private clinic	44	42.3%
Private Hospital	8	7.7%
<b>Total</b>	<b>104</b>	<b>100.0%</b>

### FINDINGS ON AWARENESS ABOUT SOCIAL SECURITY SCHEMES

95.1 %( 99) families did not have ration card, only 4.8 %( 5) families had ration card. None of the family had BPL card. None of them were aware about the welfare funds available for them. None of them were aware about the

WELFARE SCHEMES. 86.5% (90) were not aware about insurance schemes and only 13.5 % ( 14) were aware about it and among these 14 only 4 persons had insured themselves.

## DISCUSSION

Literature review suggested an association between working and living conditions of construction workers and risk to ill health. The working and the living conditions of the workers in the present study was very poor. Most of them stayed at the construction site or tents which did not have basic facilities like electricity, sanitary facilities, and facilities to cook. It was found that these workers were moving around for work. On an average they used to work at two or more places. Adsul BB et al comments that, construction workers' living conditions are poor with denial of basic amenities to maintain the standard of living. The construction sites are breeding grounds for various vectors. In addition, immigrants who come from disease-endemic areas with highly vector-receptive and unprotected housing, introduce new and drug-resistant strains when these workers settle in urban slums.<sup>11</sup> Scarcity of water, limited availability of cleaning facilities and climatic conditions hasten the development of dermatitis in construction workers.<sup>14</sup> Workers in the present study were not aware about occupational safety measures and did not follow. Cement workers and their supervisors should be informed about the health hazards posed by this widely used construction material through information, education and communication (IEC) activities. They need to be trained in safe working practices in order to minimize the risk.<sup>15</sup>

Majority of the workers were illiterate. This can be attributed to low level of awareness to the occupational safety measures and the social welfare measures which were also important findings of the study. Anjali et al's study also showed that 55 % of the construction workers were literate but, poor life style and illiteracy did not exert an influence on health and well-being of the workers.<sup>16</sup> The present study found that the children of these construction workers were educated maximum to secondary level and few remained illiterate. It was also found that they do not readmit the child when they move from one place to other.

Lower limb pain was reported as the most common health problem, followed by body ache fever and cough, back pain, and tiredness. Most common health problem among the children were cough, cold and fever. Common accidents reported were minor cuts, injuries, falls and fractures. Common accidents among children were also minor cuts, injuries, falls, fractures. Musculo-skeletal disorders are common among those working in unorganized sector. Mohapatra<sup>15</sup> has reported that over 40% of the workers suffer from musculo-skeletal disorders affecting various joints and muscles ranging from neck to foot. Construction industry is particularly known for a high incidence of accidents.<sup>17,18</sup> More than 90% of these accidents are preventable.<sup>17</sup> Direct contact with wet quick-setting cement can cause thermal injuries (called 'cement burns') and dermatitis.<sup>15,18</sup> Contact with cement and lime may lead to irritant dermatitis. The presence of chromate and cobalt in cement is known to cause allergic contact dermatitis.<sup>14</sup>

Most of the workers in the present study utilized government hospital and private clinic when they were ill. It was also reported that they will not get any compensation from their contractor or owner and only four workers said they get compensation on requesting to their owner or contractor for the illness. Almost all the subjects belonged to lower class, this affects their capacity to go for the treatment of their conditions and thus often they neglect their health.

Majority of the families in the present study did not have ration card, none of the family had BPL card. None of them were aware about the welfare funds available for them. None of the workers in the present study had access to employer-provided health care services or any type of social security. A healthy occupational environment is beneficial to worker's health and is also conducive to higher work productivity.<sup>17</sup> similar finding was stated by Monica et al and she commented that the workers were happy with the situation, yet unknown about their rights. Schemes available for the construction workers were not known to the workers and the supervisors and the contractors also did not mention about the rights of the workers from the government.

## CONCLUSIONS AND RECOMMENDATIONS

The working and the living conditions of the unorganized construction workers was very poor. As awareness about the health and health issue among these workers was very minimal, awareness programs, local group discussions and awareness generation campaigns are essential for improving the health status of these workers. The variety of morbidities detected among workers, especially the high prevalence of musculoskeletal problems, is alarming. It is high time that steps are taken for improve their socioeconomic condition. Due to the complete lack of awareness about the social security schemes and in order to improve the efficiency of the delivery mechanism of existing programmes, local institutions like panchayati raj institutions (PRIs) and urban local bodies can be involved in monitoring the social security programmes.

## LIMITATIONS

The small sample size is the major limitation of the study. This study was conducted only to know the living conditions and major health problems. Further studies with detailed examination are recommended.

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## CONFLICT OF INTEREST: NONE

### Specific author's contribution

This study was done as a collaborative work.

1st author wrote the protocol, designed the study, drafted protocol and manuscript.

2<sup>nd</sup> author performed the statistical analysis.

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