International Journal of Community Medicine and Public Health
*Jasani PK et al. Int J Community Med Public Health. 2016 Nov;3(11):3055-3058*
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20163910

**Original Research Article**

# A study of knowledge and utilization of safety measures against occupational hazards among constructional workers in Surendranagar city, Gujarat, India

**Pratik K. Jasani*, Jwalant B. Joshi, Girija P. Kartha, H arsh Mehta, Ishani Shah**

Department of Community Medicine, C.U. Shah Medical College, Surendranagar, Gujarat, India

**Received:** 28 August 2016
**Accepted:** 27 September 2016

***Correspondence:**
Dr. Pratik K. Jasani,
E-mail: pkjas007@gmail.com



## ABSTRACT

**Background:** Occupational health is concerned with health in its relation to work and working environment. It implies not only health promotion but also health protection, emergency care, wide range of preventive, curative services, rehabilitative services, a concept which includes everything that can apply to promote health and working capacity of the workers. The accident rate is very high in this industry when compared to other industries. They are due to lack of safety awareness in the management personnel and workers who cut corners to work and perform unsafe behavior at work. In fact most construction workers lack proper education, they have not received proper safety training and trade skill training in the construction field. The objective was to determine knowledge and utilization of safety measures among them in Surendranagar city, Gujarat, India.
**Methods:** It was a cross-sectional study carried out among 312 construction workers from 10 different construction sites selected by simple random sampling. Data was collected and analyzed by Statistical package for social sciences & Microsoft word & excel have been used to generate graphs, tables etc.
**Results:** The study revealed that most of the workers didn't have proper knowledge regarding work related hazards and its prevention. Workers who were not using personal protective equipment (PPE) had more chances of injuries
**Conclusions:** A proper engineering control measure should be the first target for prevention of hazard. It should be implemented for construction site workers to reduce burden of overall morbidity.

**Keywords:** Construction, Injuries, PPE, Safety

## INTRODUCTION

Occupational health is concerned with health in its relation to work and working environment. It implies not only health promotion but also health protection, emergency care, wide range of preventive, curative services, rehabilitative services, a concept which includes everything that can apply to promote health and working capacity of the workers.[1]

The construction industry is one of world's major industries. It is an essential contributor to the process of development. Road, dam, irrigation work, school, house, hospitals, factories etc. are the foundation work on which developmental efforts and standards of living are established. Thus the construction industry has linkages with rest of the economy in terms of generation of outputs and employment.[2]

They are exposed to multiple physical, chemical and biological agents, which make them vulnerable to various health problems that include -injuries, respiratory problems, dermatitis, musculo-skeletal disorders and gastro-intestinal diseases.[2,3]

They are vulnerable because employment is temporary, employer and employee relationship is very fragile and most of the time short lived, lack of safety, health and welfare facilities, coupled with uncertain working hours.[2]

The accident rate is very high in this industry when compared to other industries. They are due to lack of safety awareness in the management personnel and workers who cut corners to work and perform unsafe behavior at work. In fact most construction workers lack proper education, they have not received proper safety training and trade skill training in the construction field.[2]

In the era of globalization construction is a fast growing industry and very little research has been done on the occupational health, hazards and psychosocial problems of these workers especially in Asian countries like India. [4] In this context, this study was conducted to determine knowledge and utilization of safety measures among them in Surendranagar city, Gujarat, India.

## METHODS

It was a cross-sectional study carried out in and around Surendranagar city. Total 37 construction sites were identified with the help of District Labor Department. Out of them 10 construction sites were selected by Simple Random Sampling. Total coverage of workers in each selected site was attempted (except those who were absent and age <14 years). Total sample size was 312 construction workers from selected construction sites. These workers were appraised of the study protocol and the written consent of each worker for their voluntary participation was obtained. Data was collected through oral questionnaire method using pretested Performa. The data was analyzed by Statistical package for Social Sciences (SPSS) and Microsoft Word and Excel have been used to generate graphs, tables etc.

## RESULTS

Questions were asked regarding knowledge, prevention and cure of work related hazards, usage of PPE and tried to correlate these findings with various morbidities like skin problems as well various minor injuries amongst construction workers.

Figure 1 shows that only 31% of the workers had knowledge about work related hazards. 26% of the workers responded positively regarding knowledge of prevention of work related hazards. Only 14% workers knew about cure of work related disease.

Figure 2 shows that only 25% of the workers said they were using one or other form of PPEs to prevent work related hazards. They were mainly using hand gloves (59%) followed by boots (28%), masks (13%), helmets (7%), eye glasses (5%) and ear plugs (2%).

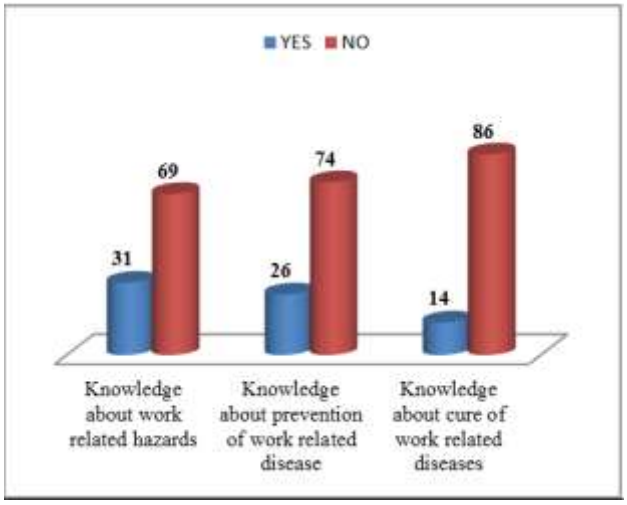


**Figure 1: Distribution of workers according to knowledge regarding work related health hazards.**

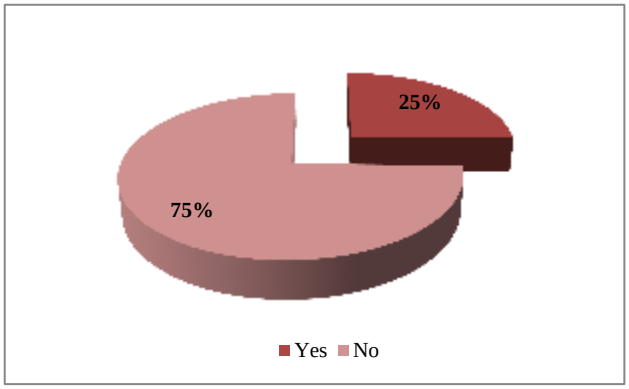


**Figure 2: Uses of PPE in workers.**

Table 1 shows that only 24% workers with skin morbidity were using PPE. Association between skin morbidity and use of PPE was found to be statistically insignificant ($\chi 2=0.00184$, $p=0.9658$) (Table 2).

**Table 1: Association between usage of personal protective measures and skin morbidity.**

| Uses of PPE | Skin morbidity | | P value |
|---|---|---|---|
| | Yes | No | |
| Yes | 19 (23.75%) | 60 (25.86%) | $\chi 2=0.0509$ P=0.8216 |
| No | 61 (76.25%) | 172 (74.14%) | |
| Total | 80 | 232 | |

Among workers who had skin morbidity and using PPE, only 26 % were using PPE regularly while 74% workers were using PPE irregularly. Association between regularity of usage of PPE and skin morbidity was found

to be statistically insignificant ($\chi2$=0.00184, p=0.9658) (Table 2).

**Table 2: Association between regularity of usage of personal protective measures and skin morbidity.**

| Usage of PPE | Skin morbidity | | P value |
|---|---|---|---|
| | Yes | No | |
| **Regular usage of PPE** | 05 (26.32%) | 14 (23.33%) | $\chi2$=0.00184 *p*=0.9658 |
| **Irregular usage of PPE** | 14 (73.68%) | 46 (76.76%) | |
| **Total** | 19 | 60 | |

Only 22% of workers with h/o of injury had awareness regarding prevention of work related hazards while 78% workers with h/o of injury were not aware of prevention of work related hazards (Table 3). $\chi2$ for association between awareness regarding prevention of work related hazards and h/o injury was 1.568 and p value was 0.2105 which was not found statistically significant.

Table 4 shows that 17% workers who were using PPE had h/o of injury while 83% of the workers who were using PPE had no h/o of injury. Association between usage of personal protective measures and h/o injury was found to be statistically highly significant ($\chi2$=5.554, *p*=0.0184).

**Table 3: Association between awareness regarding prevention of work related hazards and h/o of injury.**

| Awareness regarding prevention of work related hazards | H/O of injury | | P value |
|---|---|---|---|
| | Yes | No | |
| **Yes** | 23(21.50%) | 59 (28.78%) | $\chi2$=1.568 *p*=0.2105 |
| **No** | 84 (78.50%) | 146 (71.22%) | |
| **Total** | **107** | **205** | |

**Table 4: Association between usage of personal protective measures and h/o of injury.**

| Uses of PPE | H/o of injury | | P value |
|---|---|---|---|
| | Yes | No | |
| **Yes** | 18(16.82%) | 61(83.18%) | $\chi2$=5.554 *P*=0.0184 |
| **No** | 89(29.76%) | 144(70.24%) | |
| **Total** | 107 | 205 | |

## DISCUSSION

Our study demonstrated that around 31% workers had knowledge regarding work related hazards. Nearly 26% of the workers had knowledge of prevention of work related hazards. Around 14% workers knew about management of work related disease. In a study done by Buyite S in Mangalore city, majority of the workers (75%) had average knowledge, 24% workers had poor knowledge, and 1% workers had good knowledge on occupational hazards.[5] It suggests poor knowledge regarding work related hazards, its prevention and its cure among construction workers in our study. Thus the need of the hour is to have behaviour change communication among them regarding occupational health hazards.

Around 25% of the workers were using one or other form of PPEs in our study. PPEs used by them were mainly hand gloves (59%) followed by boots (28%), masks (13%), helmets (7%), eye glasses (5%) and ear plugs (2%). A study by Ashish T et al found only 12% of PPE utilization in his study while Buyite S reported 51% workers with moderate utilization of safety measures and 44% workers with very low utilization of safety measures.[5,6] The most common reason given by the workers for not using PPEs was "Not needed" or "Not necessary". It indicates that there is prompt need to educate workers regarding use of PPE.

Though skin morbidity and use of PPE and its regularity of usage did not show a statistical significance in our study; it is a very clear fact that there are high chances of development of skin morbidity among workers who work in cement, carry clay and digging soil, masons etc. without PPE and so must be properly trained and educated to prevent skin morbidity.

It is disappointing to note that in the present study only 22 % workers with h/o of injury had awareness regarding prevention of work related hazards and 78% workers who had an injury in the past did not know how to prevent work related hazards. Awareness in the workers regarding work related hazards to prevent injuries among them, should be an essential part of training before recruitment.

Around 17 % workers who were using PPE had h/o of injury while 83% of the workers who were using PPE had no h/o of injury in this study. The association between them was statistically significant (P= 0.01). It is very obvious that by using personal protective equipment, workers can prevent the injuries and we can prevent the work loss due to injuries.

The study had the limitation in the form that it was a cross-sectional study, temporalities, causation of the health outcomes were not proved and the actual incidence could not be recorded. Those workers with severe morbidity may leave the job and due to the "Healthy worker effect" the results may be under reported.

## CONCLUSION

A proper engineering control measure should be the first target for prevention of hazard. It should be implemented for construction site workers to reduce burden of overall morbidity.

### *Recommendations*

Measures are needed to improve the work environment of construction workers by ensuring availability of protective gears, good living conditions and sanitation facilities at the sites along with an accessible, accountable occupational health services. A proper engineering control measure should be the first target for prevention of hazard. It should be implemented for construction site workers to reduce burden of overall morbidity. Implementation of safety measures like good housekeeping, training and use of certified quality of PPEs can significantly reduce injuries. There should be provision of medical aid and ambulance for accident and injury victims.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. TNAI. A community Health Nursing Manual. 3rd edition, TNAI Publication; 1998.
2. Kulkarni GK. Construction Industry: More needs to be done. Indian J Occupation Environ Med. 2007;11(1):1-2.
3. Gurav RB, Kartikeyan S, Wayal R, Joshi SD. Assessment of daily wage labourers. Indian J Occup Environ Med. 2005;9:115-7.
4. Tiwari G, Gangopadhyay PK. A review on the occupational health and social security of unorganized workers in the construction industry. Indian J Occup Environ Med. 2011;15:18-24.
5. Buyite ST. Assessment of Knowledge On Occupational Hazards And Utilisation Of Safety Measures Among Construction Labourers At Selected Construction Sites Of Mangalore. A dissertation submitted to Rajiv Gandhi University of Health Sciences, Bangalore, Karnataka.
6. Ashish T, Yogesh P, Niraj P, Bharat B. Prevalence of Skin morbidity among construction site workers working at Vadodara. Heathline. 2011;2(1):31-3.

**Cite this article as:** Jasani PK, Joshi JB, Kartha GP, Mehta H, Shah I. A study of knowledge and utilization of safety measures against occupational hazards among constructional workers in Surendranagar city, Gujarat, India. Int J Community Med Public Health 2016;3:3055-8.