

**MORBIDITY PROFILE OF CONSTRUCTION WORKERS AGED ABOVE 14 YEARS IN SELECTED AREAS OF BANGALORE URBAN DISTRICT**Sandeep H<sup>1</sup>, Shashikala M<sup>2</sup>, Ramya K. S<sup>3</sup>**HOW TO CITE THIS ARTICLE:**

Sandeep H, Shashikala M, Ramya K. S. "Morbidity Profile of Construction Workers aged above 14 Years in Selected Areas of Bangalore Urban District". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 49, June 18; Page: 8552-8560, DOI: 10.14260/jemds/2015/1238

**ABSTRACT: BACKGROUND:** Construction sector is a booming industry and involves many hazardous activities. Migrant labour in the industry is susceptible to various health and occupational hazards. **AIM:** To estimate the prevalence of various morbidities among workers aged above 14 years in building construction industry. **SETTINGS AND DESIGN:** A population based cross-sectional descriptive study was conducted in the field practice areas of Raja Rajeswari Medical College and Hospital, Bengaluru from April 2013 to March 2014. **METHODS AND MATERIAL:** Three building construction sites were randomly selected to meet the required sample size of 591 construction workers. Information was collected by interview method using a pre-designed, pre-tested questionnaire followed by clinical examination. **STATISTICAL ANALYSIS USED:** Data was analyzed using SPSS software version 20. Various morbidities among the construction workers were being presented as frequency and percentages. **RESULTS:** Most prevalent morbidities among the construction workers were Psychological Distress, Respiratory Diseases, Musculoskeletal Diseases, Hypertension and Dermatitis in the order of their frequency. 30.8% of the construction workers were under weight (Body Mass Index <18.5kg/m<sup>2</sup>). **CONCLUSION:** First aid services and safety measures, Periodic general health check-up facilities, Health education activities, Health insurance schemes, etc. will ensure health promotion, health protection and highest degree of well-being among the construction workers.

**KEYWORDS:** Morbidity Profile, Construction Workers, Unorganized Sector.

**INTRODUCTION:** Construction is one of the important industries employing a large number of people on its workforce.<sup>1</sup> Building and construction industry is recognized as the un-organized sector with vast labour intensity and economic activity after agriculture in India. This industry generates demand for both skilled and semi-skilled labour force. However, these labourers' work is temporary and casual natured with lack of basic amenities and inadequate welfare facilities.<sup>2</sup> Due to the advent of industrialization and recent developments, this industry is taking a pivotal role for construction of buildings, roads, bridges and so forth.<sup>1</sup> In India, nearly two-thirds of the contribution to the NDP (Net Domestic Product) is by the unorganized sector.<sup>3</sup>

Not enough studies have been done on the morbidity profile of building construction workers who work at various construction sites in Bengaluru (A mega city undergoing rapid urbanization) though very few studies have been done in Karnataka state. Hence this study was carried out to know the various morbidities of construction workers and their prevalence rates and the safety measures that those construction workers follow, so that further recommendations and implementations could be made towards their health education, health promotion, health protection and maintenance of highest degree of their physical, mental and social well-being.

## ORIGINAL ARTICLE

---

**MATERIALS & METHODS:** A population based cross-sectional descriptive study was conducted in the field practice areas of Raja Rajeswari Medical College and Hospital, Bengaluru. Three building construction sites were randomly selected out of seven building construction sites in the field practice areas to meet the required sample size. The three sites were Raja Rajeswari Medical College & Hospital (parts of the institution were still under construction during the period of study), one Bangalore Development Authority (BDA) Apartment construction in Kengeri (Nearby to Raja Rajeswari Medical College & Hospital) and one private Apartment construction nearby to Urban Health Centre (UHC) Channasandra (One of the field practice areas of Raja Rajeswari Medical College & Hospital).

**Inclusion Criteria:** A child is a person who has not completed his fourteenth year of age. No child shall be employed or permitted to work in any of the occupations and processes specified by the Ministry of Labour and Employment of the Government of India in The Child Labour (Prohibition and Regulation) Act, 1986 and Rules.<sup>4</sup> Hence, Building Construction Workers aged above 14 years at the three construction sites mentioned above who gave their informed consent to participate in the study were considered.

There were approximately 2000 building construction workers in those three building construction sites. Out of them, 591 workers were randomly selected using a table of random numbers. The sample size was calculated by using the prevalence of least morbidity among construction workers. Prevalence rate of acute febrile illness (23.11%) in the study by Adsul BB et.al.<sup>3</sup> was considered. Considering an allowable error of 15% of  $p(L=0.03467)$  and a confidence interval of 95%, the sample size was calculated.

Ethical clearance was obtained from the Institutional Ethics Committee (IEC) of Raja Rajeswari Medical College & Hospital, Bengaluru.

The study was done in a medical examination-cum-first aid room that already existed in each of the building construction sites. The purpose of the study was explained to the construction workers and informed consent was obtained. Necessary information was collected from building construction workers aged above 14 years by interview method with the help of a pre-designed, pre-tested questionnaire followed by clinical examination.

International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) version 2014 by WHO<sup>5</sup> was used to assess the morbidity profile of construction workers. The Kessler Psychological Distress Scale (K10)<sup>6</sup> was used to assess Psychological Distress among the construction workers. The construction workers who scored more than 30 on the scale of 50 were considered as having Psychological Distress. JNC VII criteria for Hypertension<sup>7</sup> were used to classify the study subjects according to their blood pressure. CDC criteria for Body Mass Index (BMI)<sup>8</sup> were used to classify the study subjects according to their BMI values.

Data collected was categorized, tabulated and then analyzed using SPSS (Statistical Package for Social Sciences) software version 20, 2011. Various morbidities among the construction workers were being presented as frequency and percentages.

**RESULTS:** Most prevalent morbidities among Construction Workers were Psychological Distress (43.65%), Generalized Body Pain (20.81%), Hypertension (19.63%), Non-Specific Headache (19.63%), Pallor upon clinical examination (18.61%), Non-Specific Fever (15.91%), Gastritis (15.57%), Low Back Pain (14.89%) and so on. Out of 591 Construction Workers, 116 of them

## ORIGINAL ARTICLE

(19.63%) were Hypertensive and 237 of them (40.10%) were Pre-Hypertensive while the remaining 238 of them (40.27%) were having normal Blood Pressure. 347 out of the 591 Construction Workers (58.71%) had a normal Body Mass Index (BMI) while 182 of them (30.80%) were underweight, 58 of them (09.81%) were overweight and only 4 of them (00.68%) were obese. Mean Body Mass Index of the study subjects was  $20.5 \pm 3.4$  kg/m<sup>2</sup>.

### MORBIDITY PROFILE:

Chapter*	Disease / Disorder / Symptom / Sign**	Present	Absent	Total
<b>I. Certain infectious and parasitic diseases</b>				
I	Bacillary Dysentery	018 (03.05)	573 (96.95)	591 (100.00)
	Acute Watery Diarrhoea	004 (00.68)	587 (99.32)	591 (100.00)
	Scabies	002 (00.34)	589 (99.66)	591 (100.00)
<b>II. Neoplasms</b>				
II	Lipoma	006 (01.02)	585 (98.98)	591 (100.00)
<b>III. Diseases of the Blood and Blood-Forming Organs and the Immune Mechanism</b>				
NO SIGNIFICANT MORBIDITY IDENTIFIED				
<b>IV. Endocrine, Nutritional and Metabolic diseases</b>				
IV	Diabetes mellitus	002 (00.34)	589 (99.66)	591 (100.00)
<b>V. Mental and Behavioural disorders</b>				
V	Psychological Distress***	258 (43.65)	333 (56.35)	591 (100.00)
	Inadequate / Disturbed Sleep	088 (14.89)	503 (85.11)	591 (100.00)
<b>VI. Diseases of the Nervous System</b>				
VI	Hemiparesis	002 (00.34)	589 (99.66)	591 (100.00)
<b>VII. Diseases of the Eye and Adnexa</b>				
VII	Conjunctivitis	036 (06.09)	555 (93.91)	591 (100.00)
	Refractive Errors	034 (05.75)	557 (94.25)	591 (100.00)
	Pterygium	010 (01.69)	581 (98.31)	591 (100.00)
	Cataract	010 (01.69)	581 (98.31)	591 (100.00)
	Chalazion	004 (00.68)	587 (99.32)	591 (100.00)
Chapter*	Disease / Disorder / Symptom / Sign**	Present	Absent	Total
	Ptosis	002 (00.34)	589 (99.66)	591 (100.00)
<b>VIII. Diseases of the Ear and Mastoid Process</b>				
VIII	Otitis Media	014 (02.37)	577 (97.63)	591 (100.00)
<b>IX. Diseases of the Circulatory System</b>				
IX	Hypertension	116 (19.63)	475 (80.37)	591 (100.00)
	Varicose veins	004 (00.68)	587 (99.32)	591 (100.00)
<b>X. Diseases of the Respiratory System</b>				
X	Rhinitis	066 (11.17)	525 (88.83)	591 (100.00)
	Sinusitis	010 (01.69)	581 (98.31)	591 (100.00)

## ORIGINAL ARTICLE

	Upper Respiratory Infections	076 (12.85)	515 (87.15)	591 (100.00)
	Lower Respiratory Infections	042 (07.11)	549 (92.89)	591 (100.00)
	Deviated Nasal Septum	002 (00.34)	589 (99.66)	591 (100.00)
	Nasal Polyp	002 (00.34)	589 (99.66)	591 (100.00)
<b>XI. Diseases of the Digestive System</b>				
<b>XI</b>	<b>Gastritis</b>	<b>092 (15.57)</b>	499 (84.43)	591 (100.00)
	Constipation	028 (04.74)	563 (95.26)	591 (100.00)
	Dental Fluorosis	010 (01.69)	581 (98.31)	591 (100.00)
	Acute Appendicitis	008 (01.35)	583 (98.65)	591 (100.00)
	Tooth Ache	006 (01.02)	585 (98.98)	591 (100.00)
	Dental Caries	002 (00.34)	589 (99.66)	591 (100.00)
	Tooth Cavity	002 (00.34)	589 (99.66)	591 (100.00)
	Hernia	002 (00.34)	589 (99.66)	591 (100.00)
<b>Chapter*</b>	<b>Disease / Disorder / Symptom / Sign**</b>	<b>Present</b>	<b>Absent</b>	<b>Total</b>
<b>XII. Diseases of the Skin and Sub-cutaneous tissue</b>				
<b>XII</b>	Dermatitis	032 (05.41)	559 (94.59)	591 (100.00)
	Rashes	008 (01.35)	583 (98.65)	591 (100.00)
<b>XIII. Diseases of the Musculoskeletal System and Connective Tissue</b>				
<b>XIII</b>	<b>Generalized Body Pain</b>	<b>123 (20.81)</b>	468 (79.19)	591 (100.00)
	<b>Low Back Pain</b>	<b>088 (14.89)</b>	503 (85.11)	591 (100.00)
	Knee Joint Pain	042 (07.11)	549 (92.89)	591 (100.00)
	Shoulder Joint Pain	010 (01.69)	581 (98.31)	591 (100.00)
	Decreased range of movements of joint/s	006 (01.02)	585 (98.98)	591 (100.00)
	Pain and stiffness of neck	004 (00.68)	587 (99.32)	591 (100.00)
	Wrist Joint Pain	004 (00.68)	587 (99.32)	591 (100.00)
<b>XIV. Diseases of the Genito-Urinary System</b>				
<b>XIV</b>	Menstrual Abnormalities****	022 (12.64)	152 (87.36)	174 (100.00)
	Dermatitis of the groin region	006 (01.02)	585 (98.98)	591 (100.00)
	Urinary Tract Infection	002 (00.34)	589 (99.66)	591 (100.00)
<b>XV. Pregnancy, Childbirth and the Puerperium</b>				
<b>XV</b>	Pregnancy****	022 (12.64)	152 (87.36)	174 (100.00)
	Gestational Anaemia****	012 (06.90)	162 (93.10)	174 (100.00)
	Gestational Diabetes****	004 (02.30)	170 (97.70)	174 (100.00)
<b>XVI. Certain conditions originating in the perinatal period</b>				
<b>NO SIGNIFICANT MORBIDITY IDENTIFIED</b>				
<b>Chapter*</b>	<b>Disease / Disorder / Symptom / Sign**</b>	<b>Present</b>	<b>Absent</b>	<b>Total</b>
<b>XVII. Congenital malformations, Deformations and Chromosomal abnormalities</b>				
<b>XVII</b>	Fissured Ear Lobe	002 (00.34)	589 (99.66)	591 (100.00)
<b>XVIII. Symptoms, Signs and Abnormal Clinical Findings not classified elsewhere</b>				

## ORIGINAL ARTICLE

<b>XVIII</b>	<b>Non-specific Headache</b>	<b>116 (19.63)</b>	475 (80.37)	591 (100.00)
	<b>Non-specific Fever</b>	<b>094 (15.91)</b>	497 (84.09)	591 (100.00)
	Fever with Chills	024 (04.06)	567 (95.94)	591 (100.00)
	Fever with Rashes	002 (00.34)	589 (99.66)	591 (100.00)
	Non-specific Chest Pain	018 (03.05)	573 (96.95)	591 (100.00)
	Tinnitus	002 (00.34)	589 (99.66)	591 (100.00)
	Hypertrophy of Nasal Turbinates	006 (01.02)	585 (98.98)	591 (100.00)
	Non-specific Abdominal Pain	042 (07.11)	549 (92.89)	591 (100.00)
	Non-specific Abdominal Tenderness	016 (02.71)	575 (97.29)	591 (100.00)
	Burning Micturition	008 (01.35)	583 (98.65)	591 (100.00)
	Giddiness	039 (06.60)	552 (93.40)	591 (100.00)
	Unable to recall the past	006 (01.02)	585 (98.98)	591 (100.00)
	Lack of concentration at work	004 (00.68)	587 (99.32)	591 (100.00)
	Throat pain	008 (01.35)	583 (98.65)	591 (100.00)
	Dysphagia	006 (01.02)	585 (98.98)	591 (100.00)
	Bleeding Gums	002 (00.34)	589 (99.66)	591 (100.00)
	Pain in TM Joints	002 (00.34)	589 (99.66)	591 (100.00)
	<b>Pallor*****</b>	<b>110 (18.61)</b>	481 (81.39)	591 (100.00)
<b>Chapter*</b>	<b>Disease / Disorder / Symptom / Sign**</b>	<b>Present</b>	<b>Absent</b>	<b>Total</b>
	Icterus	014 (02.37)	577 (97.63)	591 (100.00)
	Cyanosis	005 (00.85)	586 (99.15)	591 (100.00)
	Clubbing	014 (02.37)	577 (97.63)	591 (100.00)
	Cardiac Murmurs	006 (01.02)	585 (98.98)	591 (100.00)
	Hepatosplenomegaly	008 (01.35)	583 (98.65)	591 (100.00)
	Deviated Angle of the Mouth	002 (00.34)	589 (99.66)	591 (100.00)
<b>XIX. Injury, Poisoning and Certain other consequences of External causes</b>				
<b>XIX</b>	Injuries	022 (03.72)	569 (96.28)	591 (100.00)
<b>XX. External causes of morbidity and mortality</b>				
<b>XX</b>	Accidents	034 (05.75)	557 (94.25)	591 (100.00)
<b>XXI. Factors influencing the health status and contact with health services</b>				
<b>XXI</b>	Pseudophakia	002 (00.34)	589 (99.66)	591 (100.00)
<b>Table 1: Morbidities among the Construction Workers (n = 591)</b>				

\* According to International Statistical Classification of Diseases and Related Health Problems 10<sup>th</sup> Revision (ICD-10) Version: 2014 by World Health Organization.

\*\* Multiple responses.

\*\*\* Assessed using "The Kessler Psychological Distress Scale (K10)."

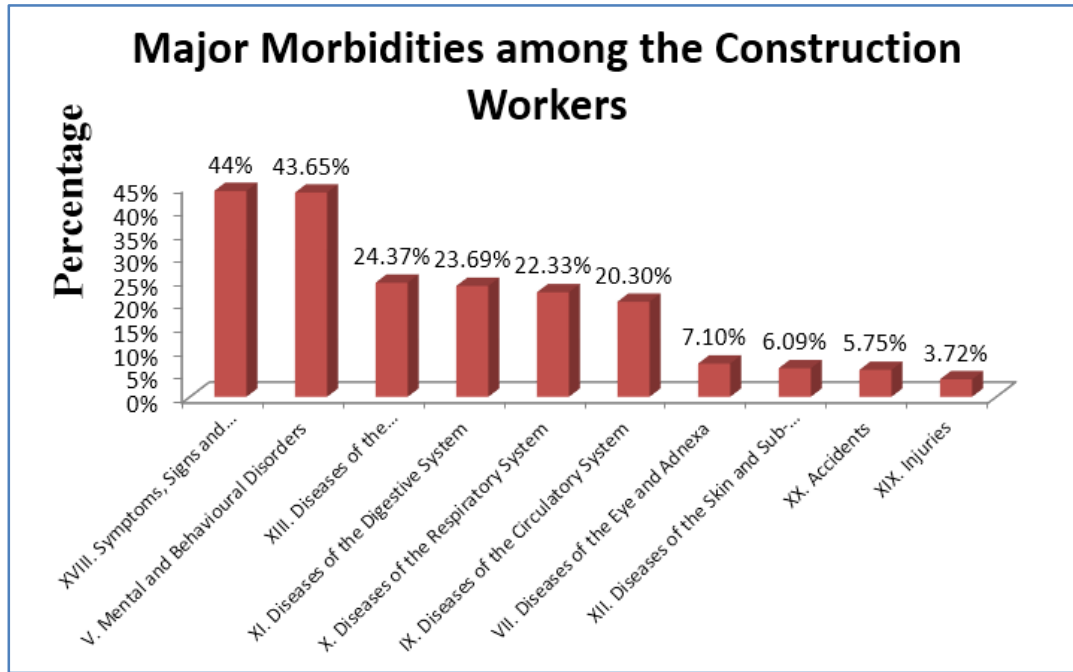
\*\*\*\* Among Female Construction Workers.

\*\*\*\*\* Assessed only by clinical examination.

Figures in parentheses indicate percentages.

## ORIGINAL ARTICLE

Most prevalent morbidities among Construction Workers were Psychological Distress (43.65%), Generalized Body Pain (20.81%), Hypertension (19.63%), Non-specific Headache (19.63%), Pallor upon clinical examination (18.61%), Non-specific Fever (15.91%), Gastritis (15.57%), Low Back Pain (14.89%) and so on.



**Fig. 1: Major Morbidities among the Construction Workers**

Most prevalent morbidity among the Construction Workers was Symptoms, Signs and Abnormal Clinical Findings not classified elsewhere followed by Mental and Behavioural disorders, Diseases of the Musculoskeletal System and so on.

Category*	Frequency	Percent
Normal (< 120/< 80)	238	40.27
Pre-Hypertensive (120/80 to 139/89)	237	40.10
Stage 1 Hypertensive (140/90 to 159/99)	111	18.78
Stage 2 Hypertensive ( $\geq 160/\geq 100$ )	005	00.85
<b>Total</b>	<b>591</b>	<b>100.00</b>

**Table 2: Distribution of Construction Workers according to Blood Pressure**

\* According to JNC VII classification of Hypertension.

Figures in parentheses indicate Blood Pressure range for each category in mm of Hg.

Out of 591 Construction Workers, 5 of them (00.85%) were Stage 2 Hypertensive, 111 of them (18.78%) were Stage 1 Hypertensive, 237 of them (40.10%) were Pre-Hypertensive and 238 of them (40.27%) were Normal upon clinical examination.

Category*	Frequency	Percent
Underweight (< 18.5)	182	30.80
Normal (18.5–24.9)	347	58.71
Overweight (25.0–29.9)	058	09.81
Obese ( $\geq$ 30.0)	004	00.68
Total	591	100.00

**Table 3: Distribution of Construction Workers according to Body Mass Index**

\* According to WHO classification.

Figures in parentheses indicate BMI range for each category in kg/m<sup>2</sup>.

Majority of the Construction Workers [347(58.71%)] had a normal Body Mass Index while 182 of them (30.80%) were underweight and 58 of them (9.81%) were overweight. Only 4 Construction Workers (0.68%) were obese. Mean Body Mass Index of the study subjects was 20.5±3.4 kg/m<sup>2</sup>.

#### DISCUSSION:

**Major morbidity:** In the present study, we found out that the major morbidity at the construction site was Psychological Distress with a prevalence of 43.65%. The study conducted by Adsul BB et.al.<sup>3</sup> shows that the highest morbidity at the construction site was Acute Febrile Illness with a prevalence of 23.11%. Another study done by Gurav RB et.al.<sup>9</sup> revealed that 60.76% of daily wage labourers were having musculoskeletal disorders as the major health problem.

**Hypertension:** In the present study, we found out the prevalence of Hypertension among Construction Workers to be 19.63%. Hypertension was prevalent in 3.4% of the workers in the study conducted by Adsul BB et.al.<sup>3</sup> A study done by Chataut J, Adhikari RK and Sinha NP<sup>10</sup> shows that the overall prevalence of Hypertension was 22.4% (118 / 527 subjects).

**Respiratory Morbidities:** In the present study, we found out that the prevalence of respiratory morbidities among the Construction Workers was 22.34%. The study conducted by Rothenbacher D et.al.<sup>11</sup> showed that the prevalence of respiratory morbidity among the construction workers was 7.6%. A study done by Seema P et.al.<sup>12</sup> revealed that 26.2% of the cement block workers had respiratory morbidity.

**Dermatitis:** In the present study, we found out that the prevalence of skin problems among construction workers was 5.41%. The study done by Gurav RB et.al.<sup>9</sup> revealed that 11.46% of daily wage labourers had skin problems. Another study done by Adsul BB et.al.<sup>3</sup> revealed that 4.71% of migrant construction workers had skin problems.

**Musculoskeletal problems:** In the present study, 24.37% of Construction Workers had diseases of the musculoskeletal system. The study done by Gurav RB et.al.<sup>9</sup> revealed that 60.76% of daily wage labourers were having musculoskeletal disorders. Another study done by Adsul BB et.al.<sup>3</sup> revealed that 5.4% of the construction workers had musculoskeletal problems. The study conducted by Trupti Bodhare, Sameer Valsangkar and Samir Bele<sup>13</sup> shows that out of 211 construction workers studied, 162 of them (77%) reported symptoms of MSD.

## ORIGINAL ARTICLE

---

**Injuries:** In the present study, we found out the prevalence of accidents and injuries among construction workers to be 9.48%. The prevalence of injuries was 5.21% in the study done by Gurav RB et.al.<sup>9</sup> and 7.9% in the study done by Adsul BB et.al.<sup>3</sup>

**CONCLUSION:** In the present study, no Construction Worker below the age of 14 years was found and it was found that the most prevalent morbidities among the Construction Workers were Psychological Distress, Respiratory Morbidity, Musculoskeletal Diseases, Hypertension and Dermatitis. Apart from providing first aid services, personal protective devices and safety measures at the construction sites; periodic general health check-up camps, mobile clinics, referral and follow-up services and health education activities need to be organized and conducted at the building construction sites on a regular basis. Health Insurance Schemes need to be strengthened. These will ensure health promotion, health protection and maintenance of highest degree of physical, mental and social well-being among the construction workers.

**ACKNOWLEDGEMENTS:** We would like to thankfully acknowledge the kind support provided by the authorities and staff at the Building construction sites, teaching staff of the Department of Community Medicine and management of Raja Rajeswari Medical College and Hospital, Bengaluru. We are also very thankful to all the Building Construction Workers who participated in the study, provided the necessary information and co-operated well during their clinical examination.

### REFERENCES:

1. Tiwary 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 (1): 18-24.
2. Nithin Prasad RS, Vittal Rao K, Nagesha HN. Study on Building and Other Construction Workers Welfare Schemes / Amenities in Karnataka. *SASTECH J.* 2011; 10 (1): 59-66.
3. Adsul BB, Laad PS, Howal PV, Chaturvedi RM. Health problems among migrant construction workers: A unique public-private partnership project. *Indian J Occup Environ Med.* 2011; 15 (1): 29-32.
4. The Child Labour (Prohibition and Regulation) Act of 1986, Ministry of Labour and Employment, Government of India. Available from: <http://labour.nic.in/upload/uploadfiles/files/ActsandRules/SectionoftheSociety/TheChildLabourProhibitionRegulationAct1986.pdf>.
5. World Health Organization. International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) Version: 2014. Available from: <http://apps.who.int/classifications/icd10/browse/2014/en#/>
6. Australian Centre for Posttraumatic Mental Health, The University of Melbourne. The Kessler Psychological Distress Scale (K10).
7. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure. Hypertension. 2003; 42: 1206.
8. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute of Occupational Safety and Health, U.S.A. Body Mass Index: Considerations for Practitioners. Available from: <http://www.cdc.gov/obesity/downloads/bmiforpractitioners.pdf>



## ORIGINAL ARTICLE

9. Gurav RB, Kartikeyan S, Wayal R, Joshi SD. Assessment of health profile of daily wage labourers. *Indian J Occup Environ Med.* 2005; 9 (3): 115-117.
10. Chataut J, Adhikari RK, Sinha NP. The Prevalence of and Risk Factors for Hypertension in Adults Living in Central Development Region of Nepal. *Kathmandu Univ Med J.* 2011; 33 (1): 13-18.
11. Rothenbacher D, Arndt V, Fraisse E, Daniel U, Fliedner TM, Brenner H. Chronic respiratory disease morbidity in construction workers: patterns and prognostic significance for permanent disability and overall mortality. *Eur Respir J.* 1997; 10: 1093-99.
12. Seema P, Damayanthi MN, Manjunath S, Jayanth Kumar K. Work-related morbidities among Cement Block Workers: A Cross-Sectional Study. *Med Inn.* 2013; 2: 14-6.
13. Trupti Bodhare, Sameer Valsangkar, Samir Bele. An Epidemiological Study of Work-Related Musculoskeletal Disorders among Construction Workers in Karimnagar, Andhra Pradesh. *Indian J Community Med.* 2011; 36 (4): 304-7.

### AUTHORS:

1. Sandeep H.
2. Shashikala M.
3. Ramya K. S.

### PARTICULARS OF CONTRIBUTORS:

1. Post Graduate Student, Department of Community Medicine, Rajarajeswari Medical College & Hospital, Bengaluru.
2. Professor & HOD, Department of Community Medicine, Rajarajeswari Medical College & Hospital, Bengaluru.
3. Post Graduate Student, Department of Community Medicine, Rajarajeswari Medical College & Hospital, Bengaluru.

### FINANCIAL OR OTHER

**COMPETING INTERESTS:** None

### NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Sandeep H,  
 "Sreevari", No. 1031,  
 9<sup>th</sup> Main, 10<sup>th</sup> 'C' Cross,  
 West of Chord Road, 2<sup>nd</sup> Stage,  
 Bengaluru-560086,  
 Karnataka, India.  
 E-mail: drsandeeph.psmg.rrmch@gmail.com

Date of Submission: 23/05/2015.  
 Date of Peer Review: 24/05/2015.  
 Date of Acceptance: 10/06/2015.  
 Date of Publishing: 17/06/2015.