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Skin and Respiratory problems in Construction workers

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Abstract - India being a developing country has huge demand for infrastructure and construction work as a result there is a huge demand for construction workmen. Workers in construction industry are mainly migratory and employed on contract or subcontract basis. These workers will have temporary relationship between employer and employee, uncertainty in working hours, contracting and subcontracting system, and lack of basic continuous employment, lack basic amenities, and inadequacy in welfare schemes. The main objective of the present study is to estimate the prevalence of respiratory and dermatological symptoms among out of state construction labours. This study was conducted in Manipal, Karnataka, among 340 male migratory construction workers. The questions asked to labours are standard questionnaire was used as a tool by the interviewer and the physical examination done by group of doctors. The medical examinations were conducted as per Factories Act and Karnataka Factories rules. . More than 75% percent of the labours belong to the age group of 18–30 years. The mean age of the labours was 20 ± 6.2 years. Most of the (43.8%) labours are from West Bengal followed by those from Bihar and Jharkhand. Most of them were suffering from lungs and skin diseases symptoms were 33.2% and 36.2%, respectively.

Key Words: Respiratory symptoms, dermatological symptoms, Construction worker, amenities, Physical examination, PPE

1. INTRODUCTION

In the world, our country is the second largest producer of labor force and only less than 10% is approved companies and more than 90% will be working in unrecognized companies in other words maximum workforce is working in unapproved companies. In India there is substantial growth in this companies .Construction labors force take major share upto30%.As per 2010report from the National Commission for Enterprises in Unorganized Sector (NCEUS), approximately more than 300lakhs employees in the construction industry. In Karnataka alone there is more than 20 lakhs, labors are working in infrastructure, Road construction, Minor irrigation work, Canal repair and construction and others civil engineering works.

The construction labors are continuously exposed for many types of work related hazards at the worksite, rest place , pathway, transportation and in there temporary sheds. These dangers or hazards can be of physical, chemical, biological, and ergonomic hazards. In construction site the main activities involves excavation, masonry works, concrete works, bar bending works, carpentry works, vehicle movement or driving, plastering,. working at height, painting, spraying, cutting ,grinding, works, conjunction workplace, poor lighting ,poor ventilation ,removing of debris , wet floor area ,sharp edges, ducts, working at extreme weather condition and using personal protective equipments(PPE) or insufficient PPE or substandard PPE or no PPE only .All there leads to high risk of various health risks like lungs diseases such as common cold, asthma, cough, chronic bronchitis ,emphysema and silicosis.[5] Most of the times they will be in contact with wet conditions like cementing, watering, handling or in touch with hydrocarbon or petroleum products ,glues, paints ,solvents different types of powders, and liquids are directly or indirectly causing many diseases like rashes, ulcer, skin cancer and also they are entering to human body through eatables as they don't wash their hands properly or many times don't wash and they directly touch the food items and also leads to many allergies inside the stomach .[6],[7],[8],[9],[10] The most common parts that effects are fingers ,palms, nails hands, joints underarms lips ,eyes ,eyelashes, eyeballs ,dandruff ,eyebrows ,tongue ,inside the nose ,nasals backside of ears ,forehead, cheeks, the mouth, and other parts like finger legs , at private parts, stomach, legs and almost any part of the body inside or outside it may affect In Karnataka Manipal is hub for education and many construction activities are going on. It is also one of the fast growing city .As lot of work is in progress many construction labors are coming to this place in search of jobs as it is well connected by road and railways from all parts of India. Most of the workers coming to this city are from outsiders mainly from rulers background. The contractors and subcontractors are taking the advantages of this and employing them in construction activities. As majority are illiterates and don't know the labors laws ,what are the basic facilities they must get, working condition or hygiene .Maximum workers for short term only for need basics .One of the major disadvantages is, these labors are not available for any follow up. In India there is no separate ministry or labor department to look their welfare, minimum PPE requirements. Most of the contractors or companies don't have any polices to these workforce. A study as taken to know the this labor force that minimum safety, health and welfare program required by policy makers Hence a health survey was conducted on lungs and shin problems in construction workers particularly to outside state labors .

2. MATERIALS AND METHODS

The present cross-sectional study was carried out in Udupi town, Karnataka. The Ethical Committee of Manipal University gave the ethical clearance for the study. A total of 340 migrant construction workers were included in the study based upon a calculated sample size of 340 taking 95% confidence interval, 15% relative precision, 36% prevalence and 10% non response. Informed consent was obtained from the participants. A pretested, standard questionnaire, modified according to the local setting, was used as a tool by the researcher to interview the workers. For respiratory symptoms assessment American Thoracic Society and the Division of Lung Diseases (ATS-DLD-78) questionnaire and for dermatological symptoms assessment Nordic Occupational Skin Questionnaire were used. This was followed by clinical examination for respiratory and dermatological morbidity. The pilot study was conducted to validate the questionnaire and estimate the prevalence. Survey was conducted by using Statistical Package for the Social Sciences (SPSS) version 15.0 (SPSS-Inc., Chicago, IL), which include calculation of percentages and proportions.

3. RESULT

Three hundred and fifty workers participated in the present cross-sectional study. The mean age of the study participants is 20 ± 6.2 years with a range of 18–55years.

[Table 1] describes the socio-demographic profile of migratory construction workers. Of 350 workers, 272 (80%) workers belong to the age group of 18–30 years. It was found that 90 (25.71%) workers had a monthly income below Rs. 5,000 while only 15 (4.27%) workers had income more than Rs. 10,000. Most of the migratory workers are from West Bengal followed by those from Bihar and UP with 17.70% and 10.0%, respectively. Fifty-one percent of the workers were illiterate, whereas only 11.4.2% workers had completed their secondary education.

Table 1: Socioeconomic and demographic profiles of migrant construction workers (N = 350)

Parameters	Categories	Number in percentage
Age	18-22 years	90(25.71)
	22-26 years	100(28.57)
	26-30 years	82(23.42)
	31-34 years	21(6.0)
	35-39 years	17(4.85)
	40-44 years	16(4.5)
	45-50 years	14(4.0)
	51 and above	10(2.85)
Monthly Income (in Rs)	Less than 5000	90(25.71)
	5000-7000	190(54.28)
	7000-9000	55(15.71)
	More than 10000	15(4.28)
Native	West Bengal	80(22.85)
	Bihar	62(17.71)
	Jharkhand	34(9.71)
	Utter Pradesh	35(10.0)
	Assam	41(11.71)
	Kerala	32(9.14)
	Tamil Nadu	50(14.28)
	other states	16(4.60)
Marital status	Single	180(51.42)
	married	140(40.0)
	Divorce	30(8.57)
Education	Illiterate	181(51.71)
	Primary schooling	90(25.71)
	Secondary Schooling	40(11.42)
	12th or PUC	30(8.57)
	Degree	9(2.57)

[Table 2] describes the occupational characteristics of the study subjects. It was found that 141 (40.2%) workers used to do farming at their native place before joining the construction work. Most of the workers 175 (51%) had 8 h of daily work, whereas 132 (38.8%) of workers were working for 12 h daily. The mean daily working hours was found to be 9.7 + 2 h. Workers were involved in various processes of construction such as plastering (17.1%), shuttering (28.3%), carpentering (9.7%), cement mixing (7.9%), bar bending (11.2%), helper (6.2%), and mason (3.2%). Majority of the workers (67.9%) were involved in construction work for less than 5 years, while 95 (27.9%) and 14 (4.1%) workers were in the occupation for 5–10 years and more than 10 years, respectively. Most of the workers (43.2%) were using only head protection (helmet), whereas 33.2% of the workers were not using any personal protective equipment (PPE).

Table 2: Occupational characteristics of migrant construction worker (*N* = 350)

Parameters	Categories	Number in percentage
Job executed at home town	Agriculture	141(40.28)
	construction	73(20.65)
	Small scale industries	60(17.14)
	Coolies	50(14.28)
	Others	28(8.0)
Working hours per day	8h	175(51)
	10h	26(7.6)
	12h	132(38.8)
	More than 12h	7(2.6)

[Table 3] shows the respiratory and dermatological symptoms in migratory construction workers. One hundred and thirteen (33.2%) workers were suffering from one or more types of respiratory symptoms, of which 107 (94.6%) workers mentioned that respiratory problem started after joining the construction work. Forty-eight (14.1%) workers suffered from multiple respiratory symptoms while productive cough and dry cough were the two common symptoms present in 27 (23.9%) and 19 (16.9%) patients, respectively.

Table 3: Distribution of respiratory symptoms among the symptomatic migratory construction workers (*N* = 113)

Respiratory Symptoms	Number in percentage
Dry Cough	19(16.8)
Productive cough	27(23.9)
Breathlessness	8(7)
Chest congestion	4(3.5)
Running nose and sneezing	7(7)
Multiple symptoms)	48(42.7)

3. DISCUSSIONS AND CONCLUSIONS

The present study clearly shows 55% of labors in the age group of 18-26 years, 26-34years are 30% and above 35 years are 16%.The younger generation are in construction worksite. The survey shows that maximum illiteracy rate in the construction worksite. The younger generation are least caring for health and habits. They neglect there health .Study shows 40%of workers were not using any PPE while on work .It also show construction labors have occupational skin problems. 38% were not using any PPE while in contact with liquids. Maximum (79.7%) of the workers don't have any experience Study also shows that workers are in constant changing from place to place or company to company by high labors turnover. This is very important because they are not found at workplace exposed for harmful conditions and also they are not available for follow-up's. .

The prevalence of respiratory symptoms was found to be 33.2%. Thus, at early age, these workers suffer from respiratory symptoms that may lead to compromise their health status. The workers are exposed to mixed dust at the work site as well off site because they live in the vicinity of the construction area where most of the migratory settlements are built. Of 113 workers with respiratory symptoms, the maximum suffered from productive cough (23.9%) and dry cough (16.8%), but most of the workers were reported to have multiple respiratory symptoms (42.7%). As per Mariammal *et al.*'s [11] study, among construction workers having work experience of more than

10 years respiratory morbidities, such as dyspnea (15%), paranasalsinuses (40%), sneezing (20%), running nose (10%), and asthma (5%), are common. The present study reported that 38.6% workers suffered from dermatological symptoms, out of which 65% workers were suffering from infectious skin diseases. The temperature and high relative humidity provide favorable condition for microbial growth. Another reason for having infectious skin disease is that migrant workers' settlements are usually crowded, dusty, unhygienic, and ill-ventilated thus providing favorable environment for skin and other infections. Workers also suffered from contact dermatitis (9.7%), dry and fissured skin (4.8%), frictional callosity (4%), ulcer (4.8%), and other skin disorders (11.3%), as workers are exposed to various irritants such as cement; hydrofluoric acids; rock wool; fiber glass preservatives; chalk; fly ash; oil in brick-making; and also different sensitizers such as epoxy resin, phenol-formaldehyde, chromate, cobalt, adhesives, wood preservatives, and polyurethane resins. Workers had skin lesions mostly in hands and forearms. Other studies reported similar prevalence and pattern of dermatological problems among constructionworker.[12],[13],[14]

Thus, to conclude the migrant male workers suffered from multiple respiratory and dermatological symptoms. Most of these workers are young and lack basic education. There is no provision of pre employment and periodic medical examination for these workers and none of the workers had social security such as health insurance. Workers work in odd environmental conditions throughout the year and all seasons thus predisposing them to develop multiple respiratory and dermatological symptoms. On the top of that, they lack awareness regarding hazards associated with construction work. Thus, raising awareness among them regarding early signs and symptoms of diseases and proper engineering intervention can be useful for protecting the health of these migrant construction workers.

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