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Original Research Article

Morbidity Profile and Associated Risk Factors amongst Workers in Organized and Unorganized Sectors of Kamrup Metro and Kamrup Rural Districts of Assam

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Abstract:

Background: An occupation is a regular activity performed for wage or salary, profit or family gain, to fulfil their requirements and to lead a financially secured life. Occupational health is concerned with the health of the workers in relation to work and working environment where they work to earn their livelihood. Occupation has been mainly classified into two major sectors namely organized sector and un-organized sector. The organized sector is one that is incorporated with appropriate authority or government, on the contrary the un-organized sector deals with small scattered units which are not under any appropriate authority or government. Unorganized sector mostly includes agricultural labours, contract labours, construction workers, home-based workers engaged in different small scale industries like beedi rolling, agarbatti making, tailoring, embroidering work, etc.

Methods: This was a community based cross-sectional study carried out in Kamrup metro and Kamrup rural, Assam, India, among the workers engaged in different organized and un-organized industries during the period April 2022 to July 2022 (4 months). The study included those participants who gave consent for the study and those who were working for the past 1 year. Those who did not give consent for the study and those who were not willing to participate were excluded from the study. The sample size was calculated out to be around 256 taking prevalence of any morbidity among construction worker (p) as 80%, allowable error of 5% with 95% confidence interval by using formula. The subjects were interviewed using a predesigned, pretested, semi structured performa. Before starting the interview, the construction workers were explained the purpose of the study. Then an informed consent was taken from him/her. One to one interview method was used to interview the workers after taking consent and the data was collected with the help of a pre validated schedule.

Results: The study shows that 38.6% of workers belong to skilled occupation, 20.3% workers belong to semiskilled and 41% workers belong to unskilled occupation. 15.6% workers work for less than 8 hours a day, 39.84% workers work for 8-10 hrs a day and 44.5% workers work for more than 10 hours a day. It was found in the study that 74.6% workers had respiratory problems, 74.2% workers had skin problems, 72.6% workers had digestive tract disorders and 59.3% workers had musculoskeletal problems. It was found in the study that association between duration of hours of work spent per day at work place and injuries/accidents at work place is not statistically significant.

Conclusion: In our community based cross-sectional study carried out in Kamrup metro and Kamrup rural, Assam, India, we find common health problems among construction workers working in both organized and un organized sectors. Respiratory problems, skin problems, digestive tract disorders and musculoskeletal problems were significantly higher among construction workers.

Keywords: Organized, Unorganized, Industry.

Introduction

An occupation is a regular activity performed for wage or salary, profit or family gain, to fulfil their requirements and to lead a financially secured life. Occupational health is concerned with the health of the workers in relation to work and working environment where they work to earn their livelihood. [1] Occupation has been mainly classified into two major sectors namely organized

sector and un-organized sector. The organized sector is one that is incorporated with appropriate authority or government, on the contrary the un-organized sector deals with small scattered units which are not under any appropriate authority or government. [2]

Unorganized sector mostly includes agricultural labours, contract labours, construction workers, home-based workers engaged in different small scale industries like beedi rolling, agarbatti making, tailoring, embroidering work, etc. [2] The construction industry is the second largest industry of the country after agriculture sector and it makes a significant contribution to the national economy and provides employment to large number of people. Construction activity is an integral part of country's infrastructure and industrial development and is poised for further growth. Developing the country's infrastructure is the major role of construction industries. It accounts for nearly 65% of the total investment in infrastructure and is the second largest employer and contributor to gross domestic product (GDP) accounting for nearly 7% of the GDP in the country. [3] The Indian construction industry was the ninth largest market in the world and accounting for 3.3% of global market share, as per the global construction 2020 report by Oxford economics. From 2014-2020, India is pegged to be the second largest market with an estimated compound annual growth rate (CAGR) of 8.9%. According to the survey of bureau of labour statistics, construction industry workers occupy half the world's total population of approximately 14.1% of the population. Up to 180 million construction workers are there worldwide, out of which about 75% are in developing countries. [4] Occupational hazards cause or contribute to morbidity and mortality of millions of people worldwide and result in the ill health or disablement of hundreds of millions more each year. The two broad categories of construction projects are building and civil engineering. All these types of work make up one industry, but each of them involves different exposure and thus differing health hazards. [5] Certain occupational risks, such as injuries, noise, carcinogenic agents, airborne particles and ergonomic risks account for a substantial part of the burden of chronic diseases: 37% of all cases of back pain, 16% of hearing loss, 13% of chronic obstructive pulmonary disease, 11% of asthma, 8% of injuries, 9% of lung cancer, 2% of leukaemia and 8% of depression. Annually 12.2 million people, mostly in developing countries, die from non-communicable diseases while still of active working age. Work-related health problems result in an economic loss of 4–6% of GDP for most countries. [6]

Construction workers are exposed to a wide variety of health hazards at work. The exposure differs from job to job. Due to increased urbanization and rapid population growth the areas around the city which have been less developed are undergoing rapid infrastructure related development. As a result more construction activities take place throughout the year, thus making the susceptible labours more vulnerable to various health problems like musculoskeletal problems, gastro-intestinal problems, injuries, respiratory problems, etc.

As very few studies have been carried out on occupational health in this part of our country, this study was planned out to determine the prevalence of the morbidity profile among the workers, also to identify the association between the risk factors and the morbidity profile of the workers working in Kamrup metro and Kamrup rural, Assam, India.

Materials and Methods

This was a community based cross-sectional study carried out in Kamrup metro and Kamrup rural, Assam, India, among the workers engaged in different organized and un-organized industries during the period April 2022 to July 2022 (4 months).

The study included those participants who gave consent for the study and those who were working for the past 1 year. Those who did not give consent for the study and those who were not willing to participate were excluded from the study.

The sample size was calculated out to be around 256 taking prevalence of any morbidity among construction worker (p) as 80%,[7] allowable error of 5% with 95% confidence interval by using formula

$N = \frac{z2pq}{d2}$

N = required sample size

P = anticipated prevalence

q = 100-p

d= allowable error

The subjects were interviewed using a predesigned, pretested, semi structured performa. Before starting the interview, the construction workers were explained the purpose of the study. Then an informed consent was taken from him/her. Choice was also given to leave study at any time if he/she was unwilling to continue. The purpose of the study was explained using informed consent document and such consent was obtained from each of the study subjects in Hindi. A time schedule for the interview was prepared in consultation with the workers giving due consideration to the feasibility of their working hours and availability of the worker. One to one interview method was used to interview the workers after taking consent and the data was collected with the help of a pre validated schedule.

The performa consisted of following items

1. Identification data and other Socio-demographic factors which included age, gender, working zone, education status, marital status and family, native place, income and saving, housing, water source, availability and use of toilets and sleep duration.
2. Disease profile, health seeking behavior and expenditure on treatment. This catered to both Acute illnesses(last 30 days) and those requiring Hospitalization (in last 1 year) with respect to type and duration of problem, source and expenditure on treatment and health seeking behavior was assessed by questions on system of medicine and type of facility treatment seeked from and reasons for preference.
3. Occupational Exposure and Hazards and Work related physical factors which included different types of occupational exposures, work nature and demand, mobility and posture, hours and shift of work.
4. Workplace related factors and work related psychological factors like on workplace noise, Comfort and status of sanitation and satisfaction in terms of autonomy, skill use and work demand.

Physical examination of the patient included height, weight, waist circumference, blood pressure and body mass index. Anthropometric measurements of the subject were done for height, weight and waist circumference. Monitoring of blood pressure along with blood sugar testing and hemoglobin estimation was done. This was followed by systemic examination which included examination of pulse, blood pressure (sitting position) and auscultation of cardiovascular and respiratory system and per abdominal examination. Confidentiality of the study subjects was maintained. Permission was taken for the study from Institutional Ethics Committee of the Gauhati Medical College and Hospital. The collected data was entered in MS-Excel and then was analyzed.

Results

Table 1: Distribution of work profile of the study subjects

Sl. No.	Characteristics	Male(194)	Female(62)	Total(n=256)
A.	**Type of occupation**			
1	Skilled	89	10	99(38.6%)
2	Semiskilled	40	12	52(20.3%)
3	Unskilled	65	40	105(41%)
B.	**Duration of work**			
1	less than 8 hours	26	14	40(15.6%)
2	8-10 hrs	80	22	102(39.84%)
3	more than 10 hour	88	26	114(44.5%)

Table 1 shows 38.6% of workers belong to skilled occupation, 20.3% workers belong to semiskilled and 41% workers belong to unskilled occupation. 15.6% workers work for less than 8 hours a day, 39.84% workers work for 8-10 hrs a day and 44.5% workers work for more than 10 hours a day.

Table 2: Prevalance of health problems of the study subjects

Sl. No.	Health Problems	organized sectors (n=119)	Unorganized Sector (n=137)	Total (n=256)
1	Respiratory problems	77	114	191(74.6%)
2	Digestive tract disorders	75	111	186(72.6%)
3	Musculoskeletal problems	59	93	152(59.3%)
4	Eye problems	56	88	144(56.25%)
5	Injuries during work	29	64	93(36.3%)
6	Cardiac problems	12	23	35(13.6%)
7	Ear problems	20	46	66(25.7%)
8	Skin problems	67	123	190(74.2%)
9	Hypertension	23	44	67(26.1%)
10	Diabetes Mellitus	10	21	31(12.1%)
11	generalized weakness	28	65	93(36.32%)

Table no. 2 shows 74.6% workers had respiratory problems, 74.2% workers had skin problems, 72.6% workers had digestive tract disorders and 59.3% workers had musculoskeletal problems.

Table 3: Association of Risk factors and morbidities

Sl. No.	Injury or accident at work place	Yes	No	P value	Significant
a.	Duration of work /per day< 8 hours	19(47.5%)	21(52.5%)	0.2313	Not statistically significant
	Duration of work /per day(8-10 hrs)	33(32.3%)	69(67.7%)		
	Duration of work /per day > 10 hour	40(35%)	74(65%)		
b.	**Musculoskeletal problems**				
	no breaks taken in between the work	105(61.4%)	66(38.6%)	0.3486	Not statistically significant
	break in between works	47(55.3%)	38(44.7%)		
c.	**Respiratory problems**				
	No ventilation at work place	34(79%)	9(21%)	0.0007	Statistically significant
	Dusty environment at work place	39(57.3%)	29(42.7%)		
	Exposures to smoke, fumes, fuels, paints etc at work place	33(73.3%)	12(26.7%)		
	Smokers	85(85%)	15(15%)		

Table 3 shows that association between duration of hours of work spent per day at work place and injuries/accidents at work place is not statistically significant. Similarly no statistical association is seen between musculoskeletal problems and if breaks were taken in between works. And statistical association exists between respiratory problems and air quality present in the work place.

Discussion

In our study, 38.6% workers belong to skilled and 41% workers belong to unskilled occupation. In a study done by Mohankumar P et al done in an urban area of Kancheepuram district, 58.6% workers belong to skilled and 41.3% workers belong to unskilled occupation. [7]

In our study, 74.6% workers suffered from respiratory problems. In a study done by Adsul BB et al, 12.6% had respiratory infections. [8] A study done by Banerjee M et al done among migrant construction workers in Udupi, Karnataka found that 33.2% construction workers had respiratory infections. [9] A study done by Mohankumar P et al, 51.7% workers had respiratory problems.[7]

In our study, 74.2% workers had skin problems. Whereas in a study done by Sitalakshmi R et al, 51% construction workers had skin lesions. [10] In a study done by Shah KR et al, 47.8% workers had morbid skin conditions. Frictional callosities in palm were observed in 19.6% workers while 4.3% workers had contact dermatitis. [11] A study conducted among migrant construction workers in Mangalore by Kuruvila M et al found that Infective and non infective dermatoses were seen in 89.72% and 53.74% of laborers respectively. Among infective dermatoses, fungal infections were the most common (46.25%) ones, followed by bacterial infections (24.83%), scabies (8.56%) and viral infections (6.42%). Contact dermatitis to cement was seen in 12.48% of the laborers. [12] A study done by Mohankumar P et al, 59.3% workers had skin problems. [7]

In our study, 59.3% workers had musculoskeletal disorders. A study done by Reddy GMM et al done among construction workers, out of 308 participants, 104 workers (33.8%) had musculoskeletal disorders. [13] In a study done by Mohankumar P et al, 71.5% workers suffered from musculoskeletal disorders. [7] A study done by Das B among brick field workers of West Bengal, India found that brick field workers suffered from pain especially in the lower back (98%), hands (93%), knees (86%), wrists (85%), shoulders (76%) and neck (65%). [14]

In our study, 36.3% workers suffered from injuries during work. A study done by Ghimire R et al, 16.7% construction workers had injuries, which was significantly higher than in outside tunnel workers. [15] A study done by Das B shows that child workers were highly prone to injuries, mainly toe (23.9% male and 28.1% female), hands (22.0% male and 23.4% female), wrists, feet, ankles, and fingers. The injury rate among male and female child brickfield laborers was 7.64 and 9.52 per 1000 workers. The primary source of injuries in brickfields was due to falling from height. Several risk factors, including biomechanical, work stress, may play a key role in work-related injuries among child brickfield laborers. [16]

In our study, 26.1% workers suffered from hypertension. In a study done by Mohankumar P et al, most of the workers in this study were found to be suffering from pre-hypertension (69.9%) while 15.2% suffered from hypertension. [7] In a study by Sandeep H, 40.1% were diagnosed to have pre-hypertension and 40.2% were found to be normal and nearly 19.63% suffered from hypertension. [17] In a study done by Adsul BB et al, only 3.4% workers were found to have hypertension. [8]

In our study, out of 40 workers who worked for less than 8 hours a day, 19(47.5%) of workers suffered from injuries/accidents while working and out of 114 workers who worked for more than 10 hours a day, 40(35%) of workers suffered from injuries/had

accidents while working. In a study done by Das B, 29.7% brick field workers who worked for less than 5 hours a day suffered from low back pain and 14.2% workers suffered from low back pain who worked for 8-8.5 hours/day. [18] In a study done by Hameed S et al, 8.5% workers developed sensorineural hearing loss who were exposed for less than 15 years to high sound pressure levels and 50% workers developed sensorineural hearing loss who were exposed for more than 15 years to high sound pressure levels. [19]

Conclusion

In our community based cross-sectional study carried out in Kamrup metro and Kamrup rural, Assam, India, we find common health problems among construction workers working in both organized and un organized sectors. Respiratory problems, skin problems, digestive tract disorders and musculoskeletal problems were significantly higher among construction workers. We find no significant statistical association between duration of hours of work spent per day at work place and injuries/accidents at work place and there is statistically significant association between respiratory problems and air quality present in the workplace. Thus, there is an urgent need to create awareness among the workers about their health and safety issues, working environment, proper use of protective wears, provision of first aid, referral services and sanitation at their living and workplace. Improving the health and wellbeing of the people working in both organized and unorganized sectors will help them to lead a socially and economically productive life.

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