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Health Problems of Unorganised Urban MSME Workers of Nagaon, Assam

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Abstract – Workers in the unorganised MSM Enterprises are engaged in heterogeneous work activities which involve varied work related hazards and are consequent risk to health. The study aimed to explore the work-related health scenario in the urban enterprises of Nagaon district of Assam. One hundred thirty (130) workers from 14 different types of enterprises namely Welding & Steel fabrication, Automobile servicing & repairing, Tyre retreading, Printing & binding, Engineering workshop, Soap manufacturing, Grinding Mill, Carpentry, Bakery, Electrical, Phenyl manufacturing, Dry betel nut factory, Perfumery oil extraction factory, Water hyacinth were assessed by interview using self-administered health questionnaire. There was a high prevalence of self-reported health problems among the workers in the selected enterprises. Study found that Lower Back Pain, Mental stress, Hypertension and high blood pressure, Musculoskeletal, Respiratory, Multiple Skin disease were most prevalent among the workers of the enterprises. Prevalence of different work injuries reported for highest Fracture and crash followed by Falls/hits/slips injuries, Major Burns, Major cuts and Body part loss among the workers of the enterprises. Statistical significant relationships were found between different sets variables of physical, psychosocial, organisational factors and health effects aggravated to work ability loss, poor health condition and absence from work. The findings of the study suggest immediate attention with preventive intervention in these vulnerable groups of workers in the study area.

Keywords: Unorganised MSM Enterprise, Manufacturing and processing, Urban, Health problems, Work-related diseases, Fatal and non-fatal injuries.

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1. INTRODUCTION

The majority of new jobs in developing countries are being created in the informal or unorganised sector which employs about 500 million workers. Lack of sufficient jobs growth in the formal sector of economy as well as lack of skill of a large section of the labour force has resulted in the growth of the unorganised sector, where most workers are in low-paid employment, in unregulated and poor working condition **(ILO, 1998-99)**. Micro, small and medium enterprises (MSMEs) could provide the solution to the employment-poverty dilemma but the employments they provide are low in productivity and they remunerate these jobs with low incomes and poor employment conditions (**Aimee Hampel-Milagrosa and Caroline Reeg, 2016**).

The high levels of growth of the Indian economy during the past two decades are accompanied by increasing informalisation. A high proportion of socially and economically underprivileged sections of society are concentrated in these informal or unorganised economic activities (**Kalyani, Dr. M., 2015**). Conditions of work in the unorganised enterprises are deplorable. Informal activities are unrecorded in official statistics, available data are scattered and not up-to-date and therefore substantial efforts are necessary in order to obtain adequate information on the OSH problems of the worker (**Buhlebenkosi, F. *et al.*, 2013).** As per the Sixth Economic Census (2013), state of Assam contributed for 2.42% establishments with 1.92% employments in regards to the total urban MSMEs of the country. Urban poor are the only active workers of unorganised MSM Enterprises who bear the burden of health problems. Present study explores the health status of these poor workers.

According to health vulnerabilities of informal workers' report (2013), informal employment is associated with increased levels of illness and injury because of poorer work exposures. Nearly half of all wage workers in Bangladesh and Latin America reported unsafe workplace conditions, while more than 60% of the informal women workers in India reported physical weakness due to poor working and living conditions. In South Africa, the incidence of work injury was 7.2 times higher in the informal sector, in the Philippines >50% of non-

fatal injuries are incurred by self-employment informal workers. Inadequate access to health care combined with higher health risks increase income vulnerability. Occupational injuries cost 26 weeks of income of Street vendors in Ghana. In India, 92% workers' loss of income noted due to illness.

ILO estimates that each year around 2.3 million workers die as a result of occupational accidents and work-related diseases. Surprisingly, fatal work-related diseases are around 1.95 million per year (**Al-Tawaijri, *et al.,* 2008**).

The earlier literatures have been found supportive to the above facts and figures. **Naagarajan, R. (2010),** narrated that the workers are bounded either by compulsions and unawareness or absence of safety at workplaces that brought health threats to them. Exposure to the hazards like physical, chemical, biological, ergonomic **(Satyendra, 2015)** causes various morbidities such as diseases, injuries. Many epidemiological studies by clinical experiments have shown the magnitude of prevalence of health problems among the industrial workers (**Joshi, K.P. *et al*. 2013**). In a review article, **Goswami, M. K. and Devi, N., (2015**) narrated that lung disease, Chronic Obstructive Pulmonary Disease (COAD), asthma and pneumoconiosis mainly occurring due to hazards caused by the patient occupation which have been a preventable blight to health. Ergonomic risk factors also identified significantly associated with tea plantation workers' cumulative trauma disorders, musculoskeletal disorders (**Goswami, S. *et al.,* 2016, Mohan A. *et al.,* 2016**) for which ergonomic interventions have been designed in some studied for significant reduction of health risks (**Bhattacharyya, N. and Chakrabarti, D., 2012**). Workers' behavioural factors (alcoholism) also found responsible for health risks in many studies (**Medhi, G. K. *et al*., 2006, Dasgupta A. *et al.,* 2013**) incorporated with psychological, psychosocial and organisational factors.

In the state of Assam, earlier studies showed prevalence of occupational health problems mostly in the tea plantation and agricultural workers. We need more focus on epidemiological data for setting more priorities in work-related health research in all sectors across the state. The state of Nagaon district urban unorganised enterprises is not comparable with the other industrial settings of the area. The enterprises are situated way side and amidst family dwellings. The work activities in these enterprises take place in open yards, undeveloped urban plots, or even on street pavements. Poor working condition, long hour of work, long shifting work, obsolete machinery which are not properly maintained, low wages not even paid in time, low protective equipment and first aid, unfair worker-employer relations are the characteristics increasing the possibility of exposure to workers' health hazards and are also not covered by any compensation in these enterprises. These workers of lowest socio-economic strata, thereby, form the vulnerable group that need to be addressed.

The present study confined to the unorganised micro, small and medium (MSME) manufacturing enterprises located amidst the urban settings of the district employing <30 workers registered under DIC (District Industries Centre), Nagaon, Assam.

Based on the background mentioned we carried out the present study with the specific objectives-

1. To find the prevalence of health problems among the workers of the enterprises of the study area

2. To evaluate the associations of the factors of work-related health determinants.

2. METHODS

2.1. Sample population, health determinants and variables-

This was a sample survey based study conducted in the workers of unorganised urban based MSM Enterprises, enlisted under DIC (District Industries Centre), Nagaon District of Assam, India. Randomly selected 130 blue collar manual male workers of Age >18 years were interviewed. The selected 96 survey units consisted 14 types of different enterprises of Welding & Steel fabrication, Automobile servicing & repairing, Tyre retreading, Printing & binding, Engineering workshop, Soap manufacturing, Grinding Mill, Carpentry, Bakery, Electrical, Phenyl manufacturing, Dry betel nut factory, Perfumery oil extraction factory, Water hyacinth.

Present study adopted qualitative approach to narrate the status of work related health prevalance in the study area. Sample survey was conducted based on the Occupational health Indicator (OHI 1) "Non-Fatal Work-Related Injuries and Illnesses Reported by Employers" to know the status of health problems. Work-related health determinants were categorised under psychosocial work organisation factors to identify the potential health effects besides the individual demographic factors of Age, Work Age, Type of Work, Nature of employment, Education, Skill included for comparative study.

2.2. Questionnaire

Based on the narrative nature of the study workers' self-rated health complaints regarding their health risks, were considered as the basis to carry out the study (**Idler, E. L. and Benyamini, Y., 1997, López-Ruiz, *et al.*2015)**. Cross-sectional interviews carried out using self-structured questionnaire following the pattern of Health Risk

Assessment Tool, National Health Interview Survey (NIOSH). The questionnaire was proposed to evaluate the areas of specific health risk factors which contained response formats of Low, Medium, High; Minor, Moderate, Major; Never, Seldom…Always; dichotomous, li-kert, single response, multiple responses scales etc.

2.3. Analyses of the study

Prevalence of work diseases and injuries is reported in counts and percentages. Analyses were performed using statistical package of IBM the Statistical Package for Social Sciences SPSS software version 16.0. We generated descriptive statistics such as numbers, percentage, mean and standard deviation for numerical data. Pearson Chi-square statistics (□2) and simple linear correlation (r) were used to explore the significance level (p) of relationships of different group of variables of work-related health determining factors (such as occurrences and severity of health problems, work duration, rest at work, shift work, work flexibility, safety at work, workplace hazards, job stability, present health condition, work ability, sickness absence, work loss hours). Taking confidence interval (CI) of 95% significance level chosen at p<0.05. Statistical significance termed at P<0.05.

3. RESULTS

Data on descriptive characteristics of the workers in the study are presented in **Table 1.** which reveals that the

Mean age of the study population was 44.03 years, ranging from ≤ 30 to 51 years and above. The majority of the workers (62.3%) were in the Age group of 31–50 years. Working age reportedly found from 4 - 45 years with average years of 19.31 years. Highest (52.3%) of workers found in the group of 11-13 years of work experience in the enterprises. 47.7% of regular followed by 42.3% casual and only 10% self-employed workers found engaged in the units. 43.1% workers had primary, 40.8% were illiterate, 13.8% had intermediate level, only 2.3% workers had higher education. Semi-skilled workers accounted for highest 43.1% followed by 39.2% unskilled, 17.7% skilled workers respectively.

The descriptive statistics of work-related health determinants shows **(Table.1)** that total 85.4 % workers affected by multiple diseases with 32.3 % major affects, 29.2 % moderate affects, 23.8 % minor affects respectively. Mean 6.10 years period of suffering was estimated for the specified diseases. Annual occurrences of diseases estimated to be average 4.85 times who reportedly hospitalised. Similarly, highest 39.2 % workers reported severely injured during their whole working period. Although mean occurrences of severe work injuries was estimated in 1.09 times yet, 31.5% workers reportedly had severe injuries 1-4 times during their work period. Annual occurrences of moderate injuries were also found average 2.97 times among 16.2% workers.

Descriptive characteristics of sample subjects of the study

Table 1. *Distribution of respondents by the work-related health determinants, N=130*

Sl	Determinants/variables	N	%	Mean(μ)	SD(σ)
	Demographic factors				
1	Present Age				
	≤ 30	13	10	44.03	9.899
	31 - 50	81	62.3		
	51+	36	27.7		
2	Work age				
	≤ 10	42	32.3	19.31	10.486
	11 - 30	68	52.3		
	31+	20	15.4		
3	Nature of employment				
	Self-employed	13	10		
	Casual	62	47.7		
	Temporary	55	42.3		
4	Education level				
	Primary	56	43.1		
	Secondary	18	13.8		
	Higher (Non-BA)	3	2.3		
	Illiterate	53	40.8		
5	Skill level				
	Unskilled	51	39.2		
	Semi-skilled	56	43.1		
	Skilled	23	17.7		
	Psychosocial work organisation factors				
6	Daily work duration				
	Shorter duration (≤ 8 hrs.)	62	47.7		
	Longer duration (≥ 8 hrs.)	68	52.3		
7	Job stability				
	Highly not guaranteed	55	42.3		
	Not guaranteed	63	48.5		
	Does notarise or neutral	12	9.2		
8	Work flexibility				
	Never	13	10		
	Seldom	55	42.3		
	Sometimes	62	47.7		
9	Rest day and hours				
	Seldom	56	43.1		
	Sometimes	74	56.9		
10	Rotational shift work				
	No	80	61.5		
	Yes	50	38.5		
11	Safety and equipped at work				
	Low	108	83.1		
	Medium	22	16.9		
12	Exposed to workplace hazards				
	Low	33	25.4		
	Medium	22	16.9		
	High	75	57.7		
	Health prevalence and risk factors				
13	Status of disease effects				
	Not affected by diseases	19	14.6		
	Affected by multiple diseases	111	85.4		
14	Disease suffering period				
	0	19	14.6	6.10	4.420
	1 - 10	92	70.8		
	11+	19	14.6		
15	Nature of disease affects				
	Not affected	19	14.6		
	Highly affected	42	32.3		
	Moderately affect	38	29.2		
	Low affect	31	23.8		
16	Annual occurrences of diseases				
	0	19	14.6	4.85	3.767
	1 - 6	71	54.6		
	7+	40	30.8		
17	Status of injuries				
	No injuries affected	12	9.2		
	Affected by multiple injuries	118	90.8		
18	Status of severe (major) injuries				
	No	79	60.8		
	yes	51	39.2		

19	Occurrences of severe injuries in whole period				
	0	79	60.8	1.09	1.802
	1 - 4	41	31.5		
	5+	10	7.7		
20	Annual occurrences of moderate injuries				
	0	109	83.8	2.97	6.826
	11+	21	16.2		
	Health outcome factors				
21	Present health condition				
	Neutral or N/A	50	38.5		
	Poor	38	29.2		
	Very poor	42	32.3		
22	Reduction of work ability				
	Very poor ability	42	32.3		
	Poor ability	38	29.2		
	Moderate ability	50	38.5		
23	Sickness absence status				
	No	88	67.7		
	Yes	42	32.3		
24	Monthly sickness absent days				
	0	88	67.7	1.49	2.249
	1 - 4	20	15.4		
	5+	22	16.9		
25	Daily loss of work hours				
	0	56	43.1	.99	1.075
	1 - 4	73	56.2		
	5+	1	.8		

Source: *Compiled from primary data.*

Table 2. shows a comparative statistics of the reported different types of workers' disease and its nature of affects. Study noted that the severity of work-related diseases varied in different nature among the workers. Multiple responses of self-reported health complaints reveal that 37.8% percent of the workers reported highly affected and 34.2% moderately affected while 27.9% had low affect. Study found that Lower Back Pain, Mental stress, Hypertension and high blood pressure, Musculoskeletal, Respiratory, Multiple Skin disease were most prevalent among the workers of the enterprises.

Table. 2. *Types of multiple diseases affected the workers and its nature of affects (cross tabulation)*

Types of diseases	Nature of diseases affects			Total
	High	Medium	Low	
Severe sneezing and cough	4(50)	3(37.5)	1(12.5)	8(7.2)
Headache	11(31.4)	16(45.7)	8(22.9)	35(31.5)
Respiratory	29(63)	11(23.9)	6(13)	46(41.4)
Chest pain and tightness	3(21.4)	6(42.9)	5(35.7)	14(12.6)
Sleeplessness	9(47.4)	9(47.4)	1(5.3)	19(17.1)
Lower Back Pain	34(40.5)	26(31)	24(28.6)	84(75.7)
Chest/Nose/Lung/stomch inflamation	10(34.5)	13(44.8)	6(20.7)	29(26.1)
Nerve problem	11(52.4)	7(33.3)	3(14.3)	21(18.9)
Hearing loss	4(50)	4(50)	0	8(7.2)
Fatigue	2(40)	1(20)	2(40)	5(4.5)
Gaestroenteritis	7(30.4)	7(30.4)	9(39.1)	23(20.7)
Musculoskeletal	19(39.6)	20(41.7)	9(18.8)	48(43.2)
Hypertension and high blood pressure	24(45.3)	21(39.6)	8(15.1)	53(47.7)
Metal and dust fume fever	4(100)	0	0	4(3.6)
Multiple Skin elergy	13(28.3)	17(37)	16(34.8)	46(41.4)
Heat stress	14(58.3)	7(29.2)	3(12.5)	24(21.6)
Eye power loss/stain/irritation	13(33.3)	15(38.5)	11(28.2)	39(35.1)
Hernia/spinal pain	3(75)	1(25)	0	4(3.6)
Asthma	1(50)	0	1(50)	2(1.8)
Mental stress	12(18.5)	25(38.5)	28(43.1)	65(58.6)
Total	227(39.3)	209(36.2)	141(24.5)	577(100)

Notes: *Percentages and totals are based on respondents' multiple response; Parentheses indicate percentages within the disease groups each row wise and percentages to total affected workers (111) in total column; Dichotomy group tabulated at value 1.*

Similarly, prevalence of different injuries was of major, moderate and mild types. Study found that the prevalence of different work injuries reported for highest Fracture and crash (19.2%) followed by Falls/hits/slips (16.2%), Major Burns (10.8%), Major cuts (6.2%), and Body part loss (3.1%) among the major affected workers **(Table 3.)**. 16.2% workers had moderate and 35.4% had minor injuries. Only 9.2% percent workers reported with no injuries.

Table.3. *Types of injuries affected the workers*

	Frequency	Percent
No injuries affected	12	9.2
Major Cut Injuries	8	6.2
Major Fracture and crash injuries	25	19.2
Major burn injuries	14	10.7
Limb loss or partial disability	4	3.1
Moderate injuries (infections, injuries caused by hits, falls, slipped, etc)	21	16.2
Multiple Minor injuries	46	35.4
Total	130	100

Source: *Compiled from primary data.*

Findings of the Pearson chi-square significance test (**Table 4.**) reveal that work-related physical, psychosocial, organisational factors were significantly associated with health effects at statistical significance level *p<0.001, p<0.01 and <0.05* . But, there was not enough evidence to suggest an association between the variables of safety at work and workers' health effects *(□2=0.648, p=0.42 and □2=0.001, p=0.98, p>0.05* chosen level).

Table. 4.: *Summary table of independence or the association of Physical, psychosocial, organisational factors and health status of urban Unorganised MSME workers,* N=130

Determinants	Health status						*tabulated α value at 0.05 level*
	Disease status			Injury status			
Psychosocial work organisation factors	*(□2)*	*df*	*p*	*(□2)*	*df*	*P*	
Predictors							
Daily work duration	15.57	1	0*	6.73	1	.009<.01*	3.811
Rest at work	11.68	1	0.001*	12.73	1	0*	3.811
Shift work	4.83	1	0.028*	5.07	1	0.024*	3.811
Work flexibility	12.31	2	0.002*	9.59	2	0.008*	5.991
Safety at work	0.65	1	0.421**	6.18	1	0.98**	3.811
Workplace hazards	28.01	2	0*	38.86	2	0*	5.991
Job worry (stability)	12.34	2	0.002*	9.66	2	0.008*	5.991

*Notes: * indicates significance level p<0.001, p<0.01 and <0.05, ** indicates p>0.05(not significant); significance level chosen at p<0.05. The variables of health status factors (prevalence of diseases and injuries) measured the counts of affected and not affected workers (dichotomy: Yes/No).*

Results of the □2 analysis indicate significant association between perceived health status and individual demographic factors of the workers (**Table 5**.). The variables of Age, work age, nature of employment education and skill level of the workers were found associated with the diseases and injuries affects at different statistical significance levels of *p<0.001, <.01 and <.05* indicating different predictabilities of health effects.

Table. 5.: *Summary table of the independence or association of demographic factors and health status of urban unorganised MSME workers,* N=130

Individual demographic factors		N(%)	Health status					
			1			2		
			Yes	No	p	Yes	No	p
Age	≤ 30	13(10)	5(3.8)	8(6.2)	<.001(27.31)*	9(6.9)	4(3.1)	.01<.05(9.02)*
	31 - 50	81(62.3)	71(54.6)	10(7.7)		74(56.9)	7(5.4)	
	51+	36(27.7)	35(26.9)	1(.8)		35(26.9)	1(.8)	
Work Age	≤ 10	42(32.3)	24(18.5)	18(13.8)	<.001(39.97)*	32(24.6)	10(7.7)	<.001(15.97)*
	11 - 30	68(52.3)	68(52.3)	0		67(51.5)	1(.8)	
	31+	20(15.4)	19(14.6)	1(0.8)		19(14.6)	1(.8)	
Nature of employment	Self-employed	13(10)	11(8.5)	2(1.5)	.007<.01(9.93)*	12(9.2)	1(.8)	.008<.01(9.59)*
	Casual	62(47.7)	59(45.4)	3(2.3)		61(46.9)	1(.8)	
	Temporary	55(42.3)	41(31.5)	14(10.8)		45(34.6)	10(7.7)	
Education	Primary	56(43.1)	43(33.1)	13(10)	.004<.01(13.21)*	52(40)	4(3.1)	.001<.01(17.61)*
	Secondary	18(13.9)	13(10)	5(3.9)		14(10.8)	4(3.1)	
	Higher (Non-BA)	3(2.3)	3(2.3)	0		1(.8)	2(1.5)	
	Illiterate	53(40.8)	52(40)	1(.8)		51(39.2)	2(1.5)	
Skill	Unskilled	51(39.2)	39(30)	12(9.2)	.03<.05(6.92)*	42(32.3)	9(6.9)	.03<.05(7.16)*
	Semi-skilled	60(46.2)	53(40.8)	7(4.6)		58(44.6)	2(1.5)	
	Skilled	19(14.6)	19(14.6)	0(0)		18(13.8)	1(.8)	

Notes: **indicates significance level p<.001, p<.01 and p<.05; parentheses indicate percentage; parentheses in the p value columns indicate its corresponding □2 values; Col (1) contains prevalence of disease s & Col. (2) contains prevalence of injuries measured the counts of affected and not affected workers (dichotomy: Yes/No).*

Study found that the prevalence of health problems among the workers reportedly led to physical disability such as absence from work, loss of work ability and detrimental health condition. Analysis on self-reported data (**Table 6**.) reveals that the workers' disease and injury effects had a significant relationship with health outcome variables at different strength of significance levels *(p<0.001, p<0.01 & p<0.05)*.

Table. 6.: *Summary table of the association of the variables of prevalence of health problems and health outcome status of urban unorganised MSME workers,* N=130

Health outcome	Health status						*tabulated α-value at 0.050 level*
	1			2			
	(2)	*df*	*p*	*(2)*	*df*	*p*	
Outcome variables							
Sickness absence	10.62	1	0.001*	6.31	1	0.01*	3.841<□2
Work ability	35.60	2	0*	21.15	2	0*	5.991<□2
Present health condition	35.60	2	0*	21.15	2	0*	5.991<□2

*Notes: * indicates significant at p<0.001, p<0.01 & p<0.05; level of significance chosen at 0.05, Col (1) & (2) contains the predictor variables of health status factors(prevalence of disease and injuries) measured the counts of affected and not affected workers (dichotomy: Yes/No).*

Results of Pearson simple linear correlation test (**Table 7**.), applied to the numerical data on self-reported health complaints, reveals strong to weak types of positive correlations between the severity of health risk and health outcome factors. Both statistically significant (*p<0.01*) and not significant (*p>0.05*) correlations found between the sets of variables.

Table. 7.: *Correlation between health risk and outcome factors of urban unorganised MSME workers, N=130*

Severity of Health risk	Health outcome			
	1		2	
	r	*p*	*r*	*p*
Annual occurrences of diseases	0.81	0**	0.74	0**
Occurrences of major injuries during working period	0.04	0.65*	0.07	0.44*
Disease suffering period	0.50	0**	0.53	0**

Notes: **. Correlation is significant at the 0.01 level; *. Correlation is not significant (p>0.05); significance level chosen at 0.05. Health outcome variables consists counts (%) of monthly sickness absent days (Col.1) and daily work loss hours (Col.2). Pearson Linear Correlation applied for evaluation. r indicates values of correlation coefficients.*

Correlations matrix

	1	2	3	4	5
Annual occurrences of diseases	1				
Occurrences of major injuries during working period	0.061	1			
Periods of disease suffering	.781**	0.071	1		
Number of sickness absent days	.811**	0.04	.501**	1	
Daily work loss hours	.736**	0.068	.531**	.572**	1
**. Correlation is significant at the 0.01 level (2-tailed).					

Correlation matrix, on the computed five (5) sets of variables on data for 130 workers, reflects 6 out of 10 correlations were statistically significant. Results suggests that the correlations of major injury occurrences during the whole working period with monthly work absent days and daily work loss hours were not significant (weak correlation), *r=.04, p>.05; r=.07, p>.05* respectively. Similarly, study observed significant strong correlation between occurrences of disease prevalence and health outcome effects, *r=.81, p<.001; r=.74, p<.001*. Periods of disease exposure had statistically significant moderate relationships with the prevalence of health outcome measures, *r=.50, p<.001; r=.53, p<.001*.

4. DISCUSSION

Present study examined the work-related health problems of unorganised MSME workers in randomly selected 96 enterprises across different urban locations of Nagaon District of Assam. Work activities in the urban enterprises are taken place in open yards, undeveloped urban plots, or even on street pavements (**Menya, D. *et al.,* 2016**). In our study, the effects of physical, psychosocial and organizational factors on the prevalence of health problems were hypothesised significant. The results showed that the factors were associated with workers' different health risks of diseases and injuries. The significant association of the noted factors of health problems were the workers' self perception on their health status and the effects of different work-related risks and hazards and are consistent with a few earlier literature of disease specific studies **(Kazaz, A. *et al.*, 2016, Narban, J. S. *et al*. 2016, Habib, R. R. *et al.* 2019).** Workers' health problems were also found statistically significant in the relationships with their individual work-related demographic characteristics **(Table 5.)**. Findings reveal that 62.3% of the workers aged 31 to 50 had reported highest work-related health problem in the study area. Highest health effects were found in the groups of >10 years of experience, casual workers, primary education and illiterate and in the semi-skilled and unskilled categories of workers.

Study found that work-related health problems were severe among the workers who reported 37.8% highly affected, 34.2% moderately affected and 27.9% low affected by multiple diseases out of total affected workers on the one hand (**Table 2.**) and 39.2% major injuries 16.2% moderate injuries, 35.4% minor injuries and 9.2% no injuries on the other. The prevalence of work-injuries has been

reportedly found among the workers in a responsible figure of 90.8% (**Table 3.**). In a study of **(Okuga, M. *et al*., 2012)** municipality small-scale welders in Uganda, showed that 92% welders reported injuries of being caused by their work and workplace hazards **(Isah E.C. and Okojie O.H., 2006)**. 63% of the workers reported injuries and work environment, ergonomic, poor health and psycho-social stressors were shown associated with injury occurrence in a study conducted in Ahmedabad city among automobile repair workers **(Vyas, H. *et al*., 2011).** Prevalence of injury was shown 45.2% per year and its significantly associated risk factors while studying to assess the magnitude of work related injury among small scale industrial workers in Southwest Ethiopia **(Meleko, A. *et al*., 2017).** Our study conducted in the manufacturing and processing enterprises with varied nature of work environment susceptible to work-related health risk of diseases and injuries. The role of work-related risk and hazardous factors has been well described in many earlier studies, the studies conducted among the workers of wood processing industry in Ghana, Carpet Thread Factory in Uttar Pradesh, textile industries in India **(Adei, D., and Kunfaa, E. Y., 2007, Jaiswal, Dr. A., 2012, Kumar, P. M., 2014)** showed the recorded Ear and eye infections, skin rashes, difficulty in breathing, hearing impairment, sleeping disturbances among the workers.

The study also found significant positive correlation between occurrences of health risks and health outcome which showed absenteeism and work loss hours or work disability (**Table 6. & 7.**). The correlation is also consistent with the findings from previous studies **(Alavinia *et al*., 2009, Guan NG Y *et al*., 2013)** where subsequent health impairments with productivity loss at work among workers in different industries shown. The very limitation of the present study is that we avoided examining workers' exposure to behavioural, workplace environment, ergonomic, chemical and biological hazards. Our study predominantly aimed to narrate the contemporary work-related health status of the unorganised enterprise workers of Nagaon urban areas for the state, national and global attention, like the earlier studies conducted in the workers of different sectors in the state of Assam **(Biswas, D. *et al.* 1999, Hazarika, R., *et al.,* 2011, Hazarika, R., 2012**, **Borgohain, P., 2013, Mahanta, T. G., *et al.,* 2016)**. The findings of this study reveal that prevalence of self-reported work diseases such as Respiratory, Lower Back Pain, Chest/Nose/Lung/stomach inflammation or irritations, Musculoskeletal, Hypertension and high blood pressure, Multiple Skin disease, Heat stress, Eye power loss/stain/irritation, Mental stress, Gastroenteritis etc. were severe both in respect of occurrences and nature of its affects in the workers of the study area.

5. CONCLUSION

The study demonstrated that a few physical and psychosocial and organisational factors responsible for the prevalence of health problems among enterprise workers. Findings of the Study suggest that workers of unorganised Nagaon urban MSM Enterprise have been under serious work-related health vulnerabilities which is a significant factor in social health inequalities among all the categories of workforce of Assam and requires social security coverage (**Lopez-Ruiz, *et al.* 2015)**. The study intensifies the importance of further occupational health study in the area quantifying the work exposure levels (**Waters, T. R. *et al.,* 2006)** by measurement scales other than the self-reported measures as suggested in the earlier studies like **Gupta, R. & Dey, S. K. (2013)**. The necessity of a baseline occupational labour health survey in the entire industrial settings of the state of Assam is underlined by the present study under national Occupational Safety and Health framework for policy evaluation of this state of Assam. Present study aimed to find the prevalence of health problems of the workers engaged in the unorganised urban manufacturing, repairing, servicing and processing enterprises and its associated health risks as an indicative to carry out further study in the area using more occupational health indicators. The results of the study suggest that preventive measures and easy access of health care in the workplaces carries high potentiality of protecting the vulnerable working people from health hazards. The extension of occupational health care to the workers of unorganised enterprises should be promoted incorporating occupational health into public health care services at district and local levels (**Forastieri, V., 1991**) so as to increase work productivity and maintain sustainability of industrial growth and inclusiveness in the state and the country a well.

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