MedCrave
Step into the World of Research

MOJ Public Health

Research Article

Open Access

CrossMark

Prevalence and associated factors with work related injuries among workers in Etab soap and detergent factory Hawassa, Ethiopia

Abstract

Background: Now a days industries and working areas are increasing in Ethiopia. As a result the problem of injury is severing by lack of safe working conditions. Only 5 to 10 percent of workforce in Ethiopia has access to some kind of occupational health services. Occupational injuries pose a major public health and development problems in work places.

Objective: The aim of the study is to assess the magnitude and factors associated with work related injuries among workers in Etab soap and detergent

Method: Industrial based cross sectional study was employed. A total of 181 workers were selected randomly.

Results: One hundred fifty (82.9%) workers use PPE while working, even though 69(38%) of the respondents had experienced several types of injuries. Younger age group [AOR =160.25(6.83-37.6)], being permanent worker [P≤0.001 and AOR=0.07(0.02-0.37)], using personal protective equipment [P=0.007 and AOR=0.04 (0.15-0.60)], job satisfaction [P≤0.001 and AOR= 2.05(0.39-10.87)] show significant association with injury.

Conclusion and recommendations: The type of injuries occurred was varied by the work department and the working mechanism. Chemicals were the source of injury in many occasions. PPE use was the major concern in determining injuries. Age, employment pattern, regular supervision and safety training was also the key issues in determining work related injuries.

Keywords: worker related injury, injury, factory, detergent, personal protective equipment

Volume 7 Issue 4 - 2018

Habtamu Kibret,[1] Yonas Kassahun,[1] Habtamu Senbeta,[1] Lelisa Gemechu,[1] Dereje Geleta,[2]

[1]Department of Environmental Health, Hawassa University, Ethiopia

[2]School of Public Health, Hawassa University, Ethiopia

Correspondence: Habtamu Kibret, School of Environmental Health, Hawassa University, Ethiopia, Email habtamukibret27@gmail.com

Received: March 07, 2018 | **Published:** July 12, 2018

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; CMHS, college of medicine and health science; ILO, international labor organization; Km. kilometers; MoH, ministry of health; PPE, personal protective equipment; SNNPRs, southern nation nationalities and peoples region; V, version; WHO, world health organization

Background

Of the total workers in the world that reaches 3 billion, nearly 85% are without occupational safety. According to WHO report in 2006 from 100 million cases of work related injuries over 2 million deaths has occurred so far.[1] Cases appear to be rising due to rapid industrialization in some developing countries. On sub Saharan Africa 54,000 fatal occupational accidents happen annually. Approximately 42 million work-related accidents took place that causes at least 3days absence from work. The fatality rate of the region is 21 per 100,000 workers and the accident rate per 100,000 workers is 16000.[1] Now-a-days industries and working areas are increasing in Ethiopia. As a result the problem of injury is severing because safe working conditions do not exist in the rate of industrial distribution. Only 5 to 10 percent of workforces in developing countries like Ethiopia have access to some kind of occupational health services.[2,3] In a study among 3,100 factory workers in Addis Ababa reported an incidence rate of 200 injuries per 1000 exposed workers per year.[4] The injury rate among 4,462 industrial workers in Addis Ababa was 80 per 1000 exposed workers per year.[5] Reports from Department of Environmental Health of Ministry of Health in the country indicated that among 16,610 large-scale industrial workers in Addis Ababa, a prevalence rate of 723 injuries per 1000 exposed workers was observed.[6] The study conducted in Gondar on the magnitude of injuries with the factors related among workers engaged in small and medium scale industries 32.4% of workers engaged specifically on medium scale industries had experienced work related injuries. The study further showed 49.1% of the injured respondents faced more than one injury and 12% respondents had experienced work related injuries for a two weeks period prior to data collection.[7] This is because in countries like Ethiopia occupational health and safety is among the lowest where few considerations have been given.[4]

In Ethiopia, there were 5, 596 fatal accidents, the highest of all 48 African countries included in the study.[8] A nonfatal accident which makes 3days absence on the other hand was 4,270,815 and was still the highest. According to the study on assessment of occupational injuries in Tendaho Sugar Factory in Afar region of Ethiopia, 6153 work days were lost among 634 injured respondents. On average 11.4 working days were lost per an injured worker per year.[9] In addition, most, 789(97.4%), of them had never been involved in occupational health and safety on job training. Onehundred eighty eight (23.2%), 216(26.7%), and 86(10.6%) of participants drank alcohol, chewed "khat" and smoked cigarette, respectively. Four hundred ninety three (60.9%) respondents had sleeping disorders, 163(33.1%) had evening or mid-night shifts. Five hundred thirty two (65.7%) of the respondents were not satisfied with their present job.[10] Most study participants 786(97.0%), did not use personal protective equipment at work places. The main reason for not using personal protective devices was absence of the devices, for 773(98.3%) of the workers and absence of health and safety training among 246(31.3%) workers.

Workers who had 5years and less working experience were less likely to be injured compared to those who had 6years and above working experience. Study participants, who have used to work more than 48 hours per week, were 8 times more likely to be injured compared to those who worked 48hours and less.[8] Similarly workers without health and safety training were about 6 times more susceptible to injury than those who had training. Workers who were used to drink alcohol were more likely to be injured than those who do not consume. Similarly those who had sleeping disorder were about 2 times more likely to be injured than those who had no sleeping disorder. Study participants who were not satisfied with their assigned job were also more likely to be injured than those satisfied. Similarly, workers who were not used to wear personal protective equipment were about 3 times more likely than injury.[8]

Methodology

Study design and period

Industrial based cross-sectional study was conducted to assess prevalence of work related injuries and factors associated with the problem in Etab soap and detergent factory, SNNPR Hawassa town from January 2017 on to June 2015.

Study area

The study was conducted on Etab soap and detergent factory; Hawassa town, SNNPRs regional state, Ethiopia. Hawassa is a city in the southern part of Ethiopia, on the shores of Lake Hawassa, in the Great Rift Valley. It is located 270 km south of Addis Ababa via DebreZeit, 130 km east of Sodo, and 75 km north of Dilla. It lies on the Trans-African Highway 4Cairo-Cape Town, and situated between 7°3′N 38°28′E at 1708 meters.

Source population

The industry includes a total 344 workers from which 219 are male and 96 female workers. All employees working in Etab soap and detergent industries without considering age, sex, working position was the source population, while the industry working in process was taken as study unit.

Eligibility criteria

All Workers with the work experience of oneyear and above, despite considering sex age, work experience, employment pattern, working department and other backgrounds was eligible for the study.

Inclusive criteria

Workers who have spent more than 12months in the factory was included.

Exclusive criteria

Workers who have not spent 12months working in the factory yet, those who serve as per time workers was excluded.

Sampling

Sample size

The sample size was determined by a single proportion formula and corrected for the sample population. Accordingly, it was 181.

Sampling technique

Simple random sampling technique was applied to get the desired sampling unit. No restriction of samples selected to be stratified

Variables

In Dependent

i. Age
ii. Sex
iii. Job satisfaction
iv. Educational level
v. Personal protective equipment
vi. Employment pattern and monthly salary
vii. Hours worked per week
viii. Prevalence of safety training and supervision at work
ix. Chat, cigarette and alcohol using habit

Dependent

Prevalence of injury

Data collection and analysis

Data collection instruments

The data was collected using a well-structured and pre tested questionnaires and observational check-lists. The questioner was prepared in paper.

Data collection

The data was collected from the sampled workers by the two members of the research project. The questioner was prepared in English and the data collectors translated to Amharic while administering.

Data quality control measures

Pretest was conducted on workers that do not included in the main study and furthermore the quality of data was improved by discussion with the supervisor, advisor and focal persons in the factory who had better information. All data were checked up before inserting to SPSS.

Data analysis

All the data collected were tabulated in a meaningful ways and based on the objectives of this study, the dependent and independent variables were calculated in terms of their frequency and association. Hence logistic regression were done to identify the significance of the relationships and displayed in terms of charts, graphs and tables.

Results

The participation rate was 100%. Most workers were asked while they are in leisure time. 163 respondents were asked while they are in the factories recreational area, while the remaining 18 were asked while they are in work.

Socio demographic status of respondents

All 181 workers have asked and responded, response rate was 100%. The age of respondents (Table 1) of the survey was founded. 21(11.6%) respondents were less than 20years of age, 51(28.2%) were 20-24, 29(32.6%) were in between 25 and 29, 22 (12.2%) were under the age group 30-34, 28(15.5%) above 35years old. Most of the study participants, 145 (80.1%), included in the study were males, and 36 (19.9%) were females. Based on religion 102(56.4%)

were Protestants, 58(32%) Orthodox 17(9.4%) Muslims and the rest 4(2.2%). The marital status was surveyed and most respondents were single 120(66.3%), 56(30.9%) were married and 5(2.8%) divorced. 6(3.3%) respondents were Illiterates. Those who can read and write, 2(1.1%), Grade 1-4 were 6 (3.3%), 57(31.5%) were between grade 5-8, 47(26%) between grade 9-12, college certificate 15 (8.3%), 30(16.6%) have diploma. 18(9.9%) respondents have degree and above. 116(64.1%) were permanent workers while 65(35.9%) were employed temporarily. Respondents in the factory were working in different departments of the factory.

Table 1 socio demographic status of respondents; Etab soap and detergent factory, Hawassa April- May 2017

Socio demographic		Frequency	Percentage (%)
Sex	Male	145	80.1
	Female	36	19.9
Age	<20	21	11.6
	20-24	51	28.2
	25-29	59	32.6
	30-34	22	12.2
	>35	28	15.5
Religion	Orthodox	58	32
	Muslim	17	9.4
	Protestant	102	56.4
	Others	4	2.2
Marital status	Single	120	66.3
	Married	56	30.9
	Divorced	5	2.8
Educational level	Illiterate	6	3.3
	Can read and write	2	1.1
	Grade 1-4	6	3.3
	Grade 5-8	57	31.5
	Grade 9-12	47	26
	College certificate	15	8.3
	Diploma	30	16.6
	Degree and above	18	9.9
Employment pattern	Permanent	116	64.1
	Temporary	65	35.9
Monthly salary	<650	6	3.3
	>650	175	96.7
Working	<5	147	81.2
	05-10	26	14.4
	>10	8	4.4

Working environment and behavioral characteristics of workers

The environments around workers working condition like use of personal protective equipment's during work, work experience, job category, working hours per week and personal behaviors were assessed. Eighty (44.2%) of respondents were daily laborer, 78(43.1%) technical workers, 13(7.2%) in the administration staff and 10(5.5%) were drivers (Figure 1). On the basis of work experience the majority of workers have been working in the factory for less than 5 years, 147(81.2%), 26(14.4%) have an experience of 5-10 years and 8 workers (4.4%) with more than 10years of experience. Their respective working hours vary according to the job category and the total payment that workers earn. As it the majority of workers, 164(90.6%) working for more than 48hours per week and 17(9.4%) for less than 48hours per week in the company.

The use of personal protective equipment's seems to prevail among most of the factory workers although type of PPE used is limited to the job category and the working condition of the individual.150 (82.9%) workers use PPE while working (Figure 2). The remaining 31(17.1%) was not totally using any safety equipment's. Among 150 users (Table 2) 109(72.7%) wear overalls, 104(69.3%) use boots, 48(32%) use gloves, 40(26.7%) use googles, 21(14%) use face shields, 15(10%) use respirator 10(6.7%) use helmet, 8(5.3%) use ear plugs, and 7(4.7%) use other PPEs like belts, considering a single respondent could use more than one PPE Non users have a variety of reasons for not using PPE. Among 31 respondents who are non-users the majority that accounts 19(61.3%) workers has complained of the absence of PPE, 4(12.9%) said that they are not comfortable to use, 1(3.2%) claimed that there is lack of safety education and the other 7(%) had reasons like negligence and a belief that they are not too important as to why they don't them at all. Different factories set a supervision schedule and personnel who regularly supervises workers and see if any injury occurred in the work area. In this case 104(57.5%) respondents reported that they have been supervised before. Different trainings have been given about safety at work to workers during employment and after they are employed. Among 59(32.6%) workers who had safety training 31(52.5%) of them were trained by experienced workers from the factory and the other 28(47.5%) were trained by kaizen.

Table 2 Type of PPE using by respondents in Etab soap and detergent factory Hawassa Ethiopia

Type of PPE	Yes	No
Gloves	48(32%)	102(68%)
Ear plug	8(5.3%)	142(94.7%)
Respirators	15(10%)	132(90%)
Helmets	10(6.7%)	140(93.3%)
Googles	40(26.7%)	110(73.3%)
Face shields	21(14%)	129(86%)
Boots	104(69.3%)	46(30.7%)
Overalls	109(72.7%)	41(27.3%)
Others	7(4.7%)	143(95.3%)

Behavioral characteristics of workers

140 respondents suggested that they are satisfied with their current job in the factory and this accounts around 77.3%. 35(19.3%) workers are found to be alcohol users, 20(11%) chew chat and only 7(3.9%) smoke cigarette (Figure 3).

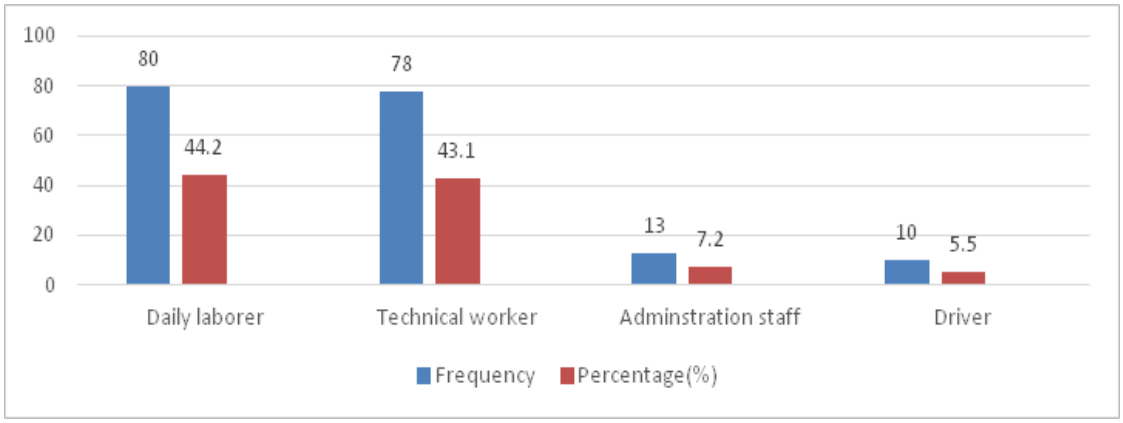

Figure 1 Category of workers in Etab soap and detergent factory Hawassa from April-May 2017.

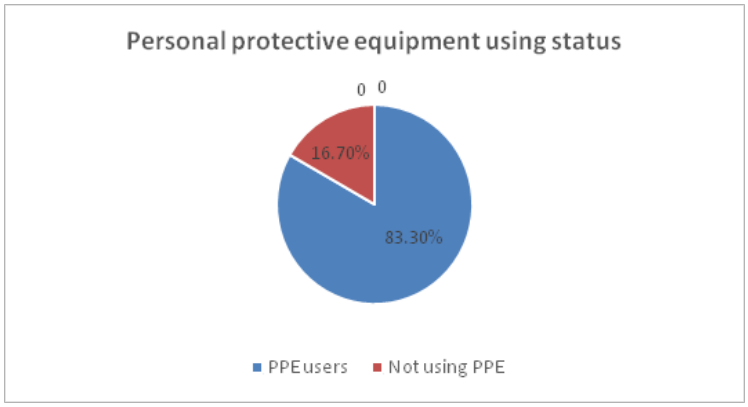

Figure 2 PPE using status in Etab soap and detergent factory Hawassa from April-May 2017.

Figure 3 Frequency of different behavioral characteristics among respondents in Etab soap and detergent factory Hawassa Ethiopia April-May 2017.

Characteristics of work related injuries

The prevalence of injury in the previous 12 months was assessed and the results indicated that 69(38%) of the respondents had experienced several types of injuries. Further investigation showed that 43(62.3%) had suffered from injury once, 13 (18.8%) twice, 3(4.3%) three times and 10 of them (14.5%) had been injured more than 3times. On the other hand occupational injuries in the last 2weeks before the data collection was conducted have been asked and 15 respondents to have experienced injuries lately. Out of these 7 were injured only once and 8 were injured twice. The aforementioned injuries that occurred vary in type and severity. The type and severity of injury mainly depends on the cause and duration of the event that the injury resulted from. The different types of injuries that occurred are presented as follows, laceration on 27(39.1%), burn on 15(21.7%), piercing on 12(17.4%), fracture on 19(27.5%), dislocation on 5(7.2%), amputation on 4(5.8%), poisoning on 2(2.9%), electricity on 1(1.4%), and other injuries had effects on 5(7.2%) of the total affected workers. These injuries are caused by accidents like glass cut in 5(5.8%), penetrating sharp object trauma in 14(20.3%), blunt object trauma in 8(11.6%), foreign object in 2(1.1%), squeezing in 7(10.1%), falls in 17(24.6%), burns in 3(4.3%), intoxication in 3(4.3%), collision in 4(5.8%), chemicals, acid and hot objects in 19(27.9%) and falling objects in 7(10.1%).

All the above injuries have their own mechanisms through which they were initiated. About 37(53.6%) cases were due to falling objects, 16(23.2%) due to machines, 1(1.4%) due to electricity, 3(4.3%) due to vehicle accident, 13(18.8%) due to working with chemicals and other 5(7.2%) occurred through other mechanisms. The majority of these

injuries occurred during the daytime i.e. 46 cases (66.7%) and the remaining 23 cases (33.3%) occurred during night time. Every injured person has one or more part of his/her body that was particularly affected by the injury with different degree of severity. The heads and neck of 11 injured people (15.9%), thorax of 1,faces of 8, abdomen of 2, arms and shoulder of 5, hands and fingers of 20, lower extremity of 14, the skins of 6, the back vertebrae of 1 and other body parts of 1 were injured. The severity of happened injuries was assessed based on hospitalization by injured respondents. Among these injuries 49(72%) had resulted in hospitalization. Consequently, 6 people were hospitalized for a day, 21 for up to fourdays, 11 for 5 to 10days and also another 11 spent more than 10days after being hospitalized. As a result 184 working days lost due to injuries on 69 workers.

Association of factors with work related injuries

Socio demographic status, behavioral characteristics and working environment in relation to injury were analyzed using logistic regression by bivariate and multivariate analyses. Age, employment pattern, used PPE and regular supervision identified as determinants of work related injury. Younger age group, being permanent worker, using PPE, regular supervision in work show significant association with injury. Sex, monthly salary, educational level, job category, work experience, working hours per week, safety training, chewing chat, drinking alcohol and smoking cigarette didn't show any association with prevalence of injury (Table 3). On age group analyses by multivariate regression, with adjusted odds ratio (AOR) and 95% (CI), for age group by taking >35 age groups as constant, < 20 [AOR =160.25(6.83-37.6)], 20-24[AOR=21.59 (2.18-213.76)], 25-30 [AOR =88.40(4.96-15.80)], 31-35[AOR = 54.01(2.51-11.2)]. For employment pattern by taking temporary workers constant, [AOR=0.07(0.02-0.37)]. For personal protective equipment use, by taking non users as a constant, [AOR=0.04 (0.15-0.60)]. On regular supervision by taking respondents who said there were no regular supervision, [AOR=98.00(12.18-788.56)]

Table 3 Bivariate and multivariate logistic regression

Independent variables	Injury			COR(95%CI)	P value	AOR(95%CI)	P value
	Yes		No				
Sex	Male	60	85	0.472(0.207-1.076)	0.74	0.202(0.038-1.08)	0.06
	Female	9	27	1		1	
Age	<20	5	16	3.2(0.919-11.145)	0.068	160.25(6.83-37.6)	0.002
	20-24	22	29	1.318(0.523-3.325)	0.558	21.59(2.18-213.76)	0.009
	25-30	18	41	2.278(0.903-5.745)	0.081	88.40(4.96-15.80)	0.002
	31-35	10	12	1.2(0.392-3.676)	0.75	54.01(2.51-11.2)	0.01
	>35	14	14	1		1	
Educational level	Illiterate	3	3	1(0.158-6.346)	1	0.03(0.00-1.98)	0.1
	Can read And write	1	1	1(0.054-18.58)	1	2.29(0.002-2.45)	0.816
	01-4	2	4	2(0.29-13.814)	0.428	6.20(0.009-4.51)	0.59
	05-8	17	40	2.535(0.76-6.958)	0.122	0.67(0.03-13.78)	0.79
	09-12	14	33	2.357(0.773-7.192)	0.132	0.59(0.02-17.93)	0.76
	Certificate	8	7	0.875 (0.22-3.451)	0.849	0.06(0.002-1.85)	0.108
	College diploma	15	15	1(0.311-3.218	1	0.74(0.03-19.64)	0.86
	Degree and Above	9	9	1		1	
Employment pattern	Permanent	51	65	0.488(0.253-0.940)	0.03	0.07(0.02-0.37)	0.001
	Temporary	18	47	1		1	
Monthly salary	>750	1	5	3.178(0.363-27.787)	0.296	7.92(0.28-220.51)	0.06
	>750	68	107	1		1	
Job category	Daily labor	24	56	0.349(0.181-0.671)	0.02	0.00(0.00)	0.998
	Technical worker	43	35	2.357(0.485-11.452)	0.288	0.00(0.00)	0.998
	Administration staff	2	11	6.923(0.00)	0.999	0.002(0.00)	1
	Driver	0	10		1	1	

Citation: Kibret H, Kassahun Y, Senbeta H, et al. Prevalence and associated factors with work related injuries among workers in Etab soap and detergent factory Hawassa, Ethiopia. *MOJ Public Health.* 2018;7(4):180–187. DOI: 10.15406/mojph.2018.07.00225

Table Continued

Independent variables	Injury			COR(95%CI)	P value	AOR(95%CI)	P value
	Yes		No				
Working hour per week	<48 hour	2	13	4.39(0.961-20.126)	0.056	4.94(0.13-191.93)	0.39
	>48 hour	67	99	1		1	
Work experience	<5 year	56	91	2.708(0.623-11.774)	0.184	4.94(0.13-191.93)	0.39
	5-10 year	8	18	3.75(0.716-19.644)	0.118	45.87(0.45-4.20)	0.104
	>10 year	5	3	1		1	
Used PPE	Yes	63	87	0.33 (0.128-0.855)	0.022	0.04 (0.15-0.60)	0.007
	No	6	1		1		
Gloves	Yes	29	19	3.053(0.1501-6.209)	0.02	0.89(0.17-4.69)	0.89
	No	34	68	1		1	
Ear plug	Yes	6	2	0.224(0.44-1.147)	0.073	1.20(0.04-40.13)	0.92
	No	57	85	1		1	
Respirator	Yes	10	5	3.094(1.002-9.557)	0.05	1.59(0.10-24.99)	0.74
	No	53	82	1		1	
Helmets	Yes	5	5	1.414(0.39-5.107)	0.597	1.26(0.08-20.83)	0.74
	No	58	82	1		1	
Overall	Yes	42	67	1.675(0.812-3.454)	0.162	0.49(0.08-3.12)	0.87
	No	21	20	1		1	
Goggle	Yes	24	16	0.366(0.174-0.770)	0.008	0.20(0.03-1.55)	0.45
	No	39	71	1		1	
Face shield	Yes	12	9	0.49(0.193-1.247)	0.135	6.56(0.47-91.69)	0.12
	No	51	78	1		1	
Boots	Yes	46	58	0.739(0.362-1.508)	0.406	0.58(0.13-2.59)	0.13
	No	17	29			1	
Others	Yes	3	4	0.964(0.208-4.466)	0.962	0.3(0.01-8.52)	0.48
	No	60	83	1		1	
Regular supervision	Yes	25	79	4.213(2.228-7.968)	0	98.00(12.18-788.56)	0.48
	No	44	33	1		1	
Satisfied With job	Yes	49	91	1.769(0.875-3.576)	0.112	2.05(0.39-10.87)	0
	No	20	21	1		1	
Chewed chat	Yes	10	10	0.578(0.227-1.471)	0.25	1.44(0.09-21.78)	0.46
	No	59	102	1		1	
Used alcohol	Yes	18	17	0.507(0.241-1.068)	0.074	0.46(0.06-3.49)	0.4
	No	51	95	1		1	
Smoke cigarette	Yes	2	5	1.565(0.295-8.299)	0.598	3.62(0.01-1.38)	0.79
	No	67	107	1		1	
Had safety training	Yes	20	39	1.309(0.689-2.506)	0.416	1.68(0.46-6.24)	0.67
	No	49	73	1		1	

Discussion

Different studies on occupational injury verify the intensity to be high on developing countries than the developed.[3] Ethiopia as one of developing countries also shares this figure. The study conducted on Etab soap and detergent factory workers is not far from this. Both 12months prevalence rate and 2 weeks incidence rate was assessed throughout the previous months. The study indicates 69 workers among 181, have faced occupational injury in the previous 12months which means 38.1% prevalence.[11,12] The result is not far from a study conducted in Gondar which is 32.4%.[7] But the finding is less than the study in Tendaho Sugar Factory, Afar region, which shows 78.3% of prevalence.[5,8] Comparing the result with the study in USA shows higher injuries in Etab private industry. In USA private industries, the rate of injury was 3.4%.[13] The factory working environment was seen not comfortable to do with. As the factories primary product is soap and detergents, using of dangerous chemicals, machineries and hot water might contribute the prevalence of injury higher. Even this figure of injury prevalence is with the probability of recall bias, where workers may not remember minor injuries for the so long 12 months. Working hours per week plays the great role in occupational injuries prevalence. The study which conducted in Gondar industries indicated that 51.7% were working for less than 48 hours per week. In Tendaho sugar factory+87.5% were working for less than 48 hours in a week. But in this study 92.7% of workers were working for less than 48 hours. The remaining was working for less than 48hours. The long exposure time of workers in their job will increase the risk for injuries.

Regular supervision by the factory owners and responsible bodies is one of the determinant factors. Job categories at risk, use or nonuse of PPE, dangerous working times, different behavioral characteristics can be identified by these responsible bodies. As the power of changing working situation comfortable is in their hand than the other, this stakeholder's regular supervision is unquestionable. In this study, 57.5% were responded as there was regular supervision during their work. The result is better from the study in Gondar which is 39.9% of respondents having got work place supervision. Personal protective equipment's are directly the crucial factor for prevalence of injury. In the study 82.1% of respondents were using PPE during work. But the problem is they are using PPE without considering their work department. This is because the factory has no mechanisms of work to identify which PPE is needed for whom. Despite of this the habit of using PPE is better than the result from a study in Gondar which is 53.8%. The finding is far better from the study in Tendaho Sugar Factory where only 3% using PPE. The types of PPE used by respondents were varied among users. Of this PPEs overalls were used highly than other (72.7%). But practically overall wearing was seen not preventing the problem. Because as chemicals are the major source of injuries in the factory which is very difficult to prevent by wearing overalls. Use of personal protective equipment is good when the result in Nepal where only 7.3% used.[12] Respondents who satisfied with their current job were 77.3%. To do the job with good motivation and care satisfaction is important. A worker who can't satisfy with his job couldn't concentrate. Loss of concentration in a job will expose for carelessness which leads to injury. Most respondents were relating the salary they earn to express their feeling towards their job satisfaction. Most of injuries occurred were abrasion, which followed by fracture and then burn. Poor working environment in the factory observed and absence of selecting PPE to a specific type of job, leads this injury. Workers were doing their job in a condition which leads them to be lacerated and fractured. The illumination and lightning of the factory was observed poor. Burn is also another type of injury with high frequency of occurrence as working with chemical is obvious in the factory. Laceration is also a top injury type in a study on Tendaho Sugar Factory.[8,13] The severity of injuries were considerable as among all 69 injuries who were injured 49(72%) were hospitalized. The result is far dangerous from a study on industries of Gondar which resulted in only 17.1% of hospitalized.[7] Also the result is higher when compared with a study in Tendaho agricultural s.c, which resulted in only 11% hospitalization. The reason why hospitalization is higher may be, on the result chemicals were the first by the cause of injury. And working with chemicals is one of the top mechanisms of injury. As the injury by chemicals is not so easy to manage shortly, hospitalization would be needed.

Conclusion and recommendation

The results of this study indicated that there is high prevalence of work related occupational injury in Etab soap and detergent factory. The type of injuries occurred was varied by the work department and the working mechanism. Chemicals were the source of injury in many occasions. PPE use was the major concern in determining injuries. Age, employment pattern, regular supervision and safety training was also the key issues in determining work related injuries. So classifying jobs with respect to the age group is one of key issues. Use of PPE is also the good way to prevent workers from injury. The factory should distribute PPE for workers with respect to their work place. Regular supervision of workers on their work place, and continual safety training should be undertaken in the factory.

Acknowledgments

We would like send our gratitude heartfelt thanks for the factory administration for the cooperation and allowing as collecting this research data from their employees. We also like to thank the study participants for their valuable information and volunteer participation in this study.

Conflict of interest

The author declares that there is no conflict of interest.

References

1. WHO. Occupational Health Network. *Occupational health progam of WHO*. 2006;1–2.
2. Tampere University of Technology, Institute of Occupational Safety Engineering. "Global estimates of occupational accidents. *Safety science*. 2006;137–156.
3. International Labour Office. Estimating the Economic Costs of Occupational Injuries and Illnesses in Developing Countries: Essential. Working Paper, Geneva: International Labour Office, 2012.
4. Senbeto E. The incidence of injuries and their determinant in akaki textile factory, Addis Ababa. Masters Thesis. 1991;1–10.
5. Aberra Fulle. Injuries in urban factories of Ketena one, Addis Ababa. Masters Thesis, Addis Ababa University. 1988.
6. Ministry of Health Department of Environmental Health. Occupational health and safety assessment in selected factories in Ethiopia 1996;1–28
7. Tadesse T, Kumie A. Prevalence and factors affecting work-related injury among workers engaged in Small and Medium-Scale Industries in Gondar wereda, north Gondar zone, Amhara Regional State,Ethiopia. *Gonder university Department of Community Health, Faculty of Medicine*. 2004;1–10.

8. Yiha O, Kumie A. Assessment of occupational injuries in Tendaho Agricultural. *Ethiop J Health*. 2010;9.
9. Smith Mustard CA. Examining the associations between physical works demands and work injury rates between men and women in Ontario, 1990–2000. *Occup Environ Med*. 2004;61:750 6.
10. Aderaw Z, Engdaw D, Tadesse T. Determinants of Occupational Injury: A Case Control Study among Textile Factory Workers in Amhara Regional State, Ethiopia. *Journal of Tropical Medicine*. 2011.
11. Driscoll TR, Harrison JE, Bradley C, et al. The Role of D e s i g n Issues in Work-Related Fatal Injury in Australia. *Journal of Safety Research*. 2008;39(2008):209–214.
12. Sumanananda S. *A study on exposure related health problems in textile industry.* Spain, Valencia Conference Centre, Valencia. 2014.
13. US Bureau of Labor. *Employer-reported Workplace Injuries and Illnesses*. News, Washington DC: US Bureau of Labor Statistics. 2012.

Citation: Kibret H, Kassahun Y, Senbeta H, et al. Prevalence and associated factors with work related injuries among workers in Etab soap and detergent factory Hawassa, Ethiopia. *MOJ Public Health.* 2018;7(4):180–187. DOI: 10.15406/mojph.2018.07.00225