

Factors Influencing Non-compliance to Occupational Safety and Health Practices in the Informal Non-food Manufacturing Sector in Kampala City, Uganda

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The informal non-food manufacturing sector is an engine of growth and development in both developed and developing countries. It's unregulated and unregistered in official government statistics. However, this particular sector is faced with occupational safety and health hazards without preventive measures. A number of factors affect compliance with control measures. The study assessed factors influencing non-compliance to occupational safety and health practices in the informal non-food manufacturing sector in Kampala, Uganda. The purpose of the study was to acquire occupational safety and health data on the informal sector and identify needed interventions for mitigation. A cross-sectional survey design was adopted with qualitative and quantitative data collection techniques in 424 firms. Chi-square analysis showed occupational

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safety and health was good among male respondents compared to females ($p < 0.05$, $\chi^2 = 23.9$), use of Personal Protective Equipment ($\chi^2 = 40.393$, $p < 0.000$), education level ($\chi^2 = 147.3$, $p < 0.000$), period working at the enterprise ($p < 0.05$, $\chi^2 = 87.5$, $p = 0.002$) the period spent working provides experience to workers hence better equipped to manage occupational safety and health. Hours spent at work ($p < 0.05$, $\chi^2 = 19.8$), due to less fatigue and exhaustion. Multivariate logistic regression showed that respondents who were 31-40 years old had significantly reduced odds (COR 0.0467-0.0478) of practising occupational safety and health practices at work and able to employ good occupational safety and health practices at work, compared to below 30 and above 50 years. Men in general employed safe practices of occupational safety and health than women (COR 0.0918-0.0997) hence safer at work due to higher literacy in men. Adequate knowledge and awareness had (COR 0.860-0.863) knowledge empowers workers about hazards prevention, usually provided through training by employers. Duration of work (COR 1.189-1.10) as result of experience in managing hazards at work coupled by supervision over time. Use of personal protective equipment (COR of 0.0317- 0.0319) being cheap. Creation of awareness, safe work practices Provision and use of PPE and provision of occupational safety and health (OSH) regulations, as well as proactive multi-media strategies to improve the situation is required.

Keywords: Factors; non-compliance; occupational safety health practices; informal sector.

1. INTRODUCTION

The informal sector is described by the International Labour Organization (ILO) as part of the national economy comprising of a wide range of small scale economic units producing and distributing goods and services [1]. Generally, they are not registered or regulated and do not benefit from government support and subsidies. It encompasses a range of economic units in urban areas that are mainly owned and operated by individuals, either alone or in partnership with family members of the same household, and spans a range of sectors that include; handicrafts, leather crafts, woodworks and carpentry, metal fabrication, electrical and electronics, ceramics and pottery, textiles and garments, hairdressing, printing and graphics, chemicals and pharmaceuticals, building materials and construction, food and beverages and agro-processing amongst others [2]. The purpose of the study was to acquire occupational safety and health data in the informal non-food manufacturing sector and identify interventions needed to mitigate them in Uganda.

2. LITERATURE REVIEW

Many informal jobs are not only “flexible, precarious and insecure but are also hazardous and take place in unhealthy and unsafe environments [3]. Informal sector workers operate in inhumane conditions and makeshift places without sanitary facilities. Examples of such environments include road reserves, informal market places, wetlands/ marginal lands and poorly serviced homes, all of which can

expose the workers to environmental hazards, diseases, traffic accidents, fire hazards, crime, assault as well as weather-related discomfort and muscular-skeletal injuries. Despite the risks involved, due to its unconventional nature and location, informal workers in most African countries are not protected by the institutions that are mandated to protect them. Conventional OSH institutions have been designed to protect formal workers in the formal sector environments [4,5] state that informal workers operate in a typical and non-standard workplaces that are excluded by definition, from occupational safety and health protection measures.

Training of workers on occupational safety and health as well as workers’ rights within the workplace has been an important part of improving working conditions. Workers prior to commencement of new assignments should receive adequate training and information enabling them to understand the hazards of work and to protect their health from ambient factors that may arise [6]. According to World Health Organisation (WHO), the training must cover knowledge of the materials, equipment’s and tools, known as hazards of operation and how to control them, potential risks to health, hygiene requirements, wearing and use of PPE and appropriate extremes, incidents and accidents [7]. A study in Addis Ababa on solid waste collection in 2012, revealed that only 20.8% of the solid waste collectors had training before they embarked on their job and 57.3 had an on-job training after engagement on the job [8].

Personal Protective Equipment (PPE) is the last resort and line of protection to protect workers in the workplace. Employers are legally obliged to provide PPE at no cost, provide training, monitoring and supervision to reduce the injuries at workplaces [9,10]. Training of staff on the proper use of PPE is key in providing knowledge to use the PPE and this can be reinforced by the supervision and monitoring at the workplace this enhances occupational safety and health (OSH) practices over the long-time leading to OSH culture. This will, in the long run, affect OSH positively [11,12].

OSH legislation places a duty of care on employers to achieve adequate occupational safety and health implementation through safe workplaces, safe systems of work and provision of PPE [13]. Under the ILO convention No. 155 [14], Workers are supposed to take reasonably practicable measures to protect themselves and others at work from risks arising from their actions and omissions at the work, cooperate with the employer in achieving high standards of safety and health at work and under obligation to use the personal protective clothing and equipment. The enterprises that operate in this sector do so without binding regulations, not compelled to provide official returns on operations and occupational safety and health laws are rarely complied with [15].

Apart from the above mentioned, extreme neglect of literacy also results in illiterate and poorly educated manual workers. People with high educational attainment are more likely to understand harmful exposures and avoid them [16]. In a Nigerian study conducted among welders, 20% of those who had no formal education were aware of occupational hazards and safety measures compared to 78% among those who had primary education and 85% who had secondary education. Those with higher educational attainment may also be employed in more skilled but less hazardous jobs. Highly educated people are more likely to be in managerial, supervisory, clerical and administrative work than in manual or factory work [17].

In a Thailand study [18], informal workers were found to have less formal education than formal ones. Health impacts of illiterate workers were a result of reduced awareness of health hazards in working conditions that lead to injuries and occupational diseases as a result of poor apprehension of mitigation measures Employers

are obliged to provide training and awareness to staff in form of induction and on-job training as well as refresher training to help reduce the injuries and accidents in the workplace. Studies have demonstrated that education levels affect one's risk of serious injury, both fatal and non-fatal. The rate of serious non-fatal injury is higher for individuals of lower education levels, but less serious injury is not so clearly correlated with education. International studies indicate that uneducated men are more likely to experience fatal automobiles crashes than more highly educated men [19].

Much research has been conducted on the high rates of adolescents' injury, practitioners struggle to understand how to effectively prevent injuries in this age group. In the case of adolescents, social and economic determinants interact with a biological propensity for higher risk-taking behaviour, so while risk-taking has benefits and is part of the adolescent development, inappropriate or excessive risk-taking brings with it increased risk of harm. Although not applicable to all adolescents, evidence has shown that pubertal neurological changes that impact risk perception, reward-seeking and social image can increase risk to injury and endanger occupational safety and health [20]. In a related study in Ethiopia, it was revealed that working at young age increases risk of sustaining more occupational injury among factory workers compared to older workers in Ethiopia. This was attributed to the inaccessibility of OSH information, lack OSH training, lack of OSH experience and low level of knowledge and skill among young workers [21]. The study had a limitation of not willing to provide information due to the fear of taxation by government but was overcome by clear introduction of the researcher and explanation of the purpose of the study.

3. MATERIALS AND METHODS

3.1 Study Design and Setting

The study employed a cross-sectional survey design. It was carried out in Kampala City that lies on Latitudes 00° 18' 49" North of the Equator and Longitudes 32° 34' 52" East of Greenwich. It is bordered by Wakiso district on the south, west and north, Kira Municipal Council on the east and Lake Victoria on the South (Fig. 1).

Administratively Kampala is divided into 5 Municipalities which include; Kampala Central, Nakawa, Kawempe, Rubaga and Makindye,

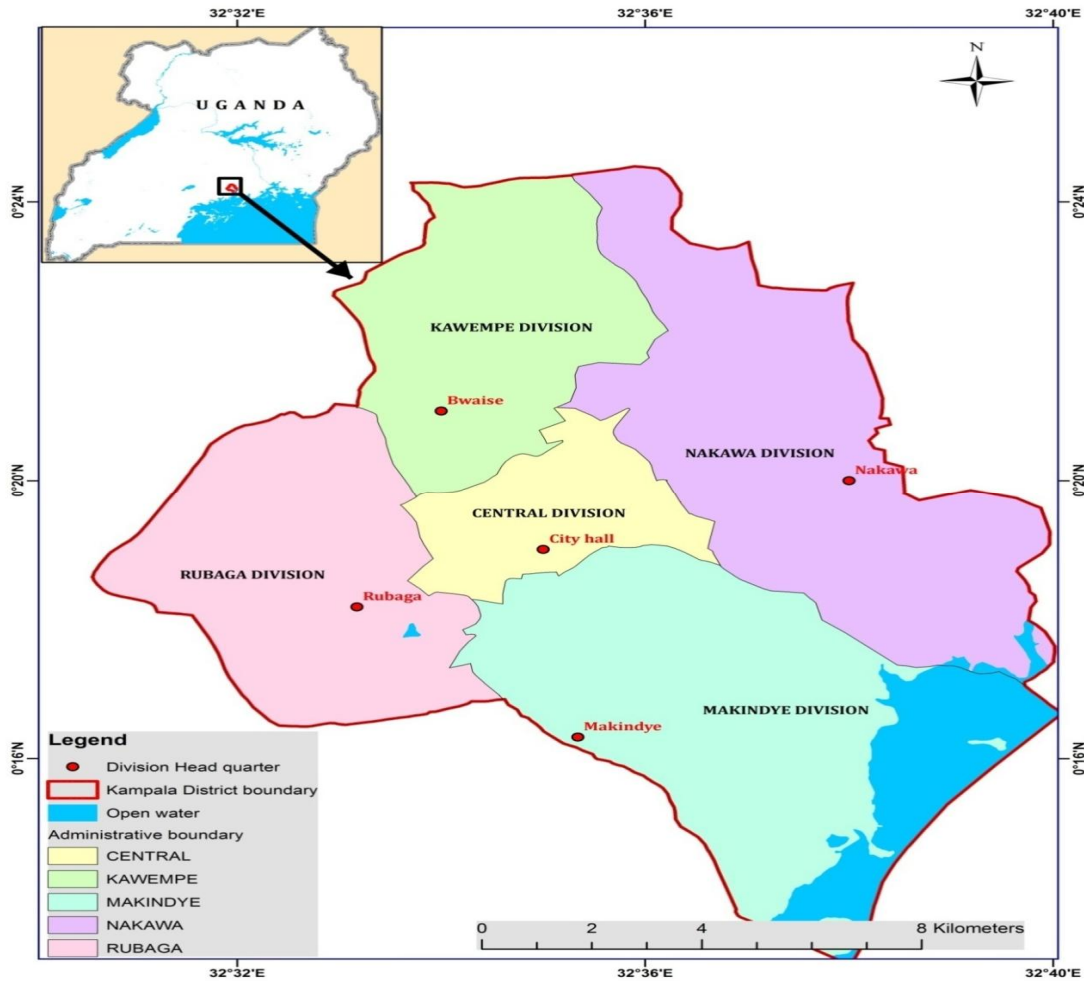


Fig. 1. Administrative Map of Kampala City

covering a total area of 189 Km² of which 169 Km² island and 19 Km² water [22]. The study duration was 4 months from May to August 2018 and comprised of a sample size of 385 with a 10% non-response rate giving 424 enterprises.

3.2 Sampling

Cluster sampling technique was used to select the enterprises among the clusters on which simple random sampling was done to get the study enterprises. These included; the manufacture of metal products, textile and clothing, bricks and concrete products, repair of equipment and machinery, recycling of paper and paper products and other manufacturing. The actual enterprises were selected proportional to size at the enterprise level. The owner of the enterprises and one employee selected at simple random sampling were

interviewed by the research assistants using the questionnaires. A walk through survey was also undertaken by the principal investigator using the ILO adapted workplace checklist.

The sample size of the study was determined using the formula that yielded a representative sample meant for large populations [23]

$$n = \frac{Z^2 pq}{e^2}$$

Where *n* is the sample size

*Z*² is the abscissa of the normal curve that cuts off an area *α* at the tails (1- *α* equals the desired confidence level is 95% (1.96)

E is the desired level of precision (0.05)

P is the estimated portion of an attribute that is present in the population equal to 0.5 and q is the $1-p$

Therefore the sample size $n = \frac{Z^2 pq}{e^2} = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 385$ plus 10% for non-response to give 424 enterprises.

3.3 Study Population

The study population comprised of 8,652 enterprises in the key sectors (clusters) based on the Census of Business Establishments (COBE) for Uganda [24]. They included the manufacture of metal products, textile and clothing, bricks and concrete products, recycling of paper and paper products, repair of equipment and machinery and other manufacturing. At the firm level, the owner and one of the workers of the informal sector were considered for the study by simple random sampling.

3.4 Data Collection

Relevant information for the study was obtained from primary and secondary sources. Secondary data were obtained from relevant literature such as Scholarly articles, Annual reports, Acts of Parliament and textbooks. The primary data was obtained through the field survey using the interviewer-administered questionnaires, which were already piloted in a different municipal council by research assistants from the informal non-food manufacturing sector employers and employees. More information was got from key informants in the Ministry of Gender, Labour and Social Development, Kampala Capital City Authority, National Organization Trade Unions and Federation of Uganda Employers. Seven main clusters in informal non-food manufacturing sector were selected. A walk-through survey was also done using an International Labour Organization adapted workplace checklist at every selected enterprise to record the hazards and control measures in the workplace. Inclusion criteria consisted of those enterprises that had below 5 employees and willing to participate in the survey. The study excluded workplaces that were not involved in some sort of manufacturing products from raw materials. People who were not employed in the sector like students and apprentices and those who had worked for less than one month and those who declined to participate in the study.

3.5 Data Management

Field checking of questionnaires was done after the field interviews, errors were immediately verified and corrected daily.

3.6 Statistical Analysis

Descriptive statistics were generated using SPSS statistical software for Windows, Version 20.0 (Armonk, NY: IBM Corp) for the demographic variables. Percentages and frequencies were reported in tables and graphical forms. Chi-square was performed to determine significance of variables. Multinomial logit regression was performed to determine the significant factors affecting non-compliance of occupational safety and health at workplaces. The independent variables were; age, education level, training, hazard identification, Use of PPE, and safe work practices for adequate occupational safety and health at workplace.

3.7 Ethical Approval

The ethical approval of the study protocol was done by the Makerere University School of Social Sciences, Research Ethics Committee and Uganda National Council for Science and Technology. Permission was sought from the Ministry of Gender, Labour and Social Development and Kampala Capital City Authority. Participation of the study population was voluntary and each research participant signed a written informed consent form.

4. RESULTS

4.1 Socio-demographic Characteristics of Respondents

Data was collected from 388 out of the 424 enterprises comprising of 388 employers (response rate was 92%). 67.8% (263) were male and 32.2% (125) female (Table 1). Results showed that 40.7% of the respondents were aged 30 years and below (youth), 20.6% were aged between 31-50 years, 20.4 aged 41-50 years and 18.3% aged above 51 years. A considerable proportion of the respondents (70.9%) were reported married followed by 26% who were single while 2.1% were divorced. The mean age of the respondents was 30 ± 2.16 years.

In terms of education, a half of the respondents 50.5% (196) had at least to some level of education equivalent to secondary level, 26.5% (103) had acquired primary level whereas those who possessed higher education (tertiary/vocational) were 14.2% (55) as well as 5.2% (20) with degrees while those who had never attained any formal education level were the minority with 3.6% (14). Furthermore, most employers engaged themselves in their businesses thereby not employing workers as shown by a percentage of 58.8% (288) whereas employers who employed between 1-3 employees were only 21.1% (82) and 4-5 employees with 20.1% (78). On average, males (average=1.14) dominated the informal non-food manufacturing sector than females (0.24).

In terms of work characteristics, average years worked 1-5 years were 34.3% (133) while

34.0% (132) were above 11years of service in the informal sector. Most of them worked for 9 hours 84.3% (327) per day with only 15.7% (61) working for 8 hours per day with a mean number of hours being 8 ± 1.86 hours per day averaging 40 hours per week while 88.1% (343) worked for 6 days and above per week with a mean working rate of 5 ± 1.88 days per week.

To get the factors affecting non-compliance of occupational health and safety practices, a chi-square analysis was done and the significant factors were later subjected to multivariate regression. The variables factors included training and awareness, hazard identification, incident reporting provision of PPE, First Aid Box, age, sex, education level and period in the informal sector. Table 2 shows the multivariate regression analysis.

Table 1. Socio-demographic characteristics of respondents (n=388)

Characteristic	Variable category	Frequency	Percent (%)
Sex	Male	263	67.8
	Female	125	32.2
Age category of respondents	30 Years & Below	158	40.7
	31-40 Years	80	20.6
	41-50 Years	79	20.4
	51 years & Above	71	18.3
	Mean age		30 ± 2.16
Marital Status	Single	101	26.0
	Married	275	70.9
	Divorced	8	2.1
	Widowed	4	1.0
Education	Informal	14	3.6
	Primary	103	26.5
	Secondary	196	50.5
	Tertiary/Vocational	55	14.2
	Degree level	20	5.2
A period working in Juakali	1-5 Years	133	34.3
	6-10 Years	123	31.7
	10 Years & Above	132	34.0
Number of employees at work	0 Employees	228	58.8
	1-3 Employees	82	21.1
	4 or 5 employees	78	20.1
Working hours / day	1-8 Hours	61	15.7
	9 Hours & above	327	84.3
	Mean Hours		1.84
Working days / week	1-5 days	45	11.6
	6 days and above	342	88.4
	Mean Working days		1.88

Source: Primary data

Table 2. Multivariate logistic regression analysis of factors affecting occupational safety and health practices at work

Characteristics	OSH practices		p	COR (with 95%CI)	AOR (with 95%CI)	p
	Safe n=388	Unsafe n=388				
Age (years)			0.511			0.210
Less than 30	51(11.2%)	12(3.80%)		0.0304* (0.326)	0.0341* (0.331)	
31-40	176(55.9%)	37(9.50%)		0.0467* (0.167)	0.0478* (0.169)	
41-50	144(22.5%)	85(21.9%)		1.019 (0.210)	1.022 (0.211)	
>50	74(16.7%)	61(15.7%)		1.000	1.000	
Sex			0.233			0.331
Male	252(66.3%)	171(40.1%)		0.0918 (0.127)	0.0997 (0.130)	
Female	131(33.7%)	117(30.2%)		1.000	1.000	
Education status			0.147			0.274
Illiterate	41(10.5%)	19(4.80%)		0.0462* (0.171)	0.0485 (0.176)	
Primary	72(18.5%)	17(4.70%)		0.0518 (0.144)	0.0529 (0.153)	
Secondary	93(24.5%)	54(13.9%)		1.000	1.000	
Higher	128(32.9%)	188(44.5%)		0.0859 (0.339)	0.0819 (0.341)	
Knowledge			0.872			0.622
Adequate	69(17.9%)	74(19.1%)		1.000	1.000	
Inadequate	95(24.5%)	111(28.6%)		0.0860 (0.151)	0.0863 (0.153)	
Duration at work			0.194			0.171
1-8 hours	61(15.7%)	90(23.2%)		1.189 (0.194)	1.106 (0.195)	
9 and above	327(94.3%)	298(76.8%)		1.000	1.000	
Type of employment			0.313			0.159
Metallic products	81(20.9%)	122(31.4%)		1.140 (0.166)	1.142 (0.168)	
Textiles and clothing	77(19.8%)	95(24.5%)		1.197 (0.184)	1.199* (0.186)	
Manufacture of furniture	148(38.1%)	274(70.6%)		0.0274* (0.176)	0.0276* (0.178)	
Concrete and brick products	103(26.5%)	188(48.5%)		1.0109 (0.102)	1.110 (0.103)	
Repair of equipment and machinery	155(39.9%)	179(46.1%)		0.0566 (0.268)	0.0568* (0.270)	
Paper making and recycling	298(76.8%)	198(50.0%)		1.000	1.000	
Number of employees at work			0.442			0.551
0 Employees	197(50.7%)	111(28.6%)		1.000	1.000	
1-3 Employees	61(15.7%)	55(14.2%)		0.0343(0.181)	0.0911(0.183)	
4 or 5 Employees	43(11.1%)	21(5.4%)		1.171(0.312)	1.444(0.314)	
Use of PPE	88(22.7%)	117(30.2%)	0.533	0.0317* (0.318)	0.0319* (0.322)	0.693
<i>-2 log-likelihood</i>				198.994	342.447	

* Statistical significance i.e. $p < 0.05$
 COR= Cruse Odds Ratio, AOR=Adjusted Odds Ratio

Chi-Square analysis showed that the practices of occupational safety and health were good among male respondents (66.3%) as compared to the female ($p < 0.05$, $\chi^2 = 23.9$). The practices of

occupational safety and health were very good among respondents with higher level of education ($p < 0.05$, $\chi^2 = 147.3$). There is a statistically significant relationship between

educational status and practices of occupational safety and health ($p=0.00$) at 95% level of significance ($p<0.05$, $\chi^2=147.3$, $p=0.000$). There is a statistically significant relationship between educational status and practice at 95% level of significance, $p<0.05$.

Further, the period spent working in informal sector (*Jua-Kali*) exposed workers to practices of occupational safety and health and it revealed that people who had worked for 10 years and above had good knowledge of occupational safety and health. There is a statistically significant relationship between working period and practice of occupational safety and health ($p<0.05$) at 95% level of significance ($p<0.05$, $\chi^2=87.5$, $p=0.002$). Education provides knowledge to workers and the higher the education the better in comprehending hazards. Regarding number of employees at work and practices of occupational safety and health, it was found that a high number of employees perhaps 4-5 people in organisation had good practices of occupational safety and health than in other groups. This is due to worker to worker relationship and the seniors being able to advise the new and young workers. There is statistical significant relationship between number of employees at work and practices of occupational safety and health at 95% level of significance ($p<0.05$, $\chi^2=69.9$). The results also reveal that a significant positive relationship existed between hours spend at work and practices of occupational safety and health, those who spent fewer hours at work (less than 8 hours) were poor at practices occupational safety and health than those who spent more hours at work ($p<0.05$, $\chi^2=19.8$). However, more hours at work are most likely to bring about fatigue, stress, exhaustion, burnout leading to psychosocial hazards. Psychological hazards can be a precursor for physical and mechanical hazards in the workplace.

Using the quantitative variables, the multivariate logistic regression estimates predicting factors affecting occupational safety and health practices in the informal non-manufacturing sector was performed. The multivariate regression logistic results show that respondents who were 31-40 years old had significantly reduced odds (COR 0.0167-0.0169) of practicing occupational safety and health practices at work, compared with the odds for those who were below 30 and above 50 years. Respondents who were not using occupational safety and health practices had increased odds of uncertainties and being unsafe

than those who used occupational safety and health practices. The study found out somewhat significant differences in the gender of respondents using occupational safety and health practices and those not. It was revealed that men in general practiced/ employed safe practices of occupational safety and health than women (COR 0.0918-0.0997). Men were, therefore, more likely to be safer than women in the informal sector. This could be explained in terms of men having higher literacy levels than women in Uganda.

In terms of education, those with secondary and higher levels of education were more likely than those without education to practice occupational safety and health. Also respondents with inadequate knowledge and awareness of occupational safety and health had lower odds of occupational safety and health practices than those with adequate knowledge and awareness (COR 0.0151-0.0153). In addition, the duration of work shows that people who worked less than 8 hours had increased odds (COR 0.0194-0.0195) of using occupational safety and health practices and therefore somewhat safe while respondents who revealed working more hours (above 9 hours) had higher odds of being susceptible to more injuries particularly of the psychological nature which jeopardized their safety. Overall, level of knowledge mainly due to education and duration at work were the most important variables influencing occupational safety and health practices of informal sector workers.

The type of employment has an influence on the amount of risk exposure to the workers. The most dangerous informal sector was manufacture of furniture (COR 0.0274- 0.0276). This is due to the reliance on chemicals and mechanical equipment being employed during the manufacture of various parts for furniture. People who worked in the furniture manufacturing sector were more exposed to serious hazards like heavy lifting, chemical fumes, sharp edges, and working while standing in the open. Use of personal protective equipment (COR 0.0318- 0.0322) is the most common practice being applied in the informal sector mainly because it is easy and cheap to acquire yet PPE alone cannot guarantee safety, it must be supplemented by other measures since it's the last resort in the occupational safety and health management of hazards. However the quality and appropriateness were not to the expected standards. Consequently the low level of safe occupational health practices shown by

use of personal protective equipment of the respondents in the study could be explained by the generally low levels of knowledge among the respondents. Moreover, personal protective equipment is the last resort measure in the management hierarchy, using it alone cannot achieve good occupational safety and health at work.

5. DISCUSSION

The results of the multivariate regression model indicate that practices of occupational safety and health were good among male respondents as compared to the female while the youth in the ages less than 30 years are more vulnerable to getting accidents in at the workplace. The situation is likely due to peer pressure and lack of occupational safety and health information and lack of knowledge due to lack of experience. Education levels are important in helping workers to avoid a hazard in the workplace. The higher the education level the less vulnerable the workers to occupational safety and health hazards. Further, period spent working in informal sector (*Jua-Kali*) exposed workers to practices of occupational safety and health and it revealed that people who had worked for 10 years and above had good knowledge of occupational safety and health and this is probably due to knowledge and experience gained. Type of employment had a bearing on the level of hazards present in the workplace. Particularly the manufacture of furniture and having high level of hazards in the informal sector due to the use of machinery and high powered sources or electric equipment. The use of personal protective equipment was found to be very important in the prevention of hazards in the informal sector due to the fact that it's cheap to provide an easy to use, however, the personal equipment used was mainly the aprons /overalls. These were found to be substandard yet the personal protective equipment is the last resort in the management of hazards hierarchy. It cannot be used solely but with other measures to control the hazards effectively. Besides the workers need to be trained on how to use personal protective equipment and as well as supervised.

The results of the regression model were consistent with the fundamentals of hazard prevention and deterrence. These include the following; elimination of the source of the hazard, substitution of less hazardous substances, reduction the hazard at source, removal of the employee from the hazard, isolation the hazard,

dilution of the hazard, apply management practices, (administrative controls), use of personal protective equipment, training and good housekeeping and further concludes that one of the best ways to promote safety is to design it into the tools, machines and technologies with which people interact in the workplaces. Safety analysis can also be effective by eliminating hazards before they cause accidents or illness. The researcher, however, states that even the best design/ analysis cannot completely eliminate accidents, for this reason it's important to have accident prevention procedures and make sure that employees follow them [25].

A number of approaches have emerged to manage hazards at workplaces and these include; a safe place, safe person and safe systems. Safe person strategies involve techniques that focus on equipping the person with knowledge of skills to avoid creating dangerous scenarios in the first instance or with the ability to deal with unsafe situations should they arise; communicating awareness of situations that have the potential to cause harm or with the recovery of the person after an illness or injury experience whether it being physical or psychological. Safe place strategies strive to ensure harm-free environments and are underpinned by the risk management process and the application of the hierarchy of controls to the point where alterations are made to the existing physical environment. However the approaches of safe person, safe place and safe systems require censurable amount of resources both human and financial which may not be available in small enterprises and the informal sector [26].

Supporting the results of the regression, the Occupational Safety and Health Administration (OSHA) requires that employers protect their workplace hazards depending on the dangers of workplace settings. It recommends the use of manufacturing or work practice control to handle or reduce hazards to the maximum level possible. Personal Protective Equipment (PPE) is usually required to be worn to minimize exposure to a variety of hazards [27]. Although this can be feasible enforced informal enterprises, it is difficult in the informal sector in developing countries due to lack of regulation [7].

In another study, it was noted that people with high educational attainment are more likely to understand harmful exposures and avoid them [21]. Similarly in a Nigerian study conducted

among welders, it was reported that only 20% of those who had no formal education were aware of occupational hazards and safety measures compared to 78% among those who had primary education and 85% who had secondary education. Those with higher educational attainment may also be employed in more skilled but less hazardous jobs. Highly educated people are more likely to be in managerial, supervisory, clerical and administrative work than in manual or factory work [20]. This shows that workers who are more educated are better prepared to apply the control measures than informally educated and in most cases they are the employers.

On correlation, the results reveal that age /age groups have a statistical significant relationship on occupational safety and health hazards in the workplace in the informal non-food manufacturing sector. Injury rates are more prevalent in age groups of 30 years and below due less knowledge and poor attitude. Similarly in Ethiopia [28], it was found out that working at young age increases risk of sustaining more occupational injury among factory workers compared with older workers. This is attributed to the inaccessibility of occupational safety and health information, lack of training, lack of experience and low level of knowledge and skills among young workers.

On the period spent working in Informal sector (Jua-Kali) exposed workers to knowledge, attitude on practices of occupational safety and health, it revealed that people who had worked for 10 years and above had adequate knowledge of occupational safety and health. There is a statistically significant relationship between working period and knowledge of occupational safety and health. Regarding number of employees at work and knowledge, attitude on practices of occupational safety and health, it was found that a high number of employees perhaps 4-5 people in organisation possessed knowledge of occupational safety and health than in other groups. This is due to worker to worker relationship and the seniors being able to advise the new and young workers. However, the period spent at work is more likely to bring about fatigue, stress, exhaustion, burnout leading to psychosocial hazards.

For small enterprises and the informal sector, the Participatory Improvement Program can be effective, using flexible local practices and low-cost improvements. The combined use of

illustrated good examples and low-cost action checklist have proven effective. The participatory improvement program makes use of the positive features of small workplaces. This is done particularly by presenting good practices to local key persons by informal approaches and encouraging people to apply available technical solutions in a flexible manner. A network of these positive experiences is essential especially through the apex and group businesses [29].

6. CONCLUSION

Safe work practices and provision and proper use of personal protective equipment, training and awareness (employee education), gender and age groups are very important in factors affecting non-compliance at the firm level for the mitigation of occupational safety and health at workplaces. It is therefore imperative for employers to carry out risk assessment at workplaces. They should also provide safe work practices and promote the use of personal protective equipment, to promote safety. The Government and Social Partners can invest in secondary (administrative controls/ management practices) activities like occupational safety and health, awareness, supervision, training, inspection and audits to improve the overall occupational safety and health situation of the country. Creation of awareness through mass media is recommended to solve the issues surrounding noncompliance if occupational safety and health practices in the informal sector.

ETHICAL APPROVAL

The ethical approval of the study protocol was done by the Makerere University School of Social Sciences Research Ethics Committee, Ref Number MAKSS REC 11.17.09.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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