



# **Knowledge and Attitudes on Practices of Occupational Safety and Health 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. Author SAW designed the study, performed the statistical analysis and wrote the protocol and first draft of the manuscript. Authors WNM and SMM supervised the study. 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. The sector is unregulated and unregistered in official government statistics. However this particular sector is faced with occupational safety and health hazards without preventive measures. The study assessed knowledge and attitudes on practices of occupational safety and health in the informal non-food manufacturing sector in Kampala City, Uganda. It adopted cross sectional survey design that involved both qualitative and quantitative data collection techniques. A total of 424 firms were sampled from the 6 clusters of the informal sector. Respondents were moderately knowledgeable on hazards with 39.7% compared to 25.5% who reported high level of exposure. Overall the knowledge on occupational safety and health

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hazards was inadequate while attitude especially on the use of PPE was poor. There was a high level on knowledge towards hazard control measures by complying with the safety measures (PPE 52.6% and good housekeeping 54.4%) although no significant difference was observed in their adherence to control measures. Attitude towards the use of control measures was found to moderate with PPE 62.9% and good housekeeping 61.1% Creation of awareness, training, and application of Occupational Safety and Health Regulations, inspection and enforcement by the relevant regulatory agency as well as proactive multi-media strategies to improve the situation is recommended.

*Keywords: Knowledge; attitudes; practices; occupational safety; health; informal sector.*

## 1. INTRODUCTION

The International Conference of Labour Statisticians define the informal sector as employment and production that takes place in unincorporated and /or unregistered enterprises, and in most cases without social protection [1]. The informal non-food manufacturing is the sector dealing with manufacturing of products other than food that comprise of activities that take place in open yards, undeveloped urban plots, or even on street pavements and road reserves [2]. Generally, they are not registered or regulated and do not benefit from government support and subsidies [3]. 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; handcrafts, leather crafts, woodworks and carpentry, metal fabrication, electrical and electronics, ceramics and pottery, textiles and garments, hair dressing, printing and graphics, chemicals and pharmaceuticals, building materials and construction, food and beverages, and agro-processing amongst others [4]. The main objective of the study was to assess knowledge and attitudes on practices of occupational safety and health in the informal non-food manufacturing sector and design interventions of improving the situation in Kampala City.

Globalization has facilitated the rapid increase in informal employment and has been associated with the “generation of employment that is flexible, precarious and insecure” [5]. A large number of workers worldwide work informally, yet the discipline and practice of occupational safety and health covers largely only formal workers in the formal workplaces [6]. The cost in human terms of the existence of the informal sector and ways in which it is sustained is tragic. Workers in the informal sector activities often toil for low wages, under poor, inhumane conditions and

unhealthy environments. Enforcement and compliance with safety and health standards are unknown. The informal sector is unregulated and unknown in government statistics in developing countries [7].

Studies conducted during the 1990s suggested that the practice of occupational safety and health in small firms and the informal sector was non-existent largely due to illiteracy and lack of knowledge of occupational safety and health [8,9]. Recent and more systematic knowledge, attitudes and practices (KAP) studies reviewed show a consistent divergence between employers’ and workers’ knowledge of occupational safety and health hazards in small scale enterprises and informal sector [10]. In a similar study in Dares Salaam, on awareness of ergonomic principles in small industries [11], very low level of awareness of major areas of ergonomic hazards was found, even though the owners had received vocational training. While in Manduria, India, a study investigating the ergonomic conditions found out that work environment was not generally unhealthy and unsafe but poorly designed sewing stations were used and firms could not afford height adjustable sewing tables and chairs. The study also found out that in cases where these were available workers and even the owners were either not aware that machine tables were height adjustable or did not know how to use them. The consequences were that workers suffered from injuries, neural problems, dermatological, respiratory and musculoskeletal disorders such as low back pain and neck pain [12].

Similarly, another study found out that although managers felt they knew more about hazards and risks in the workplace, safety audits revealed extremely hazardous workplaces. It was noted that occupational safety and health practice is not a priority for these firms and knowledge may not always translate into effective practice of occupational safety and health, other factors

such as infrequency of accidents, and lack of economic incentives to invest in safety and health may explain [13]. A study in a small scale industry in Sheffield, UK also found out that workers were provided with PPEs but these were not used, thus raising the problem of education in the work place. This suggests that safety practice does not depend on knowledge and attitudes alone but is positively associated with being informed about safety precautions and being supplied with safety gear coupled with adequate and proper supervision [14]. Studies in the informal sector on knowledge attitudes and practices have not been done, particularly in developing countries' informal non-food manufacturing sector to compare the circumstances. In Uganda no documented studies have been able to address the informal sector as it has just emerged due to political stability.

## 2. MATERIALS AND METHODS

### 2.1 Study Design and Setting

The study adopted cross sectional survey design that involved both qualitative and quantitative data collection techniques. The cross sectional survey was used because the study was done across the entire informal non-food manufacturing sector at the same time. 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. Administratively, Kampala is divided into 5 Municipalities which include; Kampala Central, Nakawa, Kawempe, Rubaga and Makindye, covering a total area of 189 Km<sup>2</sup> of which 169 Km<sup>2</sup> land and 19 Km<sup>2</sup> water [15]. The study duration was 4 months from May to August 2018.

### 2.2 Sampling

Due to the heterogeneity of the informal sector, a 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 cluster level. The owner of the enterprise and one employee selected at simple random sampling were interviewed by the research assistants using the questionnaires.

Sample size of the study was determined using the following formula that yielded a representative sample meant for large populations [16].

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

Where,

*n* is the sample size

*Z*<sup>2</sup> 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.

### 2.3 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 [17]. They included 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 informal sectors workers were considered for the study by simple random sampling.

### 2.4 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. Primary data was obtained through the field survey using the questionnaires by research assistants from the informal non-food manufacturing sector employers, employees and 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 (ILO) 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 of products from raw materials. People who were not employed in the sector like students and apprentices, those who had worked for less than one month and those who declined to participate in the study.

## 2.5 Data Management

Field checking of questionnaires was done after the field interviews, errors were immediately verified and corrected daily. The quantitative data collected was entered into Statistical Package for Social Scientists (SPSS) Version 20.0 software for analysis.

## 2.6 Statistical Analysis

Descriptive statistics were generated using SPSS statistical software for windows (2011) version 20.0 (Armonk, NY: IBM Corp) for the demographic variables. Percentages and frequencies were reported in tables and graphical forms. The independent variables were; workplace hazards, legal framework, administrative measures, knowledge and attitudes on practices and acceptance levels while the dependent variable was adequate occupational safety and health at workplace influenced by the social environment and government regulation as the intervening variables.

## 2.7 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.

## 3. RESULTS AND DISCUSSION

### 3.1 Socio-demographic Characteristics of Respondents

Data on socio-demographic characteristics Table 1 was collected from 388 out of the 424 enterprises comprising of 388 employers (response rate was 92%). 263(67.8%) were male and 125(32.2%) female. Results showed that 40.7% of the respondents were aged 30 years and below (youth) while slightly less than a quarter (20.6%) were aged 31-40 years, 20.4% aged 41-50 years and 18.3% were aged above 51 years. The mean age of the respondents was  $30 \pm 2.16$  years. A considerable proportion of the respondents (70.9%) were reported married followed by 26% who were single while 2.1% were divorced.

In terms of education, a half of the respondents 196(50.5%) had been exposed to at least some level of education equivalent to secondary level, 103(26.5%) had acquired primary level. Those who possessed higher education (tertiary/vocational) were 55(14.2%) as well as 20(5.2%) with degrees and those who had never attained any formal education level were the minority with 3.6%. Furthermore, most employers engaged themselves in their businesses thereby not employing workers as shown by a percentage of 288(58.8%) whereas employers who employed between 1-3 employees were only 82(21.1%) and 4-5 employees with 78(20.1%). 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 133(34.3%) while 132(34.0%) were above 11 years of service in the informal sector. Most of them worked for 9 hours 327(84.3%) per day with only 61(15.7%) working for 8 hours per day with a mean number of hours being  $8 \pm 1.86$  hours per day averaging 40 hours per week while 343(88.1%) worked for 6 days and above per week with a mean working rate of  $5 \pm 1.88$  days per week.

### 3.2 Knowledge and Attitudes on Practices of Occupational Safety and Health

#### 3.2.1 Knowledge on occupational safety and health practices in the sampled premises in Kampala City

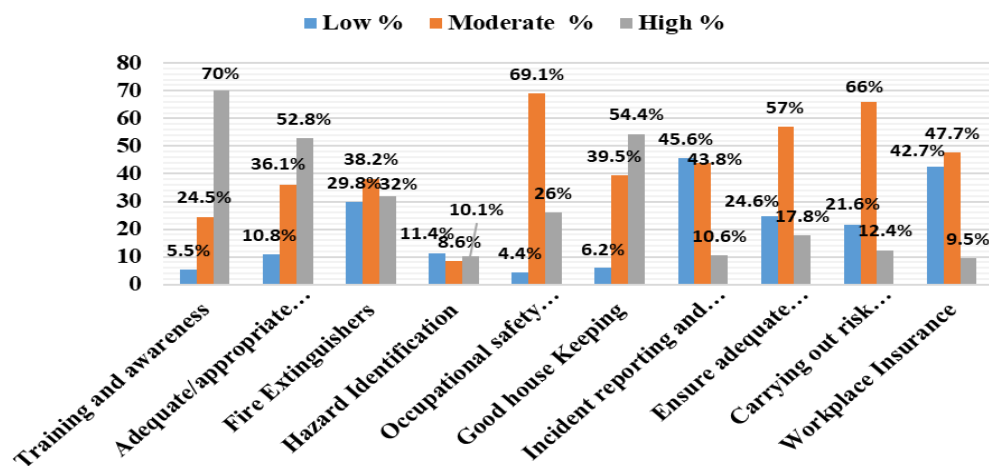
Knowledge was graded as a percentage (0-40%)  $\leq 4$  marks being low level, 40- 70% (4-7) marks

as moderate and 70-100% (7-10 marks) high level and was assessed using broad awareness questions on a scale of 1-10 marks. High level of knowledge (adequate) was assumed when the respondent gave 7 marks and above right answers while moderate was assumed when the respondent gave between 4 and 7 right answers and low level of knowledge (inadequate) was assumed when the respondent gave less than 4 answers right.

**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
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



**Fig. 1. Respondents' knowledge on hazards and control measures**

The knowledge and attitudes on practices of occupational safety and health was adequate among male respondents 257(66.3) as compared to the female with 131(33.7% while 171(40.1%) for males and 117(30.2%) females had inadequate knowledge and attitude on practices to occupational safety and health ( $p < 0.05$ ,  $X = 23.9$ ,  $df = 3$ ). The knowledge and attitude on practices of occupational safety and health (OSH) was still very adequate among respondents with higher level of education 128(32.2%). There is a statistical significant relationship between educational status and knowledge of occupational safety and health ( $p = 0.00$ ) at 95% level of significant  $p < 0.05$ .  $X = 147$ ,  $p = 0.003$ ,  $df = 3$ . Occupational safety and health practices were poor among respondents with no education 41 (10.5%) and relatively low 72 (18.5%) in respondents with primary education. There is a statistical significant relationship between educational status and practice at 95% level of significance  $p < 0.05$ . The correlation results reveal that age/age groups have statistical significant relationship on occupational safety and health in the work place in the informal non-food manufacturing sector ( $p = 0.00$ ) at 95% level of significant  $p < 0.05$ .  $X = 51.3$ ,  $p = 0.003$ ,  $df = 3$ . Injury rates are more prevent in age groups of 30 years and below due less knowledge and poor attitude.

Further, period spent working in Informal sector exposed workers to knowledge and attitudes on practices of OSH and revealed that people who had worked for 10 years and above had adequate knowledge of OSH 147(45.6%) and

better attitude. There is a statistical significant relationship between working period and knowledge of OSH ( $p = 0.01$ ) at 95% level of significant  $p < 0.05$ .  $X = 87.5$ ,  $p = 0.002$ ,  $df = 2$ . Regarding number of employees at work and knowledge and attitude on practices of OSH, it was found out that a high number of employees 4-5 people in an organisation possessed knowledge of occupational safety and health than in other groups. There is statistical significant relationship between number of employees at work and knowledge and attitudes on practices of OSH at 95% level of significant  $p < 0.05$ ,  $X = 69.9$ ,  $df = 2$ . The results also revealed a significant positive relationship between hours spend at work and knowledge, attitude and practices of OSH, those who spent less hours at work (less than 8 hours) were less knowledgeable about OSH unlike those who spent more hours at work ( $p < 0.05$ ,  $X = 19.8$ ,  $df = 1$ ).

**3.2.2 Attitudes of workers towards occupational safety and health practices**

Attitudes on occupational safety and health at work was assessed using 15 questions on a Likert scale, answers were strongly agree, agree, no response, disagree and strongly disagree. These were summarized into “Agree” and “Disagree”. Overall “Agree” would indicate good attitude with 50% and above while “Disagree” below 50% would denote poor attitude of occupational safety and health control measures (Table 2).

**Table 2. Attitudes of respondents towards occupational safety and health practices at work**

Attitudes of OSH management practices	Response n =388	
	Agree % (n)	Disagree %(n)
Ensure that all employees are trained before work	34.8(135)	65.2(253)
Ensure that personal protective equipment provided is used	62.9(240)	37.1(148)
Ensure good house keeping	61.1(237)	38.7(150)
Provision of welfare facilities	15.5(60)	84.5(328)
Ensure that there are written policies at work place	6.7(26)	93.3(326)
Ensure that operating procedures/ manuals are used	4.4(17)	95.6(371)
Ensure that signage is pinned on walls	4.6(18)	94.8(368)
Ensure that safety procedures/ Security systems are used	3.9(15)	96.1(373)
Ensure that Fire extinguishers are available and checked	2.6(10)	97.4(378)
Ensure that there is a perimeter fence around the workplace	2.8(11)	97.2(377)
Ensure that incidents and unsafe procedures	3.1(12)	96.9(376)
Ensure that First Aid box is used	3.6(14)	96.4(374)
Ensure that sanitary facilities are available at work place	4.6(18)	95.4(370)
Ensure that risks are identified and mitigated	4.1(16)	95.9(372)
Ensure that annual audits are done	2.8(11)	97.2(377)

Source: Field data

Attitude of respondents was generally poor with a range of (2.8-15.5%) for most of the practices save for the use of Personal protective equipment and good housekeeping (62.9%) and (61.1%) respectively. Overall, poor attitude was demonstrated by 53.5% of the respondents in the informal non-food manufacturing sector.

### **3.2.3 Attitude on provision and use of Personal Protective Equipment (PPE)**

Information on the use of personal protective equipment / clothing was enlisted in the study about the various personal protective equipment used in the workplace. The PPE in question were gloves, masks, aprons, goggles, plugs, hard hat and safety shoes. Results on the attitude of workers in the use of personal protective equipment are presented in Table 3.

Most of the respondents agreed highly with aprons and ear plugs as variables regarding attitude on provision and use of personal protective equipment (PPE) (83.5%), and (82.8%) respectively. This is probably so because of the cheapness in acquiring the aprons, masks and ear plugs hence affordable in the informal sector.

### **3.3 Knowledge on Preventive Measures of Occupational Safety and Health**

Knowledge on most preventive measures of occupational safety and health hazards variables averaged more than 3.5 on a Likert scale of 1-5 thus revealing a relatively high level of preventive measures/mitigation.

Training and awareness and good housekeeping evidenced by the highest mean values of all of the variables are used to prevent occupational safety and health hazards in the informal non-food manufacturing sector as indicated by means of 4.55 and 4.36 respectively. Both of these were indicators of the existence of measures of occupational safety and health. However, apart from good housekeeping which is relatively easy to implement, Training and awareness is always not the norm in the informal sector. These preventive measures may not necessarily translate to actual practice in the workplace. The second highest mean value was adequate/appropriate use of

PPE and occupational safety measures as shown by means of 4.28 and 4.12 respectively however, the quality of PPE used was inferior, inappropriate and in most cases it was only the apron or overcoat being used. Fire extinguishers and carrying out risk assessment were found to have the same mean value of 3.59. It was further established that hazard identification as well as ensuring adequate supervision had different mean values of 3.78 and 3.58 while two indicator variables of Incident reporting/registering and workplace insurance evidenced the lowest levels of dispersion with mean values of 2.97 and 2.94 respectively.

The knowledge and attitude on practices of occupational safety and health was adequate among male respondents as compared to the female. This was as a result of the informal sector being highly dominated by men. The knowledge and attitudes on practices of occupational safety and health was still very adequate among respondents with higher level of education. There is a positive relationship between educational status and knowledge of occupational safety and health. Occupational safety and health practices are poor among respondents with no education and relatively low in respondents with primary education. There is a positive relationship between educational status and practice. Education provides knowledge and skills which can be used to avoid occupational safety and health hazards, According to a study in Zambia [18], people with high education attainment are more likely to understand harmful exposures and avoid them. Similarly, a Nigerian study conducted among welders 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. This shows that workers who are more educated are better prepared to apply the control measures than informally educated and in most case they are the employers [19].

**Table 32. Attitude on the use of Personal Protective Equipment (PPE) in the sampled premises in Kampala City**

Attitude of provision and use of PPE	% Agreed (n=388)
Wearing gloves can reduce damage to your hands	46.7
Wearing masks can reduce damage to respiratory organs	68.8
Wearing safety boot can reduce damage to your feet	57
Wearing apron can reduce damage to your body	83.5
Wearing goggles can reduce damage to your eyes	55.2
Washing hands can reduce risks from chemicals	33.2
Bathing after work can reduce damage to health risks	29.4
Wearing ear plugs can reduce damage to your ears	82.8
Wearing hard hat can reduce head injury	57.7

Source: Primary Data

**Table 4. Preventative measures of occupational safety and health hazards in the informal non-food manufacturing sector (n=388)**

Preventive measure	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Std. dev.
Training and awareness	6(1.5%)	15(3.9%)	10(2.6%)	85(21.9%)	272(70.1%)	4.55	0.848
Adequate/appropriate use of PPE	6(1.5%)	36(9.3%)	5(1.3%)	135(34.8%)	205(52.8%)	4.28	0.988
Fire Extinguishers	43(11.1%)	73(18.8%)	10(2.6%)	138(35.6%)	124(32%)	3.59	1.389
Hazard Identification	8(2.1%)	36(9.3%)	27(7%)	278(71.6%)	39(10.1%)	3.78	0.826
Occupational safety measures	1(0.3%)	12(3.1%)	28(7.2%)	246(63.4%)	101(26%)	4.12	0.683
Good housekeeping	14(3.6%)	10(2.6%)	8(2.1%)	145(37.4%)	211(54.4%)	4.36	0.929
Incident reporting and registering	76(19.6%)	101(26%)	12(3.1%)	158(40.7%)	41(10.6%)	2.97	1.370
Ensure adequate supervision	26(6.7%)	72(18.6%)	10(2.6%)	211(54.4%)	69(17.8%)	3.58	1.173
Carrying out risk assessment	26(6.7%)	58(14.9%)	13(3.4%)	243(62.6%)	48(12.4%)	3.59	1.092
Workplace Insurance	103(26.5%)	63(16.2%)	14(3.6%)	171(44.1%)	37(9.5%)	2.94	1.431

Source: Primary data

Further still, a study in Thailand found out that informal workers have less formal education than the formal ones. Majority 64% had only primary education, 28.7% had secondary education and only 7.1% had technical training or University degree. The related health impacts of illiterate workers are less 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 [20]. International studies indicate that uneducated men are more likely to experience fatal automobile crashes than more highly educated men and also asserts that 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 [21].

Knowledge and attitudes on practices of occupational safety and health is adequate in the informal non-food manufacturing sector commensurate with education. There is a positive relationship between educational status and knowledge, attitude on practices of occupational safety and health in the workplace.

The correlation results reveal that age /age groups have statistical significant relationship on occupational safety and health hazards in the work place in the informal non-food manufacturing sector. Injury rates are more prevent in age groups of 30 years and below due



less knowledge and poor attitude. There have been similar studies where increase in age has been associated with health problems like sleep problems, heart diseases, stomach ache, stress, irritability and vision problems [22]. Similarly, it has been revealed in Ethiopia that, working at young age increases risk of sustaining more occupational injury among factory workers compared with older workers. This was attributed to the inaccessibility of OSH information, lack OSH training, lack of experience and low level of knowledge and skills among young workers [23].

The period spent working in Informal sector (Jua-kali) exposed workers to knowledge, attitude on practices of OSH, the study revealed that people who had worked for 10 years and above had adequate knowledge of OSH. There is positive relationship between working period and knowledge of OSH. Regarding number of employees at work and knowledge, attitude on practices of OSH, 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. There was positive relationship between number of employees at work and knowledge, attitude on practices of OSH. The results also reveal a positive relationship existed between hours spend at work and knowledge, attitude on practices of OSH, those who spent less hours at work (less than 8 hours) were less knowledgeable about OSH unlike those who spent more hours at work. 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. Longer working hours have been known to increase physical and mental fatigue at work with reduction in precision and concentration at work leading to injuries [22].

The low and moderate levels of knowledge on control measures gives a clear indication that most workers in the informal non-food manufacturing sector do not have adequate knowledge towards occupational safety and health hence cannot ably control occupational hazards at work. The results are however, contrary to a study on an Oil Rig in Pakistan [24], which revealed good knowledge among the participants (62.6%) and poor knowledge (37.6%) of occupational safety and health

hazards. Similarly a study in Nigeria [25], found very high level of knowledge of occupational safety and control measures amongst oil workers. This was likely due to the strict regulation and enforcement in the oil industry as compared to the unregulated informal sector. In Nigeria, evidence had shown that most of the respondents had knowledge regarding hazards and the knowledge is gained from school professional training, on job experience and post-employment profession in service workshops [26].

Recent and more systematic knowledge, attitudes and practices (KAP) studies reviewed have shown a consistent divergence between employers' and workers' knowledge of occupational safety and health hazards in small scale enterprises and the informal sector [27]. Similarly, in Dar es Salaam [11] assessment of the awareness of ergonomic principles in small industries was very low about major areas of ergonomic hazards, even though the owners had received vocational training. The study also found out that in cases where machines were available, workers and even the owners were neither aware that machine tables were height adjustable nor knew how to use them. The consequences were that workers suffered from injuries, neural problems, dermatological, respiratory and musculoskeletal disorders such as low back pain and neck pain. Another study in South Africa [28], revealed that workers engaged in garment manufacturing sectors had high knowledge of safety and health problems related to their occupation, good knowledge of the importance of using PPE and their benefits but few workers demonstrated compliance to such measures.

It has been found out that although managers felt they knew more about hazards and risks in the workplace, safety audits revealed extremely hazardous workplaces. It was noted that occupational safety and health practice is not a priority for these firms and knowledge may not always translate into effective practice of occupational safety and health, other factors such as infrequency of accidents, and lack of economic incentives to invest in safety and health may explain [13]. Similarly a study in a small scale industry in Sheffield, UK [14], workers were provided with PPE but these were not used, thus raising the problem of education in the workplace. Small businesses do not consider safety and health a priority. This suggests that safety practice does not only depend on knowledge and attitudes but is positively

associated with being informed about safety precautions and being supplied with safety gear coupled with adequate and proper supervision. These results further concur with those in a study on knowledge and attitudes in Vietnam where 403 craftsmen were interviewed, results showed good knowledge levels and good attitude scores as low as 3.72% and 4.22% respectively [29].

## 5. CONCLUSION

The informal non-food manufacturing sector in Kampala City has very low levels of knowledge and high risk exposure within the employers and employees about the hazards inherent in their workplaces. Knowledge has a significance relationship on attitude which may translate into good occupational safety and health practice in the informal sector. The poor knowledge on occupational health and safety at work results from lack of awareness and knowledge from the employers and the regulatory agency about the dangers of occupational health and safety at work. The low and moderate levels of knowledge on control measures gives a clear indication that most workers in the informal non-food manufacturing sector do not have adequate knowledge towards occupational safety and health hence cannot ably prevent occupational hazards at work.

There is a positive attitude on the use of personal protective equipment which does not match with its provision, and yet this is the most important intervention in the informal sector, however the personal protective equipment (PPE) is self-provided and in most cases inadequate and inappropriate for the work. This makes it less effective in protection since it just cosmetic. Personal protective equipment is the last option of protection to the worker in the hierarchy of prevention hence it cannot work alone when other controls that include elimination of hazards, engineering controls, administrative controls are not in place. Further, the high attitude may not translate to good practices and occupational safety and health culture unless supported by enforcement.

There is inadequate knowledge about the occupational safety and health hazards among the informal non- food manufacturing workers in Kampala Capital City Authority. The attitude on the occupational safety and health preventive measures is also poor hence few measures if any in terms of preventive measures are

available to mitigate hazards. This may be attributed to low levels of occupational safety and health awareness, lack of occupational safety and health training, lack of top management commitment, low level of workers education and lack of regulation in the sector. There is urgent need to create awareness and training partly through mass media to address the situation in the informal non-food manufacturing sector by government and Kampala City Capital Authority and enforcement of the relevant OSH regulations by relevant stakeholders.

## 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.

## DISCLAIMER

The sponsors had no role in the design, implementation and writing of this paper and choice of journal to publish this research paper.

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## AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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