

Research Paper

Factors Affecting Adherence to Occupational Health and Safety Rules and Regulations in Improving Public Health in the Informal Sector Workers in Mabibo- Dar es Salaam

Lawrencia Mushi^{1*}

ABSTRACT

Although significant advances have been made in Occupational Health and Safety (OSH) over the past decades, little is known about its adherence in the informal sector in Tanzania. Globally, it is estimated 2.3 million workers die every year from occupational accidents and work-related diseases. Most of these deaths occur in informal sectors. We assessed factors affecting adherence to OSH rules and regulations in improving public health in the informal sector workers at Mabibo, Dar es Salaam.

We used a mixed study design applying both quantitative and qualitative approach. 72 informal worker and two officials from Occupational Safety and Health Authority were included. Both questionnaire and key informant Interviews were used to collect data. We used (SPSS) 20 and content analysis was used to analyze quantitative and qualitative data respectively.

We found that a majority (55.7%) of informal sector worker had low knowledge on OHS rules and regulations. Moreover, most of them (87.1%) were not trained on OHS and a majority (37.1%) rarely used protective gear when performing their duties.

Informal sector workers are at high risks of occupational accidents and diseases. This has huge economic burden to individuals, enterprises and the nation as whole. Therefore, it is important that the government puts in place mechanisms aimed to protecting their health and working rights by putting in place integrative and comprehensive programs and policies meant to protect their healthy rights.

Keywords: *Occupational Safety and Health, Rules and regulations, Informal workers, Tanzania*

International Labour Organization (ILO) and World Health Organization (WHO) report indicates that many employees in manufacturing industries suffer from workplace injuries and poverty damage due to the economic crisis (ILO, 2010; WHO, 2010). Moreover, workers

¹ Department of Health Systems Management, School of Public Administration and Management, Mzumbe University, Morogoro, United Republic of Tanzania

**Responding Author*

Received: February 12, 2019; Revision Received: February 27, 2019; Accepted: March 8, 2019

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in the informal economy experience various forms of insecurity and vulnerability, including exposure to occupational health and safety (OHS) risks.

In developing countries, the informal economy accounts for a large proportion of workers and makes significant contributions to their national economies. However, OSH legislation often does not apply to such workplaces or, if it does, it is not effectively implemented and enforced. Individual workers do not have access to sound OSH advice and training, and are often exposed to risks to their safety and health without adequate protection (ILO, 2011).

Despite a significant contribution of the informal sector in the gross domestic growth (GDP) of the country, OSH at the workplace to ensure better life has not addressed well to stakeholders and workers on informal sectors (Mrema *et al.*, 2015). A report presented by Tanzania National Audit Office in 2013 showed that many people in the informal sector are at high risk of illness and diseases when performing their duties (Tanzania National Audit Office, 2013). For example, in 2003 and 2004 statistical data indicates that the number of workplace accidents in the country was 1,692 and 1,889 respectively and more than TZS 668.5 million used to compensate and treat seriously injured workers in the informal sectors (WIEGO, 2011).

Factors responsible for occupation safety and healthy in the formal sector has been addressing very well through investigation, in the informal sector the situation is not known and not investigated thoroughly due to the nature of location of the casual work. Although in recent years, there have been a substantial progress towards reducing occupation accidents and incidence in various developing countries including Tanzania; the majority of workers in the informal sectors are not protected by proper occupation safety and health. Different reasons have been outlined by researchers, which pulls back the implementation of the policies and regulations developed by the government to protect workers in the informal sector (Mrema *et al.*, 2015).

Despite comprehensive support and efforts from government and non-government organization (NGOs) to address the importance of safety and health to workers in workplaces have not achieved positive results (Alkilani *et al.*, 2013; Gyekye, 2010. Recent data shows that more than 1 million workers will suffer workplace accidents and more people will continue to die due to unsafe and unhealthy working environment (ILO, 2014).

ILO (2014) shows that poor implementation of occupational health and safety rules and regulations and environment hazards in developing countries like Tanzania are particularly evident in the informal sectors. We thought to assess whether awareness, training and the use of protective gear affect adherence to OSH rules and regulations in improving public health among informal sectors at Mabibo area in Dar es Salaam.

METHODS

Study design

We employed a mixed study design applying both quantitative and qualitative approaches. The study was carried out at Mabibo ward, in Kinondoni municipality in Dares Salaam. It is one of the administrative wards in the Kinondoni municipality with an estimated population of 73,978 (National Bureau of Statistics, (2012). This area has been chosen because it is one of the busiest places in Dar es Salaam, with a lot of informal sector activities such as welding, plumbing, vending of food stuffs, road cleaning, fumigation, and many other activities being

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performed. Moreover, the place hosts a couple of small and medium industries, including a couple of garages, self-employed plumbers for unblocking sewerage pipes, and a host of other casual workers. Many of the people in this ward do operate unregistered business, which are in some cases run from places where they live, street pavements or other informal arrangements.

Study subjects and sampling

The study involved a total of 70 respondents chosen from five categories of the informal sector operating within Mabibo area. These groups consisted of garage workers, fumigators, welders, and auto mechanics; road and street cleaners; garbage collectors and transporters. 2 officials who are directly responsible for enforcing health and safety laws and regulations at workplaces were involved. Simple random technique was employed to obtaining the respondents from each of the informal workers stratum while purposive technique was used to select two officials picked among OSH officers.

Measurements

The study examined three variable categories (awareness, training and use of personal protective equipment at work). Awareness was measured by asking whether they had heard about OSH rules and regulations. We employed five-point Likert scale that ranges from “strongly agree” to “strongly disagree” in order to get subjects views on how they knew about OHS rules and regulations. Training was measured by a series of yes/no questions to ascertain whether they had ever attend training, who provided the training, what they were trained on and whether the training was sufficient. A series of questions were asked to determine whether they used personal protective equipment at work, and how often they used.

Semi-structured questionnaire with both open and close-ended questions were used to collect information on awareness of OSH, training on OHS and use of personal protective equipment in the course of work. The questionnaire was translated into Kiswahili language to facilitate understanding of questions since subjects were speaking Kiswahili as a native language.

For the qualitative component, an in-depth unstructured key informant interview guide was designed and administered to the OSHA officers. The interviews took place in the office settings and were conducted by a trained interviewer who took detailed notes. The interviews typically lasted for 15-20 minutes.

Data analysis

The study used both qualitative and quantitative data analysis techniques. Quantitative data was coded and entered into a computer and analyzed by using Statistical Package for the Social Sciences (SPSS) 20. Frequency tables and figures were used to present the results. Qualitative data were coded, categorized and grouped into themes to enable construction of meaning based on respondent’s expression. The findings are presented in the forms of quotes and description

Ethical Considerations

The study was approved by Mzumbe University. Consent was obtained from the subjects prior to administering of the interview. The respondents were explained the purpose of the study and informed that they were free to participate or not. All information obtained was confidential and used only for the purpose of the study.

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RESULTS

Demographic characteristics

The study enrolled 72 respondents. Majority of respondents (84.3%) were aged 18 to 39 years; (12.9%) were between 40 to 49 years while only 3% were above 50 years. Majority of respondents (72.9%) were male. Only 27.1% were female. More than a half (40.0%) had completed primary education, (25.7%) had no primary education, (17.1%) had completed secondary school and 17.1% had a certificate/diploma. Regarding category of jobs; majority of the respondents were working as aeromechanics (40.0%), road street cleaners (21.4%), welders (20.0%), (14%), fumigators (10.0%), and plumbers (8.5%). Most of the visited business entities were unlicensed and run by self-employed youths (45.7%), 27.1% were unlicensed individual business, unlicensed family businesses (15.7%), while those of mobile nature (4.2%), licensed sole proprietorship (2.8%) and licensed business trading name (2.8%). Only 1.4% of the businesses were run by registered entities such as company limited by shared or trading names that are already registered and doing business according to the laws of the land (Table 1).

Table 1: Demographic characteristics

Characteristics	N=70	(%)
Age (years)		
18-39	59	(84.3%)
40-49	9	(12.9%)
50+	2	(2.9%)
Sex		
Male	51	(72.9%)
Female	19	(27.1%)
Education completed		
Primary education	28	(40%)
Secondary	12	(17.1%)
Certificate/diploma	12	(17.1%)
No primary education	18	(25.7%)
Nature of business		
Unlicensed-self employed	32	(45.7%)
Unlicensed-individual business	19	(27.1%)
Mobile business	3	(4.2%)
Unlicensed-family business	11	(15.7%)
Licensed sole proprietorship	2	(2.8%)
Licensed business trading name	2	(2.8%)
Limited liability company	1	(1.4%)
Job category		
Auto mechanics	28	(40.0%)
Plumbers	6	(8.5%)
Road and street cleaners	15	(21.4%)
Welders	14	(20%)
Fumigators	7	(10%)

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Awareness of OSH Rules and Regulations

The study sought to understand whether subjects had knowledge on OHS rules and regulations and whether they were registered as required by the law (Occupational Health and Safety Act, 2003) and regulations made thereupon. The results show that majority of the respondents (55.7%) had not heard about OHS rules and regulations including the laws that require employers or workers to undertake protective measures in order to minimize accidents and improve on the hygienic conditions of the work environment. Only 32.8% of the respondents had heard about issues related to OSHA. Moreover, we asked about general reactions on issues about OSHA rules and regulations and the reaction were mixed. Regarding registration by OSH authority, (95.7) were not registered while only (4.3%) were registered. The reaction whether rules and regulations are said to be fair, majority (55.7%) of the respondents were neutral, while (38.6%) agreed. (71.4%) said they indeed did not know about these rules and regulations; (40.0%) were neutral as to whether these rules and regulations should be enforced; (84.3%) indicated that the rules don't apply to their situations, (44.1%) indicated that rules and regulations enforced; (32.8%) were neutral as to whether those who fail to adhere to these rules and regulations should be heavily punished; and (70.3%) largely indicated that these rules, if adhered to and enforced could help to reduce accidents, saves lives, reduces labor turnover is reduced, enhances corporate image Table 2.

Table 2: Awareness about OHS rules and regulation

Awareness	N =70	(%)
Have you ever heard anything about OHS rules and regulation?		
Yes	39	55.7
No	23	32.8
Can't tell	8	11.4
Have you ever registered with OHS authority?		
Yes	3	4.3
No	67	95.7
Reaction on OSH rules and regulations		
The rules and regulations are fair		
Strongly agree	14	20.0
Agree	13	18.6
Neither agree nor disagree	39	55.7
Disagree	2	2.8
Strongly disagree	2	2.8
I don't know these rules and regulations		
Strongly agree	42	60.0
Agree	8	11.4
Neither agree nor disagree	14	20.0
Disagree	4	5.7
Strongly disagree	2	2.8
These rules and regulations should be enforced		
Strongly agree	8	11.4
Agree	23	32.8
Neither agree nor disagree	28	40.0
Disagree	8	11.4
Strongly disagree	3	4.3
These rules don't apply to our situation		

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Awareness	N =70	(%)
Strongly agree	35	50.0
Agree	24	34.3
Neither agree nor disagree	5	7.1
Disagree	3	4.3
Strongly disagree	3	4.3
They should be reserved for bigger organizations		
Strongly agree	43	61.4
Agree	20	28.5
Neither agree nor disagree	3	4.3
Disagree	4	5.7
Strongly disagree	0	0.0
Enforcing these rules and regulations is inconveniencing and costly		
Strongly agree	48	68.6
Agree	16	23.0
Neither agree nor disagree	3	4.3
Disagree	3	4.3
Strongly disagree	0	0.0
People who fail to adhere to these rules and regulations should be heavily punished		
Strongly agree	0	0.0
Agree	3	4.3
Neither agree nor disagree	23	32.8
Disagree	24	34.3
Strongly disagree	20	28.5
These rules help to reduce accidents, saves lives, reduces labor turnover is reduced, enhances corporate image		
Strongly agree	30	43.0
Agree	21	30.0
Neither agree nor disagree	14	20.0
Disagree	5	7.1
Strongly disagree	0	0

Training of informal sector on OSHA safety related issues

We thought to ascertain whether the workers in the informal sector have ever been trained on occupational health and safety related issues. As one of the key functions of OSHA, training of staff working in potentially hazardous circumstances helps to prevent unnecessary accidents. The results show that, majority (87.1%) of the respondents had never attended any sort of training related to OSHA, while (5.7%) could not remember whether they had attended such kind of training. Only (7.1%) of the respondents had attended training on OSHA. Of those that had attended training, majority of the respondents (92.9%) indicated that they had attended training only once, while 4.3% do not remember as 2.8% said they had only attended training only annually. Majority respondents (97.2%) of those attended training said they could not remember who provided to them the training. Only (1.4%) of the respondents could remember the trainers as OSHA officers, and same as those who said it was the government (1.4%). We asked whether training received was sufficient (92.9%) said training received was sufficient, while 5.7% could not tell. Only 1.4% said the training was insufficient. Majority of the respondents (35.7%) were trained on accident prevention and safety promotion; (21.4%) trained on accident and emergency response; 15.7% trained on

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employee involvement. The rest were trained as follows: safety compliance and practice (5.7%); personal protective equipment (4.3%); equipment and machinery (8.5%); chemical and hazardous materials safety (5.7%), as 2.8% had been trained on other areas (Table 3).

Table 3: Training of informal sector on OSHA safety related issues

Training	N=70	(%)
Have you ever attended training on OSH		
Yes	5	7.1
No	61	87.1%
Cant tell	4	5.7
Duration of training		
Once	65	92.9%
Annually	2	2.8
Don't remember	3	4.3
Who provided the training		
OSH officers	1	1.4
Government officers	1	1.4
Don't remember	68	97.2
Was the training sufficient?		
Sufficient	65	92.9%
Not sufficient	1	1.4
Cant tell	4	5.7
What were you trained on?		
Accident prevention and safety	25	35.7
Safety compliance and practice	4	5.7
Accident and emergency response	15	21.4
Personal protective equipment	3	4.3
Equipment and machinery	6	8.5
Chemical and hazardous materials	4	5.7
Employees involvement	11	15.7
Others	2	2.8

Use of personal protective equipment in the informal sector

This section intended to understand whether informal sector workers use personal protective equipment in their course of work. We found that majority of the respondents (37.1%) rarely used any protective gears their course of duties, while (32.8%) sometimes used some protective gears. Thirty (30.1%) of the respondents had however never used any sort of protective gears in the course of their duties. Types of protective gear used were (28.5%) wear overalls, (27.1 wear gloves. (17.1%) wear rubber boots, (11.4%) wear goggles, and as (43%) on wear all of the mentioned protective gears. Views on wearing protective gears show that, the majority of the respondents had varying view on wearing protective gears. For instance, (82.8%) agree that wearing protective gears is essential; (80%) were also of the view that they could not wear these protective gears because they were deemed costly; another (88.5%) opinioned that wearing protective gears was not practical; and 73.3% said it is necessary to wear these protective gears Table 4.

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Table 4: Use of personal protective equipment in the informal sector

Training	N=70	(%)
Ever used protective gear		
Sometimes	23	32.8
Rarely	26	37.1
Never	21	30.1
Type of protective gear wear		
Gloves	19	27.1
Rubber boot	12	17.1
Face mask	5	7.1
Overall	20	28.5
Ear muffs	1	1.4
Air masks	2	2.8
Goggles	8	11.4
All of the above	3	4.3
General views about wearing protective gear		
Wearing protective gear is essential		
Strongly agree	42	60.0
Agree	23	32.8
Neither agree nor disagree	2	2.8
Disagree	2	2.8
Strongly disagree	1	1.4
We don't wear protective gears because they are too expensive		
Strongly agree	41	58.6
Agree	15	21.4
Neither agree nor disagree	4	5.7
Disagree	4	5.7
Strongly disagree	6	8.5
Wearing protective gears is not practical at all		
Strongly agree	37	52.8
Agree	25	35.7
Neither agree nor disagree	4	5.7
Disagree	3	4.3
Strongly disagree	1	1.4
Protective gears are not easy to get		
Strongly agree	8	11.4
Agree	5	7.1
Neither agree nor disagree	8	11.4
Disagree	25	35.7
Strongly disagree	24	34.3
It is necessary to wear these protective gears		
Strongly agree	16	23.3
Agree	35	50.0
Neither agree nor disagree	10	14.2
Disagree	8	11.4
Strongly disagree	1	1.4

DISCUSSION

Our study found that majority of informal sector worker had low knowledge on OHS rules and regulations. Moreover, most of them were not trained on OHS and a majority did not use protective gear when performing their duties. These results are similar to a study by Mrema, Ngowi and Mamuya (2015) that reported low awareness of OHS matters among the general public, workers, and employers as one among the challenges that faces promotion and provision of OHS services in Tanzania. Even though OHS policy (2009) recognizes that health and safety services are important for sustainable development of a country as they reduce occupational accidents and diseases which can have huge economic burden to individuals, enterprises and the nation as whole, in the current situation in Tanzania the informal sector has been ignored and not mainstreamed in the OSH interventions. Excluding the informal sector in issues of OSH is not pleasant given that the informal sector in Tanzania employs majority of the youths in the country.

From a demographic point of view, a majority of subjects in this study had not attended school thus failed to get formal employment and decided to resort to informal sector as a way of making a living. This could have influenced their knowledge on OHS. However, the role of lower carders of workers in the informal sector cannot be taken for granted. It is them that create a balance in society since not everybody can do certain jobs. Hence, it is vital that such people be recognized; their health and safety become a priority in the economic equation. Most of the visited business entities were unlicensed and run by self-employed youths. This is similar to a study conducted in Ghana within the informal sector, it has been highlighted that much of the informal sector in Sub-Saharan Africa has become a growing source of employment for large numbers of youth, and also for older workers pursuing entrepreneurial goals and others adjusting to structural changes in the region's employment (Ametepeh, 2011).

The study has shown that most of workers in the informal sector do not undergo any type of OHS training. This is a dangerous situation given the fact that some of these people are involved in handling of dangerous chemicals and substances that can have adverse effects on their health if not well handled. There are those that work in the auto garage or as fumigators, which means that while they have experience, they lack the formal training about how certain chemicals react, and therefore can be dangerous not only to them alone, but also the environment in which they work. Structural Articulation Theory calls for the empowerment of people in the sees informal movement as firmly connected to the formal sector (Portes and Schauffler, 1993).

Just like it is with training of workers in the informal sector, many people still do not use protective gears even though they thought that it was essential. Some of reasons that prohibited them from wearing protective instruments were; negative attitude towards wearing protective gear as a majority thought that it was not practical. Difficult to get them and inability to purchase them because they are too expensive were also main reasons.

This study had several limitations. We interviewed only respondents within Mabibo, and hence the sample size was limited; therefore the study should not be generalized to others in the informal sector or other countries. Moreover, given the nature of the study which entails the issues of occupational and safety of people in the informal sector, it would have been more practical if we had included other parts of Dar es Salaam, especially those low cost-

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settlements (slums) that tend to have the highest levels of concentrations when it comes to the informal sector.

Despite the limitations, this study revealed that low knowledge on OHS matters, limited training and not using protective equipment at work places have affected adherence to OHS rules and regulations in the informal sector. It is important that the government puts in place mechanisms aimed to protecting informal workers from accidents and diseases so that they enjoy a health and safe working environment.

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Acknowledgements

The author would like to thank Gladness Lushakuzi who collected and analysed data. We also appreciate all the informal workers at Mabibo and OSH officers who participated in the study, without them this study would not have been possible.

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Conflict of Interest

The authors carefully declare this paper to bear not conflict of interests

How to cite this article: Mushi. L (2019). Factors Affecting Adherence to Occupational Health and Safety Rules and Regulations in Improving Public Health in the Informal Sector Workers in Mabibo- Dar es Salaam. *International Journal of Indian Psychology*, 7(1), 730-740. DIP:18.01.079/20190701, DOI:10.25215/0701.079