

VEHICLE ARTISAN ACCESSIBILITY TO BASIC FIRST AID AND HYGIENE PRACTICES AT SUAME MAGAZINE, GHANA

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Abstract. Vehicle repair artisans are engaged in a profession with high levels of occupational health hazards and workplace injuries which can impact employees. The activities of vehicle repairs artisans expose them to a number of risks and workplace hazards. The relevance of first aid equipment and sanitary facilities cannot be overlooked among artisans in auto-mobile garages. Therefore, the absence of basic firefighting and safety equipment such as extinguishers and fire alarms in the shops coupled with lack of training on fire management among the artisans, pose a huge threat to human life and properties in the workstation. The use of water, leaves, and sand to put out fires in cases of fire outbreaks does not provide an adequate fire protection mechanism in the shops. A cross sectional study by design and analytical by type was adopted for the research, and utilized both quantitative and qualitative approaches. A total of 233 interviewees were randomly selected employing a stratified random sampling technique from 3 units of welders, sprayers and mechanics. Data was analyzed into a descriptive and inferential statistics at $p < 0.05$ using STATA vs 14.0 software. All the artisans sampled were male with a mean age of 32.28. Persons between the age brackets of 18-37 years constituted the majority. More than half (59.23%) of the artisans had junior high school education. Fire extinguishers (79.4%), first aid boxes (82.4%), rest rooms (54.51%), and showers (92.7%) were mostly unavailable. The findings further showed that although (82.4%) artisans upheld to regular hand washing with soap at the workplace, it was not done properly to intentionally remove grease and deposits beneath the finger nails from observation made. The study concludes that, there is non-availability of basic first aids and sanitary amenities in the automobile workshop. Similarly, hand washing by artisans was not done properly to intentionally remove grease and deposits of dirt beneath the finger nails from observation made. Artisans are either unenlightened or indifferent about the dangers and health implication of poor hand hygiene.

Keywords: *vehicle artisans, basic first aid, hygiene practices, Suame Magazine*

Introduction

Vehicle repair artisans are engaged in a profession with high levels of occupational health hazards and workplace injuries which can impact employees. They are primarily involved in activities such as spraying, painting, fastening vehicle engines, welding, washing, cutting, grinding, servicing, etc. They are subjected to various hazards such as

bright light/radiation, welding fumes, sharp metals, electrical current, fire, noise, flame, vibration, chemicals and working environment hazards (Marahatta et al., 2018). According to the International Labour Organization (ILO), approximately 2.3 million women and men die annually from work-related injuries or diseases. Globally, workers constitute half of the world's population, and 70% of this global working population lives in developing countries despite their immense contribution to socio-economic development (WHO, 2010). Only 15% of these employees have access to specialized work-related health services for directing managers and for providing assessment of job-related health risks, health surveillance, training in safe working procedures, and first aid (WHO, 2010). Given the statistic above, there is a strong basis to believe that the notion of universal healthcare treatment will be far reaching if all the employed population particularly those in the informal sectors are unable to gain access to desired healthcare services. A research conducted in 2009 by the International Labour Organization (ILO), International Social Security Association (ISSA) and the European Agency for hazard, Health and Safety at Work (EU-OSHA), showed that 61 percent of Europeans interviewed believed that the impact of the global economic crisis would contribute to a worsening of workplace conditions (Rantanen et al., 2020). Exposure to accidents and injuries among vehicle artisans is increased by employees exposure to noisy work environment, dust, smoke, diesel, petrol, strenuous postures, unsuitably designed tools and machinery, and the absence of the use of Personal Protective Equipment (Khanna and Gharpure, 2017; Nag et al., 2016; Mitchual et al., 2015; Ametepeh et al., 2013; Vyas et al., 2011).

First aid is emergency care given for abrupt accident or illness until there is emergency medical attention provided (OSHA, 2006). Worker's health and safety are vital for every company to achieve its goals. Hazardous working environments can jeopardize the ability of workers to perform their duties efficiently (Waziri et al., 2015). Accidents at work in developed countries such as Ghana may be reduced if employees complied with health rules and regulations (Akple et al., 2013). The activities of vehicle repairs artisans expose them to a number of risks and workplace hazards. The relevance of first aid equipment and sanitary facilities, therefore, cannot be overlooked among artisans in auto-mobile garages particularly in view of the existence of naked flames for welding, the labyrinth of electrical wires passing through the area, combustible chemical products used among sprayers and vehicles laden with fuel in the car maintenance shops (Monney et al., 2014). The absence of basic firefighting and safety equipment such as extinguishers and fire alarms in the shops coupled with lack of training on fire management among the artisans, therefore, pose a huge threat to human life and properties in the area. The use of water, leaves, and sand to put out fires in cases of fire outbreaks does not provide an adequate fire protection mechanism in the shops. Some workplace environments are exposed to a higher risk of harm and disease than the others due to the character of work undertaken (Department of Justice and Attorney-General, 2014).

First aid is defined by ILO (2002) as: "minimizing the consequences of injury and illness until such help is obtained from a medical practitioner or nurse; treatment of minor injuries which would otherwise receive no treatment or which do not need treatment by a medical practitioner" (ILO, 2002). In any workplace environment, an employer shall assume primary responsibility in ensuring employees and visitors within the workplace can easily access first aid where appropriate. An employer shall supply or guarantee the availability of such equipment and facilities in sufficient quantity and

standards necessary in situations of emergency to allow the rendering of first aid to anyone who is injured or ill in the workplace (ILO, 2002). Similarly, Employees have a responsibility to take good care of their health and safety, and should not adversely affect other people's health and safety. Employees must comply with all reasonable instructions and cooperate with health and safety policy as well as a procedure at the work environment regarding first aid procedures needed for documenting injury and illness (WHO, 2014). Automobile artisans fall in the category of workers with greater risk of injury at the workplace. Higher-risk workplaces are those in which workers face hazards that can lead to serious injury or illness such as amputation, head, eye and spinal injuries, and loss of body parts, requiring urgent medical action. The following workstations have been identified as a higher risk over others namely manufacturing facilities, kitchens, motor vehicles, and body panels workshops, health research establishments (Department of Justice and Attorney-General, 2014).

A study was done on first aid as an important of traffic safety factor by Kureckova et al. (2017) and regarded first aid as influencing the decrease in health hazards and loss of life caused by traffic accidents. He recommends the need for an ordinary person within the population to receive training in administering basic first aid since it serves as a factor that reduces the damage to health and loss of life in the case of traffic accidents (Kureckova et al., 2017). Monney et al. (2014) conducted a study on Occupational health and safety practices (OHS) among automobile repair artisans in the urban area in Ghana. The findings in their study showed that 78% of the workers lack adequate training in fire safety. Besides, firefighting equipment was not available in the workshops visited. Additionally, approximately, 64% of the workers had sustained injuries resulting from physical hazards. Similarly, most workers experienced musculoskeletal disorders caused by the physical exertions of their work. PPE usage was as low as 20% among artisans and was attributed to being uncomfortable, non-relevant, and financially burdensome (Monney et al., 2014). The nature of work performed by vehicle repair artisans exposes them to different kinds of health risks and hazards ensuing from repairing car engines, spraying, welding, cutting, grinding, vulcanizing and many more (Monney et al., 2014).

Polluted environment; unhygienic habits, dirty clothes, and poor safety precautions, often raise workers' health risks (Pathberiya et al., 2017; Anwekar et al., 2011). Findings by Monney et al. (2014) concerning hygiene practices showed that automobile mechanics are either unaware or indifferent about the dangers associated with poor hand hygiene. It was observed that although most of the mechanics maintained frequent hand washing, it was poorly washed to remove grease and other deposits from their hands and nails (Monney et al., 2014).

Materials and Methods

This study was cross-sectional by design and analytical by type and utilized both quantitative and qualitative approaches. The study was conducted at the Suame Magazine, Kumasi Metropolis. Moreover, the study looked at artisans at Suame Magazine in the Ashanti region. For this study, three units (Welders, Sprayers, and Auto Mechanics) in zone 18 were covered. Similarly, the study entailed a population of approximately 450 artisans. Welders and sprayers accounted for 100 individuals and auto mechanics accounted for 250 artisans. In addition, the heads of these units were also interviewed to generate qualitative data. A sample size of 233 artisans aged 18

years old and above was randomly selected and was calculated using the Yamane formula (Puszczak et al., 2013; Neilson, 2011) Eq. (1).

$$n = \frac{N}{[1 + N(e)^2]} \quad \text{Eq. (1)}$$

Where, n=the sample size; N=the population size; and e=the allowable margin of error which is 5% at a 95% confidence level is ± 1.96 . The computed sample size is 212.

$$n = \frac{450}{[1 + 450(0.05)^2]} = 212$$

Calculating a 10% sample size of non-response rate=0.1(212)=21. Therefore, the estimated sample size of two hundred and thirty-three (233) participants was recruited into the study. The sampling distribution in the strata of welders was estimated as: $100/450=0.22 \times 233=51$. For sprayers: $100/450=0.22 \times 233=51$. For mechanics: $250/450=0.56 \times 233=131$. Data collection was done using stratified random sampling of artisans who report to duty on working days in strata of welders, sprayers and mechanics. The main tools for collecting data from the artisans were achieved through the utilization of a semi-structured questionnaire for quantitative data and an in-depth interview using an interview guide, a notepad, and a recorder for qualitative data. Quantitative data collected was inputted and cleaned using Microsoft Excel and analyzed using STATA version 14.0. For this study, both descriptive and inferential analysis was done on a 95% confidence level. The qualitative data collected, were first transcribed and analyzed in themes (thematic analysis) using the researcher as the primary tool for just analysis.

Results and Discussion

The findings of this study were presented in two different captions; the first part entails the socio-demographic characteristics of artisans, followed by vehicle artisan accessibility to basic first aid and hygiene practices.

Sociodemographic characteristic

Table 1 shows the socio-demographic characteristics of the respondents. A total of 233 artisans working at Suame Magazine zone 18 participated in this study. The study identified three categories of vehicle artisans, namely, sprayers, welders and mechanics who performed different tasks within the same zone. The distribution of study participants by occupation includes fifty-one sprayers (21.89%), fifty-one welders (21.89%) and one hundred and thirty-one mechanics (56.22%). Considering age category, ninety-two of the respondents (39.48%) were in the age bracket of 18-27 years, fifty-eight (24.89%) were between the ages of 28-37 years, fifty-three (22.75%) were within the age category of 38-47 years, twenty-five (10.73%) fell between the age group of 48-57 years, while five (2.15%) were 58 and above. The mean age of respondents ($SD=\pm 11.31$) was 33.28. Data on demographic characteristics about gender indicates that all of the respondents were male.

Table 1. Sociodemographic characteristics.

| Variable | Frequency (N=233) | Percentage (%) | Mean | SD |
|-----------------------------------|-------------------|----------------|-------|-------|
| Occupation | | | | |
| Sprayers | 51 | 21.89 | | |
| Welders | 51 | 21.89 | - | - |
| Mechanics | 13 | 56.22 | | |
| Age of respondents (yrs) | | | | |
| 18-27 | 92 | 39.48 | | |
| 28-37 | 58 | 24.89 | 33.28 | 11.31 |
| 38-47 | 53 | 22.75 | | |
| 48-57 | 25 | 10.73 | | |
| >58 | 5 | 2.15 | | |
| Gender of respondent | | | | |
| Female | 0 | 0 | - | - |
| Male | 233 | 100 | | |
| Marital status | | | | |
| Married | 110 | 47.21 | | |
| Single | 92 | 39.48 | - | - |
| Co-habitation | 28 | 12.02 | | |
| Widow/widower | 3 | 1.29 | | |
| Educational qualification | | | | |
| Non-formal education | 14 | 6.01 | | |
| Primary school education | 21 | 9.01 | | |
| Junior high school | 138 | 59.23 | - | - |
| Senior high school | 55 | 23.61 | | |
| Tertiary education | 5 | 2.15 | | |
| Years of working experience (yrs) | | | | |
| 1-7 | 103 | 44.21 | | |
| 8-15 | 53 | 22.75 | 12.14 | 9.10 |
| 16-23 | 51 | 21.89 | | |
| 24-31 | 15 | 6.44 | | |
| >32 | 11 | 4.72 | | |

Regarding the marital status of the 233 respondents in this study, one hundred and ten (47.21%) were married, ninety-two (39.48%) were single, twenty-eight (12.02%) were cohabitating, and only three (1.29%) were widowers. Judging by the educational qualification, fourteen (6.01%) had no formal education, twenty-one (9.01%) had attained primary school education, one hundred and thirty-eight (59.23%) had junior high school, fifty-five (23.61%) had up to senior high school education, while only five (2.15%) had tertiary education. The number of years of working experience by each artisan was equally evaluated and one hundred and three (44.21%) fell in the category of 1-7 years, fifty-three (22.75%) had 8-15 years of working experience, fifty-one respondents (21.89%) had worked for 16-23 years, fifteen (6.44%) had the 24-31 years work experience, while eleven respondents (4.72%) had worked for 32 years and above. The mean years of working experience (SD=±9.10) was 12.14.

According to the socio-demographic characteristics, the artisans were predominately males. Study participants were relatively young, with a mean age of 32.28 found in the age brackets 18-27 and 28-37 years. These age groups represent the majority in the study. This is similar to the findings of Amfo-Otu and Agyemang (2016) in a study conducted in the Sekyere East District of Ghana. The results showed that, young people between the ages of 17-35 accounted for the majority (84.3%) of persons working in the Informal Sector as Auto Mechanics. Additionally, the preponderance of the male gender being involved in risky and hazardous work is tandem with the study conducted in Ethiopia on occupational risk and hazard exposure by Amabye (2016) who reported that males accounted for 97.8% of persons working in high risk environments in the informal sector. A research in Australia by Morrell et al. (1998) also revealed that, 78% of persons involved in hazardous work were males; all in the informal sector. This could possibly be ascribed to the high level of physical labor required since the nature of the

work involves lifting of heavy loads, lying under the car, using of sharp objects and heavy tools. It could perhaps be viewed culturally as men's responsibility. Majority of the interviewees were married. The proportion of respondents with junior high school education was high (59.23%) which is contrary to the finding of Amfo-Out and Agyemang (2016) where majority of the respondents had basic primary education (85.7%). It however affirms that many artisans have got some form of formal education. Most of the workers had the working experience between 1-7 years with the mean years of (SD= ± 9.9969) 12.14. The outlier in the mean was caused by the number of respondents who worked between the years of 1-7.

Basic first aid and hygiene practices

In this section, *Table 2* and figures below shows the findings on accessibility to basic first aid, hygiene practices among artisans and the training that each study participant received on fire safety and management to enhance workplace hygiene. In terms of access to first aid, *Figure 1* shows that, fifty-two (22.32%) had access, one hundred and seventy-six (75.54%) did not have access, and five (2.15%) said they do not know if they have access to first aid. Regarding the training on fire safety and management, *Table 2* shows that, one hundred and thirty-seven (58.8%) had training while ninety-six (41.2%) had no training. From the training received in a multiple choice response, fifty-nine (60.82%) were trained by the Ghana National Fire Service department (GNFS); twenty-seven (27.84%) were trained by their supervisors at the various work units and eighteen (18.56%) were trained by their fellow workers. In addition, artisans also stated other places where they received training as DVLA Office, KTI School, National vocation training institute school (NVTI), family members, online, schools, self-taught, videos, television and social media such as YouTube. Concerning the reports of accidents or injuries during work procedures (multiple choice responses), one hundred and thirty (55.79%) reported to supervisors while one hundred and three (44.21%) did not. Twenty nine (12.45%) reported to their fellow workers while two hundred and four (87.55%) did not. Eighty-seven (37.34%) reported to medical physician while one hundred and forty-six (62.66%) did not.

Table 2. Demographic characteristics of the respondents.

| Variables | Frequency (N=233) | Percentage (%) |
|--|-------------------|----------------|
| Training on fire safety | | |
| No | 137 | 58.8 |
| Yes | 96 | 41.2 |
| Training personnel | | |
| Ghana National Fire Service | | |
| No | 38 | 39.18 |
| Yes | 59 | 60.82 |
| Training personnel | | |
| Supervisor | | |
| No | 70 | 72.16 |
| Yes | 27 | 27.84 |
| Training personnel | | |
| Fellow workers | | |
| No | 79 | 81.44 |
| Yes | 18 | 18.56 |
| Personnel accident or injuries are reported to | | |
| Supervisor | | |
| No | 103 | 44.21 |
| Yes | 130 | 55.79 |
| Personnel accident or injuries are reported to | | |
| Fellow workers | | |
| No | 204 | 87.55 |

| | | | |
|--|---|-----|-------|
| Personnel accident or injuries are reported to | Yes | 29 | 12.45 |
| Physician | No | 146 | 62.66 |
| Sources of medical treatment for illness or injuries | Yes | 87 | 37.34 |
| Physician | No | 94 | 40.34 |
| Sources of medical treatment for illness or injuries | Yes | 139 | 59.66 |
| Supervisor | No | 183 | 78.54 |
| Self-medication | Yes | 50 | 21.46 |
| Hand washing | No | 119 | 51.07 |
| Frequency of hand washing | Yes | 114 | 48.93 |
| Always | No | 192 | 82.4 |
| Often | No | 24 | 10.3 |
| Sometimes | Somewhat | 17 | 7.3 |
| Rarely | Frequency of hand washing | 118 | 56.46 |
| Never | Always | 43 | 20.57 |
| Frequency of removal of dirt deposit beneath finger | Sometimes | 37 | 17.7 |
| Always | Rarely | 11 | 5.26 |
| Often | Never | 0 | 0 |
| Sometimes | Frequency of removal of dirt deposit beneath finger | 100 | 42.92 |
| Rarely | Always | 67 | 28.76 |
| Never | Often | 43 | 18.45 |
| Availability of clear safety warning signs | Sometimes | 20 | 8.58 |
| No | Rarely | 3 | 1.29 |
| Yes | Never | 228 | 97.85 |
| Health insurance membership | Availability of clear safety warning signs | 5 | 2.15 |
| No | Health insurance membership | 125 | 53.65 |
| Yes | No | 108 | 46.35 |
| | Yes | | |

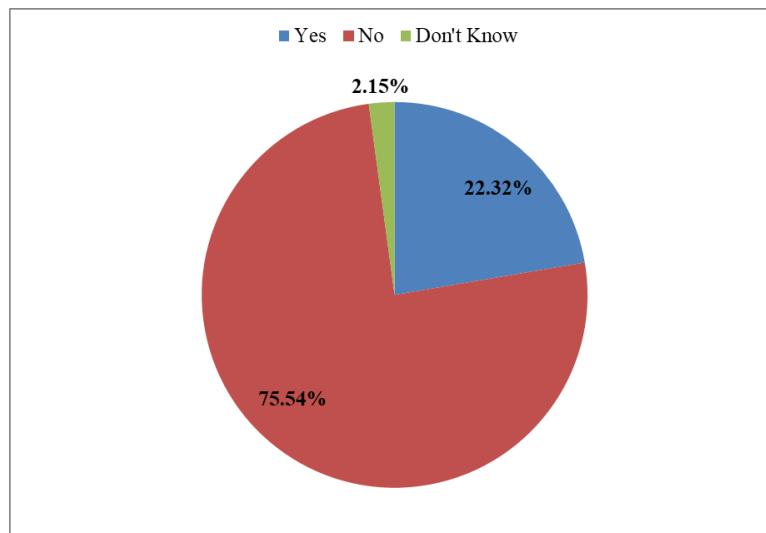


Figure 1. Distribution of access to first aid.

Table 2 shows the results on the sources where artisans received medical treatment whenever an accident or injury occurred. One hundred and thirty-nine (59.66%) received treatment from a medical physician while ninety-four (40.34%) did not. Fifty (21.46%) received treatment from their field supervisor while one hundred and eighty-three (78.54%) did not, and one hundred and fourteen (48.93%) administered self-

medication while one hundred and nineteen (51.07%) did not. On the practice of regular hand washing with soap, one hundred and ninety-two (82.4%) washed their hands regularly with soap; twenty-four (10.3%) did not, while seventeen (7.3%) said they somewhat did (*Figure 2*). On the frequency of hand washing, one hundred and eighteen (56.46%) always washed their hands frequently; forty-three (20.57%) often washed their hands, thirty-seven (17.7%) sometimes did, eleven (5.26%) rarely washed their hands while none of the respondents never stayed without washing hands in the course of work procedures. Workers were also interviewed on the frequency of eating at the workstation. *Figure 3* affirm that Eighty-four (36.05%) of the respondents always ate at the workplace, fifty-eight (24.89%) often ate, forty-nine (21.03%) sometimes ate, thirty-three (14.16%) rarely ate at the workplace and nine (3.86%) never ate at the workplace. *Figure 4* shows how safe the work environment was for eating, one hundred and eighty-four (78.97%) said the environment was safe enough for eating, thirty-nine (16.74%) said the environment was not safe for eating while ten (4.29%) said that the work environment was somewhat safe for eating.

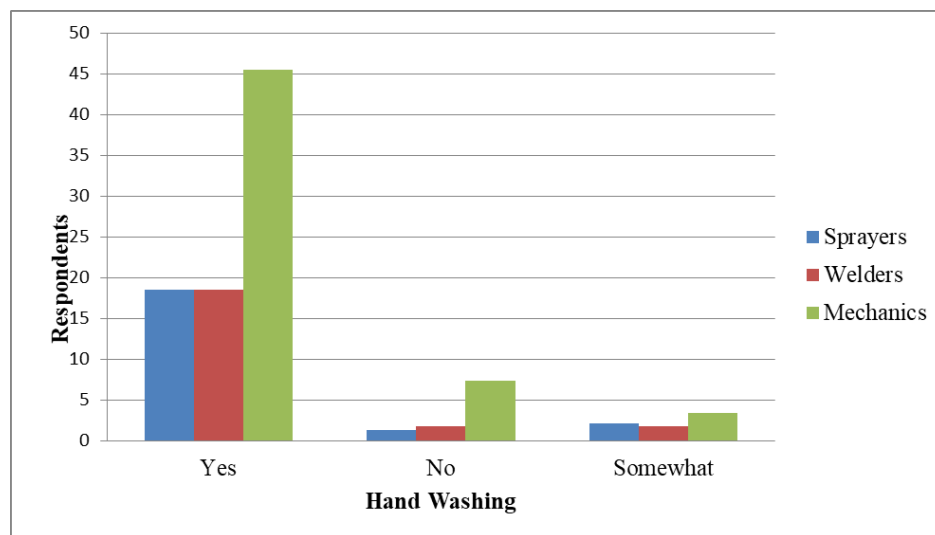


Figure 2. Percentage distribution of regular hand washing by occupation.

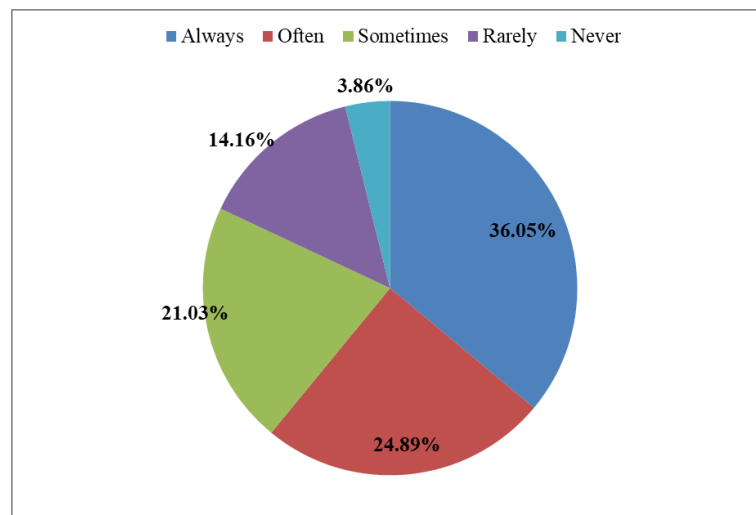


Figure 3. Frequency of eating while working.

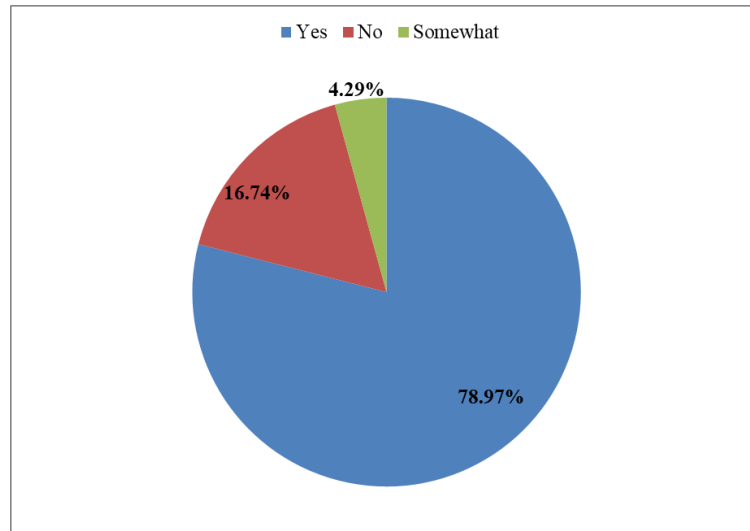


Figure 4. Safety of work environment for eating.

On the frequency of removing deposits of dirt beneath the finger nails, one hundred respondents (42.92%) always removed dirt beneath finger nails; sixty-seven (28.76%) often removed dirt beneath finger nails, forty-three (18.45%) sometimes did, twenty (8.58%) rarely did and only three (1.29%) of the total respondents never had time to remove dirt beneath their finger nails. In conclusion, artisans were interviewed on the availability of clear safety warning signs within the workplace and two hundred and twenty-eight (97.85%) said there were no clear safety warning signs available, while only five (2.15% of total respondents) said there are clear safety warning signs available. Finally, artisans were asked about their membership in health insurance considering the type of work activities they performed. One hundred and twenty-five (53.65%) said they were not on health insurance while one hundred and eight (46.35%) admitted being enrolled on the health insurance scheme. Basic first aid and hygiene practices at work are necessary to reduce not only accidents and injuries but to also improve the environmental sanitary conditions and metabolic heat. This is important especially when engineering methods are not sufficient or are not practicable (Jacklitsch et al., 2016).

The findings from the observation and questionnaire administered for this research indicated the unavailability of fire extinguishers (79.4%), first aid boxes (82.4%), rest rooms (54.51%), and showers (92.7%) at the work station of the artisans. This result is in line with the findings of Akple et al. (2013) that most of the automobile workshop lack fire extinguishers and first aid, thereby making the workplace susceptible to the risk of fire hazards and property loss in an event of fire outbreak. It also supports the findings of Amfo-out et al. (2016) that informal sector auto mechanic workshop in Sekyere East District of Ghana lack sanitary facilities but uses available public toilets or bush close by. The results further show that study participants are either unenlightened or indifferent about the dangers and health implication related to poor hand hygiene. Even though majority of the respondents (82.4%) upheld that they regularly wash their hands with soap at the workplace, it was noticed that the hand washing was not done properly to intentionally remove grease and deposits of dirt beneath the finger nails. This result is in line with the findings of Monney et al. (2014) that although 98% of the artisans frequently washed their hands at the workplace, it is not done adequately to effectively remove grease, grime and other deposits. The implication is that lack of adherence to

the practices of hand hygiene action can serve as a breeding ground for microbial organisms. This is because proper hand washing involves washing both hands with soap under running water for at least 40-60 seconds to prevent the spread of antimicrobial resistance (WHO, 2009).

Conclusion

In terms of gender, artisans were all male, relatively young with a mean age of 32.28, found in the age brackets 18-37, who represent the majority in the study. Most of the study participants were married. The proportion of respondents with junior high school education was high (59.23%). The years of working experience of workers was between 1-7 years with the mean age of 12.14 (SD=±9.10). The outlier in the mean was caused by the number of respondents who worked between the years of 1-7. Concerning the basic first aid and hygiene practices at work, the study revealed the unavailability of fire extinguishers (79.4%), first aid boxes (82.4%), rest rooms (54.51%), and showers (92.7%) at the work station of the artisans. The findings further showed that (82.4%) artisans upheld to regular hand washing with soap at the workplace. However, the study concluded that hand washing by artisans was not done properly to intentionally remove grease and deposits of dirt beneath the finger nails from observation made. Also, artisans are either unenlightened or indifferent about the dangers and health implication of poor hand hygiene.

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Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research.

REFERENCES

- [1] Akple, M.S., Turkson, R.F., Biscoff, R., Nyamuame, G.Y. (2013): Accident and safety violation in automobile repair workshops in Ghana. – International Journal of Business, Management and Social Sciences 4(1): 12-21.
- [2] Amabye, T.G. (2016): Occupational risks and hazards exposure, knowledge of occupational health and safety practice and safety measures among workers of sheba leather plc, wukro, tigray Ethiopia. – MOJ Public Health 4(2): 39-45.
- [3] Ametepeh, R.S., Adei, D., Arhin, A.A. (2013): Occupational health hazards and safety of the informal sector in the Sekondi-Takoradi Metropolitan Area of Ghana. – Research on Humanities and Social Sciences 3(20): 87-99.
- [4] Amfo-Otu, R., Agyemang, J.K. (2016): Occupational health hazards and safety practices among the informal sector auto mechanics. – Applied Research Journal 1(4): 59-69.

- [5] Anwekar, H., Patel, S., Singhai, A.K. (2011): Liposome-as drug carriers. – *International Journal of Pharmacy & Life Sciences* 2(7): 945-951.
- [6] Department of Justice and Attorney-General (2014): First aid in the workplace-Code of practice 2014. – *Workplace Health and Safety Queensland* 23p.
- [7] International Labour Organization (ILO)(2002): *Subsidiary Legislation* 424. – International Labour Organization 4p.
- [8] Jacklitsch, B., Williams, J., Musolin, K., Coca, A., Kim, J.H., Turner, N. (2016): Occupational exposure to heat and hot environments. – US Department of Health and Human Services, Centers for Disease Control and Prevention, NIOSH: Cincinnati, OH, USA 159p.
- [9] Khanna, S., Gharpure, A.S. (2017): Petroleum carcinogenicity and aerodigestive tract: in context of developing nations. – *Cureus* 9(4): 7p.
- [10] Kureckova, V., Gabrhel, V., Zamecnik, P., Rezac, P., Zaoral, A., Hobl, J. (2017): First aid as an important traffic safety factor-evaluation of the experience-based training. – *European Transport Research Review* 9: 1-8.
- [11] Marahatta, S.B., Gautam, S., Paudel, G., Yadav, U.N. (2018): Awareness of occupational hazards and associated factors among automobile repair artisans in Kathmandu Metropolitan City, Nepal. – *Indian Journal of Occupational and Environmental Medicine* 22(1): 49-53.
- [12] Mitchual, S.J., Donkoh, M., Bih, F. (2015): Assessment of safety practices and injuries associated with wood processing in a timber company in Ghana. – *Open Journal of Safety Science and Technology* 5(1): 10-19.
- [13] Monney, I., Bismark, D.A., Isaac, O.M., Kuffour, R.A. (2014): Occupational health and safety practices among vehicle repair artisans in an urban area in Ghana. *Journal of Environmental and Occupational Health* 3(3): 147-153.
- [14] Morrell, S., Kerr, C., Driscoll, T., Taylor, R., Salkeld, G., Corbett, S. (1998): Best estimate of the magnitude of mortality due to occupational exposure to hazardous substances. – *Occupational and Environmental Medicine* 55(9): 634-641.
- [15] Nag, A., Vyas, H., Nag, P. (2016): Occupational health scenario of Indian informal sector. – *Industrial Health* 54(4): 377-385.
- [16] Neilson, T. (2011): King of charcoal: Japanese create new life for dying industry. – *Inwood Magazine* 96: 32-33.
- [17] Occupational Safety and Health Administration (OSHA) (2006): *Best practices guide: Fundamentals of a workplace first-aid program*. – Occupational Safety and Health Administration 28p.
- [18] Pathberiya, R., Dasanayaka, S.W.S.B., Serhan, O.A., Roudaina, H. (2017): Environmental and health impact of small garages and workshops: a case study based on Sri Lanka. – *Progress in Industrial Ecology, An International Journal* 11(4): 314-342.
- [19] Puszczak, K., Fronczyk, A., Urbański, M. (2013): Analysis of sample size in consumer surveys. *Consumer Survey* 3(2): 112-114.
- [20] Rantanen, J., Muchiri, F., Lehtinen, S. (2020): Decent work, ILO's response to the globalization of working life: Basic concepts and global implementation with special reference to occupational health. – *International Journal of Environmental Research and Public Health* 17(10): 27p.
- [21] Vyas, H., Das, S., Mehta, S. (2011): Occupational injuries in automobile repair workers. – *Industrial Health* 49(5): 642-651.
- [22] Waziri, B.S., Hamma-Adama, M., Kadai, B. (2015): Exploring health and safety practices on some Nigerian construction sites. – In *Procs 6th West Africa Built Environment Research (WABER) Conference*. Johannesburg: WABER Conference 12p.
- [23] World Health Organization (WHO) (2014): *International consultation on caring for all working people: Interventions, indicators and service delivery*. – World Health Organization 14p.

- [24] World Health Organization (WHO) (2010): Healthy workplaces: A model for action. – Geneva: World Health Organization 32p.
- [25] World Health Organization (WHO) (2009): WHO guidelines on hand hygiene in health care. – In WHO Guidelines on Hand Hygiene in Health Care 270p.