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## **Awareness of occupational hazards among automobile repair artisans in Wasit Governorate**

**Ahmed Mahdi Kattof**

Community health specialist, Ministry of health, Alnummania general hospital  
Corresponding author email: [am6123470@gmail.com](mailto:am6123470@gmail.com)

**Ishraq Ahmed Chiad**

Assistant professor (M.S.C) at the collage of Health and medical Technology-  
Baghdad- Iraq  
Email: [Ishahm7s@gmail.com](mailto:Ishahm7s@gmail.com)

**Muna A. Kadhum Zeidan**

Assistant professor (M.S.C) at the collage of Health and medical Technology-  
Baghdad- Iraq  
Email: [munaalwaeli60@gmail.com](mailto:munaalwaeli60@gmail.com)

**Abstract**---Background: An occupational hazard contributes to severe health problems among workers due to unhygienic conditions and lack of safety at the workplace. Economic growth and productivity can be well achieved by promoting health, safety, and improved quality workplace. Objectives: This study aimed to identify the awareness of occupational hazards among automobile repair artisans in wasit governorate, and to determine the occupational types of hazards, and to find out the factors associated with awareness on occupational hazards among automobile repair artisans in wasit governorate, Iraq. Subjects and Methods: A descriptive; cross sectional study conducted at Wasit Governorate , included 230 participants. To assess Awareness, a validated well-known questionnaire instrument was utilized. The data collection continued for the period of 3 months starting on 2<sup>nd</sup> January 2022 to 3<sup>rd</sup> April 2022. Results: the findings of the study indicated that about (51.43%) of automobile artisans workers had awareness on occupational hazard,(28.3%) of the worker belonged to age group (40-49) years. And about (77.8%) of studied sample were married, also this study showed that most of automobile artisans workers (35.7%) were with primary education. (53.0%) of auto Artisans were exposed to Oxyacetylene fumes, and (20.9%) of them were exposed to Battery acid, (42.6%) were exposed to Spray painting fumes. Education level, Category of Automobile Artisans (Occupation), Hours of working per day were found to be significantly associated with Awareness. Conclusion: the study showed that most of

automobile artisans had moderate awareness on occupational hazards. And also, low educational level, majority of the workers were (mechanic), most of the workers working more than 8 hours per day.

**Keywords**---automobile repair artisans, awareness, occupational hazards, Wasit, governorate.

## **Introduction**

Occupational health and safety (OHS) is defined by the International Labour Organization (ILO) as "the science of anticipating, recognizing, evaluating, and controlling hazards arising in or from the workplace that may impair the health and well-being of workers, taking into account the potential impact on surrounding communities and the general environment." (Indira *et al.*, 2021). An occupational hazard is described as "any potential source that can cause injury or damage to a worker's health" in the OHS literature. (Afolabi *et al.*, 2021).

Automobile repair artisan is one occupation that contributes to workplace accidents and illness health hazards, with higher rates of occupational health hazards that may affect workers. Automobile repair artisans are usually involved in tasks such as spraying, painting, repairing vehicle engines, welding, cleaning, cutting, grinding, and servicing, among others, where they are exposed to a variety of hazards such as light/radiation, welding fumes, sharp metals, electrical current, heat, noise, spark, vibration, chemical, and the working environment. A dangerous working environment not only puts the workers' health at risk, but it also reduces the industry's production (Mishra *et al.*, 2019). Industrial safety and health problems are becoming major challenges because of low occupational hazards awareness, lack of workplace safety and health policy, and inefficient safety management system. Due to these employers, workers and the government are losing measurable costs (Tadesse *et al.*, 2016).

In Kingdom Saudi Arabia (KSA), extremely hot weather, majority of expatriate workers and their lack of OSH awareness and interest exposing them to a number of occupational hazards and risks, make motor vehicle repair workshops (MVRW) sector a more vulnerable occupational group. Many research studies proved that workers in such small scale repair industries are more prone to work place hazards, risks and ill health effects (Ahmad *et al.*, 2017).

## **Aim**

1. To identify the awareness of occupational hazards among automobile repair artisans in wasit governorate, Iraq
2. To determine the occupational types of hazards, and the factors associated with awareness of occupational hazards among automobile repair artisans in wasit governorate, Iraq.

## **Subjects and Methods**

A descriptive; cross sectional study conducted at Wasit Governorate, included 230 participants among Automobile repair Artisans. A validated well known questionnaire was used to assess Awareness. This questionnaire is 35 questions with a likert three score scale(yes, no, don't know) to assess worker awareness, scoring scales for studying Awareness of occupational hazards among automobile repair artisans(Yes/or No true, Yes/or No false, and Don't know) for the first domain's items "Awareness about Occupational Hazards", which transformed through nominal binary dichotomous measured scales in admixed form where transformed (Yes/or No false, and Don't know) to zero, and transformed (Yes/or No true) to one. with taken in account preceding reverse scales in case of reversed items. According to mean of score and Grand mean of score three categories intervals are scored for evaluation items and studied domains respectively and as follows : [(00.00 – 0.33) for Low (L); (0.34–0.66) for Moderate (M); and (0.67– 1.00) for High (H)].

### **Duration of Study**

The data collection continued for the period of 3 months starting on 2<sup>nd</sup> January 2022 to 3<sup>rd</sup> April 2022.

### **Place of Study**

The present study was carried out among automobile repair artisans in wasit governorate. Automobile repair workshops are located in the industrial districts of Wasit governorate, where each district of the 9 districts includes one industrial district, except for the governorate center (Al-Kut district), which includes 2 industrial districts.

### **Inclusion criteria**

Automobile repair artisans who live and work in wasit Governorate, from the age of 15 years and above, and Oriented and able to communicate verbally.

### **Data collection technique**

A convenient sample targeted 230 Automobile artisans in Wasit Governorate. Data were collected by using direct interview(face to face interview) technique. Many artisans were excluded from the study according to the exclusion criteria.

### **Statistical data analysis**

Data entry and data analysis were carried out using SPSS version 22 software. Summary Statistics including the following: Mean of score (MS), Standard Deviation (SD), Relative Sufficiency (RS%), Percentile Grand/or Global Mean of Score (PGMS), Pooled standard error (PSE), and Pooled Standard Deviation(PSD).

## Results

A 230 Automobile repair artisans were involved in this cross-sectional study. Age groups shows that more than three quarters of studied sample were recorded between (20 \_ 49) yrs. old, and were accounted 179(77.83%), as well as mean value and standard deviation are estimated by 37.03 yrs., and 11.91 yrs. Respectively, as well as 179 (77.83%) of studied sample are married. Two third of studied sample were recorded their educational levels at primary school or less, and were accounted 152 (66.1%), and about half of studied sample were "Mechanic" workers, and were accounted 107(46.52%), Finally urban residency are accounted 183(79.57%) amongst of studied sample. as shown in table (1)

Table (1): Distribution of the studied sample according to Socio-Demographical Characteristics variables Observed Frequencies, Percents, and Comparisons significant (N=230)

SDCv.	Classes	No.	%	C.S. (*) P-value
Age Groups (Yrs.)	< 20	9	3.9	x <sup>2</sup> = 105.77 P=0.000 (HS)
	20 _ 29	60	26.1	
	30 _ 39	54	23.5	
	40 _ 49	65	28.3	
	50 _ 59	32	13.9	
	60 _ 69	10	4.3	
	Mean ± SD	37.03 ± 11.91		
Marital Status	Single	50	21.7	x <sup>2</sup> = 220.55 P=0.000 (HS)
	Married	179	77.8	
	Divorced	1	0.4	
Education state for worker	Illiterate	26	11.3	x <sup>2</sup> = 66.82 P=0.000 (HS)
	Read & Write	44	19.1	
	Primary	82	35.7	
	Intermediate	25	10.9	
	Secondary	24	10.4	
	College & More	29	12.6	
Category of Automobile Artisans (Occupation)	Mechanic	107	46.5	x <sup>2</sup> = 114.44 P=0.000 (HS)
	Welder	21	9.1	
	Sprayer	25	10.9	
	Electrician	25	10.9	
	Others:	52	22.6	
Residency	Urban	183	79.6	P=0.000 (HS)
	Rural	47	20.4	

(\*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; Non Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and Binomial test.

Table (2) shows observed frequencies, of "Duration, Hours of working & Health training courses" variables, with significant comparisons. Results shows that duration of employment studied sample recorded highly significant different at P<0.01, since most of them who increased their work period, which constituted a percentage of 218(94.8%), On the other hand, the number of respondents whose

daily working hours exceeded 8 hours was the largest proportion among studied sample, and they are accounted 185(80.4%), With regard to participation in health prevention courses, the results of the response were shocking, as only two participated, i.e. a percentage of 2(0.9%) of the sample studied

Table (2): Distribution of "Duration, Hours of working & Health training courses" variables with comparisons significant (N=230)

Duration, Hours of working & Health training courses	Classes	No.	%	C.S. (*) P-value
Duration of Employment Yrs.	< 5	12	5.2	x <sup>2</sup> = 41.00 P=0.000 (HS)
	5 _ 10	64	27.8	
	11 _ 19	61	26.5	
	20 _ 29	56	24.3	
	> 30	37	16.1	
Hours of working per day	Less than 8 hours	45	19.6	P=0.000 (HS)
	More than 8 hours	185	80.4	
Training courses in preventability health problems	Yes	2	0.9	P=0.000 (HS)
	No	228	99.1	
If yes, number of courses	NA	228	99.1	-
	Three courses	2	0.9	

(\*) HS: Highly Sig. at P<0.01; Non Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and Binomial test. (NA): Not Applicable exclusion from the testing hypothesis.

### Awareness about Occupational Hazards

Table (3) shows summary statistics of an initial evaluation items of "Awareness about Occupational Hazards" domain, which assigned that observed responses are moderate mostly, and they are accounted 18(51.43%), and items of having low level of evaluation are accounted 12(34.28%), and leftover items of having a high evaluation are accounted 5(14.28%).

Table (3): Summary statistics of an initial evaluation items of "Awareness about Occupational Hazards" with testing hypothesis based on the "Binomial" test (N=230)

Awareness about occupational hazards Scale's items	Score	No	%	MS	SD	RS%	Ev.	P- value
1. Do you aware that the Injuries due to collapse of jacking, lifting or hoisting equipment, and vehicles falling from lifting equipment them are occupational hazards?	No	33	14.3	0.81 0	0.39 0	81.0 00	H	0.000 HS
	Don't know	11	4.8					
	Yes	186	80.9					
2. Do you think exposure to vibration is one of the occupational	No	77	33.5	0.33 0	0.47 0	33.0 00	L	0.000 HS

hazards in your workplace?	Don't know	76	33					
	Yes	77	33.5					
3. Do you think noise exposure is one of the occupational hazards in your workplace?	No	80	34.8	0.320	0.470	32.000	L	0.000 HS
	Don't know	76	33					
	Yes	74	32.2					
4. Do you think the weather is part of the hazards in your workplace?	No	89	38.7	0.550	0.500	55.000	M	0.166 NS
	Don't know	15	6.5					
	Yes	126	54.7					
5. Do you think cuts and lacerations are part of the hazards in your workplace?	No	47	20.4	0.730	0.440	73.000	H	0.000 HS
	Don't know	14	6.1					
	Yes	169	73.5					
6. Do you think heavy metals in brake fluids, degreasers, cleaners, lubricants, metal cleaners, paints, fuels, and solvents pose occupational hazards?	No	83	36.1	0.390	0.490	39.000	M	0.001 HS
	Don't know	58	25.2					
	Yes	89	38.7					
7. Do you think that physical hazards lead to skin allergy?	No	76	33	0.430	0.500	43.000	M	0.041 S
	Don't know	55	23.9					
	Yes	99	43					
8. Do you think physical hazards lead to falls?	No	104	45.2	0.300	0.460	30.000	L	0.000 HS
	Don't know	56	24.3					
	Yes	70	30.4					
9. Do you think physical hazards lead to a headache?	No	66	28.7	0.460	0.500	46.000	M	0.262 NS
	Don't know	58	25.2					
	Yes	106	46.1					

Awareness about occupational hazards Scale's items	Score	No.	%	MS	SD	RS%	Ev.	P-value
10. Do you think physical hazards lead to breathing problems?	No	91	39.6	0.400	0.490	40.000	M	0.002 HS
	Don't	58	25.2					

	know							
	Yes	81	35.2					
	No	123	53.5					
11. Do you think chemical materials cause muscle pain?	Don't know	45	19.6	0.530	0.500	53.000	M	0.323 NS
	Yes	62	27					
	No	59	25.7					
12. Do you think chemical materials cause skin infections?	Don't know	48	20.9	0.530	0.500	53.000	M	0.323 NS
	Yes	123	53.5					
	No	102	44.3					
13. Do you think chemical materials cause hearing problems?	Don't know	50	21.7	0.440	0.500	44.000	M	0.099 NS
	Yes	78	33.9					
	No	44	19.1					
14. Do you think chemical materials cause respiratory problems?	Don't know	44	19.1	0.620	0.490	62.000	M	0.000 HS
	Yes	142	61.7					
	No	87	37.8					
15. Do you think that handling the battery is one of the causes of poisoning?	Don't know	45	19.6	0.430	0.500	43.000	M	0.030 S
	Yes	98	42.6					
	No	194	84.3					
16. Do you think grease poses hazards in your workplace?	Don't know	2	0.9	0.150	0.360	15.000	L	0.000 HS
	Yes	34	14.8					
	No	106	46.1					
17. Do you think that motor oil is one of the risks in the workplace?	Don't know	47	20.4	0.330	0.470	33.000	L	0.000 HS
	Yes	77	33.5					
	No	116	50.4					
18. Do you think electrical/mechanical hazards lead to falls?	Don't know	52	22.6	0.270	0.440	27.000	L	0.000 HS
	Yes	62	27					
	No	61	26.5					
19. Do you think that the outbreak of fire in your workplace is one of the causes of electrical hazards?	Don't know	49	21.3	0.520	0.500	52.000	M	0.553 NS
	Yes	120	52.2					

Awareness about occupational hazards Scale's items	Score	No .	%	MS	SD	RS%	Ev.	P-value
20. Do you think electrical/mechanical hazards lead to electric shock?	No	49	21.3	0.590	0.490	59.000	M	0.010 S
	Don't know	46	20					
	Yes	135	58.7					
21. Do you think electrical/mechanical hazards	No	84	36.5	0.370	0.480	37.000	M	0.000 HS
	Don't	67	29.1					

lead to hearing problems?	know							
	Yes	79	34.3					
22. Do you think electrical/mechanical hazards lead to dermatitis?	No	66	28.7	0.290	0.450	29.000	L	0.000 HS
	Don't know	84	36.5					
	Yes	80	34.8					
23. Do you think biological hazards lead to hearing problems?	No	69	30	0.300	0.450	30.000	L	0.000 HS
	Don't know	119	51.7					
	Yes	42	18.3					
24. Do you think biological hazards lead to respiratory problems?	No	36	15.7	0.330	0.470	33.000	L	0.000 HS
	Don't know	118	51.3					
	Yes	76	33					
25. Do you think tetanus is a complication of risks in your workplace?	No	126	54.8	0.150	0.360	15.000	L	0.000 HS
	Don't know	70	30.4					
	Yes	34	14.8					
26. Do you think the presence of rats in your workplace may cause health problems?	No	85	37	0.520	0.500	52.000	M	0.644 NS
	Don't know	26	11.3					
	Yes	119	51.7					
27. Do you think that personal protective equipment protects you from injury?	No	34	14.8	0.840	0.360	84.000	H	0.000 HS
	Don't know	2	0.9					
	Yes	194	84.3					
28. Do you think Personal Protective Equipment prevents respiratory problems?	No	122	53	0.450	0.500	45.000	M	0.129 NS
	Don't know	5	2.2					
	Yes	103	44.8					
29. Do you think personal protective equipment prevents falls?	No	155	67.4	0.310	0.460	31.000	L	0.000 HS
	Don't know	3	1.3					
	Yes	72	31.3					

Awareness about occupational hazards Scale's items	Score	No.	%	MS	SD	RS%	Ev.	P-value
30. Do you think personal protective equipment prevents eye injuries ?	No	78	33.9	0.640	0.480	64.000	M	0.000 HS
	Don't know	5	2.2					
	Yes	147	63.9					
31. Do you think personal	No	156	67.8	0.31	0.460	31.000	L	0.000

protective equipment prevents hearing problems?	Don't know	3	1.3	0				HS
	Yes	71	30.9					
32. Do you think that frequent hand washing reduces the incidence of health problems in the workplace?	No	40	17.4	0.80 0	0.400	80.000	H	0.000 HS
	Don't know	5	2.2					
	Yes	185	80.4					
33. Do you think a first aid kit is necessary in the workplace?	No	26	11.3	0.86 0	0.350	86.000	H	0.000 HS
	Don't know	6	2.6					
	Yes	198	86.1					
34. Are you aware of hazards associated with your work?	No	61	26.5	0.59 0	0.490	59.000	M	0.010 S
	Don't know	34	14.8					
	Yes	135	58.7					
35. Are you aware that you can suffer workplace injuries and illnesses?	No	70	30.4	0.44 0	0.500	44.000	M	0.099 NS
	Don't know	58	25.2					
	Yes	102	44.3					

RS%: Relative Sufficiency Assess by (L: Low; M: Moderate; H: High). Testing are Based on Binomial test.

Red color items reversed measuring scale, and that revere an evaluates of using score

### Relationships concerning socio demographical characteristic variables and overall awareness

With reference to "Educational level" result showed that strong relationship was accounted between redistribution of an overall responding with their educational level, since highly significant relationship are accounted at  $P < 0.01$ , With respect to "Automobile Artisans (Occupation)" result showed that strong relationship was accounted between redistribution of an overall responding with their Occupation, since significant relationship are accounted at  $P < 0.05$ , With reference to some related variables, such as: "Duration of employment, Hours of working per day, and Training courses in preventability health problems", results shows that strong relationship was accounted between redistribution of an overall responding with their hours of working per day, since significant relationship are accounted at  $P < 0.05$ , while leftover variables reported weak relationships at  $P > 0.05$ .

Table(4): Relationships amongst percentile global mean of score and socio demographical characteristic variables (SDCv). and some related variables (N=230)

SDCv.	Relationships	
	C.C.	P-value
Age Groups	0.206	0.071 NS
Marital Status	0.125	0.161 (NS)

Education level	0.361	0.000 (HS)
Residency	0.080	0.226 (NS)
Category of Automobile Artisans (Occupation)	0.215	0.024 (S)
Duration of employment	0.099	0.683 (NS)
Hours of working per day	0.137	0.036 S
Training courses in preventability health problems	0.092	0.159 NS

(\*) S: Sig. at  $P < 0.05$ ; NS: No Sig. at  $P > 0.05$ ; Statistical hypothesis based on Contingency's Coefficient test.

## Discussion

The majority of age group (40-49) was (28.3%) this result agrees with study done in Ethiopia by (Tadesse *et al.*, 2016), that found majority of age group was (42-53) are accounted (26.1%). This study is also similar to a study done in India by (Bandyopadhyay *et al.*, 2021) shows that, (30.7%) of the study participants belonged to the age group (41-50) years. Regarding marital status the study was observed (21.7%) single Automobile Artisans, majority percentage (77.8%) were married, this results agree with study done in Ghana by (Monney *et al.*, 2014) that found married respondents constituted a significant proportion (63%) of the all respondents while close to one-third (32%) were single. While disagreement with study done in Nigeria (Tagurum *et al.*, 2018), who reports that, A larger proportion were single, (64.3%) and only (34.4%) married. These differences might due to the Iraqi society gets married at an early age.

The current study showed that most of the participants (35.7%) were with primary education, followed by (19.1%) read & write, (12.6%) were collage and higher education and only (11.3%) are illiterate. These results indicated that most workers had a low education. These findings agree with study done in Ghana by (Monney *et al.*, 2014), which found (31%) of respondents have primary education and (13%) They do not have any educational level. This result also agree with a study done in Ghana by (Amfo-Otu, 2016), that found only 12.9% did not have any form of formal education.

The present study, according to category of automobile artisans worker approximately (46.5%) were mechanic workers, this similar to a study done in Ghana by (Amfo-Otu, 2016), which shows that (57.1%) of studied sample were "Mechanic" workers. This also consistent with study done in Nigeria by (Johnson & Motilewa, 2016), that found (61.6%) of the auto technicians were mechanic.

With regards to Awareness about occupational hazards about most of the studied sample (51.43%) having a moderate awareness, these findings shows agreement with a previous study done in Nepal by (Mishra *et al.*, 2019) which was revealed that (56%) of participants were aware of at least one or more occupational hazards. while results of current study lower than findings of other studies done

in Ethiopia by (Tadesse *et al.*, 2016) was (86.5 %), also in Nepal by (Budhathoki, Singh, Sagtani, *et al.*, 2014) was (90.7%) and in Nigeria by (Tagurum *et al.*, 2018) that found (99.3%) of respondents were aware of at least one occupational health hazard. A possible explanation might be due to methodological differences, like study population, definitions of hazard awareness, methods of data collection, and workplace conditions.

Regarding the association was significant relationship between Automobile Artisans educational level and their awareness of an occupational hazards. This result compatible with a study in Ethiopia by (Tadesse *et al.*, 2016) where it was found workers' awareness of occupational hazards was dependent on their increased level of educational attainment. also agree with study done in Nepal by (Budhathoki, Singh, & Sagtani, 2014) that showed Level of education had a significant relationship with awareness of hazard ( $p < 0.05$ ) This showed that with an increase in the level of education among the population, awareness and safety practices also increased.

### **Conclusion**

Our study provides the ground picture of awareness level among the automobile repair artisans in Wasit Governorate. This study showed that artisans having moderate awareness on occupational hazards. This level of awareness is insufficient, and probably highlights unsafe worksite environment to the workers.

### **Recommendation**

Our study insists the need of awareness raising interventions and prior training to work for raising the awareness on occupational safety and health among the artisans with an aim of promoting health and well-being of the workers.

### **References**

- Afolabi, F. J., de Beer, P., & Haafkens, J. A. (2021). Can occupational safety and health problems be prevented or not? Exploring the perception of informal automobile artisans in Nigeria. *Safety Science*, 135(November 2020), 105097. <https://doi.org/10.1016/j.ssci.2020.105097>
- Ahmad, I., Balkhyour, M. A., Abokhashabah, T. M., Ismail, I. M., & Rehan, M. (2017). Workplace Safety and Health Conditions and Facilities in Small Industries in Jeddah, Saudi Arabia. *Journal of Safety Studies*, 3(1), 37. <https://doi.org/10.5296/jss.v3i1.11104>
- Amfo-Otu, R. & J. K. A. (2016). Occupational Health Hazards and Safety Practices Among the Informal Sector Auto Mechanics. *Applied Research Journal*, 1(4), 50–69. <http://www.arj.presbyuniversity.edu.gh>
- Bandyopadhyay, S., Bandyopadhyay, L., Dasgupta, A., Paul, B., Roy, S., & Kumar, M. (2021). Quantification of Musculoskeletal Discomfort among Automobile Garage Workers: A Cross-sectional Analytical Study in Chetla, Kolkata, West Bengal. *Journal of Clinical and Diagnostic Research*, March, 1–6. <https://doi.org/10.7860/jcdr/2021/45296.14600>
- Budhathoki, S. S., Singh, S. B., & Sagtani, R. A. (2014). *Awareness of occupational hazards and use of safety measures among welders: a cross-*

- sectional study from eastern Nepal.* 1–6. <https://doi.org/10.1136/bmjopen-2013-004646>
- Budhathoki, S. S., Singh, S. B., Sagtani, R. A., Niraula, S. R., & Pokharel, P. K. (2014). Awareness of occupational hazards and use of safety measures among welders: A cross-sectional study from eastern Nepal. *BMJ Open*, 4(6), 1–6. <https://doi.org/10.1136/bmjopen-2013-004646>
- Indira, P., Gautam, L., & Khadka, R. (2021). Occupational health hazards and use of personal protective equipment among auto mechanics in Kathmandu Metropolitan City, Nepal. *International Journal of Occupational Safety and Health*, 11(1), 16–24. <https://doi.org/10.3126/ijosh.v11i1.33495>
- Johnson, O., & Motilewa, O. (2016). Knowledge and Use of Personal Protective Equipment among Auto Technicians in Uyo, Nigeria. *British Journal of Education, Society & Behavioural Science*, 15(1), 1–8. <https://doi.org/10.9734/bjesbs/2016/24546>
- Mishra, S., Kannan, S., Manager, C., Statistics, A., Comments, R., & Alert, E. (2019). Get started now. *Indian Journal of Occupational and International Medicine*, 23(1), 8–13. <https://doi.org/10.4103/ijoem.IJOEM>
- Monney, I., DwumfourAsare, B., OwusuMensah, I., & Kuffour, R. (2014). Occupational health and safety practices among vehicle repair artisans in an urban area in Ghana. *Journal of Environmental and Occupational Science*, 3(3), 147. <https://doi.org/10.5455/jeos.20140528072614>
- Tadesse, S., Bezabih, K., Destaw, B., & Assefa, Y. (2016). Awareness of occupational hazards and associated factors among welders in Lideta Sub-City, Addis Ababa, Ethiopia. *Journal of Occupational Medicine and Toxicology*, 11(1), 1–6.
- Tagurum, Y. O., Gwomson, M. D., Yakubu, P. M., Igbita, J. A., Chingle, M. P., & Chirdan, O. O. (2018). Awareness of occupational hazards and utilization of PPE amongst welders in Jos metropolis, Nigeria. *International Journal of Research in Medical Sciences*, 6(7), 2227. <https://doi.org/10.18203/2320-6012.ijrms20182808>