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LEVEL OF SAFETY PRACTICES AMONG WELDERS IN A DEVELOPING ECONOMY IN RIVERS STATE, NIGERIA

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Abstract
This study investigated the safety practices among welders in developing economies in Rivers State. The descriptive cross-sectional survey research design was adopted for the study of a population of 2,718 welders in Rivers State. Taro Yamene's formula was used to arrive at a sample size of 349. Thereafter, it was increased to 810 by the researcher through a multi-stage sampling procedure to minimize sample errors. Cronbach Alpha Coefficient test was used as a pre-test which derived the reliability of the instrument at 0.86. The instrument for data collection was the questionnaire, designed in a 4-point modified Likert scale. Percentage, mean and standard deviation were used to analyze the research question. The findings of this study showed that there was a low level of safety practices among the welders (1.95 ±0.42) However, high levels of safety practices were found in the use of eye devices (3.99 ±0.06) and safety boots (3.03± 0.38). It was recommended among others that healthcare providers should not only supervise the welders' use of safety devices at work but also provide the devices to them. More mass awareness campaigns on welder safety practices should be upheld in Rivers State for better economic development.

Keywords: Safety Practices, Welders, Developing Economy, Sustainable Economy, Risks.

Introduction
A developing economy is an economic system that is construction-based and seeks to attain a high level of economic sustainability in society. Rivers State as it is known today, is a developing economy with a beehive of rural development practices including industrialization. A sustainable economy is an economic system which operates under humanistic optimal productivity for seasoned industrial growth, where people are reasonably safe doing their work. It thrives in a motivational economic approach in which people cherish work not only because it is as an occupation but also for the comfort in the occupational practice. Welders who are at the hub of any economy and industrialization must be encouraged to practice very high levels of safety measures while at work because of the replete inherent health and safety dangers of their work. Economic sustainability does not thrive in a system where workers are exposed to harm and loss daily.

Ordinarily, because of the inherent hazards in every workplace, doing work itself could be summarized as taking a risk. Onumbu (2022) defined an occupational risk as a combination of the probability that a specific something unpleasant or harmful may occur in future and the consequence of such an occurrence when certain actions or inactions are displayed in a workplace. Amadi et al. (2011) while commenting on occupational risks, stressed that work can be a source of stress, and dissatisfaction as well as a threat to one's health and general well-being. This aligned with the position of the World Health Organization (WHO, 2010) which stated that about 2 million people die each year as a result of occupational accidents and work-related illness or injuries. Though, Providence (2012) reported that the construction industry is very hazardous. It has earned the reputation of being a highly hazardous industry, they continued, because of the incidences of accidents and fatality rates. Welding which was noted by Amani et al. (2017) as a major component of many industries in Nigeria and all over the world, is notably hazardous and risky. Welders are workers who engage in using flame or other sources of heat to cut or join metal parts to achieve a particular engineering design in the construction sector. Their work span includes fitting, fixing, filling, filing, joining, sand-papering, bending, hammering, painting and soldering among others. It is difficult to escape from welders' fume effects in welding places, according to Jain and Rao (2015). Welders, to be candid, actually work in danger! Welders are exposed to inhalation of these noxious metal fumes which constitute great respiratory health challenges to them in the form of asphyxiation which is loss of consciousness, pneumoconiosis, asthma and bronchitis based on dose levels. Other risks involved in exposure to welding hazards are Actinic Skin Disease (ASD) due to thermal burns on the skin, ocular morbidities, eye injury and cloth-burn from flash-backs, kidney failure, pulmonary fibrosis and so many others (Chauhan et al., 2014;

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Jain & Rao 2015; Amani et al., 2017). All these adjudge welding trade as one of the most dangerous occupations in the world. It is worth noting here that these welders' risks emanate from either long-term or short-term exposure to welders' hazards. Poor level of choice among youths on involvement in welding occupation and the attendant high rate of job attrition in the occupation as have been popularly observed, could be a result of the risks in welding. The above-observed situations send poor and dangerous signals to a nation that yearns for a sustainable economy.

Without an adequate number of skilled manpower in the welding practice the construction sector is doomed and consequently, a developing economy is jeopardized. Rivers State and indeed Nigeria's economy cannot sustain such a catastrophic stride. For a society to sustain an evolving economic development, the masses must be made to work safely in every sector. Welding practice which is notable for its hazardous trend must be made interesting and reasonably safe to the teeming labour force in the state to attract the youth's choice for the vocation. In turn, this would help sustain a viable economic development through constructionism. Omotoso and Oni (2014:19) also averred that "no nation worth its salt will stand by while its citizens are in harm's way regardless of where they may be or what the circumstances are." In the same vein, Odhiambo et al. (2020) is of the position that hazards are preventable, which means that there should be in place, acceptable safety practices in the welding sectors, to achieve a sustainable economic situation in developing states like Rivers State. Occupational safety practices are those exhibited actions, inactions and circumstances that give workers immunity or freedom from risk disturbance, damage, harm or loss in a work environment. To be safe is to experience a degree of personal security.

In a study of welders in Port Harcourt in Rivers State, Nwafor et al. (2019) posited that the organization of occupational health and safety services is not yet resilient enough to handle the growth of worker's health in the context of industrialization which includes welders. Hence welders and institutions need to adopt some practices and policies to ensure welders' safety. Illiyasu and Lawsom (2010) in a related study in Kano City, Nigeria discovered that there was low utilization of protective measures among the welders. Bhumika et al. (2014) declared from a study on operational injuries and safety measures adopted by welding workers, a cross-sectional study in South India, that only 375% of the welders used personal protective equipment (PPE), out of which 95% used goggles. The reason some of them gave for not using goggles was the problem of visibility and discomfort. In another related study by Budhathoki et al. (2014), among welders in Eastern Nepal, it was discovered that only 47.7% of the welders used at least one kind of PPE during work or other. Welding goggles/eye shields (86.7%) was the most commonly reported PPE for use, followed by footwear (40.7%). In a related study conducted in a Nigeria population of 343 respondents in Enugu State, Eze et al. (2015) reported that none of the respondents had or used a helmet, a few used face protective devices, but their possession of some other safety devices did not translate to their utilization. Awosan et al. (2017) reported low safety practices among the welders. Similarly, Chukwu et al. (2019) in a related study of welders in Owerri-North Local Government Area of Imo State, Indicated that only a very small proportion of the welders used PPE at work. Similarly, Obahiagbon et al. (2019) reported low usage of safety wear among welders.

In contrast to the above, Tadesse et al. (2016) showed that the majority of the respondents, 91.8%, 85.4% and 61.3% welders used goggles, coveralls, and safety shoes respectively. These latter revelations suggest a high level of safety practices among the welders. Another study by Ewurum (2019) in a study of welders as employees of manufacturing companies in Port Harcourt, revealed that about three Quarters (76.8%) of the respondents used to cover all, 75.0% used foot protectors, fall arrestors were 71.3%, 69.5%, used respiratory protector, 68.0% used hand gloves and 52.0% used eye protector among the respondents.

Statement of the Problem

The level of safety practices in a workplace determines to a great extent the safety and productivity of the workers as is widely believed. Many of the youths in Rivers State have abandoned the welding vocation, which is the hub of industrial growth, due to incessant injuries and illnesses that they often incur from unsafe job practices. There is a shortage of indigent skilled welders in the state as a result, and this has created a condition of the high cost of hiring skilled welders for housing and other construction developments in Rivers State, as has been commonly reported. These circumstances therefore negatively undermine the sustainable economic development policies of the government. Determining the level of safety practices among these welders would help indicate what led to the shortage of man-power in this job sector and what at best, could be done to ameliorate the existing situation. In light of the above, this study investigated the level of safety practices among welders in a developing economy in Rivers State, to offer necessary suggestions and directions to healthcare

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providers, the government and the welders themselves on the way forward; and also, to add to the stratum of the existing knowledge.

Objective of the Study
This study was aimed at investigating the level of safety practices among welders in Rivers State.

Research Question: What is the level of safety practices among welders in Rivers State?

Materials and Methods
A descriptive cross-sectional survey research design was adopted to describe events in the area of study just as they were which has been successfully adopted by Nwafor et al. (2019) in a related study. This was a population of 2,718 identified welders according to the prevailing register of the Government Craft Development Centre (GCDC), Port Harcourt (2018). The initial sample size for the study was 349 male welders which was determined by using Taro Yamene's formula for the calculation of the least sample size for a large population: namely;
$N=n/1+N(e)^2$
n= sample size, N=population size, e, = level of significance.

However, the sample size was finally increased to 810 to reduce sample errors through a multi-stage sampling procedure of cluster zoning, balloting and random sampling techniques. A questionnaire instrument which is titled level of Safety Practices Among Welders Questionnaire (LSPWQ) was used to pragmatically elicit information from the respondent. Likert's modified version response options of 4-scale scoring were used to deal with the safety practices among welders. They are in the form of Always (4 points), occasionally (3 points), rarely (2 points) and never (1 point) respectively. To ensure the content validity of the instrument, the questionnaire and the research objective were given to 3 specialists in safety education. Their professional inputs were adopted for the final draft. The reliability coefficient of 0.86 was obtained by making use of the Cronbach alpha coefficient test in Bayelsa State. Any reliability coefficient of above 0.60 is widely deemed as reliable, according to Chauhan et al. (2014). Research assistants who were tutored on the interactionist approach for questionnaire distribution and retrieval aided the researcher too. On the whole, 810 respondents returned their completely answered questionnaires. Data collected were entered and recorded in the statistical package for service solution (SPPS) version 23. The data were analyzed by using descriptive statistics of percentage, mean and standard deviation to answer the research question.

Results
The results of the study are presented in the table below:
Research question 1: What is the level of safety practices among welders in Rivers State?

Table 1.1: Level of safety practices among welders in Rivers State

SN	Devices Used	Mean	S.D.	Decision
1	Ear device	1.07	0.30	Low
2	Fall arrestor	1.00	0.07	Low
3	Eye device	3.99	0.06	High
4	First aid kit	1.01	0.13	Low
5	Coverall	1.82	0.79	Low
6	Hand-gloves	2.86	0.46	Low
7	Safety boots	3.03	0.38	High
8	Nose device	1.46	0.82	Low
9	Helmet	1.28	0.79	Low
	Grand mean	**1.95**	**0.42**	Low

Criterion mean = 2.50
Table 1 shows the level of safety practices among welders in Rivers State. The result showed that overall, the level of safety practices was low as the grand mean of 1.95±0.42 was less than the criterion mean of 2.50. Thus,

the level of safety practices among welders in Rivers State was low. However, high levels of safety practices were found for the use of eye devices (3.99±0.06) and the use of safety boots (3.03±0.38).

Discussion

However, even though the use of eye devices and safety boots were reported to be very high by the findings, the case remains that there were a few cases where some of the respondents were met in their workshops soldering without eye device, (mere naked eyes) and shoes but slippers respectively. The implication of this finding rests with the clear indications of nonchalant and in most cases, absolute non-interference by the various levels of government with the small and medium-scale work sectors on their occupational health and safety. Similarly, Illiyasu and Lawsom (2010) in a related study in Kano City, Nigeria discovered that there was low utilization of protective measures among the welders. Bhumika, et al. (2014) also declared from a study on operational injuries and safety measures adopted by welding workers, a cross-sectional study in South India, that only 375% of the welders used personal protective equipment (PPE), out of which 95% used goggles. The same low safety practices were observed in the works of Budhathoki et al. (2014) and Awosan et al. (2017). The findings of this study also agree with the findings of Joseph et al. (2017) on awareness and safety practices associated with welders from an unorganized sector which showed that the respondents; never used PPEs in the sites: 44 (28.4%) of the welders never used face shields, 25 (21%) never used hand gloves, and 20 (18.2%) never used aprons, while the rest welders only used PPEs occasionally.

In contrast to the above, Tadesse et al. (2016) showed that the majority of the respondents, 91.8%, 85.4% and 61.3% welders used goggles, coveralls, and safety shoes respectively. These latter revelations suggest a high level of safety practices among the welders. Another study by Ewurum (2019) in a study of welders as employees of manufacturing companies in Port Harcourt, revealed that about three Quarters (76.8%) of the respondents used to cover all, 75.0% used foot protectors, fall arrestors were 71.3%, 69.5%, used respiratory protector, 68.0% used hand gloves and 52.0% used eye protector among the respondents.

Conclusion

From the study, it could be observed that generally, there was a poor level of safety practices among welders in Rivers State. These were reflected in their poor use of safety devices while at work. High levels of use of eye devices and safety boots do not guarantee high-level safety practices among them because welders' exposure to harm is not only through the eyes and feet but through so many other parts of their bodies which are not negligible. Again, the standards of these safety boots and the eye devices they used varied and may be questionable.

Recommendations

1. Relevant stakeholders in health and safety promotion should see to it that welders in Rivers State are supplied with adequate safety gear or devices while at work; either free of charge or at subsidized rates.
2. Enforcement of the use of the available safety devices on the welders is another side of the coin which the government, community health inspectors, and lawmakers should apply.
3. Mass enlightenment campaigners and other health educators should be up and doing in matters about the safety of the welders. The welders should be aware of the need to use safety devices while doing work or on a work site.

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