

Occupational Hazards Associated with Traffic Warden in Port Harcourt Metropolis, Rivers State, Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/91216>

Original Research Article

Received 15 July 2022
Accepted 25 September 2022
Published 05 October 2022

ABSTRACT

The study occupational hazards associated with traffic wardens in Port Harcourt metropolis sought to examine the physical hazards, chemical hazards, psychosocial hazards, biological hazards and the ergonomic hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State. The study was directed by two objectives, two research questions, and two hypotheses. The study was conducted in the state of Rivers. A descriptive cross-sectional survey approach was used for this investigation. The study's sample size of 400 respondents, which included 280 male traffic wardens and 110 female wardens' officers in the Port Harcourt metropolitan, represented the study's population of 846 traffic wardens. A designed questionnaire titled "Occupational Hazards Associated with Traffic Warden" served as the data gathering tool. Strongly agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly disagree (SD) were the five possible responses on a five-point likert scale (SD). Three specialists validated the face and substance of the instrument. Using SPSS software, a reliability coefficient of 0.76 was determined. The results show that traffic wardens are connected to physical dangers, with grand mean values of 3.982 and 3.983 for male and female wardens, respectively, and chemical hazards, with grand mean values of 3.918 and 3.942. The study's findings led to the following recommendations being made: Federal Road Safety Commission (FRSC) should embark on road traffic education, training and prevention of hazard, which are the best methods for managing the adverse health effects that are common among male

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and female traffic wardens, Ministries in charge of labour and productivity should from time to time go for inspection of male and female traffic wardens on duties and ascertain the hazards that are prevalent to them and adopt proper preventive measures and suggestion for further studies were also made.

Keywords: Occupational hazards; traffic wardens; adverse health effects.

1. INTRODUCTION

With development and industrial revolt, the growing population of cities in recent time demand increase in vehicles and better Traffic system. The flow of people and things from one place to another is referred to as traffic. Because of the numerous exposures they confront while working, traffic policemen play a crucial role in managing the primary traffic flow in major cities. Risks to traffic police' health at work have an impact on their physical, emotional, and social well-being. The risks associated with their jobs put traffic wardens in a significant danger of suffering discomfort, injury, and even death. Health hazards, as defined by the World Health Organization (2009), include service interruptions, property damage, and loss of livelihood. It is well acknowledged that traffic wardens are a very susceptible set of workers because of their ongoing and continuous daily exposure to a number of health risks, including respiratory issues and psychological discomfort, and because managing these dangers requires safety awareness.

A hazard is anything that might be harmful. Substances, tools, procedures, and other elements of the workplace might fall under this category. Contrarily, risk is the possibility that exposure to the danger will have a negative outcome (such as death, harm, or sickness). Risk may be assessed as a function of the probability that the possible harm from the hazard will occur and the seriousness of the consequences defined by the cost of the harm. The possibility of an event occurring and the severity of the consequences that may result—which could potentially cause irreparable harm to human lives—have an impact on the level of risk in a workplace. A safe workplace may be ensured and made possible through strict attention to safety regulations, procedures, and safeguards.

Safety is not a complicated issue that can only be understood by experts or that requires a big financial investment to address [1]. Traffic wardens place a high priority on safety, thus

following safety regulations is a top priority. Compliance with safety-related rules needs more than just keeping an eye out for violations and responding to them when they happen (OHS, 2011). It necessitates preventative measures created to promote cooperative behaviour. However, to determine the occupational hazard that traffic wardens in Rivers state are exposed to there is need to use safety culture assessments.

1.1 Statement of the Problem

The rate of accident, injury or danger is highly alarming in traffic services among traffic warden since the era of urbanization. This contributes to service drop, poor delivery of services, and low performance among others that affect the performance of traffic warden. This occupation which helps to decongest the holdup experienced on daily basis in the nooks and crannies of the Port Harcourt metropolis has had their services truncated by frequent exposure to hazards. In recent times, no training has been going on to advance the level of knowledge regarding safety tips and protective measures for these traffic wardens thus, they are left with little or no current familiarization on the traffic services to work in a hazard-free station. Similarly, large number of roadside accidents have been recorded in spite of the provision of traffic gadgets, protective devices supplied by governmental agencies and non-governmental organization. Consequently, roadside accidents, unpleasant noise either from vehicular movement, verbal abuse from road users, harsh atmospheric situation, prolong duration on duty post, impatient of motorist among others were symptomatic to occupational hazards encountered by traffic wardens in Port Harcourt metropolis.

1.2 Aim and Objectives of the Study

The aim of this study was to investigate the occupational hazards associated with traffic warden in Port Harcourt metropolis, Rivers State. Specifically the study sought to:

1. Examine the physical hazards associated with male and female traffic wardens in Port Harcourt metropolis, Rivers State.
2. Evaluate the chemical hazards associated with male and female traffic wardens in Port Harcourt metropolis, Rivers State.

1.3 Research Questions

The following research questions were made to guide this study.

1. What are the physical hazards associated with male and female traffic wardens in Port Harcourt metropolis, Rivers State.
2. What are the chemical hazards associated with male and female traffic wardens in Port Harcourt metropolis, Rivers State.

1.4 Hypotheses

The null hypotheses were formulated and tested at 0.5 alpha level.

HO₁: There is no significant difference between the mean response of male and female traffic wardens on the physical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

HO₂: There is no significant difference between the mean response of male and female traffic wardens on the chemical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

1.5 Conceptual Review

1.5.1 Concept of traffic wardens in Nigeria

Roads were no longer just for walkers and animal-drawn carts after the development of the motor vehicle. The invention demanded that the condition of the roads be improved, which raised traffic speeds and put other road users in risk. Following that, traffic was properly managed or channelled to improve the operation of the roadways. It is obvious that the original traffic controllers were either private or municipal employees. There were undoubtedly disputes at crossroads that needed to be handled since man has cognitive and physical limitations. The first traffic signal, which employed semaphore "arms" together with red and green gas lighting, was put in place in London in 1868. But in 1918, this exploded. In 1925, the first three coloured light signals were utilised in Great Britain after being placed in New York. Today, traffic lights are

utilised all around the world at junctions to share the right of way and minimise disputes. The intersection's capacity is decreased, but safety is considerably improved. At a four-legged crossroads with two-way traffic flows, there are around 64 possible conflict spots when all crossing and merging motions are allowed. The goal of traffic control is to bring the 64 possible conflicts down to zero.

1.5.2 Occupational health and safety

Agriculture, industry, and service sectors support modern economies. No of the controlling variables, national economic progress based on a lax Occupational Safety and Health (OSH) regulatory framework is a recipe for disaster [2]. Occupational safety and health wasn't everyone's first priority yesterday. However, in modern times, health and safety are the main worldwide concerns. Effective management of occupational safety and health has been demonstrated in several studies to be crucial to operating a successful organisation [3].

The health and safety working groups at the citizen's place of employment are a global concern for citizen sustainable development. The creation of surroundings that promote occupational safety and health is one way to do this. Given these difficulties, it is imperative to provide answers to the concerns of how workplace safety and health innovation contributes to the sustainable development of people and moves industrial occupational safety and health ahead. All facets of the expansion have changed due to the socioeconomic development's dynamism. The primary components of sustainable development include innovation in workplace health and safety, a high frequency of occupational illnesses, and accident reporting [4]. Problems with workplace safety and health are adding to the already heavy weight of poverty on society. A powerful Malthusian movement contends that prolonged economic expansion will upset the natural order and eventually result in ecological disasters. Sustainable development sometimes fails as a result of this mismatch between innovation and development.

1.5.3 Occupational hazards

Hazardous materials and substances that causes accident, injuries, death, to traffic warden and road users. It could be due to malfunction of traffic gadgets, inexperienced personnel, lack of adequate traffic materials, natural obstacles like

rain, fog, reduced light, and or neglected to traffic rules, some of the potential traffic hazards outlined by Hazard Identification Checklist (2020) are: close to a crossroads with traffic lights or traffic coming from several directions, rush-hour traffic and a car in an emergency situation, traffic merging from two lanes to one, a bus stop nearby, schools, parks, playgrounds, or community centres close by, and youngsters in the area.

1.5.4 Physical hazards

The construction business had the largest percentage of electrical deaths, 849, out of the 1,738 incidents that included contact with electric current between 2003 and 2010, according to the Bureau of Labor Statistics. More than 32% of all electrical deaths are related to five jobs in the construction sector: roofers, painters, carpenters, and construction labourers. The most prevalent electrical risks on construction sites are improper grounding, moist conditions, damaged tools and equipment, insufficient wiring, exposed electrical parts, overhead power lines, and overloaded circuits.

Safe work techniques including maintaining electrical tools well-maintained, de-energizing electrical equipment before inspection or repair, and using care when working near electrified wires can help prevent electrical accidents. To prevent electrical mishaps, it might be helpful to use personal protection equipment including hard helmets, hoods, sleeves, rubber or insulating gloves, and insulating garments [5,6].

1.5.5 Chemical hazards

Any material that has the potential to endanger life or health is considered to be a chemical hazard [7]. Chemicals are often employed in homes and several other settings. Chemical exposure can have negative impacts on health that might be immediate or long-lasting. Hazardous chemicals come in a variety of forms, including neurotoxins, immunological stimulants, dermatologic irritants, systemic toxins, reproductive toxins, asthmagens, pneumoconiotic agents and sensitizers. Chemical hazard exposure at work is one sort of occupational hazard [8,9]. The risk of injury from contact with hazardous materials may be significantly decreased by wearing protective personal equipment (PPE). Long-term exposure to chemical dangers, including lead, cigarette smoke, silica dust, and engine exhausts, among others, has been linked to an increased risk of

heart disease, stroke, and high blood pressure [10]. Inhalation is the most typical way that people are exposed to toxins at work. It is possible to breathe in gas, vapour, mist, dust, fumes, and smoke. If working in an environment with polluted air, those with jobs demanding physical labour may inhale greater quantities of pollutants. This is due to the fact that during an 8-hour workday, employees who perform physical activity will exchange over 10,000 litres of air, compared to those who do not. More air exchange will result in the intake of greater quantities of pollutants if the air in the workplace is polluted. When food or drink is contaminated by unclean hands, from clothes, or through improper handling techniques, chemicals may be consumed.

1.5.6 Biological hazards

A biological material that endangers the health of living things, especially humans, is referred to as a biological hazard or biohazard. A sample of a microbe, virus, or toxin that can be harmful to human health may be included in this. A material poisonous to other creatures might also be considered a biohazard.

Bacteria and viruses such as bacillus subtilis, canine hepatitis, Escherichia coli, and varicella (chickenpox), as well as various cell cultures and non-infectious bacteria, are all considered to be at Level 1 of biohazards. At this stage, the only safeguards against the in question biohazardous substances are likely to be gloves and some form of facial protection.

Biohazard Level 2: Bacteria and viruses, such as hepatitis A, B, and C, certain influenza A strains, the Human Respiratory Syncytial Virus, Lyme disease, salmonella, the mumps, measles, scrapie, dengue fever, and HIV, that only cause minor sickness in humans. Using Biosafety Level 2 techniques and procedures, routine diagnostic work with clinical specimens may be done safely. A BSL-2 (P2) laboratory can conduct research employing BSL-3 techniques and methods (including co-cultivation, virus replication experiments, or modifications using concentrated virus).

1.5.7 Ergonomic hazards

Human factors engineering is another name for ergonomics. The phrase comes from the Greek words ergon, which means "work," and nomos, which means "rules" or "science," with the result that the science of labour refers to environmental

study for the creation of tools and tasks (Taylor & Lewis, 2011). There are several instances of human factors being developed in workshops. The Society of Human Factors and Ergonomics (HFES) has embraced the International Association of Ergonomics' (IEA, 2010) definition of ergonomics, which is as follows:

“Ergonomics (or Human Factors Engineering) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design to enhance human well-being and overall system performance. Ergonomists (or Human Factors Engineering) contribute to the design and evaluation of tasks, jobs, products, environments and systems to make them compatible with the needs, abilities and limitations of people (Taylor & Lewis, 2011)”.

1.6 Theoretical Framework

1.6.1 Organizational culture theory

Ehtesham (2011) proposes organizational culture theory. The hypothesis proposed that responsive organisational culture context elements should be considered as potential predictors of preparedness toward work behaviour. Utilizing factor analysis to investigate organisational culture, Marchand, Victory, and Julie (2013) build their organisational model. A common set of fundamental values, ideas, and practises inside an organisation serve to bond its people together. This concept is referred to as organisational culture. The internal integration of organisational resources, staff, and policies to support external adaptation is made possible by organisational culture, which enables an organisation to meet the ever-changing difficulties of external environment adaptation [11,12]. A particular group learns to deal with its difficulties of external adaptation and internal integration as it develops its organisational culture, which is a pattern of fundamental assumptions [13,14]. The management system of an organisation is built on the organization's culture. This foundation is a collection of management techniques and attitudes that both illustrate and support those fundamental ideas (Oliver, Wehby & Daniel, 2011). The members of a club or organisation share certain values or convictions (Lars, Dan & Jon, 2006). These standards or expectations outline the methods that each member of the organisation is expected to use while approaching their task.

They stand for survival tactics that members feel will be successful in the future and have previously worked effectively. Before establishing a business plan, firms need first understand their culture. These results demonstrated that companies may foster an atmosphere that is conducive to organisational learning by expressing clear goals and offering feedback.

According to the survey, more Nigerian employees than workers 20 or 30 years ago say that stress at work is rising and that they must work more to make ends meet. As this is a crucial issue for management, understanding how role stresses negatively affect companies and recognising the culture may help to mitigate the consequences of stressors.

1.6.2 Empirical review

Sebastiampillai, et al. (2015) did a study on lead poisoning among traffic wardens; is it still a factor in accidents for this high-risk population exposed to atmospheric lead? The study's findings showed that the average age was 37 years. While 64 people (38.1%) had high levels of lead in their blood, the majority of people (61.9%; n = 104) had low levels (0.01 mg/dl). Of 35.9% (n=23), there were less than 10.00 mg/dl, the recommended CDC safe level. The results also showed that mean distribution of lead in the blood is (4.82 mg/dl 95% CI: 3.58- 6.04) while exposure were based on industries (pO.424), smoking cigarettes (p = 0.07 1). It was concluded that the high risk of lead among traffic warden was much about 9%. The relationship between the previous study and the current one could be due to variables such as age, among others.

Haralkar & Gite [15] conducted a research finding on the study of socio demographic factors and morbidity profile of traffic policemen in Solapur City of Maharashtra. A cross sectional survey design was presented for the study. The sample representation of the study was 114 traffic policemen from traffic control point in the city. Results show the occupational hazard linked with traffic work that annoyance to noise accounted for 51.75% while eye irritation (32.46%) were observed in the duty post. Overall (63.16%) of health challenge suffered by traffic warden was obesity, respiratory, morbidity, such as upper respiratory infection (14.91%) rhinitis (14.04%) were found statistically significant regarding traffic job among warden. It was concluded that occupational hazards contributes to a lot of health outcomes such as chronic bronchitis, chronic rhinitis, URTI, obesity among

others. The relationship between the current study and previous one could be due to similarities in certain variables such as level of exposure to occupational hazards.

Bilal, et al. (2019) carried out an assessment study on occupational hazards among the traffic police of Rawalpindi and Ishamabad. Data was analyzed through statistical package for social sciences SPSS version 20.0. The results of this study revealed that 43(53%) of traffic men work between 6-8 hours of duty whereas 37(46%) serve at duty post for at least 3-6 years. Almost (81%) all the men use face mask whilst 78% were using sunglasses during duty hours. The health outcome emanated for the job include breathlessness 33(41%), redness of eyes 33(40%) and 41(51%) were suffering musculoskeletal pains. In conclusion, occupational hazards that affect warden men was high especially those who work for long period of time. This study relates to the present work because its objectives to determine the work related occupational hazards of traffic services.

Tomei, et al. [16] performed a study on environmental and biological monitoring of traffic wardens from the city of Rome. Epidemiological survey study was designed for the study among Roman policemen. The sample size of 66 traffic warden for control group and 33 for office workers was selected. The result of the study revealed that outdoor workers were two times highly exposed to toxic (benzene) substance (G.M. 7.5. and 3.4 mg/m³ while level of benzene was high among those on shift duty (11.2 mg/m³). Conclusively, a relative high level of exposure of outdoor workers to pollution episodes. This work has to do with Environmental and biological hazards/monitoring of traffic wardens hence related to the present study.

2. METHODOLOGY

Descriptive cross-sectional survey design was used for the study as the research design. This study was carried out in Port Harcourt metropolis of Rivers State, Nigeria. The major city of that comprised of Port Harcourt metropolis are Port Harcourt city, Obio/Akpor, partly Eleme and

Okirika among others. The population of this study comprised of 846 traffic wardens within Port Harcourt metropolis (Traffic Service and Control, 2019). The sample size for the study was 400. This was calculated using Taro Yamane method for a finite population. Formula of Taro Yamane method (Yamane, 2019). The instrument eliciting information for this study was a self-structured questionnaire titled Occupational Hazards Association with Traffic Warden (OHATW). The instrument was structured in a four (4) point Likert scale of strongly agreed (SA), Agreed (A), Strongly Disagreed (SD) and Disagreed (D) respectively. The mean and standard deviation were used to examine the data collected from the respondents. The two study questions were addressed using the mean replies, and the two null hypotheses were tested using t-test statistics at the .05 level of significance.

3. RESULTS AND DISCUSSION

The mean and standard deviation were used to examine the data collected from the respondents. The five study questions were addressed using the mean replies, and the six null hypotheses were examined using t-test statistics. 0.05 degree of importance.

Research question 1: What are the physical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State?

Male wardens had a mean range of 3.75–4.13 and a standard deviation of .646–1.1139, according to data in Table 1, whereas female wardens had a mean range of 3.33–4.33 and a standard deviation of .515–1.193. For male and female wardens, respectively, the grand mean is 3.982 and 3.983, which is higher than the true limit of 3.50. This suggests that in the Rivers State capital of Port Harcourt, traffic wardens are connected to bodily risks.

The standard deviation was near, indicating that the respondents were similar in their opinions or were homogenous.

Research question 2: What are the chemical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State?.

Table 1. Mean Responses and Standard Deviation number of the Physical Hazards Associated with Traffic Wardens in Port Harcourt metropolis

S/N	Physical Hazards	N = 280 Male Wardens			N = 110 Female Wardens		
		X	SD	Remark	X	SD	Remark
1.	Traffic wardens are exposed to explosive hazard in Port Harcourt metropolis	4.13	.963	Agree	4.08	1.165	Agree
2.	Traffic wardens are exposed to gases hazard in Port Harcourt metropolis	3.87	1.139	Agree	4.25	.965	Agree
3.	Traffic wardens are exposed to flammable liquids in Port Harcourt metropolis	3.75	1.109	Agree	3.33	1.231	Agree
4.	Traffic wardens are exposed to flammable solids in Port Harcourt metropolis	4.07	.959	Agree	4.17	.718	Agree
5.	Traffic wardens are exposed to toxic and infectious substances in Port Harcourt metropolis	3.95	1.161	Agree	4.08	.900	Agree
6.	Traffic wardens are exposed to radioactive materials in Port Harcourt metropolis	3.96	1.088	Agree	4.00	1.477	Agree
7.	Traffic wardens are exposed to corrosive substances in Port Harcourt metropolis	4.24	.816	Agree	4.33	.492	Agree
8.	Traffic wardens are exposed to vibration in Port Harcourt metropolis	3.96	.999	Agree	3.92	.900	Agree
9.	Traffic wardens are exposed to body stress in Port Harcourt metropolis	3.85	1.061	Agree	3.83	1.193	Agree
10.	Traffic wardens are exposed to noise in Port Harcourt metropolis	4.04	.646	Agree	3.83	.515	Agree
Grand mean		3.982	.2900	Agree	3.983	.2823	Agree

Table 2. Mean responses and standard deviation standard deviation no the chemical hazards associated with traffic wardens in Port Harcourt Metropolis

S/N	Chemical Hazards	N = 280 Male wardens			N = 110 Female wardens		
		X	SD	Remark	X	SD	Remark
1.	Traffic wardens are exposed to mutagens in Port Harcourt metropolis	3.56	1.288	Agree	3.83	1.467	Agree
2.	Traffic wardens are exposed to teratogens in port Harcourt metropolis	4.04	1.071	Agree	3.75	1.422	Agree
3.	traffic wardens are exposed to flammable chemicals in port Harcourt metropolis	3.89	1.149	Agree	4.00	1.279	Agree
4.	traffic wardens are exposed to carcinogens in Port Harcourt metropolis	3.56	1.344	Agree	4.00	.853	Agree
5.	traffic wardens are exposed to sensitizer in Port Harcourt metropolis	4.07	.959	Agree	4.00	.718	Agree
6.	traffic wardens are exposed to irritants chemicals in Port Harcourt metropolis	4.02	.972	Agree	3.67	1.557	Agree
7.	traffic wardens are exposed to acetone in Port Harcourt metropolis	4.42	1.212	Agree	4.42	1.084	Agree
8.	traffic wardens are exposed to butane in Port Harcourt metropolis	3.51	.940	Agree	3.33	.492	Agree
9.	traffic wardens are exposed to corrosives in Port Harcourt metropolis	4.07	1.437	Agree	4.25	1.422	Agree
10.	traffic wardens are exposed to asphyxiant in Port Harcourt metropolis	4.04	1.527	Agree	4.17	1.267	Agree
Grand mean		3.918	.2082	Agree	3.942	.2610	Agree

Table 3. T-test analysis on the mean responses of male and female on the physical hazards associated with traffic wardens in Port Harcourt metropolis

Groups	N	Mean	SD	DF	t-Cal	P	Sig. 2-tailed	Decision
Male Wardens	280	3.982	.2900	488	-.016	.05	.987	Accepted
Female wardens	110	3.983	.2823					

Table 4. T-test analysis on the mean responses of male and female on the chemical hazards associated with traffic wardens in Port Harcourt metropolis

Groups	N	Mean	SD	DF	t-Cal	P	Sig. 2-tailed	Decision
Male Wardens	280	3.918	.2082	488	-.338	.05	.736	Accepted
Female wardens	110	3.942	.2610					

Male wardens had a mean range of 3.56 to 4.42 and a standard deviation of .959 to 1.527, according to the data in Table 2. The average range for female wardens was 3.67–4.42, and their standard deviation was .492–1.557. For male and female wardens, respectively, the grand means are 3.918 and 3.942, which are higher than the actual limit of 3.50. This suggests that the Port Harcourt city in Rivers State has traffic wardens related with chemical dangers. The standard deviation was near, indicating that the respondents were similar in their opinions or were homogenous.

3.1 Test of Hypotheses

Hypothesis 1: There is no significant difference between the mean response of male and female traffic wardens on the physical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

The estimated t-value was found in Table 3 to be -.016, and the significant value at 2-tailed (P) was 987. Since the 2-tailed significant value (P) is larger than .05 ($P > .05$), The null theory was approved. This suggests that physical risks in Port Harcourt, Rivers State, are connected to traffic wardens. As a result, there is no difference in the mean response of male and female traffic wardens to the physical risks related to their jobs in Port Harcourt, Rivers State ($P > 0.05$).

Hypothesis 2: There is no significant difference between the mean response of male and female traffic wardens on the chemical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

Table 4 revealed that the calculated t-value is -.338, the significant value at 2-tailed (P) is 736. Since significant value at 2-tailed (P) is greater than .05 ($P > .05$). The null theory was approved. This suggests that chemical risks in Port Harcourt, the capital of Rivers State, are related to traffic wardens. As a result, there is no difference in the mean answer of male and female traffic wardens in Port Harcourt, Rivers State, regarding the chemical risks connected with traffic wardens ($P > 0.05$).

3.2 Discussion of the Findings

The study's conclusions are based on the information gathered and examined to address the research questions and hypotheses. Male wardens had a mean range of 3.75 to 4.13 and a standard deviation of .646 to 1.139, according to

Table 1. The average range for female wardens was 3.33–4.33 with a standard deviation of .515–1.193. For male and female wardens, respectively, the grand mean is 3.982 and 3.983, which is higher than the true limit of 3.50. This suggests that in the Rivers State capital of Port Harcourt, traffic wardens are connected to bodily risks. Male wardens had a mean range of 3.56 - 4.42 and a standard deviation of .959 - 1.527, according to Table 2. The average range for female wardens was 3.67–4.42, and their standard deviation was .492–1.557. For male and female wardens, respectively, the grand means are 3.918 and 3.942, which are higher than the actual limit of 3.50. This suggests that the Port Harcourt city in Rivers State has traffic wardens related with chemical dangers. Male wardens had a mean range of 3.42 to 4.20 and a standard deviation of .951 to 1.329, according to Table 3. The average range for female wardens was 3.50–4.42, and their standard deviation was between .953–1.165. For male and female wardens, respectively, the grand means are 3.955 and 3.933, which are higher than the actual limit of 3.50. This suggests that in Port Harcourt, the capital of Rivers State, traffic wardens are linked to psychological risks. The standard deviation was near, indicating that the respondents were similar in their ideas or homogenous.

4. CONCLUSION

Based on the research's findings, it was discovered that the physical, chemical, psychological, biological, and ergonomic risks that traffic wardens face in Port Harcourt's metro area. The amount of exposure to occupational risks among traffic wardens in the Port Harcourt metropolitan is influenced by sociodemographic factors including years of working experience and educational level. Occupational safety is a multidisciplinary field that focuses on protecting the welfare, health, and safety of persons who are working or in other occupations. By avoiding and regulating occupational illnesses and accidents as well as eradicating work-related elements and situations that are dangerous to employee health and safety, it aims to safeguard and promote worker health. Safety refers to the physical environment at work and describes a situation where the danger of injury and damage has been eliminated or substantially minimised. Hence, Occupational hazards placed traffic wardens at high risk of death, injury and pain among others that affect job participation and performance.

5. RECOMMENDATIONS

In view of the findings of this study, the following recommendations were made:

1. Federal Road Safety Commission (FRSC) should embark on road traffic education, training and prevention of hazard, which are the best methods for managing the adverse health effects that are common among male and female traffic wardens.
2. Ministries in charge of labour and productivity should from time to time go for inspection of male and female traffic wardens on duties and ascertain the hazards that are prevalent to them and adopt proper preventive measures.
3. The government, ministries of health/environment and other relevant agencies should embark on health education and awareness campaign on occupational hazards among male and female traffic wardens to enhance safety precautions among them.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX I

Questionnaire Form

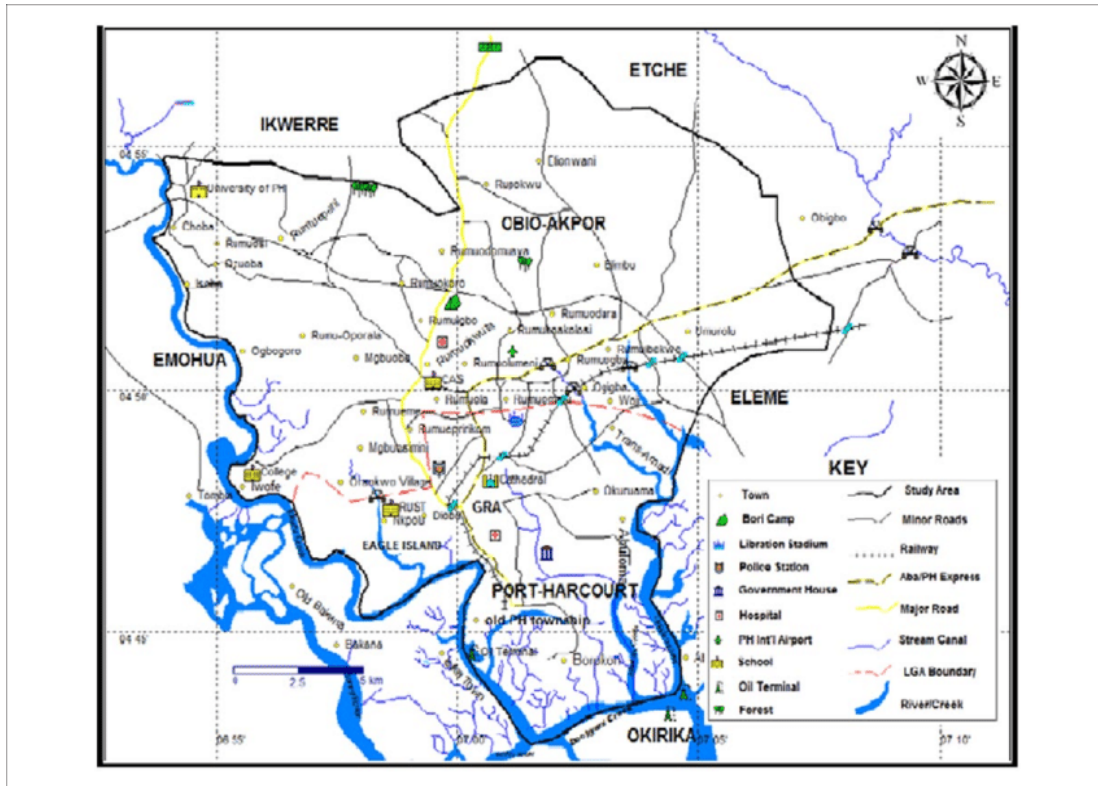
Section A: Level of exposure to occupational hazards

Instruction: Tick appropriately in the space provide for the options as it applied to you

S/N	Items	Strongly agree	Agree	Strongly disagree	Disagree
A. Physical hazards					
1	Reduce the traffic light lead to accident				
2	Presence of ice and water on the road lead to accident				
3	Lack of traffic signal lead to accident				
4	Vehicle emergency may not obey traffic				
5	Fail to use belts while driving lead to injury				
6.	It is good to drive with one hand				
7.	Limited space between the traffic site and road way may not cause accident				
8.	Packed vehicles that limits a driver's sight of traffic junction is dangerous.				
9.	Lifting heavy object may cause injury.				
B. Chemical hazards					
10.	Exposure to fluid increase the skin disease morbidity				
11.	Falling of acid rain cause skin disease				
12.	Exposure to amorphous substance affects the traffic warden.				
13.	Most traffic warden are exposed to spoiled chemicals				
14.	Traffic wardens are mostly exposed to metals				

APPENDIX II

Map of Port Harcourt metropolis



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Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/91216>