OCCUPATIONAL HAZARDS ASSOCIATED WITH TRAFFIC WARDEN IN PORT HARCOURT METROPOLIS, RIVERS STATE, NIGERIA

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. Two objectives, two research questions and two hypotheses guided the study. The study was carried out in Rivers State. This study adopted a Descriptive cross-sectional survey design. The population of the study was 846 traffic wardens and the sample size was 400 respondents, comprising 280 Male Wardens and 110 Female wardens' officers in Port Harcourt metropolis. The instrument for data collection was a structured questionnaire titled "Occupational Hazards Associated with Traffic Warden". The instrument was structured on five point likert type rating scale of Strongly agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). The instrument was subjected to face and content validation by three experts. A reliability coefficient of 0.76 was established with the aid of SPSS software. The findings reveals that traffic wardens are associated with physical hazards with a grand mean value of 3.982 and 3.983 for male and female wardens, chemical hazards with grand mean value of 3.918 and 3.942, for male and female wardens respectively. Based on the findings of the study, the following recommendations were 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 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**

INTRODUCTION

Background to the Study

With development and industrial revolt, the growing population of cities in recent time demand increase in vehicles and better Traffic system. Traffic is the movement of people and goods from one location to another. Traffic officers play vital role in maintaining the main stream of traffic in these cities and face great threat to their health due to multiple exposures during their working hours. Occupational health hazards in traffic officers produce physical, mental and social consequences. Occupational hazards placed traffic wardens at high risk of death, injury and pain among others that affect job participation and performance. According to World Health Organization (2009), health hazard is property damaged, loss of livelihood and service that pose danger on the individual. It is globally accepted that traffic wardens are extremely vulnerable group of professionals due to their continued and prolonged daily exposure to a variety of health hazards ranging from respiratory problems to psychological distress and these required safety consciousness to manage them.

Hazard is something with the potential to cause harm. This can include substances, materials, work processes or other aspects of the work environment. Risk on the other hand, is the likelihood that a harmful consequence (death, injury or illness) might result when exposed to the hazard. Risk can be quantified as a function of the likelihood of occurrence of the potential harm arising from the hazard and the severity of consequences measured by the value of the damage the harm. The amount of risk in a workplace is affected by the likelihood of the occurrence (event) and the severity of the consequence that may occur and may even lead to irrecoverable damage to human lives. Strict adherence to safety rules, practices and precautions can ensure and facilitate a safe working environment.

Safety is not a complex matter that can only be understood by trained specialists or that needs a significant financial commitment to make improvements (Achilike, 2013). The importance of safety to traffic wardens makes compliance with safety-related rules a key concern. Achieving safety-related rule compliance requires more than monitoring for noncompliance and responding to it when it occurs (OHS, 2011). It requires preventive actions designed to encourage compliant behavior. However, to determine the occupational hazard that traffic wardens in Rivers state are exposed to there is need to use safety culture assessments.

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.

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.

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.

Hypotheses

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

HO_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.

HO_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.

Conceptual Review

Concept of Traffic Wardens in Nigeria

The invention of the motor vehicle meant that roads were no longer meant for pedestrians and animal drawn carts alone. The invention called for improvement of the state of the roads, which led to increased speeds and danger to road users. This then led to proper control or channelization of traffic to increase efficiency of the roads in traffic performance. It is quite clear that the earliest controllers of traffic were people, private or employed by the town authorities. Definitely there were conflicts at intersections that needed to be resolved as man is limited in his judgement and stamina. The first traffic signal was installed in London in 1868 and used semaphore 'arms' together with red and green gas lamps. This, however, exploded, in 1918. The first three coloured light signals were installed in New York and in 1925, they started to he used in Great Britain. Traffic signals are now used throughout the world, at intersections to reduce conflicts to a minimum by time-sharing of right of way. This reduces the capacity of the intersection, but greatly enhances safety. There are about 64 potential conflict points at a four leg intersections with two way traffic flows at which all crossing and merging movements are permitted. The essence of traffic control is to reduce this number of potential conflicts from 64 to zero.

Occupational Health and Safety

Modern economies are driven by agriculture, manufacturing and service industries. Regardless of the governing factors, national economic growth and development on the basis of weak

Occupational Safety and Health (OSH) regulatory regime is an invitation for accident (Abdellah, & Morsy 2015). Yesterday, occupational safety and health was not the concern of all parties. But, nowadays, health and safety is becoming the key issues of global worries. In many studies, effective management of occupational safety and health found to play a pivotal role in running a successful business (Atubi, 2012).

The global issue for sustainable development of the citizen is the health and safe working groups at their workplace. In order to achieve this, one of them is the development of sustainable occupational safety and health environments. Having these challenges, it is mandatory to answer the questions how workplace safety and health innovation results in sustainable development of citizens and forwards the roads toward sustainable development in industrial occupational safety and health. The dynamism of socio-economic development has brought change on all aspects of the expansion. Dynamical change on workplace health and safety innovation, high prevalence of occupational diseases and accidents registration are the initial factors of sustainable development (Atubi, 2010). The existence of occupational safety and health problems is adding level of poverty onto existing burden of the society. There is a strong Malthusian movement which maintains that continued economic growth will disturb the balance of nature, and will eventually lead to ecological catastrophes. This imbalance between innovation and development tends to result in failure in sustainable developments.

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: near an intersection with traffic lights or traffic coming from multiple directions, rush hour traffic and vehicle at emergency, traffic merging from two lanes to one, bus stop nearby, schools, parks, playgrounds, or community centres nearby and children in the vicinity.

Physical Hazards

According to the Bureau of Labor Statistics, a total 1,738 accidents occurred due to contact with electric current between 2003 and 2010 and out of that 849, the highest number of electrical fatalities occurred in the construction industry. Five occupations from the construction industry-

electricians, roofers, painters, carpenters, and construction laborers account for more than 32% of all electrical fatalities. Improper grounding, wet conditions, damaged tools and equipment, inadequate wiring, exposed electrical parts, overhead power lines and overloaded circuits are the common electrical hazards which found on construction sites.

Electrical injuries are preventable through safe work practices like keeping electrical tools properly maintained, de-energizing electrical appliances before inspection or repair, and exercising caution when working near energized lines. Personal protective equipment such as hard hats, hoods, sleeves, rubber or insulating gloves and insulating clothing can be useful to reduce any electrical accidents.

Chemical Hazards

Chemical hazards are any substance that has the potential to cause harm to life or health (Muller, & Tregenza 2008). Chemicals are widely used in the home and in many other places. Exposure to chemicals can cause acute or long-term detrimental health effects. There are many types of hazardous chemicals, including neurotoxins, immune agents, dermatologic agents, carcinogens, reproductive toxins, systemic toxins, asthmagens, pneumoconiotic agents, and sensitizers. In the workplace, exposure to chemical hazards is a type of occupational hazard. The use of protective personal equipment (PPE) may substantially reduce the risk of damage from contact with hazardous materials. Long-term exposure to chemical hazards such as silica dust, engine exhausts, tobacco smoke, and lead (among others) have been shown to increase risk of heart disease, stroke, and high blood pressure (Muula et al, 2010).The most common exposure route to chemicals in the work environment is through inhalation. Gas, vapour, mist, dust, fumes, and smoke can all be inhaled. Those with occupations involving physical work may inhale higher levels of chemicals if working in an area with contaminated air. This is because workers who do physical work will exchange over 10,000 litres of air over a 8-hour day, while workers who do not do physical work will exchange only 2,800 litres. If the air is contaminated in the workplace, more air exchange will lead to the inhalation of higher amounts of chemicals. Chemicals may be ingested when food or drink is contaminated by unwashed hands or from clothing or poor handling practices.

Biological Hazards

A biological hazard, or biohazard, is a biological substance that poses a threat to the health of living organisms, primarily humans. This could include a sample of a microorganism, virus or toxin that can adversely affect human health. A biohazard could also be a substance harmful to other animals.

Biohazard Level 1: Bacteria and viruses including bacillus subtillis, canine hepatitis, Escherichia coli and varicella (chickenpox), as well as some cell cultures and non-infectious bacteria. At this level precautions against the biohazardous materials in question are minimal, most likely involving gloves and some sort of facial protection.

Biohazard Level 2: Bacteria and viruses that cause only mild disease to humans, or are difficult to contract via aerosol in a lab setting, such as hepatitis A, B, and C, some influenza A strains, Human respiratory syncytial virus, Lyme disease, salmonella, mumps, measles, scrapie, dengue fever, and HIV. Routine diagnostic work with clinical specimens can be done safely at Biosafety Level 2, using Biosafety Level 2 practices and procedures. Research work (including co-cultivation, virus replication studies, or manipulations involving concentrated virus) can be done in a BSL-2 (P2) facility, using BSL-3 practices and procedures.

Ergonomic Hazards

Ergonomics is also known as Human Factors Engineering. The term is derived from the Greek word ergon meaning "work" and nomos for "rules" or "science," hence the science of labour connoting the environmental analysis for the construction of equipment and tasks (Taylor & Lewis, 2011).There are so many examples of the development of human factors in workshops.Ergonomics is defined by the International Association of Ergonomics (IEA, 2010) and adopted by the Society of Human Factors and Ergonomics (HFES) as:

“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)”

Theoretical Framework

Organizational Culture Theory

Ehtesham (2011) proposes organizational culture theory. The theory asserted the possibility of regarding receptive organizational culture context features as possible determinants of readiness toward work behaviour. Marchand, Victory and Julie (2013) develop their organizational model using factor analysis to examine organizational culture. Organizational culture refers to a set of processes that binds together members of an organization based on the shared pattern of basic values, beliefs, and assumptions in an organization. Organizational culture allows an organization to address the ever-changing problems of adaptation to the external environment and the internal integration of organizational resources, personnel, and policies to support external adaptation. Organizational culture is a pattern of basic assumptions and is developed by a given group as it learns to cope with its problems of external adaptation and internal integration. The organization's culture serves as a foundation for an organization's management system. This foundation is a set of management practices and behaviours that both exemplify and reinforce those basic principles (Oliver, Wehby & Daniel, 2011). These principles or beliefs are held in common by the members of a group or organization (Lars, Dan & Jon, 2006). Such expectations or norms specify the ways in which all members of the organization are expected to approach their work. They represent strategies for survival that worried well in the past and members believe will work again in the future. Understanding your culture before implementing a business strategy is an important domain for organizations. These findings indicated that corporations, communicating specific goals and providing feedback will create a positive environment for organizational learning.

The report reveals most workers in the Nigeria believe that stress is increasing in their jobs and must work harder to earn a living compared to workers 20 or 30 years ago Understanding how role stressors have a negative impact on organizations and identifying the culture may reduce the effects of stressors as this is a critical issue for management.

Empirical Review

Sebastiampillai, et al (2015) conducted a study on lead toxicity among traffic warden; a high risk group exposed to atmospheric lead, is it still a cause for accident? The result of the study revealed the mean age was 37 years. Majority 61.9% (n=104) showed no lead in blood, (<0.01 mg/dl) whereas 64(38.1%) show high level of lead in the blood. Of 35.9% (n=23) were below the accepted CDC safe limit (<10.00mg/dI). The results also showed that mean distribution of lead in the blood is (4.82mg/di 95% Cl: 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 (2018) conducted a research finding on the study of socio demographic factors and morbidity profile of traffic policemen in Solapor 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 mark 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 (2001) 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 samp1e 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 3.4mg/rn3 while level of benzene was high among those on shift duty (11.2mg/rn3). 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.

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 (Yamene, 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 data obtained from the respondents were analyzed using mean and standard deviation. The mean responses were used to answer the two research questions and t-test statistics was used to test the two null hypotheses at .05 level of significance.

RESULTS AND DISCUSSION

The data obtained from the respondents were analyzed using mean and standard deviation. The mean responses were used to answer the five research questions and t-test statistics was used to test the six null hypotheses at .05 level of significance

Research question 1: What are the physical 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**

The data in Table 1 revealed that male wardens had a mean range of 3. 75 – 4.13 and standard deviation of .646 – 1.139 While the female wardens had a mean range of 3.33– 4.33 and standard deviation of .515 – 1.193. The grand mean are 3.982 and 3.983 for male and female wardens

respectively, which are above the real limit of 3.50. This indicates that traffic wardens are associated with physical hazards in Port Harcourt metropolis, Rivers State. The closeness of the standard deviation indicated that the respondents were homogeneous or closely to their opinion.

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

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

The data in Table **2** revealed that male wardens had a mean range of 3. 56 – 4.42 and standard deviation of .959 – 1.527. While the female wardens had a mean range of 3.67– 4.42 and standard deviation of .492 – 1.557.The grand mean are 3.918 and 3.942 for male and female wardens respectively, which are above the real limit of 3.50. This indicates that traffic wardens

associated with chemical hazards in Port Harcourt metropolis, Rivers State. The closeness of the standard deviation indicated that the respondents were homogeneous or closely to their opinion.

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.

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 3 revealed that the calculated t-value is -.016, the significant value at 2-tailed (P) is 987. Since significant value at 2-tailed (P) is greater than .05 (P >.05). The null hypothesis was accepted. This implies that traffic wardens are associated with physical hazards in Port Harcourt metropolis, Rivers State. Therefore, there is no significant difference (P > 0.05) between the mean response of male and female traffic wardens on the physical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

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: 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					

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 hypothesis was accepted. This implies that traffic wardens are associated with chemical hazards in Port Harcourt metropolis, Rivers State. Therefore, there is no significant difference (P > 0.05) between the mean response of male and female traffic wardens on the chemical hazards associated with traffic wardens in Port Harcourt metropolis, Rivers State.

Discussion of the Findings

Based on the data collected and analyzed to answer the research questions and the hypotheses, the following findings emerged from the study. Table **1** revealed that male wardens had a mean range of 3. 75 – 4.13 and standard deviation of .646 – 1.139 While the female wardens had a mean range of 3.33– 4.33 and standard deviation of .515 – 1.193. The grand mean are 3.982 and 3.983 for male and female wardens respectively, which are above the real limit of 3.50. This indicates that traffic wardens are associated with physical hazards in Port Harcourt metropolis, Rivers State. Table **2** revealed that male wardens had a mean range of 3. 56 – 4.42 and standard deviation of .959 – 1.527. While the female wardens had a mean range of 3.67– 4.42 and standard deviation of .492 – 1.557.The grand mean are 3.918 and 3.942 for male and female wardens respectively, which are above the real limit of 3.50. This indicates that traffic wardens associated with chemical hazards in Port Harcourt metropolis, Rivers State. Table **3** revealed that male wardens had a mean range of 3. 42 – 4.20 and standard deviation of .951 – 1.329. While the female wardens had a mean range of 3.50– 4.42 and standard deviation of .953 – 1.165.The grand mean are 3.955 and 3.933 for male and female wardens respectively, which are above the real limit of 3.50. This indicates that traffic wardens are associated with psychosocial hazards in Port Harcourt metropolis, Rivers State. The closeness of the standard deviation indicated that the respondents were homogeneous or closely to their opinions.

Conclusion

Based on the findings of the study, it was revealed that traffic wardens in port Harcourt metropolis are associated with physical hazards, chemical hazards, psychosocial hazards, biological hazards and ergonomic hazards occupational hazard intervention and that socio-demographic characteristics such as years of working experience and educational level

influences the level of exposure of occupational hazards among traffic wardens in Port Harcourt metropolis. Occupational safety is a cross-disciplinary area and it is concerned with guarding the safety, health and welfare of people who are engaged in work or occupation. It is the protection and promotion of the health of workers by preventing and controlling occupational diseases and accidents and by eliminating occupational factors and conditions hazardous to health and safety at work safety is related to the physical condition at the workplace and applies to a state where the risk of harm and damage has been removed or reduced to a tolerable level. Hence, Occupational hazards placed traffic wardens at high risk of death, injury and pain among others that affect job participation and performance.

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.

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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