

ASSESSMENT OF PERCEIVED RISKS ASSOCIATED WITH HEAVY TRUCK MOVEMENT IN OSUN STATE

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Abstract

This study specifically examined the assessment of perceived risks associated with heavy truck movement in Osun State. A descriptive survey design was adopted for this study, population for this study comprised of all resident of the residential areas in Osun Stat, sample size for this were 500 respondents, using accidental sampling technique. Data were collected through used of self-structured questionnaire and the questionnaire contained two Sections A and B, section A was used to elicit Demography data of the respondents while the second section was used to elicit information on the questionnaire titled "assessment of perceived risks associated with heavy truck movement" (APRAHTM). The data were analysed using both descriptive statistics and simple percentages and inferential statistics of (SPSS). The ANOVA analysis of variance and analysis were used to test the hypotheses. Findings reveal that a majority of respondents lack awareness of the health threats posed by heavy trucks, with 53.9% that they were not aware of these Health risks from heavy truck movement around the residential area, while (46.1%) were aware with of it. Additionally, with (65%) disagreed that heavy trucks could cause different types of health threat in the study area, while (35%) agreed with the statement. The findings revealed that there was a significant relationship between awareness levels and types of health threats among residents in study areas. Findings for reviewed that there was no significant influence of awareness level on knowledge of health threat that heavy truck can cause in the study areas with p -value ($PR(>F)$) for C (Awareness Level) and

C(Threat) was 0.906663 for Awareness Level and 1.000000 for Threat Type. This implied that significant effects exist between awareness levels and threat type. The study concluded that Heavy Trucks Movement has health threat on the Health of Residents of Residential area in the study areas.

Keywords: *Health Threat, Heavy truck, Respiratory Health, Noise Pollution, Traffic Safety and Community Well-being.*

Introduction

Heavy trucks, essential for transporting goods and materials, are increasingly common in the areas, leading to heightened concerns regarding their impact on human's health. The movement of heavy trucks contributes to various environmental stressors, including air pollution, noise, and traffic overcrowding, which can adversely affect the physical and mental health of nearby residents.

However heavy truck movement associated with industrial activities has become a prominent feature in many urban areas, including Osun State. This increase poses potential health risks for residents living near these industrial zones. Heavy truck movement in industrial areas can pointedly negative impact on the health and well-being of nearby residents.

According to Akinyemi and Adebayo (2023) claimed that constant flow of heavy vehicles not only contributes to environmental pollution such as air and noise pollution, dust, radiation and vibrations which affects the health of residents' daily lives and overall well-being. Concerns have been raised about respiratory problems, stress-related issues, and safety risks due to increased traffic and accidents through industrial heavy truck which sometime took the residents lives, (Eze 2023). This study aims to delve into these perceived effects, exploring how industrial activities and truck movements ultimately influence the health of the community. By understanding residents' experiences and concerns, we can better inform local policies and promote healthier living conditions.

Exposure to pollutants from heavy vehicles can lead to respiratory issues such as asthma and chronic bronchitis, as well as cardiovascular diseases. Additionally, the incessant noise generated by truck traffic can disrupt sleep patterns, increase stress levels, and contribute to mental health disorders. Residents may also experience heightened anxiety due to safety concerns related to heavy traffic, particularly in neighbourhoods where children and pedestrians frequently interact with roadways, (Onyango, and Luyali, 2023).

According to Nwachukwu, (2022). Industries use heavy trucks, but safety measures to avoid the risks posed by the noise these trucks produce are often overlooked. As a result, residents who are exposed to noise pollution risk damage to their hearing and health. It is obvious that residents who are subjected to heavy truck movement health threat such as noise, smoke, radiation and emission at residential area over an extended period of time do encounter some health issues. It makes resident exposed to auditory disorders, weariness, annoyance, cardiovascular disorders, sleep disorders, performance impacts, immunological effects, and

metabolic effects due to the dangerous consequences of industrial noise pollution from the heavy trucks movement. Thus, a study on industrial noise, life-saving devices, and the perceived consequences on workers' health (Nwachukwu, 2022).

Bhatia and Katz (2020) in their review on heavy truck movement and health provide insights into the impact of heavy truck traffic on human health. They highlight a range of adverse health outcomes associated with heavy truck movement, including respiratory diseases, cardiovascular problems, and increased mortality rates due to air pollution and noise exposure and certain populations, such as children, the elderly, and those with pre-existing health conditions, are particularly vulnerable to the health impacts of heavy truck traffic.

Adeleke and Agbaje (2023) claimed that the effects of heavy-duty vehicles on urban health focus on several critical points regarding the impact of heavy truck movement on human health which identify a range of health issues linked to heavy truck traffic, including respiratory diseases, cardiovascular problems, and stress-related conditions caused by noise pollution and deteriorating air quality in urban areas, increasing the risk of health problems among residents. Chinonso and Eze (2023) in their study on the effects of heavy truck movement, on community health, heavy truck traffic caused many damage on the health of residents such as respiratory issues, cardiovascular diseases, and mental health effects due to noise and air pollution and air quality degradation, leading to increased exposure to harmful pollutants that can affect overall health. Also claimed that residents often have a limited understanding and awareness of the specific health risks posed by heavy truck traffic, which can hinder community efforts to advocate for healthier environments.

Balogun and Ajiboye (2022) claimed that community perceptions of environmental health risks from heavy truck movement which identify a range of health issues linked to heavy truck traffic, such as respiratory illnesses, cardiovascular diseases, and mental health challenges associated with noise, air pollution and emissions from heavy trucks contribute to air quality deterioration, which poses long-term health risks for residents living near high-traffic areas.

According to Ogunyemi, (2022) stated that health is considered as overall mental, physical, and social well-being rather than only the absence of illness or disability. In Nigeria industries noise are originated through the use of various machines and other equipment. Industrial hazards such as explosion, heavy truck movement etc. can occur suddenly and intensely. In the case of harmful spills and leaks, depletion of ozone layers, etc. Most can be preventable. The following items apply to industrial dangers: dust, smoke, liquid, noise pollution; and chemical threats that manifest as gases. (Ogunyemi, 2022).

Olayanju, and Ojo, (2022) described hazard from heavy truck movement as anything that can result in an accident, an injury, or poor health. Short-term loud exposure can cause temporary hearing loss, which resolves with rest and returns to normal hearing. Generally, chronic exposure to loud noise, emission, radiation, dust, and smoke often over time progressively result in irreversible harms on the health of residents. An overall spike in blood pressure, an increase in intracranial pressure, an

increase in heart rate and sweat, abnormalities in respiratory patterns, and generalised muscular tension can all be caused by the impact of health risk from truck movement.

Akinyemi and Ogunmola (2023) stated that the impact of heavy-duty vehicles on urban air quality and public health focus on several critical aspects regarding the effects of heavy truck movement such as emissions, including respiratory diseases, cardiovascular issues, and other health problems linked to poor air quality which significantly contributes to the deterioration of urban air quality, emphasizing the long-term risks this poses to public health. They also point out that certain populations, particularly those living near busy roads and industrial areas, are more vulnerable to the health impacts of heavy truck pollution that lead to health threat on the residents health.

The increasing movement of heavy trucks associated with industrial activities in urban areas, particularly in Osun State, has raised significant concerns regarding the health of residents living in closeness to these transport routes. Despite the essential role that heavy trucks play in the economy by facilitating the transportation of goods, their presence in residential neighbourhoods poses various health risks. These risks include exposure to air and noise pollution, which can lead to respiratory issues, cardiovascular diseases, and mental health problems.

However, there is a notable lack of awareness among residents about the specific health impacts associated with heavy truck movement. Many individuals may underestimate the severity of these risks or lack knowledge of the potential health threats, which can hinder community advocacy for healthier living environments. This study seeks to address these gaps by investigating the perceived health effects of heavy truck movement on residents. It aims to assess the awareness levels of the community regarding these risks and identify the types of health threats they associate with heavy truck traffic.

Objectives of the Research

- (a) Examined the awareness level among residents that heavy truck movement can cause health risks in Osun State; and
- (b) Ascertained the types of health threats that can caused by heavy trucks movement in the study areas.

Research Questions

The following questions will be answered:

- (c) What is the awareness level among residents that heavy truck movement can cause health damage in Osun State; and
- (d) What the types of health threats that can caused by heavy trucks movement in the study areas.

Research Hypotheses

Hypothesis: There is no significant influence of awareness level on knowledge of health threat that heavy truck can cause in Osun State.

Methodology

This study adopted descriptive survey research design. All the residents of the study area in Osun State were population for this study. From three (3) Senatorial Districts in Osun State. One Senatorial District (Ife-Ijesa) was selected using purposeful random sampling technique. From the selected Senatorial District two (2) Local Government area were selected using simple random technique. Two hundred and fifty (250) respondents were selected from each of the selected Local Government areas using accidental sampling technique making a total of 500. Data were collected through used of self-structured questionnaire. And the questionnaire contained two Sections A and B, section A was used to elicit Demography data of the respondents while the second section was used to elicit information on the questionnaire titled “assessment of perceived risks associated with heavy truck movement” (APRAHTM). The descriptive statistics were used to analyse and interpret the data obtained from the residents through questionnaire. The data were analysed using both descriptive statistics and simple percentages and inferential statistics of (SPSS). The ANOVA analysis of variance and analysis were used to test the hypotheses.

Results and findings

Table 1: Frequency Distribution of Demographic Data of Residents (n=500)

Variables		Frequency	Percentage
Sex	Male	150	30%
	Female	350	70%
	Total	500	100.0%
Age	20-35 Years	210	42%
	35-50 Years	290	58%
	Total	500	100.0%

Table 2: Respondent’s responses on awareness level among residents that heavy truck movement can cause health risks in Osun State.

S/N	Items	High	Low
1	Are you aware that noise from heavy truck movement of the industry can cause health risks of brain damages on your health	300 (60%)	200 (40%)
2	Are you aware that noise from heavy truck movement affect your health	350(70%)	150(30%)
3	Are you aware that noise from heavy truck movement of the industry can cause health threat of Cardiovascular disease	320(64%)	180(36%)
4	Are you aware that noise from heavy truck movement of the industry can cause health threat of auditory organ	400(80%)	100(20%)
5	Are you aware that noise from heavy truck movement of the industry can result to health threat of hearing problem	250(50%)	250(50%)

The above table revealed that majority of the respondents with (53.9%) indicated with high level of awareness of heavy truck movement can cause health damage in the study area as a result of lack of knowledge on health threat from heavy trucks

movement around the residential area, while (46.1%) of the respondents showed with low level of awareness.

Table 3: Respondent’s responses on the types of health threats that caused by heavy trucks Movement in the study areas.

S/N	Items	Agreed	Disagreed
6	Noise from heavy truck movement of the industry can lead to health threat of high blood pressure	190 (38%)	310(62%)
7	Smoke from heavy truck movement of the industry can lead to cancer	90(18.75%)	390(81.25%)
8	Vibration from heavy truck movement in the residential area result health threat of heart disease	400 (80%)	100(20%)
9	Accidents from heavy truck movement of the study area can result to death of the residents of the residential areas	450(90%)	50(10%)
10	Noise from heavy truck movement can cause health threat of sleeping disorder.	160 (32%)	340(68%)

The above table revealed that majority of the respondents with (65%) of the respondents disagreed that heavy trucks can caused different types of health threat in the study area, while (35%) of the respondents agreed with the statement.

Hypotheses Testing: Hypothesis: There is no significant influence of awareness level on knowledge of health threat that heavy truck can cause in Osun State.

Table 4: - Awareness Level on Knowledge of Health Threat that Heavy Truck can Cause in Osun State:

Source	sum_sq	df	F	PR(>F)
C(Awareness Level)	3.062500	1.0	1.558822e-02	0.906663
C(Threat)	1.621898	4.0	2.063877e-32	1.000000
Residual	7.858500	4.0		

Interpretation: The p-value (PR(>F)) for C(Awareness Level) and C(Threat) was 0.906663 for Awareness Level and 1.000000 for Threat Type , this analysis also suggests that, there was no significant effects for Awareness Levels or Threat Type. This implied that significant effects exist between awareness levels and threat type.

Discussions of findings

This study explored the assessment of perceived risks associated with heavy truck movement in Osun State. focusing on respiratory health, noise pollution, traffic safety, and community well-being. The findings underscore the multifaceted health risks associated with heavy truck traffic in urban areas, drawing on existing literature and data from the community.

The data revealed that majority of the respondents with (53.9%) were not aware that heavy truck movement can cause health damage in the study area as a result of lack of knowledge on health threat from heavy trucks movement around the residential area, while (46.1%) of the respondents were aware with of it. And the result also indicated that that majority of the respondents with (65%) of the respondents disagreed that heavy trucks can caused different types of health threat in the study area, while (35%) of the respondents agreed with the statement.

This aligns with the findings of Balogun and Ajiboye (2022), who noted that community perceptions of environmental health risks are often limited. Respondents identified several health threats linked to heavy truck movement, such as high blood pressure, heart disease, cancer, and sleep disorders. This result is in line with research of Bhatia and Katz (2020) in their review on heavy truck movement and health provide insights into the impact of heavy truck traffic on human health. They highlight a range of adverse health outcomes associated with heavy truck movement, including respiratory diseases, cardiovascular problems, and increased mortality rates due to air pollution and noise exposure and certain populations, such as children, the elderly, and those with pre-existing health conditions, are particularly vulnerable to the health impacts of heavy truck traffic. Lastly the result on the hypothesis showed that there was no significant influence of awareness level on knowledge of health threat that heavy truck can cause in the study areas with p-value ($PR(>F)$) for C(Awareness Level) and C(Threat) was 0.906663 for Awareness Level and 1.000000 for threat type. This implied that significant effects exist between awareness levels and threat type. This result also in collaborate with Eze (2023) in their study on the effects of heavy truck movement, on community health, heavy truck traffic caused many damage on the health of residents such as respiratory issues, cardiovascular diseases, and mental health effects due to noise and air pollution and air quality degradation, leading to increased exposure to harmful pollutants that can affect overall health. Also claimed that residents often have a limited understanding and awareness of the specific health risks posed by heavy truck traffic, which can hinder community efforts to advocate for healthier environments.

Conclusion

The study concluded that Heavy Trucks Movement has health threat on the Health of Residents of Residential area in the study areas. Overall, the study highlights a pressing need to bridge the gap between awareness and reality concerning the health risks of heavy truck movement in urban settings. By enhancing community education and implementing targeted policies, stakeholders can better safeguard the health and well-being of residents in Osun State. The significant relationships identified in the hypothesis reinforce the importance of addressing both awareness and types of health threats associated with heavy truck movement and traffic in residential areas.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. State stakeholder should inform the local health policies to organized interventions that could moderate the negative impacts of heavy truck movement on public health.

2. The three tiers of Government should set-up committee that will be monitor the heavy truck activities to avoid the nonchalant attitude of the truck drivers in order to eradicate the health threat from heavy truck movement around the residential areas.
3. The heavy truck drivers should do the check-up of their vehicles before taken it on the road for the movement to avoid human health threat and accidents.

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