



ASSESSMENT OF NOISE POLLUTION AND PERCEIVED HEALTH CHALLENGES AMONG RESIDENTS IN LAGOS STATE, NIGERIA

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Abstract:

The study assessed noise pollution and perceived health challenges among residents of Lagos State. This study specifically assessed the noise pollution situation, various causes/sources of noise pollution, perceived health challenges and measures to achieve good and healthy environment. The study areas were selected using purposive sampling technique. One hundred and fifty female respondents and one hundred and fifty male respondents making a total of 300 respondents were selected with accidental sampling technique. Self-designed questionnaire, well validated and subjected to reliability of test re-test method at 0.89 co-efficient which was deemed fit for the study was used. The data collected were exposed to appropriate descriptive and simple percentages. The findings of the study revealed that there were always heavy and constant noises around. Major ways the environment could be polluted were heavy traffic (traffic noise), religion home (e.g. churches and mosques), factories/industrial activities and power generating plants/generators. The perceived health challenges were insomnia/ sleep disturbance, hypertension/high blood pressure, loss of hearing, nervousness and lack of concentration and frequent headache. Measures that can be put in place for healthy environment were that the law enforcement should monitor activities of pollution, worship centres (religious home) around residential areas should be checked for loud noise and using of megaphone and the construction sites should be far from residential areas. Based on the findings, it was recommended that the government should put in place laws and measures that will prevent siting of factories and industries in the residential areas and to provide constant electricity for all.

Keywords: assessment, noise pollution, perceived, health challenges, residents, Lagos state, environment

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1. Introduction

Noise is commonly human actions naturally found in urban areas. Rajiv (2014) stated that sounds we hear become noise particularly when sounds interfere with thinking, concentrating, working, talking, listening, or sleeping. The following could be termed noisy places when they have concentrated populations in cities, road traffic, industry, and construction. Noise is a principal source of dissatisfaction for city residents. The level of noise in many cities can result serious threat to health. It makes hearing, concentrating, and work more challenging.

According to Awosusi & Akinduntire (2014), noise disturbs sleep. Insufficient or poor quality sleep results in stress, fatigue, and changes in body's natural balances. Poor environmental status of urban and civilized area cum industrial area can be traced back to pollution which can affect the quality of health of the people.

The daily activities coupled with uninterrupted exposure to loud sound can have hostile effect on physiological and psychological health (Mead, 2007). However, pollution is both a social and a human problem which may modify the individuals' exposure either negatively or positively (Oltra & Sala, 2014). Noise is generally defined as unwanted sound. Noise pollution is a form of air pollution, making it a threat to health and wellbeing (Goines & Hagler, 2007). In the same vein, noise is a pollutant that has hostile effects on human wellbeing and their actions (Debasish & Debasish, 2012; Awosusi & Akinduntire, 2014). Pollution in form of noise, heat or light can be accumulated of contaminations in the environment which can have adversely affects humans (Walker and Xanthos, 2018). Environmental pollution can result to problems on human beings (Baba et al., 2013).

According to Adimekwe (2013), the existence of man depends on quality of the environment where he lives. Whereas disorders of the environment may be hazardous to the health of the people (Adimekwe, 2013; Awosusi & Akinduntire, 2014).

In the study carried out by Oguntunde, et al. (2019) revealed that there was a difference between the noise levels observed and the recommended one by World Health Organization. The effects of the noise pollution level have a significant difference for all day considered. A major environmental problem leading to nuisances and health issues is the noise pollution. According to Asuquo, Onuu & Asuquo (2012), noise is a disruption to the human environment. It becomes a major threat to the quality of human lives if it is not checked. Frequent exposures to loud noise can bring about permanent, incurable hearing loss or perceived of noise or beating sound. Extreme noise can be hazardous on human health thereby disturb sleep, cause cardiovascular and psychophysiological effects, cause heart attacks, decrease performance and aggravate annoyance reactions, hearing impairment and many more.

Some sources of noise pollution are automobiles, motorcycles, aircraft, ships, trucks, buses, jet planes, construction equipment, electrical machinery, lawn mowers and leaf blowers, to name a few. All the above can be detrimental to humans when constantly

exposed to them. (<https://www.everythingconnects.org/noise-pollution.html>). Noise is a serious public health problem that has severe consequences (Maria, 2019).

In a study conducted by Boateng & Amedofu (2004), a highly significant relationship was found only between noise exposure level and duration of exposure in corm mills and saw mills. Hearing impairment was also observed among some of the workers exposed to hazardous noise. Special intervention was suggested to protect workers exposed to such hazards at work places. Daily level of noise can lead to raised blood pressure and heart rate (Goines and Hagler, 2007). The major sources/causes of noise pollution according to Awosusi & Akindutire (2014) were: power generating plant, traffic, religious homes, construction sites and industries. Exposure to noise is seen as an environmental public health problem and very injurious to health. In a study conducted by Oyedepo (2012), Nigerian cities are naturally noise polluted and the major sources are road traffic, industrial machineries and generators.

In Nigeria, difficulty and degree of the problem of noise pollution need effectively and well-planned measures. Government, industries and research institutions have not given enough priority to develop strategies to check the epidemic of various diseases attached to this noise pollution (Oyedepo, 2012). Environmental noise can result to tinnitus, hearing loss, sleep disturbance and further injurious effects on health (Mead, 2007; Olokooba, Ibrahim & Abdulraheem-Mustapha, 2010). Workers who are exposed to great noise levels have a higher incidence of circulatory problems, cardiac diseases, hypertension, neuro sensory and motor impairment (Landrigan et al., 2002, Goines and Hagler, 2007). Exposure to moderately high levels of noise can cause a statistical rise in stress (Gaekte et al., 2009). According to Asuquo, Onuu & Asuquo (2012), noise has been a persistent threat with the industrial uprising. Pollution can take the form of chemical substances or energy such as noise, heat or light.

It is the accumulation of contaminants in the environment that adversely affect humans (Walker and Xanthos, 2018). Study conducted by Awosusi & Akinduntire (2014), revealed that large range of sampled respondents were aware of the effects of environmental noise pollution on the health of the people. In a study conducted by Anomohanran and Osemeikhian (2005), it was revealed that noise pollution is significant in the urban cities because of industrialization and heavy traffic compared to the less urban areas.

Debasish and Debasish (2012), in a study by Nyakuma (2012), revealed that noise becomes contaminant when it is disturbing and making the people restless. According to Martins et al. (2006), exposure to long period of noise are more vulnerable to headache than people who do not have access to long exposure to noise. Claeson et al. (2013), in a study, revealed that air pollution is linked with health risks on individuals leaving health symptoms. Wakefield et al (2001) discovered that there is a lack of awareness amongst the general public regarding the pollution problems.

1.1 Statement of the Problem

Lagos state is a very busy area which has numerous industries, factories, mosques, churches, traffic low and other forms of social activities which are avenue for significant noise production. This has been one of the major lasting problems people of the city have been facing over the years because of its complexity in terms of population, the business and other social accommodation. Though, noise pollution is an indirect killer, yet very insignificant efforts have been made to improve it. Therefore, there is dearth in the research of noise pollution in Lagos State and the environment; hence this study.

1.2 Objectives of the Study

The main objectives of this study are to:

- 1) Investigate the noise pollution situations between the gender respondents in study area;
- 2) Identify the sources of noise pollution between the gender respondents in the study area.
- 3) Determine the perceived health challenges through noise pollution between the gender respondents in the study areas
- 4) Investigate the measures that can be put in place to achieve good and healthy environment between the gender respondents.

1.3 Research Questions

- 1) What are the noise pollution situations between the gender respondents in Lagos State and the environment?
- 2) What are the sources of noise pollution between the gender respondents in the study area?
- 3) What are the perceived health challenges through noise pollution between the gender respondents in the study areas?
- 4) What are the measures that can be put in place to achieve good and healthy environment between the gender respondents?

1.4 Significance of the Study

The study would provide information on noise pollution situation on the study area. It would also provide evidence on the perceived health challenges among residents in Lagos State. The study would also add to useful information on the sources of noise pollution between the gender respondents and the perceived health challenges through noise pollution between the gender respondents.

The study would help to provide the measures that can be put in place to achieve good and healthy environment. It would also add to the existing necessary information needed to be useful for the health ministries, international health organization, other health professionals and the government in articulating and executing of environmental quality appearance of the society.

2. Research Design

The study employed descriptive survey research design. The research design enables evidence to be obtained from the sampled population. It helps to identify problems, make comparisons and systematic evaluation. This design is thought to be most appropriate for this study.

2.1 Population, Sample and Sampling Procedure

This study was specifically carried out in five areas namely

- a) Ilupeju/Mushin area,
- b) Mowe/Ibafo area,
- c) Ikorodu (Ishagamu road/Odonguyan,
- d) Ijebu Ode express way and Gbaga area),
- e) Ketu, and
- f) Opebi/Allen Avenue.

These areas were selected using purposive sampling technique. Sixty respondents were selected from each area making a total of three hundred respondents using accidental sampling technique. One hundred and fifty female respondents and one hundred and fifty male respondents making a total of 300 respondents were selected with accidental sampling technique.

2.2 Research Instrument

A self-designed questionnaire titled "Assessment of noise pollution and perceived health challenges among residents in Lagos State and the environment" tagged (ANPPHCRE) was used for the study which was validated and subjected to reliability of test retest method at 0.89 co-efficient.

The questionnaire contained two sections. Section A was the biodata of the respondents, while section B was used to elicit information from the all the designed research objectives which was interpreted to research questions.

2.3 Method of Data Collection

Although, some of the respondents were unable to fill the questionnaire properly because of their level of education, the researcher with the help of 10 well trained research assistants helped to monitor the respondents in filling the questionnaire.

The questionnaire was given to the respondents to fill and the entire questionnaire were duly filled and returned on the spot.

2.4 Method of Data Analysis

Data was analyzed using appropriate descriptive and simple percentages.

3. Results

Table 1: Demographic characteristics of the respondents

Variables	Responses	Female (n=140, 58.3%) Frequency Percentage	Male (n = 150; 1.7%) Frequency Percentage
Age	20- 30yrs	18 (06%)	18 (06 %)
	31- 40yrs	12 (04%)	48 (16%)
	41- 50yrs	18 (06 %)	42 (14 %)
	51- 60yrs	60 (20%)	18 (06%)
	60yrs & above	42 (14%)	24 (08%)
Religion	Christianity	36 (12 %)	60 (20%)
	Islam	108 (36 %)	84 (28%)
	Others	06 (02%)	06 (02%)
Education	Illiterate	15 (05%)	12 (04%)
	Primary school certificate	21 (07%)	21 (07%)
	Secondary school certificate	36 (12%)	48 (16%)
	Higher institutions	78 (26%)	69 (23%)

3.1 Research Questions

Research Question 1: What are the noise pollution situations between the gender respondents in Lagos State and the environment?

Table 2: Descriptive and percentage analysis of the noise pollution situations between the gender respondents in Lagos State and the environment

N/S	Noise Pollution Situations	Female (n = 150; 50%)		Male (n = 150; 50%)	
		A	D	A	D
a.	Powerful generating plants always working	132 (44%)	18 (6%)	126 (42%)	24 (8%)
b.	Heavy traffic noise always in this area	150 (50%)	0 (0%)	150 (50%)	0 (0%)
c.	Religion home e.g. churches' and mosques' Public address systems (PAs) always everyday	150 (50%)	0 (0%)	150 (50%)	0 (0%)
d.	Construction sites always working	90 (30%)	60 (20%)	96 (32%)	54 (18%)
e.	Factories and industries always with heavy machines working	132 (44%)	18 (6%)	126 (42%)	24 (8%)
f.	Shop selling CDs always on public address system and music	69 (23%)	81 (27%)	90 (30%)	60 (20%)

Note: A = Agreed; D = Disagreed.

Table 2 above described the noise pollution situations in the study areas. It was revealed that 132 (44%) female respondents and 126 (42%) male respondents stated that powerful generating plants always working always worked in their environment. A total of 18 (6%) female respondents and 24 (8%) male respondents disagreed to this statement. Whereas all the respondents in the study areas signified that heavy traffic noise were always heard in this area and that religion home e.g. churches' and mosques' public address systems

(PAs) were always around the study areas respectively. A total of 132 (44%) female respondents and 126 (42%) male respondents agreed that factories and industries were always with heavy machines working. This implied that the study areas were always with heavy and constant noise around and that the female and male responses were the same.

Research Question 2: What are the sources of noise pollution between the gender respondents in the study area?

Table 3: Descriptive and percentage analysis of sources of noise pollution between the gender respondents in the study area

N/S	Causes / Sources of Noise Pollution	Female (n =150; 50%)		Male (n = 150; 50%)	
		A	D	A	D
a.	Heavy traffic (traffic noise)	150 (50%)	0 (0%)	150 (50%)	0 (0%)
b.	Religion home e.g. churches and mosques	135 (45%)	15 (5%)	128 (42.7%)	22 (7.3%)
c.	Construction sites	30 (10%)	120 (40%)	45 (15%)	105 (35%)
d.	Factories and industrial activities	96 (32%)	54 (18%)	105 (35%)	45 (15%)
E	Shop selling CDs / Public address systems (PAs)	90 (30%)	60 (20%)	75 (25%)	75 (25%)
f.	Commercial activities	150 (50%)	0 (0%)	150 (50%)	0 (0%)
g.	Siren from security agents	30 (10%)	120 (40%)	45 (15%)	105 (35%)
h	Fire fighter vehicle	10 (3.3%)	140 (46.7%)	08 (2.7%)	142 (47.3%)
I	Power generating plants / Generators	150 (50%)	0 (00%)	135 (45%)	15 (5%)

Note: A = Agreed; D = Disagreed.

Table 3 above showed that all the respondents both female and male agreed that heavy traffic. Traffic noise were sources of noise pollution. A total of 135 (45%) female respondents and 128 (42.7%) male respondents stated that religion homes e.g. churches and mosques were also sources of noise pollution in their environment. A total of 96 (32%) female respondents and 105 (35%) male respondents said that factories and industrial activities were sources of noise pollution in their areas. All respondents both female and male signified that commercial activities were sources of noise pollution in their environment. A total of 10 (3.3%) female respondents and 08 (2.7%) male respondents said one of the sources of noise pollution was fire fighter vehicle as regards power generating plants/generators, 150 (50%) female respondents and 135 (45%) male respondents agreed to it as being sources of noise pollution. The above statement implied

that there were various ways the environment could be polluted by noise and the responses between the genders were similar.

Research Question 3: What are the perceived health challenges through noise pollution between the gender respondents in the study areas?

Table 4: Descriptive and percentage analysis of the perceived health challenges through noise pollution between the gender respondents in the study areas

N/S	Perceived Health Challenges	Female (n = 150; 50%)		Male (n = 150; 50%)	
		A	D	A	D
a.	Insomnia / Sleep disturbance	105 (35%)	45 (15%)	122 (40.7%)	28 (9.7%)
b.	Loss of hearing, nervousness and lack of concentration	90 (30%)	60 (20%)	105 (35%)	45 (15%)
c.	Hard of hearing	45 (15%)	105 (35%)	30 (10%)	120 (40%)
d.	Loss of memory	20 (6.7%)	130 (43.3%)	15 (5%)	135 (45%)
e.	Hypertension / High Blood Pressure	85 (28.3%)	65 (21.7%)	90 (30%)	60 (20%)
f.	Cardiovascular / Cardiac Problems	25 (8.3%)	125 (41.7%)	12 (4%)	138 (46%)
g.	Frequent headache	105 (35%)	45 (15%)	88 (29.3%)	62 (20.7%)
h.	Psychiatric ailment / disorder	10 (3.3%)	140 (46.7%)	15 (5%)	135 (45%)

Note: A = Agreed; D = Disagreed.

From Table 4 above, 105 (35%) female respondents and 122 (40.7%) male respondents stated that insomnia/ sleep disturbance are the perceived health challenges through noise pollution in the study areas. A total of 90 (30%) female respondents and 105 (35%) male respondents said that loss of hearing, nervousness and lack of concentration were the perceived health challenges through noise pollution in the study areas, in the same vein 85 (28.3%) female respondents and 90 (30%) male respondents agreed that hypertension/high blood pressure was one of the perceived health challenges through noise pollution in the study areas, while 105 (35%) female respondents and 88 (29.3%) male respondents stated frequent headache was the perceived health challenges through noise pollution in the study areas. As regards psychiatric ailment/ disorder, 140 (46.7%) female respondents and 135 (45%) male respondents disagreed to this. The above statement implied that there were health challenges through noise pollution that could be perceived by the respondents but there was no difference between the female and male responses.

Research Question 4: Are the measures that can be put in place to achieve good and healthy environment between the gender respondents?

Table 5: Descriptive and percentage analysis of the measures that can be put in place to achieve good and healthy environment between the gender respondents

S/N	Measures That Can Be Put in Place to Achieve Good and Healthy Environment	Female (n =150; 50%)		Male (n = 150; 50%)	
		A	D	A	D
A	Law enforcement should monitor activities of pollution in and around Lagos	133 (44.3%)	17 (5.7%)	135 (40%)	15 (10%)
B	Worship centres (Religious home) around residential areas should be checked for loud noise and using of megaphone	130 (43.3%)	20 (6.7%)	138 (46%)	12 (6%)
C	Road signs should be stationed in every nook and corner of Lagos State to avoid siren and blowing of horns in vehicles.	142 (47.3%)	8 (2.7%)	125 (41.7%)	25 (8.3%)
D	Construction site should be located far away from residential areas.	135 (45%)	15 (5%)	128 (42.7%)	22 (7.3%)
E	Mechanical workshops should be given space far from residential area for their workshops.	95 (31.7%)	55 (18.3%)	75 (25%)	75 (25%)
F	Federal Government should embark on providing constant electricity the residents	150 (50%)	0 (0%)	150 (50%)	0 (0%)
G	Federal Government should formulate laws against using of generators.	105 (35%)	45 (15%)	130 (43.3%)	20 (6.7%)

Note: A = Agreed; D = Disagreed.

Table 3 above showed that 133 (44.3%) female respondents and 135 (40%) male respondents agreed that law enforcement should monitor activities of pollution in and around Lagos. 130 (43.3%) female respondents and 138 (46%) male respondents agreed that worship centres (religious home) around residential areas should be checked for loud noise and using of megaphone. A total of 142 (47.3%) female respondents and 125 (41.7%) male respondents agreed that road signs should be stationed in every nook and corner of Lagos State to avoid siren and blowing of horns in vehicles. One hundred and fifty (50%) female respondents and 150 (50%) male respondents agreed that Federal Government should embark on providing constant electricity for the residents. As regards “Federal Government should formulate laws against using of generators” 105 (35%) female respondents and 08 (2.7%) male respondents said one of the sources of noise pollution was fire fighter vehicle as regards power generating plants/generators, 150 (50%) female respondents and 130 (43.3%) male respondents agreed to this. The above findings implied that there were various measures that can be put in place to achieve good and healthy environment but of the measure between the genders.

4. Discussion

One of the major findings of the study revealed that there were always heavy and constant noises around. Such heavy and constant noises were from powerful generating plants always working, heavy traffic noise always in this area, religion home e.g. churches' and mosques' Public address systems (PAs) always everyday, construction sites always working, factories and industries always with heavy machines working.

Another major finding was that the environment could be polluted through heavy traffic (traffic noise), religion home (e.g. churches and mosques), factories/industrial activities and power generating plants/generators. This is in line with Awosusi & Akindutire (2014) who stated that the major sources/causes of noise pollution were power generating plant, traffic, religious homes, construction sites and industries.

Further finding of the study was that the perceived health challenges through noise pollution were insomnia/ sleep disturbance, loss of hearing, nervousness and lack of concentration, hypertension/high blood pressure, and frequent headache.

This means that perceived health challenges involved many diseases. This is in favour of the earlier researchers Adimekwe, (2013); Awosusi & Akindutire, (2014), who stated that disturbance of the environment may be hazardous to the health of the people, the finding of Walker and Xanthos, (2018), that pollution in form of noise, heat or light can be accumulated of contaminations in the environment which can have adversely affects the health of human beings and the finding of Goines and Hagler, (2007), who stated that daily level of noise can lead to raised blood pressure and heart rate. The findings of Baba et al., (2013), that environmental pollution can result to disorder on human beings.

Further findings revealed that law enforcement through the government should monitor activities of pollution in the study areas, worship centres (religious home) around residential areas should be checked for loud noise and using of megaphone, such as worship centres (religious home) around residential areas should be checked for loud noise and using of megaphone and construction site located far from residential areas.

Road signs should be stationed in every nook and corner of Lagos State to avoid siren and blowing of horns in vehicles. Construction site should be located far away from residential areas. Mechanical workshops should be given space far from residential area for their workshops. The Federal Government should embark on providing constant electricity the residents formulate laws against using of generators.

5. Conclusion

Based on the findings from this study, the research concluded that the study areas were always with heavy and constant noise around. The research specifically showed that there were various ways the environment could be polluted by noise. There were health challenges through noise pollution that could be perceived. And that there were various measures that can be put in place to achieve good and healthy environment.

5.1 Recommendation

Based on the findings of this study, the following recommendations were drawn;

- Law enforcement should monitor activities of pollution in and around Lagos.
- The record stores owners should be ordered to play their sound system wisely so as not to disturb other people.
- Worship centres (religious home) should not be around residential areas, but should be checked for loud noise and using of megaphone.
- Mechanical workshops should be given space far from residential area for their workshops.
- Construction site should be located far away from residential areas.
- Government and her agencies should put in place laws and measures that will prevent siting of factories and industries in the residential areas to prevent danger associated with it.
- Road signs should be stationed in every nook and corner of Lagos State to avoid siren and blowing of horns in vehicles.
- Government and her agencies should put in place laws that would prevent emission of chemicals and gasses from industries to the residential areas to prevent danger associated with it.
- Federal Government should embark on providing constant electricity to all areas.
- Federal Government should formulate laws against using of generators.

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