

 Research Article

Demographic Drivers of Environmental Pollution Perception in Nigeria: A Quantitative Analysis

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Abstract

This study investigates how demographic and geographical factors influence people's perceptions of pollution in Nigeria, utilising data from Afrobarometer Round 9. It focuses on demographic variables such as age, education level, and gender, alongside geographic factors, including residence in rural versus urban areas and differences among Nigerian regions. The research employs both descriptive and inferential statistical methods, like independent t-tests, analysis of variance (ANOVA), and Pearson's correlation, to uncover patterns and relationships in pollution perception. The analysis reveals significant variations in how pollution is perceived across the different regions in Nigeria ($F(5, 1599) = 26.676; p < 0.01$), with distinct regional disparities but no statistically meaningful differences related to age. Particularly, individuals living in urban areas and those residing in the Northeast and Southeast regions of the country show heightened concern about pollution. Gender also plays a role, with males demonstrating a slightly higher level of awareness regarding pollution, supported by a small but significant positive correlation ($r = 0.058, p < 0.001$). Similarly, education positively correlates with pollution concern ($r = 0.051, p < 0.001$), indicating that higher educational attainment is linked with greater environmental awareness. Among specific environmental concerns, sanitation issues and plastic waste pollution stand out as the most urgent problems, cited by roughly a quarter of respondents. These insights suggest the importance of regional and demographic tailoring of public policies and environmental awareness campaigns. The study underscores the need for strategically designed interventions that cater to community-specific issues and demographics to improve pollution management and foster sustainable environmental practices across Nigeria.

Keywords: Demographic Factors, Environmental Pollution, Nigeria, Public Perception, Regional Disparities

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1. INTRODUCTION

Environmental pollution is a global crisis, with developing nations like Nigeria bearing a disproportionate burden due to rapid urbanisation, industrialisation, and population growth. Nigeria's contribution to global plastic waste (2.7%) (OECD, 2022) highlights the urgency of addressing pollution at both local and national levels. This percentage of Nigeria's contribution makes it a critical phenomenon that demands attention.

Chukwuone et al.'s. (2022) study found that more than two-thirds (67.4%) of households in the coastal city of Lagos engage in illegal waste disposal. It also found that most (75.5%) households were willing to clean up road gutters and drainage channels. While Nigeria contributes significantly to global plastic pollution, accounting for 2.7% of ocean plastic waste, a critical gap exists in understanding how demographic factors influence perceptions of pollution across its diverse population segments, regions, and socioeconomic groups.

The research highlights notable differences in how Nigerians perceive pollution, which is shaped by factors such as gender and age. Findings suggest that men are more likely than women to view pollution as a critical challenge, indicating potential gender-based disparities in environmental awareness. These findings align with Soares et al. (2021), who note that public perception of pollution is shaped by demographic factors such as age, gender, education, and geographical location, which influence awareness, attitudes, and behaviours towards environmental issues. Understanding these dynamics is, therefore, critical for designing equitable and effective pollution management strategies.

Understanding demographic drivers is crucial for crafting effective environmental policies, educational programmes, and public awareness campaigns in Nigeria. To build impactful policies on Nigeria's environment, education, and civic engagement, its people are very important. The nation's surging population creates tangible pressures; forests shrink under demand for land and fuel, cities sprawl rapidly, and the need for food and energy escalates daily. Population Matters (2024) reported that without forward-thinking strategies grounded in how Nigerians live, these trends risk worsening deforestation, pollution, and the irreversible loss of precious wildlife.

This same understanding of communities is vital for education. Where families are growing fastest or migration patterns are shifting, we must adapt. Clever resource placement, relevant curricula, and focused efforts to keep children, particularly girls, in classrooms depend on these insights. It ensures education reaches everyone equitably, reflecting the realities of diverse Nigerian lives. Public campaigns can also miss their mark without demographic insight when the message does not consider its targets, whether young or old, urban or rural, and is not shaped by specific cultural views. Choosing the proper communication channels, therefore, matters and enables the message to resonate effectively. Getting this right transforms awareness into real action, whether rallying communities to protect local ecosystems or participating in civic life.

In education, demographic insights inform resource allocation, curriculum development, and strategies to boost school enrolment and retention, especially in regions experiencing high birth rates or significant migration. This ensures that educational initiatives are inclusive, equitable, and responsive to the realities faced by diverse communities. For public awareness campaigns, understanding demographic factors such as age distribution, urbanisation, and cultural attitudes enables the design of targeted messages and the selection of appropriate media channels to reach and mobilise different segments of the population effectively. Such tailored communication increases the likelihood of positive behavioural change and greater public participation in initiatives ranging from environmental conservation to civic engagement.

Rapid population growth intensifies pressures on natural resources, drives urban expansion, and increases demand for energy and food, all of which can accelerate environmental degradation if not managed strategically. Recognising these demographic drivers, therefore, enables policymakers to anticipate and address challenges such as deforestation, pollution, and biodiversity loss by tailoring interventions that reflect the actual needs and behaviours of the population.

Again, Del-Pino-Casado et al. (2014) opined that Nigeria's large size and diverse demographics provide a unique case study for analysing how individuals perceive and respond to environmental challenges influenced by these factors. To create effective policies, raise public awareness, and manage the environment sustainably, it is crucial to understand how demographic factors influence people's perceptions of pollution.

Previous research has explored the relationship between demographic factors and environmental attitudes (Hadler et al., 2022; Steg et al., 2012). However, a comprehensive examination of how these factors influence pollution perception within the Nigerian context is lacking. This study, therefore, examines how demographic and geographical factors shape pollution perception in Nigeria, a country characterised by diverse socioeconomic and ecological contexts. By subjecting the data collected from Afrobarometer Round 9 (2022), the study provides insights into regional and demographic variations in pollution perception, offering a foundation for targeted interventions.

1.1. Conceptual Clarification

The United Nations Environment Programme (UNEP) defines pollution as an indirect or direct alteration of the biological, thermal, physical, or radioactive properties of any medium in such a way as to create a hazard or potential hazard to human health or the health, safety, or welfare of any living species (Cialone et al., 2012). Pollution involves the introduction of substances harmful to humans and other living organisms into the environment. Hazardous solids, liquids, or gases created at more than normal levels and degrade the quality of our surroundings are known as pollutants. Human activity damages the ecosystem by contaminating the soil where plants grow, the water we drink, and the air we breathe.

1.1.1. Plastic Pollution

Plastic pollution, on the other hand, refers to the adverse effects and emissions caused by the production and use of plastic materials and products over the course of their life cycle. In addition to poorly managed plastic waste (such as open burning and dumping in unregulated dumpsites), this term encompasses the buildup and leaking of plastic particles and things that can harm people and the living and non-living environment. Every year, more than 8 million tonnes of plastic trash find their way into the world's oceans. Approximately 8.9% of the plastic waste in the world comes from countries in Sub-Saharan Africa. Egypt and Nigeria are the top contributors, with East Asia and the Pacific areas accounting for 3% and 2.7% of the total, respectively (Jambeck et al., 2015; Li et al., 2016; Wang et al., 2018).

1.1.2. Perception of Pollution

Perception of pollution is how individuals or groups understand and interpret the pollution issue. Various factors, including personal experiences, knowledge, and values, can influence such perception. In this study, it is important to highlight the importance of correlation. A positive correlation will indicate that the two variables tend to move in the same direction. In contrast, a negative correlation indicates that the two variables move in opposite directions.

In Portugal, Soares et al. (2021) studied the perceptions of plastic pollution and sociodemographic and psychological factors as predictors of individuals' pro-environmental behaviours. The knowledge that plastics degrade in the environment. The study participants perceived the bio-ecological impacts of plastics as a more significant threat than socioeconomic ones. The study's analysis showed that factors like a person's background (e.g., age, income, or education), combined with their awareness of plastic pollution's harms and how seriously they viewed its consequences, could help explain why individuals adopt eco-friendly habits.

In other words, what people know about plastic waste and how it affects their lives shapes their willingness to recycle, reduce plastic use, or support environmental policies. Awareness about the impacts of plastic pollution (socioeconomic, health impacts, and bio-ecological impacts) was highly associated with pro-environmental behaviour (Soares et al. 2021).

1.1.3. Demographic Factors

Demographic factors are population characteristics that can be used to describe its composition. Some common demographic factors include age, gender, education level, income level (Karak et al., 2012; Kolekar et al., 2016), urban or rural residence (Heidbreder et al., 2019; Zhiyong et al., 2018), region of residence (Milfont & Markowitz, 2016), occupation, marital status, and household size. Demographic factors are an important tool for understanding and describing populations. Bukasa et al. (2020) studied factors influencing plastic waste pollution reduction in Kinshasa. They reported that all factors (environmental factors, Government policy, and economic factors) significantly positively impact plastic waste pollution reduction. Kombiok et al.'s (2021) study revealed that two-thirds (63.3%) agreed to dispose of their plastic waste poorly. Education level and household wealth were significant determinants of poor plastic disposal.

Another factor is age: younger people consistently rated pollution as a top issue, whereas older participants seemed less concerned, indicating that priorities or experiences vary between generations. These trends highlight the ways in which individual backgrounds, ranging from gender to stage of life, affect public receptions of environmental issues and provide useful guidance for developing inclusive policies that appeal to Nigeria's various populations. The findings are intended to guide resource allocation and community involvement efforts where they are most urgently needed by identifying which groups perceive environmental dangers more acutely (or underestimate them).

2. THEORETICAL FRAMEWORK

In order to investigate how demographic factors influence environmental pollution perceptions in Nigeria, the study combines the Theory of Planned Behaviour (TPB) (Ajzen, 1991) with the Value-Belief-Norm (VBN) theory (Stern et al., 1999). These theories provide complementary understandings of the normative, valuative, and cognitive processes by which people develop attitudes and intentions toward environmental challenges.

According to TPB, intentions and behaviours are influenced by three fundamental elements: Attitudes (individual assessments of environmental activities), subjective norms (social pressures to act in a pro-environmental manner), and perceived behavioural control (self-efficacy in carrying out acts). Demographic factors like age, income, and education may influence these elements in Nigeria:

- *Age*: Younger people may have greater pro-environmental sentiments since they have been exposed to climate education and internet activism more frequently (Lee et al., 2020).
- Higher literacy levels are associated with a better understanding of the effects of pollution, which improves perceived behavioural control (e.g., adopting waste management methods).
- *Income*: Even among people with good attitudes, perceived control (such as the affordability of renewable energy) may be limited by financial restrictions.

Ajzen (1991), however, observed that, in contrast to metropolitan settings where collective environmental action is more normative, rural people may prioritise immediate subsistence requirements over pollution concerns due to subjective norms affected by traditional traditions.

The Theory of Value-Belief-Norm (VBN) highlights how values (biospheric, altruistic, and egoistic) and moral norms influence environmental behaviour. VBN theory enhances TPB. It asserts that people who appreciate nature and have biospheric values are more likely to perceive human-caused environmental concerns and to activate personal standards to lessen harm.

This pathway is mediated by demographic factors:

- *Education*: By promoting environmental literacy, higher education increases perceptions of pollution danger and cultivates biospheric values
- *Religion/Culture*: In Nigeria, religious doctrines or cultural beliefs (such as indigenous societies' peace with the environment) may reinforce altruistic values and thereby influence how people perceive pollution.
- *Gender*: Because they are frequently the primary caretakers, women may place a higher priority on the health effects of pollution (altruistic values), which heightens their sensitivity to environmental cues (Xiao & McCright, 2015).

A combination of these two theories offers a multifaceted perspective. According to TPB, the ability (control) and incentive (attitudes/norms) to manage pollution are influenced by demographic characteristics. VBN, on the other hand, clarifies how moral and ethical drivers (values/beliefs) that underlie perceptions are shaped by demographics. For example, despite comparable subjective norms, educated urban youth may view pollution as crucial (biospheric values & strong perceived control), while rural elders may place a higher priority on economic survival (egoistic values + low control).

Diverse perceptions of pollution are produced by demographic factors moderating the TPB and VBN pathways. Quantitative testing of these relationships will provide information about specific policy

approaches, including adjusting climate messaging to age-specific sentiments or using religious norms to promote environmental causes.

3. METHODS

The research design, which is similar to the one used by Gilmour et al. (2014), was a cross-sectional survey using the Afrobarometer Round 9 data collected in 2022. Afrobarometer is a Pan-African research network that collects data on various social, political, economic, and environmental issues that affect the people on the continent (www.afrobarometer.org). The Afrobarometer data is a representative cross-national survey conducted since 1999, using a multi-stage, stratified, random probability sampling technique to sample the respective populations. Afrobarometer relies predominantly on personal interviews to obtain information from individual respondents. A standard questionnaire, which contains identical or functionally equivalent items, is applied to every respondent in each country. It is a nonpartisan survey research network that provides reliable data on African experiences and evaluations of democracy, governance, and quality of life (Afrobarometer, 2022).

3.1. Data Source and Sampling

Afrobarometer used a five-stage sampling procedure to select respondents for the survey. In the first stage, it randomly selected secondary sampling units (SSUs) and subsequently selected all the primary sampling units. In the second stage, it randomly selected two primary sampling units (PSUs) from within each selected SSU. In the third stage, it randomly selected sampling start-points (SSPs) within the selected PSUs. In the fourth stage, it randomly selected eight households within each selected PSU. And in the fifth and final stage, it randomly selected an individual respondent from within each selected household.

The study, therefore, utilised data from the Afrobarometer Round 9 collected in 2022 using the sample obtained through this procedure. A multi-stage stratified random probability sampling technique was, however, used to draw a sample of 1,600 respondents aged 15 and above, stratified by subnational units (State, and Region) and geographical location (urban and rural) in Nigeria. The stratification was first on subnational units of government (state, province, region), then by location (urban and rural).

3.2. Research Instrument and Administration

The dependent variable of the study was respondents' perception of pollution as an environmental issue. This was measured by determining respondents' views on whether pollution is a problem in the community and if plastic bags are a significant source of pollution. They were also asked if they considered the reduction of pollution as their own responsibility or that of the government, as well as the role of the government in the control of pollution.

The research instrument was a 12-item interview schedule (S/No. 66-73) extracted from the main 120-item (S/No.1-120) instrument covering different variables for measuring the quality of democracy and governance in Nigeria, developed by a team of experts assigned by the Management of Afrobarometer and called "Quality of. The extracted 12 items sought respondents' (Nigerians) opinions about weather conditions, and issues related to climate change, natural resource extraction, causal factors of pollution, use of plastic bags, and protection of the environment in the country. This is apart from the demographic characteristics of the respondents to be collected.

The research instrument's construct validity was assessed with confirmatory factor analysis. Pilot testing was conducted, and a reliability analysis and confirmatory factor analysis assessed the construct validity using Cronbach's alpha, which revealed a 0.76 value.

Each Country Team was charged by Afrobarometer with data collection and was expected to spend about 3 weeks (18.75 days) to complete a standard survey that covers 150 Enumeration Areas (EAs) and 1200 cases in the country. Every Field Worker determined whether an EA is urban or rural and gave each EA a name. The data collection team included trained Field Supervisors, Field Workers, and Translators

recruited by National Partners of Afrobarometer. They were all University graduates, and 40% of them were women.

The Field Workers used a GPS locator and tablets to capture the coordinates of the Enumeration Areas, and households were randomly selected. In cases where respondents in the selected households were not at home, callbacks were initiated to meet such respondents at a later time.

Field Workers were expected to introduce themselves and secure respondents' consent using the Afrobarometer standards of research and ethics form. Afrobarometer recognises that legal, political, and traditional protocols need to be observed. Hence, National Investigators obtained clearance on behalf of their field staff in the form of authorisation or a letter of introduction from national authority, National Partners, traditional leaders, or local government authorities.

3.3. Data Analysis

The Afrobarometer Round 9 data collected through a cross-sectional survey ensured that the data is statistically sound and representative of the national population, in order to enhance the generalisability and reliability of the findings. The researcher, therefore, felt safe and confident to utilise data from the Afrobarometer Round 9 survey, conducted in Nigeria in 2022. The survey employed a multi-stage, stratified random probability sampling technique to ensure representativeness. The sample comprised 1,600 respondents aged 15 and above, stratified by subnational units of government and location (urban/rural).

The possibility of invalid responses in the data collection process was remote or rare, as the Field Workers and their Field Supervisors ensured physical contact for the collection of necessary information from the respondents. The callback provision was strictly adhered to. Descriptive and inferential statistics, including independent t-test, Analysis of Variance, and Pearson Product-Moment Correlation Coefficient Analysis, were employed to analyse the collected data. Section 4 of this paper presents the robust results of the findings after analysing the extracted data.

4. RESULTS

4.1. Demographic Correlations and Regional Variations

The demographic characteristics of the subjects used in the study are presented in Table 1.

Table 1. Distribution of Study Participants by Sex and Academic Level

	Frequency	Percent
Gender		
Male	830	51.9
Female	770	48.1
Total	1600	100.0
Age		
18-30yrs	744	46.5
31-40yrs	413	25.8
41-50yrs	221	13.8
51-60yrs	152	9.5
61-100yrs	70	4.4
Total	1600	100.0
Education		
No formal Education	314	19.6
Primary Education	222	13.9
Secondary	693	43.3
Post-secondary	266	16.6
University degree	105	6.5
Do not know	1	.1
Total	1600	100.0
Location		
Urban	685	42.8
Rural	915	57.2

	Frequency	Percent
Total	1600	100.0
Geo-Political Zone		
South-South	247	15.5
Northeast	203	12.7
Northwest	389	24.3
Northcentral	229	14.3
Southeast	188	11.7
Southwest	345	21.5
Total	1600	100.0

Eight hundred and thirty (830) (51.9%) of the respondents were male, and seven hundred and seventy (770) (48.1%) were female. Forty-six per cent were within the age group of 18-30 years, 25.8% were in the 31-40yrs. The age distribution shows a relatively young/youthful sample. Regarding educational background, 43.3% have a secondary education, approximately 14% have a primary education, and only 6.5% have a university education. Most respondents (57.2%) were from rural areas, and 42.8% were from urban areas. A positive correlation was found between gender and education in terms of environmental pollution perception.

The analysis in Table 2 shows that sanitation/human waste management (26.1%) and trash disposal, including plastic (26.6%), are the two most important environmental issues in the community; others are air pollution (10.4%) and pollution of water sources (14.9%). Approximately 53% perceived pollution as a serious problem. About one-third (33.1%) of the population stated that it is not a serious problem, while 11.6% considered it not serious.

Table 2. Frequency and Percentage of the Most Important Environmental Issues in the Community

Most important environmental issue in the community	Frequency	Percent
None of these / there are no problems	189	11.8
Air pollution	166	10.4
Pollution of water sources	239	14.9
Sanitation or human waste management	417	26.1
Trash disposal, including plastics	425	26.6
Deforestation	97	6.1
Some other issue	47	2.9
Do not know	20	1.3
Total	1600	100.0
Pollution is a problem in the community		
Very serious	353	22.1
Somewhat serious	495	30.9
Not very serious	529	33.1
Not at all serious	185	11.6
Refused	0	.0
Do not know	37	2.3
Total	1600	100.0
Plastic bags major source of pollution		
Strongly disagree	79	4.9
Disagree	283	17.7
Neither agree nor disagree	102	6.4
Agree	669	41.8
Strongly agree	342	21.4
Refused	1	.1
Do not know	125	7.8
Total	1600	100.0

According to Table 3, ordinary citizens and the national government are seen as having the primary responsibility for playing a key role in reducing pollution; however, the national government needs to do more to mitigate the problem. Regarding responsibility and government actions, 32.1% of respondents believed that ordinary citizens are primarily responsible for reducing pollution, followed by the national

government (31.2%) and local governments (25.7%). Sixty-two point three per cent of respondents thought the government should do more or much more to limit pollution.

Table 3. Frequency and Percentage of Primary Responsibility for Reducing Pollution

Primary responsibility for reducing pollution	Frequency	Percent
None of these / No one	3	.2
Ordinary citizens	514	32.1
Business and industry	60	3.8
The national government	500	31.2
Local government	411	25.7
Traditional leaders	87	5.5
Someone else	7	.4
Do not know	18	1.1
Total	1600	100.0
The government does more or less to limit pollution		
Much less	92	5.8
Somewhat less	80	5.0
About the same	390	24.4
Somewhat more	234	14.6
Much more	763	47.7
Refused	2	.1
Do not know	39	2.4
Total	1600	100.0

Table 4 presents the findings of the difference tests on pollution between males and females, on the one hand, and between urban and rural areas, on the other. Results in Table 4 indicate that participants do not differ in their perception of pollution based on sex and location. The results suggest that male and female participants share a similar perception of pollution, and residents of urban areas hold comparable perceptions of pollution.

Table 4. Independent T-Test by Sex and Location

Gender	N	Mean	Std. D	t	Sig.
Male	830	16.017	3.5962	-2.327	.020
Female	770	16.462	4.0456		
Location	N				
Urban	685	16.2548	3.6790	.208	.835
Rural	915	16.2145	3.9317		

4.2. Perception by Age, Educational Background, and Region

The one-way analysis of variance results in Table 5 showed that the mean scores of the six geopolitical regions of Nigeria differed significantly from one another, $F(5,1599) = 26.676; p < .01$. On age, $F(4,1599) = 1.925; p > .104$, among education groups, $F(5,1599) = 2.510; p > .028$) no significant difference existed.

Table 5. Analysis of Variance of Perception by Age, Educational Background, and Region

Age	Mean	N	Std. D	
18-30yrs	16.1624	744	3.9498	$F_{(4,1599)} = 1.925; p > .104$
31-40yrs	16.1376	413	3.8610	
41-50yrs	16.0122	221	3.1530	
51-60yrs	16.7309	152	3.8220	
61-100yrs	17.1289	70	4.0759	
Total	16.2318	1600	3.8244	
Education				
No formal Education	15.6187	314	4.3224	$F_{(5,1599)} = 2.510; p > .028$
Primary Education	16.5070	222	4.0338	
Secondary	16.3423	693	3.8200	
Post-secondary	16.5270	266	3.2576	
University degree	15.9721	106	2.8867	

Age	Mean	N	Std. D	
Total	16.2318	1600	3.8248	
Region				$F_{(5,1599)} = 26.676; p < .01$
South South	15.3962	247	3.8140	
Northeast	17.4466	203	4.7361	
Northwest	14.8527	389	2.9566	
North Central	17.2674	229	3.6775	
Southeast	17.5957	188	4.3204	
Southwest	16.2403	345	3.1979	
Total	16.2318	1600	3.8244	

4.3. Relationship between Selected Demographic Variables and Public Perception of Pollution

The bivariate analysis to determine the relationship between selected demographic variables and public perception of pollution is shown in Table 6.

Table 6. Bivariate Matrix of Relationships between Demographic Factors and Perception of Pollution

	1	2	3	4	5	6
1. Gender	1					
2. Age	-.152**	1				
3. Education	-.167**	-.007	1			
4. Urban or Rural	-.010	-.012	-.300**	1		
5. Region	.006	.053*	.159**	-.295**	1	
6. Pollution	.058*	.048	.051*	-.005	.088**	1

** Correlation is significant at the 0.01 level, * Correlation is significant at the 0.05 level (2-tailed)

The results in Table 6 revealed correlations among the variables of gender, age, education, and perception of pollution location. For instance, a positive correlation was found between gender and pollution perception ($r = 0.058, p < 0.001$), with men being more likely to view pollution as a serious problem. Younger people were more likely to perceive pollution as a serious issue. Higher education levels were correlated positively with viewing pollution as a serious problem ($r = 0.051, p < 0.001$). Urban residents were likelier than rural residents to perceive pollution as a serious issue. People in Nigeria's Northeast and Southeast regions were more likely to view pollution as a serious problem than those in other regions ($r = 0.088, p < 0.001$).

Sanitation/human waste management (26.1%) and trash disposal, including plastics (26.6%), were identified as the two most important environmental issues in communities. Approximately 53% of respondents perceived pollution as a serious problem. 63.2% agreed or strongly agreed that plastic bags are a significant source of pollution.

5. DISCUSSION

The research highlighted how Nigerians' views on pollution vary depending on age and gender. Men tended to rate pollution as a more urgent threat than women, indicating that gender influences how people perceive environmental risks. Younger generations, meanwhile, were far more vocal about prioritising pollution as a critical challenge compared to older adults, a gap that may reflect evolving attitudes toward environmental issues over time. This finding matches global and regional patterns. For example, a UNICEF report (2024) on African youth environmental activism showed that those aged 15-24 consistently showed greater concern and demanded more action than those over 50. The UNICEF report also found that in urban Kenya, there was a link between the youth's greater concern and increased exposure to environmental education and news.

The finding supports a generational shift observed across developing regions, likely due to increased access to information and youth engagement in sustainability. This finding highlights how personal background, ranging from gender to life experiences tied to age, can shape the focus of communities as Nigeria grapples with pollution.

Furthermore, the findings in this study suggest that in Nigeria, environmental concern among men is tied to traditional roles in public life or economic worries, unlike in places where women's daily burdens make them more aware of immediate environmental health threats. When compared with similar studies, findings from a study conducted in Ghana by Adu-Gyamfi et al. (2023) revealed that women were more concerned about water pollution due to their domestic responsibilities and concerns about the health of their children.

Pollution and education were found to be significantly positively correlated. According to this correlation, individuals with higher levels of education are more likely to believe that pollution is a significant issue than those with lower levels of education. This highlights the fundamental role of education in shaping environmental consciousness across diverse developing contexts.

The survey revealed a strong correlation between individuals' opinions on pollution and their place of residence. There is a pronounced geographic divide as urban dwellers are much more likely than their rural counterparts to view pollution as a serious problem. Within Nigeria, this trend also varied by region, with residents in the Northeast and Southeast exhibiting significantly higher levels of concern about pollution compared to those in other areas. These findings highlight the significant impact of local settings on the public's understanding of ecological concerns.

The Nigerian regional variation (NE/SE greater concern), nevertheless, contrasts with Hussain's (2023) findings, which found pollution concern to be highest in the heavily industrialised Punjab region. This highlights that specific local environmental pressures (e.g., oil pollution in the Niger Delta, SE Nigeria, and desertification impacts in the NE, as well as industrial zones elsewhere) are crucial drivers of regional perception differences, overriding simple urban-rural binaries.

These views are further influenced by personal traits. Several variables are involved, including gender, age, and educational attainment. For instance, compared to older adults with less formal education, younger, better-educated respondents expressed greater concerns about environmental degradation. These differences show how personal histories and experiences shape perceptions of ecological hazards.

According to the data, the majority of communities' top environmental concerns were trash disposal, especially plastics, and sanitation or human waste management (26.1% and 26.6%, respectively), with plastic bags ranking as the primary pollutant (62.2%). According to the findings, the government and its relevant agencies need to take significant action to address these problems, starting with the development of policies and concluding with the implementation of intervention plans.

UNEP's 2025 Global Waste Review highlighted plastics as the fastest-growing and most visually pervasive pollutant concern in developing cities. A quantitative study conducted by UNEP (2025) in Indonesia's major cities found plastic bag pollution ranked as the No.1 environmental concern (58% of respondents). However, the exceptionally high ranking of sanitation (26.6%) in Nigeria appears more pronounced than in similar studies. In contrast, a survey in comparable low-income urban areas of Bangladesh, conducted by Michiko and Qazi (2024), recorded sanitation as a top-3 concern but cited it by only 18.3% as the primary issue. This underscores the acute and visible nature of Nigeria's sanitation challenges, which drive public perception.

Lastly, the results indicate that practitioners need to create culturally aware methods for environmental management and pollution reduction. Practitioners must, for instance, understand the varying environmental values and beliefs held by members of various demographic groups and create strategies that take these values and beliefs into consideration.

6. THEORETICAL AND PRACTICAL IMPLICATIONS

The findings of this study generally agree with known patterns that link environmental concerns to education and urban living in developing countries. However, they also reveal specific differences, such as the unexpected gender pattern and the exceptionally high importance given to sanitation. The clear generational gap and focus on plastic pollution align with broader global trends. Notably, the regional differences within Nigeria and the contrast in gender findings with neighbouring Ghana demonstrate that practical environmental actions must be based on a local, culturally sensitive understanding of how

demographics, geography, and specific environmental problems collectively shape people's perceptions of their environment. This calls for localised research and policy development that involves communities.

The implication of this is that concerted effort is required to customise environmental education and awareness about demographic characteristics. This could be achieved through the development of age-appropriate environmental modules that take cognisance of perceptual differences, as well as the design of communication strategies and interventions targeted at promoting demographic sensitivity and its relationship to environmental quality.

7. CONCLUSION AND RECOMMENDATIONS

This study is significant because it can shed light on the perceptions and experiences of various populations regarding pollution. The pollution problem in Nigeria can then be addressed with more effective policies and programs created using this knowledge. Based on the results, it was determined that people's perceptions of pollution in Nigeria are correlated with demographic and regional characteristics. The article also discussed the implications of the findings for better pollution management.

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

1. Effective policies are needed that address the specific needs and concerns of different demographic groups regarding pollution control and environmental management. Such policies will help reduce disparities and inequalities in the impacts of pollution on different communities, enhancing their participation and cooperation in environmental protection.
2. Governments at the national, subnational, and local levels will need to develop pollution control measures that consider the demographic characteristics of different communities to promote more environmentally enlightened citizens.
3. A uniform approach could alienate groups facing unique challenges, such as those who rely on tech-based solutions (e.g., air quality apps), which might overlook rural populations struggling with unsafe drinking water. Instead, interventions should prioritise context-specific strategies, such as addressing water contamination in villages or promoting waste management literacy in cities. The success of pollution control measures depends on matching policies with the lived experiences of each community, ensuring that solutions are both practical and culturally relevant.
4. The integration of environmental literacy components as curriculum inserts into school curricula and community programmes can significantly assist in bridging the generational gaps noticed in the perceptions of different age groups and ultimately foster long-term behavioural change.
5. Creation and dissemination of targeted public awareness campaigns that educate and inform different demographic groups about the causes, consequences, and solutions to pollution in Nigeria. The campaigns will help raise people's awareness and knowledge of environmental issues, motivating them to prevent and reduce pollution. These measures need to be complemented by creating tailored campaigns for specific demographic groups to raise awareness of pollution issues and their dangers.
6. Significant sources of pollution, including sanitation, human waste management, trash disposal, and plastic bag use, should be recognised as top environmental concerns that affect most communities in Nigeria and require conscious attention through participatory management. This approach will help improve environmental quality and public health while reducing the costs and risks associated with pollution.
7. Culturally sensitive pollution control and environmental management strategies that respect and incorporate the local values and beliefs of different demographic groups must be adopted. This helps build trust and rapport with communities, fostering a sense of environmental stewardship and responsibility.
8. Messages regarding the dangers of pollution need to be tailored to the experiences of various groups because public education initiatives require accuracy. Urban campaigns may utilise social media and community workshops to address issues such as waste management or industrial pollution, while rural initiatives could focus on agricultural runoff or unsafe drinking water through radio broadcasts or

partnerships with local leaders. By meeting people where they are, both geographically and culturally, governments can inspire increased engagement and action.

8. THEORETICAL AND PRACTICAL IMPLICATIONS

This research largely corroborates established connections between heightened environmental awareness, educational attainment, and urban residency within developing nations. Yet, it also uncovers distinct nuances, including a counterintuitive gender distribution and the paramount significance placed on sanitation issues. The pronounced generational disparity and emphasis on plastic contamination mirror broader international movements. Crucially, the intra-national variations across Nigeria and the divergent gender results compared to neighbouring Ghana underscore that impactful environmental initiatives demand locally grounded, culturally attuned strategies. Such strategies must account for how demographic profiles, geographic contexts, and specific ecological challenges collectively influence public perception. This necessitates community-involved, localised research and policy formulation.

Consequently, targeted initiatives are essential to tailor environmental education and outreach according to specific population segment attributes. Implementing this involves crafting age-specific environmental learning units that acknowledge differing perspectives, alongside designing communication campaigns and interventions focused on fostering demographic awareness and its critical link to environmental health.

9. LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

However, this study has certain limitations. The survey's cross-sectional design, which illustrates the research's inability to demonstrate causal links between the variables under investigation, is one of these drawbacks. While a cross-sectional design can restrict causal inferences, the inclusion of self-reported data may suggest some bias. To gain a better understanding of the dynamics of pollution perception, it is recommended that more research be conducted to examine longitudinal patterns and behavioural treatments. Such research should also explore the underlying mechanisms that drive environmental attitudes and behaviours.

The suggested further research will aid in determining the direction and causative mechanisms of the impacts of demographic factors on Nigerian public perceptions of pollution. Understanding why various groups of individuals hold differing opinions on pollution and how to persuade them to change their beliefs and actions will be much easier with the help of follow-up.

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Research Ethics. This study received the ethical approval of the University's Ethical Approval Committee after presenting the research proposal and the Afrobarometer data Round 9 for the Committee's appraisal. All the necessary procedures were conducted within two months in accordance with applicable institutional regulations, with approval from the University's Ethical Approval Committee. A final approval was issued with Ref. No. LASUED-05-11-27.

Data Availability Statement. The fact that the data used for this study was obtained from the Afrobarometer Data Set Round 9 of the year 2022 makes it readily available for any interested researcher for further research.

Conflicts of Interest. There was no conflict of interest throughout the course of using the data.

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