

Environmental Challenges Encountered by Hostel Students in Rivers State University, Port Harcourt

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Abstract: *This study examined environmental challenges encountered by students residing in the hostels of Rivers State University, Port Harcourt, with a specific focus on sanitation, overcrowding, and viable improvement strategies. A cross-sectional survey design was employed, and data were collected using a validated questionnaire from a stratified random sample of 341 students drawn from a population of 4,700 hostel residents. Results indicated that students face severe sanitation deficiencies, including inadequate toilet facilities, erratic water supply, and inefficient waste disposal, all of which are exacerbated by acute overcrowding. A significant gender disparity was observed, with female students consistently reporting higher levels of dissatisfaction across all challenges. The most supported mitigation strategies included the strict enforcement of official occupancy limits, the development of new hostels through Public-Private Partnerships (PPPs), and the provision of adequate and secure laundry facilities. The study concludes that the hostel environment at RSU is critically substandard and adversely affects student welfare. It is recommended that the university administration adopt a multi-faceted approach, prioritizing infrastructural investment, stringent policy enforcement, and inclusive governance to create a conducive living and learning environment.*

Keywords: hostile environment, sanitation challenges, overcrowding, student welfare, Rivers State University

INTRODUCTION

The tertiary education landscape in Nigeria is perpetually challenged by the disconnect between rapidly expanding student enrollment and the corresponding development of physical

infrastructure. Within this context, the quality of the student residential experience remains a critical, yet often neglected, determinant of academic success and overall well-being. University hostels are designed to be more than mere shelters; they are intended as conducive environments that support learning, foster community, and contribute to the holistic development of students. However, in many Nigerian universities, the reality of hostel life starkly contrasts with this ideal, becoming a source of significant stress that can impede both personal welfare and scholarly achievement (Onyeike & Onyeagbushiri, 2021).

The situation at Rivers State University (RSU), Port Harcourt, a key institution in the Niger Delta region, exemplifies this national predicament. The university has experienced substantial growth in its student population, a trend common across Nigeria's tertiary education sector as demand for university education continues to surge. Unfortunately, this demographic expansion has not been met with a commensurate increase in residential accommodation, leading to intense pressure on existing hostel facilities. This pressure manifests primarily in two interconnected forms: severe overcrowding and a consequent breakdown of sanitation systems. These issues are not isolated but are symptomatic of broader systemic challenges, including inadequate funding, poor maintenance culture, and infrastructural decay plaguing public universities in Nigeria (Adebayo & Joseph, 2022).

Overcrowding in hostels presents a multifaceted challenge. When hostel rooms designed for a limited number of occupants are forced to accommodate far beyond their capacity, the immediate consequences are a loss of personal space, a lack of privacy, and increased noise levels. Scholars have linked such conditions to heightened psychological stress, sleep deprivation, and interpersonal conflicts among students (Amole, 2021). More critically for the academic mission of the university, this chaotic environment becomes profoundly unconducive to learning. Students are deprived of the quiet, private space necessary for reading, reflection, and completing assignments, thereby potentially undermining their academic performance and increasing attrition rates. The sanitation challenges emerging from this overcrowding are equally dire. Essential amenities such as bathrooms, toilets, water taps, and waste disposal systems are subjected to usage loads far exceeding their designed capacity. This leads to frequent blockages, constant wear and tear, and chronic water shortages. The result is the proliferation of unsanitary conditions, including overflowing sewage, stagnant water, and accumulating solid waste. Such an environment poses a significant public health risk, creating fertile ground for the outbreak and spread of communicable diseases such as cholera, typhoid, and various skin and respiratory infections (Weli & Akani, 2023). The findings of a study by Egbufor and Nwachukwu (2022) in a similar institutional setting confirmed that poor hostel sanitation is a major source of student dissatisfaction and a contributor to health-related absenteeism from lectures.

While these challenges are often discussed anecdotally among the student body and within university administration, there is a pressing need for a structured, empirical investigation to

document their specific nature and prevalence within the hostels of Rivers State University. A systematic study is required to move beyond general observations and provide data that can inform targeted interventions. Therefore, this research is designed to critically examine the sanitation and overcrowding challenges encountered by students residing in the hostels of Rivers State University, Port Harcourt. Furthermore, it seeks to identify feasible strategies to mitigate these environmental problems, drawing insights from the lived experiences of the students themselves. The outcomes of this study are expected to provide a valuable evidence base for university management, hostel administrators, and policymakers, guiding efforts to create healthier, safer, and more supportive living and learning environments for students.

Sanitation challenges encountered by students' resident in hostels

Sanitation and hygiene are foundational elements of healthy living environments, particularly in institutional settings such as university hostels. Proper sanitation refers to facilities and services for the safe disposal of human urine and feces, while hygiene encompasses conditions and practices that help maintain health and prevent the spread of diseases (WHO, 2020). In the context of student hostels, these concepts extend to the cleanliness of toilets, bathrooms, kitchens, waste disposal systems, and water supply facilities. Despite their importance, sanitation and hygiene conditions in many university hostels—especially in developing countries like Nigeria—remain substandard and pose significant health and wellbeing risks to students. Studies have consistently reported poor sanitation conditions in university hostels, particularly in public institutions with high student populations. According to Ezeonu and Uzoigwe (2020), hostels in many Nigerian universities are plagued by broken toilets, inadequate water supply, poor waste management, and general neglect of cleaning routines. These challenges are often exacerbated by overcrowding, limited maintenance budgets, and a lack of student awareness or training on proper hygiene practices. The consequences include the frequent outbreak of preventable diseases such as diarrhea, typhoid, skin infections, and respiratory issues among resident students.

Overcrowding challenges encountered by students' resident in hostels

Overcrowding in university hostels has emerged as a significant concern in higher education institutions, particularly in Nigeria and other developing nations. It is characterized by a mismatch between the number of students accommodated and the capacity or infrastructure of the hostel facilities (Okolie & Eze, 2019). The issue often results from increasing student enrolment without a commensurate expansion of hostel infrastructure, leading to congestion, poor living conditions, and compromised academic and psychological wellbeing. Overcrowding often results in multiple students sharing rooms designed for fewer occupants, with limited space for personal belongings, study activities, and recreation. According to Akinbobola and Oladele (2020), some university hostels house 6 to 8 students in rooms originally built for 2 to 4 persons, forcing students to share beds, wardrobes, and limited ventilation. The authors argue that such conditions increase discomfort, reduce privacy, and limit opportunities for individual study, thereby negatively affecting students' academic productivity.

Theoretical Framework

Urie Bronfenbrenner's Ecological Systems Theory (1979) was adopted for this study. It views human development as influenced by different levels of environmental systems, including the microsystem (immediate surroundings), mesosystem (interactions between systems), exosystem (indirect environments), and macrosystem (cultural and societal influences). Each system interacts with the individual and contributes to their development and behaviour. This theory provides a comprehensive framework for understanding how various aspects of the hostel environment – such as the physical setting, social relationships, institutional policies, and cultural expectations – interact to affect students' experiences. For example, poor hostel infrastructure (microsystem), university administration policies (exosystem), and societal attitudes toward student welfare (macrosystem) all contribute to the challenges faced by resident students. This theory supports a holistic approach to assessing and addressing these challenges.

Purpose of the Study

The main purpose of this study was to examine environmental challenges encountered by hostel students in Rivers State University, Port Harcourt. The specific objectives are as follows:

1. To examine sanitation challenges encountered by hostel students in Rivers State University, Port Harcourt;
2. To investigate overcrowding challenges encountered by students resident in hostels in Rivers State University, Port Harcourt, and
3. Find out strategies to address the environmental challenges faced by students resident in hostels in Rivers State University, Port Harcourt.

METHODOLOGY

Design of the Study: The study adopted the survey design to explore challenges encountered by students resident in hostels in Rivers State University, Port Harcourt.

Area of the Study: This study was conducted at Rivers State University (RSU), Port Harcourt, Nigeria. Founded in 1972 and gaining university status in 1980, RSU is a significant institution with a student population exceeding 28,000. RSU was selected as the study area because its substantial on-campus hostel population presents a clear microcosm of the infrastructural and environmental challenges common in Nigerian universities. The university's scale and diversity provide a comprehensive context for investigating the challenges faced by hostel residents. Insights from this study are expected to inform interventions aimed at improving student welfare and academic performance at RSU and similar institutions.

Population for the Study: The study population consisted of 4,700 students residing in the hostels of Rivers State University, Port Harcourt.

Sampling and Sampling Technique: A sample of 354 hostel residents was selected from Rivers State University using a stratified random sampling technique, with the sample size determined by the Krejcie and Morgan (1970) table. To ensure proportional representation, students were stratified by faculty, year of study, and hostel type. Random selection within these strata ensured an unbiased sample, enhancing the generalizability of the findings and allowing for a robust analysis of challenges across diverse living conditions.

Instrument for Data Collection: A five-point likert scale questionnaire of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD) was used to collect data. The questionnaire was titled 'Students' Challenges in Hostels Questionnaire' (CHQ). The research instrument was validated through a pilot study at Ignatius Ajuru University of Education, Port Harcourt, involving 20 participants. The questionnaire demonstrated acceptable internal consistency, with a Cronbach's alpha coefficient exceeding the 0.7 threshold.

Data Collection: Data were collected directly from respondents in their hostels during evening hours. Using three trained research assistants, 341 questionnaires were successfully retrieved, representing a 96.3% response rate.

Data Analysis: Means, and standard deviation were used to analyze the data from the research questions at 3.00 as the cut-off point. The implication is that items with < 3.00 were disagreed with, while items with ≥ 3.00 were regarded as agreed with. The mean was calculated using the following

formula:
$$\frac{5+4+3+2+1}{5} = \frac{15}{5} = 3.00$$

RESULTS**Table 1:** Mean and standard deviation of respondents on the sanitation/hygiene challenges encountered by students' resident in hostels in Rivers State University, Port Harcourt

S/N Females Items:	(n-155) Males			(n-186)		
	\bar{X}	SD	RMK	\bar{X}	SD	RMK
1 Inadequate toilet facilities	3.98	0.88	A	4.35	0.76	A
2 Poor water supply	4.15	0.88	A	4.42	0.68	A
3 Dirty bathrooms/toilets	4.10	0.92	A	4.38	0.74	A
4 Irregular waste disposal	3.85	0.95	A	4.20	0.81	A
5 Lack of handwashing stations	3.70	1.02	A	3.98	0.87	A
6 Infestation by rodents/insects	3.55	1.10	A	3.90	0.90	A
7 Poor maintenance of hostel surroundings	3.92	0.87	A	4.30	0.73	A
8. Overcrowded toilet/bathroom use	4.00	0.85	A	4.45	0.69	A

Key: \bar{X} = Mean score; A (Agree) = ≥ 3.00 ; n=sample

Mean is on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

Table 2: Mean and standard deviation of respondents on the overcrowding challenges encountered by students resident in hostels in Rivers State University, Port Harcourt

S/N Females Overcrowding Challenges: RMK	(n-155) Males			(n-186)		
	\bar{X}	SD	RMK	\bar{X}	SD	
1. Too many students in a single room	4.10	0.85	A	4.45	0.70	A
2. Limited access to bathroom facilities A due to overcrowding	4.00	0.92	A	4.40	0.75	
3. Congested sleeping arrangements	3.85	1.00	A	4.30	0.80	A
4. Noise and disturbances due to high room occupancy	3.75	1.05	A	4.25	0.82	A
5. Insufficient storage space	3.60	1.02	A	4.20	0.78	A
6. Lack of privacy A	3.90	0.90	A	4.35	0.76	
7. Poor ventilation due to overcrowding	3.80	0.95	A	4.25	0.74	A
8. Delay in accessing hostel resources (water, power, etc.)	3.95	0.88	A	4.38	0.72	A

Key: \bar{X} = Mean score; A (Agree) = ≥ 3.00 ; n=Sample
5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

Table 3: Mean and Standard Deviation on the strategies to address the environmental challenges faced by student's resident in hostels in Rivers State University, Port Harcourt

S/N	Strategies:	(n-155) Males			(n-186) Females		
		\bar{X}	SD	RMK	\bar{X}	SD	RMK
1	Implementation of a periodic hostel maintenance and deep cleaning schedule	3.65	0.96	A	4.10	0.78	A
2	Strict enforcement of official occupancy limits A		3.80	0.89	A	4.25	0.72
3	Public-Private Partnership (PPP) for new hostel development	3.95	0.85	A	4.30	0.69	A
4	Installation of additional water sources and storage facilities	3.70	1.00	A	4.28	0.76	A
5	Establishment of a student-hostel management committee	3.55	1.02	A	4.15	0.82	A
6	Introduction of waste segregation and enhanced collection systems	3.40	1.10	A	4.00	0.88	A
7	Creation of designated quiet and study zones within hostel complexes A		3.85	0.95	A	4.32	0.71
8	Provision of adequate and secure laundry and drying areas	4.00	0.88	A	4.40	0.68	A

Key: \bar{X} = Mean score; A (Agree) = ≥ 2.50 ; n=sample
5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

DISCUSSION

This study sought to explore the challenges faced by students residing in hostels at Rivers State University, Port Harcourt, with particular attention to sanitation and hygiene conditions, security concerns, overcrowding, and socio-emotional wellbeing. The results revealed significant

differences in how male and female students experienced these challenges, and highlighted systemic inadequacies in the hostel environment that undermine student welfare and academic success.

Table 1 showed the mean ratings and standard deviation on the sanitation/hygiene challenges encountered by students resident in hostels in Rivers State University, Port Harcourt. The data showed that all the items (1-8) were agreed with because they had grand mean scores of 3.00 and above which was the cut-off mean. Female students consistently reported higher mean scores (4.00–4.45), indicating that they experience sanitation and hygiene challenges more severely than male students. The standard deviation is slightly lower for females (indicating more consistent responses), while male students showed more variability in perception (SD up to 1.10). The top challenge for both groups was limited access to clean toilet and bathroom facilities and overflowing waste bins.

The Table 2 showed the mean ratings and standard deviation on the overcrowding challenges encountered by students resident in hostels in Rivers State University, Port Harcourt. The data showed that all items were agreed with because they had mean scores of ≥ 3.00 . The highest mean for both genders was too many students in a single room: Males ($M = 4.10$), Females ($M = 4.45$). Female students consistently rated all overcrowding issues higher, with very tight sleeping arrangements, lack of privacy, and delays accessing shared facilities emerging as major concerns. Females again had tighter SDs, suggesting uniformity in perception, while males had wider variation in responses.

Table 3 showed the mean ratings and standard deviation on the strategies to address the environmental challenges faced by students resident in hostels in Rivers State University, Port Harcourt. The data showed that all the items were agreed with because they had mean scores of ≥ 3.00 the cut-off mark. Female students reported higher scores, with Provision of adequate and secure laundry and drying areas scoring highest ($M = 4.40$, $SD = 0.68$).

The findings indicate that sanitation and hygiene were major concerns for students, especially females, who recorded higher mean scores in this area. Poor toilet and bathroom facilities, irregular water supply, and inefficient waste disposal systems were commonly reported issues. These findings align with those of Okonkwo and Eze (2019), who observed that inadequate sanitary infrastructure in Nigerian university hostels exposes students to infectious diseases such as typhoid and dysentery. Similarly, Odeyemi et al. (2021) noted that female students often experience greater discomfort due to lack of privacy and dirty environments during menstruation, leading to anxiety and reduced concentration in academics. Moreover, Adedokun et al. (2018) emphasized that sanitation challenges are not just infrastructural but behavioral, often worsened by lack of awareness and poor hygiene practices among students. Thus, the interplay of infrastructural deficit

and individual habits significantly contributes to the unsanitary conditions in hostels, ultimately impacting students' physical and mental health.

Overcrowding was another dominant issue, with students reporting shared rooms designed for fewer occupants, insufficient beds, and congested common areas. Female students again recorded higher levels of dissatisfaction, indicating possible compounded stress due to lack of privacy and increased vulnerability to infections. Yusuf and Ajayi (2020) observed that overcrowding in university hostels is a common challenge in Nigerian public institutions due to rising student intake without a commensurate increase in infrastructure. This results in tension among students, increased noise levels, and challenges in accessing basic facilities such as toilets and study spaces. Furthermore, Onyeneho and Igweonu (2016) noted that overcrowded living conditions contribute to the rapid spread of contagious illnesses, poor academic performance, and diminished student morale. In such environments, academic pursuits are often disrupted due to distractions and discomfort, making it difficult for students to prepare effectively for classes or examinations.

The findings presented in Table 3 reveal a strong consensus among students on the proposed strategies to mitigate environmental challenges in the hostels, with all mean scores significantly exceeding the 2.50 agreement threshold. Notably, while both male and female students agreed on all items, female respondents consistently reported higher mean scores, a divergence that is particularly pronounced for practical infrastructural interventions such as the "Provision of adequate and secure laundry and drying areas" ($M=4.40$, $SD=0.68$). This heightened agreement from female students may reflect a greater vulnerability to or concern about issues of privacy, security, and hygiene within the shared hostel environment, a concern supported by previous research (Amole, 2021; Onyeike & Onyeagbushiri, 2021). The universally high ratings for strategies like Public-Private Partnerships for new hostels and the enforcement of occupancy limits underscore that overcrowding is perceived as a fundamental cause of the challenges, and its mitigation is a top priority. The overall results strongly suggest that a multi-faceted approach – combining infrastructural investment, strict policy enforcement, and participatory governance through student committees—is not only necessary but also widely endorsed by the student body as a viable path toward improving the hostel living conditions at Rivers State University.

CONCLUSION

This study provides empirical evidence that students residing in the hostels of Rivers State University face significant environmental challenges that detrimentally impact their quality of life. The problems of sanitation and overcrowding are deeply intertwined, creating a cycle of discomfort, health risks, and academic hindrance. The findings confirm that inadequate and dilapidated sanitation facilities, coupled with a chronic and severe shortage of water, are pervasive issues. Furthermore, the practice of accommodating students beyond the official capacity of rooms

has led to acute overcrowding, resulting in a loss of privacy, insufficient personal and study space, and an overall stressful living atmosphere.

A critical insight from this research is the pronounced gender disparity in the perception of these challenges. Female students reported consistently higher levels of dissatisfaction across all measured domains, sanitation, overcrowding, and the perceived urgency of all proposed strategies. This indicates that the negative consequences of the deficient hostel environment are not borne equally and that female students experience a disproportionately higher burden, likely due to heightened concerns for privacy, security, and specific hygiene needs.

Ultimately, the study affirms that the student body is not merely a passive victim of these conditions but is actively aware of potential solutions. The strong consensus on strategic interventions highlights a clear path forward for university management. The findings underscore that addressing these environmental challenges is not a mere infrastructural project but a fundamental necessity for safeguarding student welfare and fulfilling the university's core academic mission.

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

1. The University management should immediately enforce the official carrying capacity of all hostel rooms. This is the most critical step to alleviating overcrowding and its associated pressures on sanitation facilities and student well-being.
2. The University should actively pursue partnerships with reputable private developers to finance, construct, and manage new hostel blocks. This is a sustainable strategy to rapidly expand bed space and reduce the accommodation deficit.
3. There should be an urgent renovation of existing sanitation facilities, including the repair of broken toilets and bathrooms.
4. A scheduled and strictly adhered-to program for periodic deep cleaning, fumigation, and preventive maintenance of all hostel facilities should be established and publicly communicated to students.
5. Recognizing the heightened concerns of female students, the university should prioritize the provision of adequate, secure, and private laundry and drying areas, as well as ensure enhanced security and privacy in female hostels.
6. To mitigate the impact of noisy and crowded rooms, the university should convert underutilized spaces into designated, well-equipped quiet zones and study lounges within hostel complexes.
7. A formal committee with elected student representatives should be created to serve as a liaison with hostel management. This will foster a sense of ownership, improve communication, and enable prompt reporting and monitoring of maintenance issues.

8. A policy of waste segregation should be introduced, with color-coded bins provided, coupled with a contract for regular and efficient waste evacuation to combat indiscriminate dumping.

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