

ASSESSMENT OF THE EFFECTS OF OPEN DEFECATION ON THE ENVIRONMENT WITHIN SCHOOL PREMISES, COLLEGE HOSTELS, AND TOILET FACILITIES: A CASE STUDY OF SULTAN ABDULRAHMAN COLLEGE OF HEALTH TECHNOLOGY, GWADABAWA, SOKOTO STATE, NIGERIA

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Abstract

Open defecation remains a major public health and environmental concern in many developing regions, particularly within academic institutions where sanitation infrastructure is often inadequate. This paper investigates the environmental impact of open defecation in Sultan Abdulrahman College of Health Technology, Gwadabawa, Sokoto State. The study focused on key areas including school premises, college hostels, and toilet facilities. Using a descriptive cross-sectional design, data were collected through structured questionnaires and on-site observations involving students, staff, and support personnel. Results indicated that poor maintenance of toilet facilities, limited access to functional toilets, and inadequate hygiene awareness are the primary drivers of open defecation. Consequences observed include environmental pollution, water contamination, foul odors, and increased risk of waterborne diseases such as cholera and dysentery. The findings highlight the urgent need for improved sanitation infrastructure, regular facility maintenance, and targeted hygiene education among students and staff. The paper concludes that addressing open defecation in tertiary institutions is essential for fostering a clean learning environment and safeguarding public health. Recommendations are made for institutional policy changes and increased investment in sanitation services.

Keywords:

Open Defecation, Environment, School Premises, Toilet Facilities, Sultan Abdulrahman College of Health Technology

INTRODUCTION

Sanitation remains one of the most critical components of public and environmental health, particularly in developing countries where access to adequate toilet facilities is still a challenge. Open defecation, defined as the practice of defecating in open spaces such as fields, bushes, bodies of water, or behind buildings rather than in a toilet, poses significant threats to human health and the environment (UNICEF, 2020). It leads to contamination of water sources, the spread of communicable diseases, and degradation of environmental aesthetics. In academic settings such as tertiary institutions, the implications are even more severe, as they affect the learning environment, student health, and institutional reputation.

Nigeria is one of the countries with the highest rates of open defecation globally, with over 48 million people practicing it as of recent estimates (World Bank, 2021). Despite several government interventions, the menace persists, particularly in rural and semi-urban areas. Educational institutions, especially public colleges, are not exempt from this challenge. Sultan Abdulrahman College of Health Technology, located in Gwadabawa Local Government Area of Sokoto State, serves a growing student population but struggles with sanitation issues, particularly in its hostel facilities and public toilets. Reports from students and staff have indicated poor maintenance, frequent breakdown of toilets, inadequate water supply, and insufficient hygiene education as factors contributing to open defecation within the institution (UNICEF, 2020).

The consequences of open defecation within college environments are multidimensional. Environmentally, it leads to soil and water pollution, foul odors, and unsightly surroundings. Health-wise, it increases the risk of outbreaks of diseases such as cholera, typhoid, and diarrhea, which can significantly impair academic performance. Psychologically, it also contributes to stress and discomfort, especially among female students who often face additional safety and privacy concerns (Okorie and Onuorah (2018).

This study, therefore, seeks to assess the effects of open defecation on the environment within the school premises, college hostels, and toilet facilities in Sultan Abdulrahman College of Health Technology. The findings will contribute to the body of knowledge on sanitation in tertiary institutions and inform institutional and policy-level interventions that can improve environmental and public health standards in similar settings.

20. Literature Review

2.1 Introduction

Open defecation (OD) remains a significant public health and environmental challenge in many developing countries, including Nigeria. Despite global efforts to eradicate the practice, OD persists, particularly in rural and semi-urban areas, due to a combination of socio-economic, cultural, and infrastructural factors. Educational institutions, especially those in resource-limited settings, are not immune to this issue. This literature review explores the prevalence, determinants, health and environmental impacts, and intervention strategies related to OD, with a focus on its implications within academic environments.

2.2 Prevalence and Determinants of Open Defecation in Nigeria

Nigeria ranks among the countries with the highest number of people practicing OD globally. As of 2015, approximately 46 million Nigerians engaged in OD, representing about a quarter of the population Okorie and Onuorah (2018). Several factors contribute to this high prevalence:

-Inadequate Sanitation Facilities: Many communities and institutions lack sufficient and functional toilet facilities. A study highlighted that 52% of schools in Nigeria are without toilets, compelling students to resort to OD.

-Cultural and Behavioral Factors: In some communities, OD is a long-standing practice, deeply rooted in cultural norms and beliefs. Changing such behaviors requires more than just infrastructure; it necessitates comprehensive behavioral change communication strategies,

-Economic Constraints: Poverty limits the ability of individuals and communities to invest in proper sanitation facilities. The cost of constructing and maintaining toilets can be prohibitive for many households and institutions.

-Lack of Awareness: A significant portion of the population lacks awareness of the health risks associated with OD. Educational campaigns are essential to bridge this knowledge gap.

2.3 Health Implications of Open Defecation

OD poses severe health risks, particularly in densely populated settings like schools and colleges. The practice facilitates the transmission of various diseases:

-Waterborne Diseases: OD contaminates water sources, leading to outbreaks of diseases such as cholera, typhoid, and diarrhea. These diseases are prevalent in areas where OD is common, contributing to high morbidity and mortality rates.

-Parasitic Infections: Exposure to human feces increases the risk of parasitic infections, including hookworm and schistosomiasis, which can cause long-term health complications.

-Psychosocial Stress: The lack of private and safe sanitation facilities can lead to stress, anxiety, and embarrassment, particularly among female students. This stress can negatively impact academic performance and overall well-being.

2.4 Environmental Impacts of Open Defecation

Beyond health concerns, OD has detrimental effects on the environment:

-Soil and Water Pollution: Human feces introduce pathogens into the soil and water

bodies, leading to environmental degradation. This pollution affects not only human health but also aquatic life and agriculture.

-Air Quality Degradation: The decomposition of human waste in open areas releases unpleasant odors and harmful gases, affecting air quality and contributing to respiratory issues.

-Aesthetic Devaluation: OD tarnishes the visual appeal of environments, especially in educational institutions, potentially affecting enrollment and the institution's reputation.

2.5 Open Defecation in Educational Institutions

Educational settings are particularly vulnerable to the challenges posed by OD:

-Infrastructure Deficiencies: Many schools and colleges lack adequate sanitation facilities. Even when toilets are available, they are often poorly maintained, leading to their disuse and a reversion to OD practices.

-Impact on Female Students: The absence of gender-sensitive sanitation facilities disproportionately affects female students, leading to absenteeism, especially during menstruation, and, in some cases, dropout.

-Academic Performance: Health issues arising from OD-related diseases can lead to increased absenteeism and decreased academic performance among students.

2.6 Intervention Strategies

Several strategies have been implemented to combat OD in Nigeria:

-Community-Led Total Sanitation (CLTS): This approach mobilizes communities to eliminate OD through collective behavior change. CLTS has shown success in various Nigerian communities by fostering a sense of ownership and responsibility among residents.

-Government Initiatives: The Nigerian government, in collaboration with international organizations, has launched campaigns aimed at making the country open defecation-free by 2025. These initiatives focus on infrastructure development, public awareness, and policy enforcement.

-School-Based Programs: Integrating sanitation education into school curricula and improving school sanitation infrastructure are crucial steps in addressing OD in educational settings.

2.7 Gaps in Existing Research

While numerous studies have addressed OD in rural and urban communities, there is a paucity of research focusing specifically on its prevalence and impact within higher education institutions. Understanding the unique challenges faced by these institutions is essential for developing targeted interventions.

2.8 Conclusion

OD remains a pressing issue in Nigeria, with far-reaching health, environmental, and socio-economic implications. Addressing this challenge requires a multifaceted approach that combines infrastructure development, behavioral change communication, policy enforcement, and community engagement.

Educational institutions, as centers of learning and behavior formation, play a pivotal role in this endeavor. By prioritizing sanitation, these institutions can safeguard the health of their students and staff, promote a conducive learning environment, and contribute to the broader goal of an open defecation-free Nigeria.

3.0 METHODOLOGY

3.1 Research Design

This study employed a descriptive cross-sectional research design to assess the effects of open defecation (OD) on the environment within the school premises, college hostels, and toilet facilities of Sultan Abdulrahman College of Health Technology, Gwadabawa. The cross-sectional design is appropriate for this study as it allows the collection of data at a single point in time, providing a snapshot of the current situation regarding sanitation practices and their environmental impacts within the institution. This design also facilitates the identification of relationships between variables such as sanitation behavior, environmental contamination, and health outcomes among students and staff.

3.2 Study Area

The study was conducted at Sultan Abdulrahman College of Health Technology, located in Gwadabawa Local Government Area of Sokoto State, Nigeria. The college is a significant center for health education in the region, with a diverse population of students and staff. The choice of this site is relevant due to reported challenges related to sanitation and hygiene facilities, which are common in many educational institutions in the region.

3.3 Study Population

The study population included all students, teaching and non-teaching staff residing within the college hostels or regularly using the college premises and facilities. This population was chosen because these groups are directly affected by the sanitation environment and practices within the institution, and they are primary stakeholders in promoting or discouraging open defecation.

3.4 Sample Size Determination

A sample size of 250 participants was determined using Cochran's formula for sample size calculation in cross-sectional studies:

$$n = Z^2 \times p \times (1-p) / (d^2)$$

Where:

-n = sample size

-Z = standard normal deviate at 95% confidence level (1.96)

-p = estimated prevalence of open defecation in the region (assumed at 0.20 based on previous studies)

-d = margin of error (0.05)

Based on this calculation, the sample size was adjusted to account for a 10% non- response rate, yielding a final sample size of approximately 275 participants.

3.5 Sampling Technique

A multistage sampling technique was used to select participants:

-Stage 1: Stratification

The population was stratified into three groups: students residing in hostels, academic staff, and non-academic staff.

-Stage 2: Proportional Sampling

From each stratum, proportional samples were selected based on the size of each group relative to the total population.

-Stage 3: Simple Random Sampling

Within each stratum, simple random sampling was employed to select individuals to participate in the study. This technique ensures that every member of each group had an equal chance of selection, reducing selection bias.

3.6 Data Collection Instruments

Data were collected using a combination of quantitative and qualitative methods to provide a comprehensive understanding of the effects of OD.

-Structured Questionnaire:

A pre-tested, semi-structured questionnaire was administered to selected participants to gather information on their knowledge, attitudes, and practices related to open defecation, availability and use of sanitation facilities, and perceived environmental impacts.

-Observation Checklist:

A structured observation checklist was used to document the state of sanitation facilities within the school premises, hostels, and toilet areas. Observations included the presence of open defecation sites, cleanliness of toilets, availability of water, and waste disposal practices.

-Focus Group Discussions (FGDs):

FGDs were conducted with groups of students and staff to explore in-depth perceptions and experiences regarding OD and its effects on the environment and health.

-Key Informant Interviews (KIIs):

Interviews with college administrators, health officers, and sanitation workers provided insights into institutional policies, challenges, and efforts toward improving sanitation.

3.7 Data Collection Procedure

Prior to data collection, ethical approval was obtained from the College Research Ethics Committee. Participants were informed about the study's purpose, and written informed consent was obtained.

Trained research assistants administered questionnaires and conducted interviews and FGDs in English and Hausa languages to ensure clarity and comprehension. Observations were conducted discreetly to avoid influencing participant behavior.

Data collection occurred over a four-week period to ensure thorough coverage of all selected participants and locations within the college.

3.8 Data Analysis

Quantitative data collected through questionnaires were coded and entered into Statistical Package for Social Sciences (SPSS) version 25 for analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics and sanitation practices.

Inferential statistics, including chi-square tests, were employed to examine associations between demographic variables (e.g., age, gender) and sanitation behavior, particularly open defecation practices.

Qualitative data from FGDs and KIIs were transcribed verbatim and analyzed thematically. Themes related to causes, effects, and possible solutions to OD were identified, categorized, and used to complement quantitative findings.

3.9 Validity and Reliability

To ensure the validity of the study instruments, the questionnaire and observation checklist were developed based on literature review and pre-tested among 20 participants from a similar institution not included in the main study. Feedback from the pre-test was used to refine the instruments.

Reliability was assessed using Cronbach's alpha for internal consistency of questionnaire items, achieving a value of 0.82, indicating acceptable reliability.

3.10 Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board (IRB) of Sultan Abdulrahman College of Health Technology. Participants were assured of confidentiality, and anonymity was maintained by using codes instead of names.

Participation was voluntary, with the right to withdraw at any stage without consequences. Data were stored securely and only accessible to the research team.

3.11 Limitations of the Study

Some limitations were noted in this study. Self-reported data on sanitation practices may be subject to social desirability bias, with participants potentially underreporting OD behaviors. Additionally, observational data were limited to visible areas, which might have overlooked some OD sites.

RESULTS AND FINDINGS

This chapter presents the analysis of data collected from 275 respondents, comprising students, academic staff, and non-academic staff at Sultan Abdulrahman College of Health Technology. The results are presented in line with the objectives of the study, focusing on the prevalence of open defecation (OD), knowledge and attitudes towards sanitation, observed environmental effects, and factors influencing OD practices within the school premises, hostels, and toilet facilities.

4.1 Demographic Characteristics of Respondents

Category	Frequency	Percentage(%)
Students (residing in hostels)	160	58.2%
Academic staff	70	25.5%
Non-academic staff	45	16.3%
Gender - Male		55%
Gender - Female		45%
Age 18–30 years		60%
Other age groups		40%
Completed secondary education		75%
Aware of sanitation issues previously		40%

Source: field survey 2025

Out of 275 respondents, 160 (58.2%) were students residing in the hostels, 70 (25.5%) were academic staff, and 45 (16.3%) were non-academic staff. The gender distribution was 55% male and 45% female. The majority of respondents (60%) were aged between 18 and 30 years, with the remaining spread across older age groups. Most respondents (75%) had completed secondary education, and 40% reported previous awareness of sanitation issues in the college.

4.2 Prevalence of Open Defecation

Variable	Value
Respondents who practiced open defecation (OD)	30%

Main reason for OD – Lack of functional toilets	65% of those who practiced OD
Secondary reason – Overcrowding/poor cleanliness	20% of those who practiced OD

The study found that open defecation is still practiced within the college environment despite the availability of some toilet facilities. Approximately 30% of respondents admitted to having practiced OD within the college premises or hostels in the past six months. Among these, 65% cited lack of functional toilets as the main reason, while 20% attributed it to overcrowding and poor cleanliness of existing facilities.

Observational data corroborated these findings, revealing several identified OD hotspots near college hostels, behind some academic buildings, and around the perimeter fences. The presence of visible human excreta and foul odors indicated ongoing environmental contamination.

4.3 Knowledge and Attitudes towards Sanitation

Analysis of the questionnaire responses showed that 85% of respondents were aware that open defecation poses serious health risks, including the spread of diseases such as cholera, diarrhea, and typhoid. However, only 50% believed that the college management was doing enough to address the issue.

Attitudes towards sanitation facilities were mixed. While 70% acknowledged the importance of using toilets, 40% expressed dissatisfaction with the state of available toilet facilities, citing poor maintenance, lack of water supply, and inadequate waste disposal as significant deterrents. These attitudes likely influence the decision to resort to OD.

4.4 Environmental Impact of Open Defecation

Participants were asked about the perceived effects of OD on the environment within the college. A majority (75%) reported noticing unpleasant odors around the hostels and some parts of the school, which they linked to open defecation. Additionally, 60% observed increased fly infestation and contamination of water sources near affected areas.

Field observations confirmed these perceptions, with several areas exhibiting signs of environmental degradation due to OD, such as soil contamination, water pooling with fecal matter, and visible fly breeding sites. These environmental conditions pose significant health hazards to the college community.

4.5 Factors Influencing Open Defecation Practices

Several key factors emerged from both quantitative and qualitative data as contributors to continued OD practices:

-Inadequate Sanitation Facilities: 68% of respondents indicated that the number of functional toilets was insufficient for the college population. Some existing toilets were broken or locked, forcing users to seek alternative defecation sites.

-Poor Maintenance and Hygiene: 60% reported that toilets were often dirty, lacked running water, or were smelly, which discouraged their use.

-Cultural and Behavioral Factors: Focus group discussions revealed that some students perceive open defecation as convenient or habitual, especially during night hours when toilet access is restricted.

-Lack of Awareness and Enforcement: Although general awareness about sanitation exists, only 35% reported that the college has enforcement policies to prevent OD. This lack of regulation contributes to persistent poor practices.

-Water Supply Challenges: The unavailability of clean water for flushing and handwashing was cited by 55% of respondents as a key barrier to toilet use.

4.6 Health Implications Reported by Respondents

About 40% of participants reported experiencing or knowing someone who suffered from sanitation-related illnesses such as diarrhea, cholera, or skin infections in the last year. Many linked these illnesses to poor sanitation and environmental contamination due to OD practices.

Key informant interviews with health officers highlighted recurrent cases of waterborne diseases during the rainy season, often traced back to contaminated water sources resulting from open defecation.

4.7 Perceptions of College Management and Sanitation Workers

Interviews with college administrators and sanitation workers revealed awareness of the OD problem and its consequences. They acknowledged limited resources, insufficient budget allocations for sanitation infrastructure, and inadequate training of maintenance staff as major challenges.

Some efforts have been made to improve sanitation, such as periodic cleaning exercises and awareness campaigns. However, these were described as irregular and insufficient to curb the problem effectively.

4.8 Recommendations from Respondents

Participants suggested several measures to mitigate the problem:

- Increasing the number of clean and functional toilets across the college.
- Regular maintenance and provision of adequate water supply to sanitation facilities.
- Implementation and enforcement of strict policies against open defecation.
- Enhanced awareness campaigns to change attitudes and behaviors regarding sanitation.
- Improved waste disposal systems to reduce environmental contamination.

4.9 Summary of Key Findings

- Open defecation remains a significant issue in Sultan Abdulrahman College of Health Technology despite existing toilet facilities.
- Lack of sufficient, clean, and accessible toilets is a major driver of OD practices.
- Environmental contamination from OD includes soil pollution, foul odors, and increased vectors such as flies, posing health risks.
- Awareness about the risks of OD is relatively high, but behavioral change is hindered by facility-related challenges and cultural habits.
- The college management faces resource and logistical constraints that limit effective sanitation management.

Conclusion of Results

The findings highlight a critical need for concerted efforts to improve sanitation infrastructure, enforce hygiene policies, and foster behavioral change to mitigate the environmental and health impacts of open defecation within the college. These results provide a basis for evidence-based interventions and policy formulation to enhance the well-being of students and staff.

DISCUSSION

This study aimed to assess the effects of open defecation (OD) on the environment within the school premises, college hostels, and toilet facilities at Sultan Abdulrahman College of Health Technology, Gwadabawa, Sokoto State. The findings reveal that despite some level of awareness regarding sanitation and hygiene, open defecation remains a significant problem affecting both the environment and health

outcomes of the college community. This discussion will interpret these results in the context of existing literature, analyze their implications, and explore potential solutions.

5.1 Prevalence and Causes of Open Defecation

Cultural and behavioral factors also play a role. The study found that some students perceive OD as convenient or habitual, especially at night when access to toilets is restricted. This reflects observations by Aderemi and Olowu (2017) that behavioral patterns and social norms significantly influence sanitation practices, sometimes overriding knowledge of health risks. Therefore, interventions must address both infrastructure and behavioral change to be effective.

5.2 Environmental Impact of Open Defecation

The environmental degradation resulting from OD is evident in several ways. Participants reported foul odors, visible human waste, and increased fly populations around the hostels and school premises. These conditions align with the findings of previous environmental health studies (WHO,

2018; Ejemot-Nwadiaro et al., 2019), which link OD to contamination of soil and water bodies, proliferation of disease vectors, and overall ecosystem damage.

The finding that approximately 30% of respondents admitted to practicing open defecation within the college environment underscores a persistent sanitation challenge. This prevalence aligns with previous studies in similar settings across Nigeria and other developing countries, where OD continues despite the presence of sanitation facilities (UNICEF, 2019; Oladepo et al., 2020). The study identifies key drivers such as inadequate number and poor condition of toilets, lack of water supply, overcrowding, and cultural habits.

The inadequate sanitation infrastructure is a primary factor. Many respondents reported that existing toilets are either broken, unclean, or insufficient to serve the student and staff population. This is consistent with the findings of Okorie and Onuorah (2018), who noted that poor maintenance and limited facilities contribute to the persistence of OD among students in Nigerian institutions. The lack of regular water supply exacerbates the problem by limiting the usability and hygiene of toilets, further discouraging use.

Although 85% of respondents knew the dangers of OD, only half believed that the college management was effectively addressing the problem. Dissatisfaction with the cleanliness and availability of toilets discourages consistent use. This finding supports the theory of planned behavior (Ajzen, 1991), which posits that intention to perform a behavior is influenced not only by attitudes but also by perceived behavioral control. In this case, even a positive attitude toward toilet use is negated by perceived barriers such as dirty facilities and lack of water.

Moreover, the presence of human excreta in open areas creates a continuous source of pathogens that affect not only humans but also animals and plants. This environmental hazard undermines the sustainability of the college environment and affects the quality of life for students and staff.

5.3 Knowledge and Attitude Toward Sanitation

The study reveals a paradox where awareness of sanitation-related health risks is high, yet the practice of OD persists. This gap between knowledge and practice is a common theme in sanitation studies globally (Jenkins & Curtis, 2005; Mosler, 2012). The discrepancy may be attributed to infrastructural inadequacies and behavioral inertia.

5.4 Institutional and Policy Gaps

The lack of strict enforcement and policy implementation emerged as a significant factor influencing the continuation of OD practices. Despite awareness campaigns and occasional cleaning exercises, respondents indicated that these efforts were irregular and insufficient. This highlights an institutional weakness, consistent with findings by Olayemi et al. (2019), who argue that sustainable sanitation improvements require strong institutional commitment and resources.

The contamination of water sources is particularly concerning. Given that many water bodies in the college vicinity are shallow wells or surface water, they are highly vulnerable to fecal contamination.

This can lead to outbreaks of waterborne diseases such as cholera, typhoid, and diarrhea, as observed in this study through the self-reported illness history of respondents. This supports the epidemiological evidence from studies like that of Fewtrell et al. (2005), which demonstrate the direct link between poor sanitation, water contamination, and disease incidence.

5.5 Health Implications

The reported prevalence of sanitation-related illnesses such as diarrhea and cholera is a stark reminder of the public health risks posed by OD. These illnesses contribute to absenteeism, reduce academic performance, and impose healthcare costs on affected individuals and the college. This aligns with the broader evidence base showing that poor sanitation is a major contributor to morbidity and mortality, especially among young adults and vulnerable populations (WHO, 2019).

Furthermore, the cyclical nature of poor sanitation leading to disease and compromised wellbeing necessitates urgent interventions. Improving sanitation infrastructure and practices would thus have direct benefits on health outcomes and quality of life in the college.

5.6 Recommendations for Improvement

Based on these findings, several recommendations emerge:

-Enhance Sanitation Infrastructure: Increase the number and quality of toilet facilities to meet the needs of the college population. Facilities should be designed to be gender-sensitive, accessible, and equipped with continuous water supply.

-Regular Maintenance and Cleaning: Establish dedicated teams responsible for the upkeep of sanitation facilities. Maintenance schedules must be strictly adhered to, and necessary resources allocated.

-Behavioral Change Campaigns: Implement comprehensive awareness and education programs that not only inform but also motivate behavioral change regarding sanitation practices. Peer-led initiatives and use of culturally appropriate communication can enhance effectiveness.

-Policy Enforcement: Develop and enforce clear policies against OD with penalties for non-compliance, balanced with incentives for good hygiene behavior.

-Institutional Capacity Building: Strengthen institutional frameworks by allocating sufficient budget, training sanitation staff, and involving students in sanitation management.

-Provision of Adequate Water Supply: Ensure reliable water availability in toilets for flushing and handwashing, essential for maintaining hygiene standards.

5.7 Limitations of the Study

It is important to acknowledge limitations in this study. The reliance on self-reported data may introduce social desirability bias, with some respondents possibly underreporting OD practices. Observational data helped mitigate this but cannot fully eliminate bias. Additionally, the study

focused on a single institution, limiting generalizability to other settings. Future research could expand to multiple colleges to provide comparative insights.

5.8 Implications for Future Research and Practice

The findings highlight the complex interplay between infrastructure, behavior, and institutional factors in sanitation practices. Future research could explore interventions that integrate these elements, such as participatory sanitation management and community-led total sanitation (CLTS) approaches adapted to academic settings.

For policymakers and college authorities, the study underscores the urgency of investing in sanitation as a critical component of health promotion and environmental protection. Ensuring safe and dignified sanitation facilities is not only a matter of infrastructure but also of equity, human rights, and academic success.

CONCLUSION

This study has critically examined the effects of open defecation (OD) on the environment within Sultan Abdulrahman College of Health Technology, Gwadabawa. The findings clearly indicate that open defecation remains a significant environmental and public health challenge within the college premises, hostels, and toilet facilities despite the existing awareness of its associated health risks. The study reveals that the practice of OD is driven primarily by inadequate and poorly maintained sanitation infrastructure, inconsistent water supply, and socio-cultural behaviors.

The environmental consequences of OD are evident in the contamination of soil and water sources, proliferation of disease vectors such as flies, and unpleasant odors that compromise the quality of the college environment. These conditions pose serious health risks, as demonstrated by the reported incidences of sanitation-related illnesses such as diarrhea and cholera among students and staff. The cyclical relationship between poor sanitation and ill health underscores the urgency of addressing the problem comprehensively.

Additionally, this study highlights the gaps in institutional commitment and policy enforcement. The lack of consistent maintenance and ineffective monitoring of sanitation facilities have further perpetuated the problem. While there is a reasonable level of knowledge about the dangers of OD, the gap.

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