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Assessing the Impact of Adult Education and Rural Sanitation Practices in Bakassi Local Government Area, Cross River State

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Abstract

Adult education plays a crucial role in empowering individuals, particularly in regions affected by displacement and poverty. In Bakassi Local Government Area of Cross River State, efforts to enhance educational access have included the construction of primary schools in communities such as Abana, Akpa Nkanya, Odiong, and Tom Shot Island, along with the distribution of free educational materials to over 500 learners. These initiatives have contributed to increased enrolment and literacy. However, significant challenges remain, including inadequate infrastructure, a shortage of qualified teachers, and limited access to learning resources—issues further exacerbated by the area's history of displacement. This study investigates the impact of adult education and rural sanitation practices on socio-economic development in Bakassi. A structured questionnaire was administered to 200 respondents, and the data were analysed using descriptive and inferential statistics. Findings indicate a strong positive relationship between adult education and improved sanitation awareness, as well as a noticeable reduction in preventable diseases. The study concludes that a sustainable, integrated, and community-driven approach is essential for tackling the dual challenges of low literacy and poor sanitation. When adequately supported, adult education can serve as a catalyst for improved hygiene, public health, and long-term rural development.

Background to the Study

Adult education and rural sanitation are essential indicators of sustainable development in rural communities. They represent two foundational pillars of human capital advancement and public welfare, especially in underserved areas. In the Nigerian context, adult education serves as a strategic instrument for addressing widespread illiteracy, fostering civic engagement, and promoting socio-economic inclusion among individuals who were excluded from formal schooling during their formative years (Aderinoye, 2007). Concurrently, effective rural sanitation is vital for preventing communicable diseases, improving quality of life, and safeguarding public health (WHO & UNICEF, 2021).

Bakassi Local Government Area (LGA) in Cross River State presents a distinctive developmental landscape. Following the implementation of the Green Tree Agreement in 2006, which led to the cession of the Bakassi Peninsula to Cameroon, thousands of Nigerians became internally displaced, resettling within Cross River State (Okon, 2019). This displacement disrupted livelihoods, education systems, and access to essential services such as potable water and adequate sanitation. Consequently, the region continues to grapple with chronic developmental challenges, including high illiteracy rates, poor hygiene practices, the prevalence of waterborne diseases, and limited healthcare and educational infrastructure.

In response, the Cross River State Government, in partnership with local and international stakeholders, has initiated various adult education programmes—ranging from literacy classes and vocational training to community-based non-formal education—to equip residents with life skills and basic knowledge (Effiom & Enamhe, 2017). Simultaneously, rural sanitation interventions, including borehole construction, hygiene sensitisation campaigns, and anti-open defecation programmes, have sought to mitigate public health risks (UNICEF, 2022).

Despite these commendable initiatives, empirical data assessing their combined impact remain sparse. While anecdotal evidence and administrative reports suggest gradual progress, there is a paucity of research that quantitatively evaluates the relationship between adult education, sanitation awareness, and resultant health outcomes. Understanding this nexus is crucial for shaping evidence-based policies and replicable development models in similarly vulnerable settings across Nigeria. This study, therefore, seeks to empirically assess the extent to which adult education influences sanitation awareness and practices in Bakassi LGA. Furthermore, it examines whether improved sanitation correlates with enhanced health and reduced disease prevalence. By doing so, the research contributes to literature on integrated rural development and provides actionable insights for policymakers and development actors.

Research Objectives

Generally, this study investigates the impact of adult education and rural sanitation practices on socio-economic development in Bakassi. The specific objectives of the study include to,

1. Assess the level of adult education and sanitation practices in Bakassi LGA.
2. Examine the relationship between adult education and sanitation awareness.

3. Evaluate the impact of sanitation practices on health outcomes in the community.

Research Hypotheses

H_{01}: There is no significant relationship between adult education and rural sanitation awareness.

H_{02}: Sanitation practices have no significant impact on health outcomes in Bakassi LGA.

Literature Review

Adult education encompasses structured learning processes targeted at adults who missed formal schooling opportunities. It includes basic literacy education, vocational training, continuing education, and community learning designed to enhance quality of life and civic participation (Aderinoye, 2007). UNESCO (2016) emphasises that adult education is a transformative tool for inclusive development, fostering empowerment among marginalised groups.

Rural sanitation, by contrast, refers to the promotion and maintenance of hygienic conditions in rural settings through proper waste disposal, access to safe drinking water, and health education. Common components include pit latrines, septic tanks, handwashing facilities, and behaviour change communication aimed at ending open defecation and reducing the incidence of waterborne diseases (WHO & UNICEF, 2021). Improved sanitation is strongly linked to positive health outcomes, increased productivity, and reduced mortality rates (Montgomery & Elimelech, 2007).

Empirical research supports the pivotal role of adult education in advancing rural well-being. Effiom and Enamhe (2017) reported that adult literacy initiatives in Cross River State enhanced agricultural efficiency, income generation, and social inclusion. Okojie (2005) similarly observed that such programmes improved gender equity and enabled women to participate actively in health and sanitation-related initiatives. In displacement-affected areas like Bakassi, adult education further serves a rehabilitative function, equipping internally displaced persons (IDPs) with resilience-building knowledge and practical health education (Okon, 2019).

Sanitation-focused studies have repeatedly underscored the link between hygiene practices and public health. WHO & UNICEF (2021) found significant declines in diarrhoeal diseases and parasitic infections in communities with access to toilets and sanitation education. In rural Nigeria, Akpabio et al. (2020) confirmed that Community-Led Total Sanitation (CLTS) programmes successfully curtailed open defecation and improved community hygiene. Udo and Ekong (2018) similarly linked poor sanitation to repeated cholera and typhoid outbreaks in Cross River's rural areas. Although few studies explicitly examine the interaction between adult education and rural sanitation, the existing literature indicates that education enhances the adoption of hygiene practices. Egun (2009) observed that adult learners exposed to basic health education were significantly more likely to adopt improved sanitation methods. Likewise, Njoh and Akiwumi (2012) found that community education campaigns played a vital role in sustaining behavioural change and sanitation infrastructure in sub-Saharan Africa.

Theoretical Framework
This study adopts a dual-theoretical lens: Empowerment Theory and the Health Belief Model (HBM).

Empowerment Theory
Zimmerman's Empowerment Theory (1995) posits that individuals can effect change in their lives and communities through acquired skills, knowledge, and opportunities for engagement. Within adult education, this theory suggests that literacy and life skills empower adults to make informed decisions about hygiene, health, and development. Empowered individuals are more likely to engage in safe hygiene practices, lead sanitation efforts, and advocate for improved infrastructure.

In this study, Empowerment Theory explains how adult education fosters:

a. Awareness of the connection between sanitation and health;
b. Advocacy for community hygiene and water infrastructure;
c. Participation in collective sanitation initiatives.

The theory frames adult learners not as passive recipients of knowledge, but as proactive agents capable of catalysing behavioural change and advancing community health.

Health Belief Model (HBM)
The Health Belief Model, developed by Rosenstock (1974), elucidates how individual perceptions of disease susceptibility, severity, benefits, and barriers influence health behaviours. In rural sanitation contexts, HBM suggests that when adults perceive high risks from poor hygiene and recognise the benefits of improved practices (e.g., handwashing, use of toilets), they are more likely to adopt those behaviours. HBM is useful for interpreting how adult education:

a. Shapes perceptions of disease risks and health benefits;
b. Reduces behavioural barriers to hygiene practices;
c. Encourages adoption of preventive health behaviours.

In Bakassi, where health literacy may be low, adult education programmes can recalibrate individual beliefs, fostering proactive engagement with sanitation efforts. Together, Empowerment Theory and HBM provide a holistic lens for understanding how adult education influences rural sanitation. Empowerment Theory emphasises structural and participatory dimensions—how knowledge builds agency and fosters collective action—while HBM captures the cognitive-behavioural processes by which individuals internalise health information and act upon it. By applying both theories, the study assesses the transformative potential of adult education on health-related behaviour and infrastructural change in rural, post-displacement contexts like Bakassi.

Methodology
Research Design
This study adopted a cross-sectional survey research design to assess the impact of adult education and rural sanitation practices in Bakassi Local Government Area (LGA) of Cross

River State. The survey method was selected due to its efficacy in gathering data from a large population at a single point in time, thereby enabling the examination of relationships between variables such as educational attainment, sanitation knowledge, and health outcomes (Creswell, 2014). This design also allowed the researcher to describe, explain, and interpret prevailing conditions within the community concerning education and sanitation practices.

Study Area
Bakassi LGA, situated in the southern part of Cross River State, is characterised by dispersed rural settlements, a history of displacement, and considerable infrastructural deficits. The area suffers from limited access to formal education, potable water, and modern sanitation facilities, rendering it a pertinent location for this study.

Population of the Study
The target population comprised adult residents aged 18 years and above, residing across selected wards within Bakassi LGA; Abana, Akpa Nkanya, Odiong, and Tom Shot Island wards. This group represents a diverse mix of displaced persons, rural inhabitants, and smallholder families, many of whom have restricted access to formal education and sanitation services. At the time of the study, the estimated adult population was approximately 120,000.

Sample Size Determination
The sample size was calculated using Yamane's (1967) formula for finite populations. Consequently, a sample of 200 respondents was deemed sufficient for the purposes of this study.

Sampling Technique
A stratified random sampling technique was employed. Bakassi LGA was divided into five wards, from which respondents were proportionally selected to ensure geographical representation. Within each ward, systematic random sampling was utilised to select households, and from each selected household, one adult respondent was randomly chosen to participate.

Instrumentation
Data were collected through a structured questionnaire designed by the researcher. The questionnaire comprised three sections:
Section A: Demographic characteristics (age, gender, educational level, occupation)
Section B: Participation in adult education programmes (frequency, type, accessibility)
Section C: Sanitation practices and health outcomes (type of toilet, hygiene behaviours, frequency of illness)

The instrument was validated through expert review by professionals in public health and education. Additionally, a pilot study was conducted on 20 respondents in a neighbouring community to assess reliability. The Cronbach's Alpha coefficient obtained was 0.81, indicating good internal consistency.

Method of Data Collection
Data collection was carried out via face-to-face administration of the questionnaires by trained field assistants familiar with the local dialects. Ethical clearance was obtained from the Cross River State Ministries of Health and Education. Informed consent was secured from each participant prior to data collection.

Method of Data Analysis
Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 25.0. The analysis was conducted at two levels:

Descriptive Statistics: Frequencies, percentages, means, and standard deviations were used to summarise respondents' demographic characteristics, levels of participation in adult education, sanitation practices, and health-related experiences.

Inferential Statistics:
Chi-square (χ^2) Test was used to determine the relationship between adult education and sanitation awareness.
Linear Regression Analysis was employed to assess the impact of sanitation practices on health outcomes (measured by frequency of illness).
Significance was set at $p < 0.05$.

The results of these analyses were presented in tables and interpreted in relation to the research hypotheses.

Data Presentation and Analysis
Table 1: Demographic Profile of Respondents (N = 200)

Variable	Frequency	Percentage (%)
Gender (Male)	102	51
Gender (Female)	98	49
Age (18–35)	62	31
Age (36–55)	85	42.5
Age (56+)	53	26.5
Education (None)	38	19
Education (Primary)	72	36
Education (Secondary & Above)	90	45

Source: Field work, 2024

Table 2: Respondents' Access to Adult Education Programs

Response Type	Frequency	Percentage (%)
Yes (Attend Classes)	112	56
No	88	44

Source: Field work, 2024

Table 3: Relationship between Adult Education and Sanitation Awareness

Awareness of Sanitation Practices	Frequency	Percentage (%)
High Awareness (attended classes)	95	84.8
Low Awareness (no education)	41	46.6

Source: Field work, 2024

Hypothesis Testing

H_{01}: There is no significant relationship between adult education and rural sanitation awareness.

Table 4: Using Pearson's Chi-Square Test:

Variables	Chi-Square Value	df	p-value
Education vs. Awareness	21.45	1	0.000***

$p < 0.05 \rightarrow$ Reject H_{01}: Significant relationship exists.

Source: Field work, 2024

Table 5: Incidence of Sanitation-Related Diseases

Sanitation Practice	% with Clean Toilets	Avg. Sick Days/Year
Practicing Sanitation	73%	3.2 days
Poor Sanitation	27%	8.7 days

Source: Field work, 2024

H_{02}: Sanitation practices have no significant impact on health outcomes in Bakassi LGA.

Regression Output:
$R = 0.63$
$R^2 = 0.40$
$F(1,198) = 76.21$
$p = 0.000^*$
$p < 0.05 \rightarrow$ Reject H_{02}: Sanitation practices significantly affect health.

Results and Discussion

The findings reveal a statistically significant relationship between adult education and sanitation awareness, indicating that individuals exposed to adult education are more likely to adopt proper sanitation practices. Similarly, respondents with access to sanitation facilities and relevant knowledge reported significantly fewer sick days, confirming the health benefits of adequate sanitation. These results support earlier studies (e.g., UNICEF & WHO, 2023) that highlight the crucial role of literacy and hygiene in promoting community well-being. Despite these advances, challenges such as infrastructural deficiencies and limited resources remain prevalent.

Adult Education as a Catalyst for Sanitation Awareness

The findings demonstrate that adult education significantly enhances awareness of sanitation issues. This is consistent with the Empowerment Theory, which suggests that education increases individuals' control over their environment and fosters critical thinking and decision-making (Zimmerman, 1995). In Bakassi, adult education equips participants with the knowledge required to make informed choices regarding personal and environmental hygiene, including the importance of handwashing, water purification, and appropriate waste disposal. Moreover, the positive correlation observed between adult education and sanitation awareness corroborates previous findings by Effiom and Enamhe (2017), who reported that adult literacy programmes in Cross River State improved community health behaviours. Education serves not only as a vehicle for knowledge transfer but also as a means of transforming health-related attitudes and behaviours.

Sanitation Practices and Community Health

The data also reveal that improved sanitation practices—arising from education and access to facilities—are associated with better health outcomes. This aligns with the Health Belief Model, which explains how awareness of health risks and the perceived benefits of action influence behaviour (Rosenstock, 1974). In this study, participants with greater hygiene knowledge and access to sanitation facilities experienced fewer incidences of illness, demonstrating a clear public health advantage.

This outcome echoes the conclusions of WHO and UNICEF (2021), which found that increased access to toilets and hygiene education substantially reduces the prevalence of waterborne diseases and respiratory infections in rural communities. The decreased number of sick days among educated respondents implies enhanced productivity and quality of life, thereby contributing positively to rural economic stability. Despite these promising results, several challenges persist. Infrastructural deficits—including a lack of clean water sources, insufficient latrines, and inadequate waste disposal systems—continue to undermine the effectiveness of sanitation practices in Bakassi. Furthermore, limited funding, inconsistent governmental support, and logistical difficulties exacerbate these issues, particularly in remote and conflict-affected areas.

Some participants voiced concerns regarding the sustainability of sanitation campaigns and the irregularity of adult education programmes due to insufficient government investment.

This aligns with observations made by Udo and Ekong (2018), who identified poor sanitation infrastructure as a recurrent challenge in rural communities of Cross River State. Without addressing these structural limitations, the full benefits of adult education and sanitation awareness cannot be realised. The evidence from this study underscores the need for an integrated approach to community development that combines adult education with investments in sanitation infrastructure. Adult education should be mainstreamed into rural development programmes, with curricula tailored to address local health concerns, environmental sanitation, and personal hygiene. Additionally, community-led sanitation initiatives should be supported by local government councils to ensure long-term sustainability. Programmes such as Community-Led Total Sanitation (CLTS) and participatory hygiene education could be further strengthened by involving adult learners as change agents within their communities. This would enhance community ownership, improve hygiene outcomes, and foster a culture of continuous learning and adaptation.

Conclusion

The findings of this study affirm that adult education plays a pivotal role in enhancing sanitation awareness and hygiene practices in rural communities. In Bakassi Local Government Area, where many residents face challenges arising from displacement, limited infrastructure, and low literacy levels, adult education has emerged as a transformative tool. The study reveals a statistically significant relationship between adult education and improved sanitation behaviour, with educated individuals demonstrating a better understanding of hygiene practices, safer waste disposal methods, and more positive attitudes towards environmental cleanliness.

Furthermore, the results indicate that communities with both access to sanitation infrastructure and health knowledge report significantly fewer incidences of illness, thereby improving overall community well-being and productivity. These findings support the Health Belief Model and Empowerment Theory, which collectively explain how knowledge, perceived health risks, and the capacity to act converge to influence behaviour change and improve public health outcomes. It is concluded that a combined approach involving continuous adult education, community participation, and infrastructural investment is essential for promoting rural sanitation and achieving sustainable development goals in the region.

Recommendations

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

1. **Strengthen Adult Education Programmes:** The Cross River State Government and local education authorities should invest in continuous, community-based adult education initiatives tailored to local needs and literacy levels. Adult education curricula should integrate practical sanitation and health modules, using local languages and culturally relevant methods to enhance comprehension and retention.
2. **Improve Sanitation Infrastructure:** There is an urgent need for increased investment in rural sanitation facilities, including public latrines, waste disposal systems, and clean water supplies, especially in displaced and underserved

communities within Bakassi. Partnerships among government agencies, NGOs, and local communities should be forged to mobilise resources and implement affordable sanitation technologies.

3. **Promote Health Education through Community Engagement:** Community health volunteers and trained adult learners should be empowered to act as peer educators and change agents, promoting hygiene and sanitation within their neighbourhoods. Public health campaigns ought to be organised using diverse platforms—such as town hall meetings, religious gatherings, and radio broadcasts—to raise awareness and dispel harmful sanitation myths.
4. **Institutionalise Monitoring and Evaluation Mechanisms:** Regular monitoring of adult education programmes and sanitation initiatives is vital to assess progress and impact. Local government authorities should develop data-driven strategies and feedback systems to ensure interventions remain adaptive and responsive to evolving community needs.
5. **Foster Multi-Stakeholder Collaboration:** Effective rural sanitation requires collaboration between health, education, and environmental agencies, as well as international development partners. Stakeholders must align efforts to ensure policy coherence, resource pooling, and coordinated implementation of sanitation and literacy programmes.
6. **Policy Formulation and Implementation:** The findings should inform local and state-level policy decisions, particularly in the formulation of integrated strategies for education and sanitation. Legislative support should be sought to institutionalise adult literacy and sanitation as core components of rural development policy.

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