

From Knowledge to Action: Determinants of University Students' Hygiene Behavior in Aceh Besar

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ABSTRACT

Environmental hygiene in university settings has become a critical issue in rapidly urbanizing regions such as Aceh Besar. This study aims to examine the determinants of hygiene behavior among university students, focusing on four key factors: hygiene education, peer influence, availability of hygiene facilities, and personal awareness. A quantitative approach was employed using the Theory of Planned Behavior (TPB) as the conceptual framework. Data were collected from 30 purposively selected students residing in Aceh Besar through a structured questionnaire, which was validated through pilot testing and measured using a Likert scale. The data were analyzed using descriptive statistics, Pearson correlation, and multiple linear regression. The results revealed that personal awareness and hygiene education were the most significant predictors of hygiene behavior, followed by peer influence and access to sanitation facilities. Although individual hygiene practices such as handwashing showed a high level of compliance (74%), participation in communal hygiene initiatives remained low (34%). These findings indicate that strengthening internal motivation and structured hygiene education may be more effective in promoting sustainable hygiene practices than infrastructure improvements alone. The study provides practical implications for university policy development, environmental health promotion, and the design of behavior-based educational interventions.

Keywords: Hygiene Behavior, Theory of Planned Behavior (TPB), Environmental Health

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INTRODUCTION

Environmental cleanliness is far more than a matter of aesthetics it is a foundational pillar of public health, ecological sustainability, and social responsibility. Imhoff and Lamberty (2020) and Abd-Mutalib et al. (2023) highlighted that poor sanitation practices and unmanaged waste significantly contribute to the spread of infectious diseases, environmental degradation, and long-term health complications (1-2). Accumulated garbage serves as a breeding ground for disease vectors such as mosquitoes and bacteria, increasing the incidence of ailments like dengue fever, diarrhea, and skin infections. According to the Aceh Besar Health Office, there was a 30% increase in dengue cases in areas with uncollected waste (3).

Furthermore, Savari et al. (4) emphasized that open waste burning leads to air pollution, increasing the risk of respiratory infections and cancer, while plastic waste polluting rivers threatens water quality and introduces microplastics and heavy metals into the local drinking supply (4).

These challenges are especially pressing in urbanizing regions like Aceh Besar, where rapid student population growth places additional pressure on environmental and sanitation systems. Carolin and Kurniati (5), Lustiyati et al. (6), and Muhibah (7) found that university campuses face persistent difficulties in implementing comprehensive hygiene programs across academic and residential settings (5-7).

Previous research by Munandar et al. (8), Choiru Ummah et al. (9), and Bortolamiol et al. (10) showed that students' hygiene behavior is strongly influenced by personal awareness and structured education (8-10). Meanwhile, Demir and Haşiloğlu (11), Rosyidatun and Supriyadi (12), and Zhou et al. (13) highlighted the role of peer influence and facility access in shaping daily hygiene habits (11-13).

Understanding such behavior patterns is particularly important in culturally distinct regions like Aceh Besar, where socio-cultural norms can significantly shape both individual and collective cleanliness practices. Dickie et al. (14), Usmana and Ahamat (15), and Cipta et al. (16) emphasized that hygiene habits are often tied to broader communal expectations and religious values (14-16). Local reports confirm these findings. For instance, the Aceh Besar Environmental Agency documented rising waste volume met with limited public concern and inconsistent hygiene practices (17). Interviews with housing complex managers in Krueng Barona Jaya revealed that many student tenants especially those living off campus display poor hygiene behavior compared to long-term residents who actively engage in community cleanliness efforts.

In response, this study adopts the Theory of Planned Behavior (TPB) as a conceptual framework, as described by Boubker (18), Przymuszała et al. (19), and Ye et al. (20) (18-20). TPB posits that hygiene-related behavior is shaped by three psychological constructs: (1) attitudes toward the behavior, or an individual's belief about the benefits of cleanliness; (2) subjective norms, referring to perceived social pressure; and (3) perceived behavioral control, which reflects confidence in performing hygiene practices despite barriers. Studies by Amare and Darr (21) and Al Husban (22) support this perspective, demonstrating that students' participation in hygiene

programs is strongly linked to peer support and institutional norms (21-22).

Accordingly, this study aims to analyze hygiene behavior among university students in Aceh Besar and to identify the relative influence of hygiene education, peer influence, sanitation infrastructure, and personal awareness. By applying a quantitative approach based on TPB, this research seeks to provide empirical insights to inform education policy, hygiene promotion, and environmental health planning in university contexts.

METHODOLOGY

To comprehensively examine the hygiene behavior of university students in Aceh Besar, this study employed a quantitative correlational descriptive method, allowing for statistical analysis of relationships between influencing factors and student hygiene practices. This methodological approach is appropriate for exploring the connection between individual, social, and environmental variables, as supported by Firdaus et al. (23), Ishtiaq (24), and Weyant (25) (23-25). The conceptual framework for this study is grounded in the Theory of Planned Behavior (TPB), which has been widely applied to understand health-related behaviors in structured settings.

Research Design

This research utilized a correlational descriptive design within a quantitative framework. The purpose was to assess how various factors namely hygiene education, peer influence, facility availability, and personal awareness are associated with students' hygiene behavior. The TPB, as outlined by Ajzen (18), served as the theoretical foundation. The components of the design are summarized below (see Table 1):

Table 1. Research Design

Component	Description
Approach	Quantitative
Design	Correlational descriptive
Objective	To examine the relationship between personal, social, and environmental factors and hygiene behavior
Framework Used	Theory of Planned Behavior (Ajzen, 2022)

Population and Sampling

The target population of this study consists of university students residing in Aceh Besar and studying at higher education institutions located in Banda Aceh and Aceh Besar. This population was selected due to its relevance to the research context, as students living in communal or rented housing often face unique challenges related to hygiene behavior. By focusing on this group, the study aims to capture a realistic depiction of hygiene practices in off-campus environments. A purposive sampling technique was employed to ensure that respondents met specific criteria, including active enrollment in a university and residence within the study area. This method supports the study’s goal of obtaining data that is both contextually rich and representative of the behaviors under investigation (see Table 2).

Table 2. Summary of Population and Sampling Details

Item	Description
Population	University students in Banda Aceh and Aceh Besar
Sample Criteria	Actively enrolled students, residing in Aceh Besar
Sampling Method	Purposive sampling
Estimated Sample Size	30 students (preliminary phase)

Instrumentation

The primary data collection tool used in this study was a structured questionnaire. It was designed based on established literature and the Theory of Planned Behavior (TPB) to capture various dimensions of student hygiene behavior and its influencing factors.

To effectively capture the variables central to this study, a structured questionnaire was developed as the main research instrument. The questionnaire was constructed based on the Theory of Planned Behavior (TPB) and previous studies on hygiene behavior, ensuring both theoretical and empirical grounding. It consisted of multiple sections designed to measure students’ attitudes, perceived social norms, perceived behavioral control, and actual hygiene practices. The items were rated using a Likert scale to quantify respondents’ levels of agreement with various statements. A pilot test was conducted on a small sample prior to the full data collection to validate the instrument and confirm its internal consistency. The detailed components of the instrumentation are summarized in the table below.

Table 3. Summary of Instrumentation Components

Component	Description
Type of Instrument	Structured questionnaire
Basis of Design	Theory of Planned Behavior (Ajzen, 2022) and hygiene behavior literature
Delivery Mode	Online (Google Forms) and offline (printed handouts)
Main Constructs Measured	<ol style="list-style-type: none"> Attitude toward hygiene behavior; Subjective norms (peer influence); Perceived behavioral control (access to sanitation facilities); Actual hygiene practices (e.g., handwashing, waste disposal, participation in cleaning activities).
Item Format	Likert scale (e.g., 1 = Strongly disagree to 5 = Strongly agree)
Pilot Testing	Conducted on a small sample for validity and reliability checks

Data Collection Techniques

To maximize participation, data collection employed both online and offline modes. Online methods offered ease and speed, especially for students with internet access. Offline methods ensured inclusion of students in areas with limited

connectivity. This dual-mode approach minimized sample bias and increased data representativeness.

Data Analysis Techniques

Analysis combined descriptive and inferential statistics using SPSS and AMOS. Descriptive analysis profiled participant characteristics and hygiene patterns. Inferential methods included:

Table 4. Data Analysis Techniques

Technique	Purpose
Descriptive Statistics	Summarize demographics and hygiene patterns
Pearson Correlation	Examine relationships among TPB variables
Multiple Linear Regression	Determine predictive power of key factors

Instrument Validation and Reliability

To ensure reliability and validity, the questionnaire was reviewed by experts and pilot-tested on a small sample. Cronbach’s alpha was used to confirm internal consistency across subscales. These steps ensured the credibility of the instrument and enhanced the robustness of the study’s findings.

RESULTS AND DISCUSSION

This section presents the study’s findings and interprets them through the lens of the Theory of Planned Behavior (TPB). It explores how hygiene education, peer influence, facility availability, and personal awareness affect the hygiene behavior of university students in Aceh Besar. The results were derived using descriptive statistics, Pearson correlation, and multiple linear regression. These findings are then connected to key TPB components: attitudes, subjective norms, and perceived behavioral control.

Table 5. Summarizes the Average Scores and Percentages for the Key Variables

Variable	Mean Score/ Percentage	Interpretation
Hygiene Education (X1)	3.73	Moderate to high
Peer Influence (X2)	4.07	High
Hygiene Facilities (X3)	3.77	Moderate
Personal Awareness (X4)	4.07	High
Handwashing Behavior	74%	Good personal hygiene
Environmental Cleanliness	64%	Fair to good
Participation in Programs	34%	Low communal involvement

These results indicate that personal awareness and peer influence received the highest ratings, reflecting strong internal motivation and social encouragement for hygiene behavior. In contrast, participation in shared hygiene initiatives remained low despite generally strong individual practices.

This discrepancy mirrors findings by Demir and Haşiloğlu (11), who observed that students often internalize personal hygiene habits but lack initiative in communal hygiene behaviors without institutional support (11). Zhou et al. (13) similarly found that peer norms boost individual hygiene but do not necessarily translate to collective action (13).

Specific Behavior Patterns

Approximately 80% of students reported always washing hands before meals and after using public facilities. However, only 60% washed hands after touching potentially contaminated surfaces. Regarding waste management, 75% consistently used trash bins, but only half actively cleaned shared spaces. Participation in structured hygiene programs (e.g., clean-up campaigns) was limited to 30%.

These trends align with Dickie et al. (14), who reported that while normative handwashing behavior is sustained in visible settings, students are less engaged in tasks perceived as institutional responsibilities (14).

Correlation Analysis of Key Factors

To examine the strength and direction of the relationship between influencing factors and student hygiene behavior, a Pearson correlation analysis was conducted. The results, summarized in the table below, reveal that all four independent variables, hygiene education (X1), peer influence (X2), hygiene facilities (X3), and personal awareness (X4) are positively correlated with hygiene behavior.

Table 6. Pearson Correlation Coefficients Between Influencing Factors and Student Hygiene Behavior

Factor	Pearson Correlation Coefficient (r)	Interpretation
Hygiene Education (X1)	0.65	Strong positive
Peer Influence (X2)	0.58	Moderate to strong
Hygiene Facilities (X3)	0.47	Moderate
Personal Awareness (X4)	0.72	Very strong

Personal awareness (r = 0.72) had the strongest relationship with hygiene behavior. This supports Ajzen’s TPB component of attitude toward behavior, which posits that belief in the benefits of action drives behavioral intent. Hygiene education (r = 0.65) also showed strong alignment, consistent with the findings of Bortolamiol et al. (8) on the impact of structured hygiene education (8).

Regression Analysis and Predictive Model

The multiple regression model revealed the following standardized beta coefficients:

$$Y = 0.35 + 0.40X_1 + 0.25X_2 + 0.20X_3 + 0.30X_4$$

This shows that hygiene education is the most significant predictor, followed by internal awareness. These results are consistent with Al Husban (22), who emphasized that structured curriculum-based programs and internal motivation play a crucial role in sustaining pro-environmental behavior (22). Peer influence, while important, had a weaker effect on group participation supporting the idea that subjective norms encourage behavior only when reinforced institutionally.

Synthesis with TBP

The findings validate the TPB framework, such as behavior is shaped by attitudes (education and awareness), subjective norms (peer influence), and perceived behavioral control (facility access). Amare and Darr (21) argued that successful hygiene programs rely not only on infrastructure but also on internal motivation and a culture of collective accountability (21).

Despite relatively high awareness and good personal hygiene, students’ low participation in community-level hygiene efforts signals a gap between intention and action. This aligns with Przymuszała et al. (19), who noted that behavior change often requires reinforcement beyond knowledge such as social modeling and incentive structures (19).

CONCLUSION

This study concludes that the hygiene behavior of university students in Aceh Besar is most strongly influenced by personal awareness and hygiene education, followed by peer influence and the availability of sanitation facilities. These findings support the Theory of Planned Behavior (TPB), which posits that behavioral outcomes are shaped by internal attitudes, perceived social expectations (subjective norms), and perceived control over actions. Although most students demonstrated good personal hygiene practices such as handwashing and waste disposal, their participation in communal hygiene programs remained low, indicating a behavioral gap between individual responsibility and collective action. This suggests that improving infrastructure alone is insufficient; instead, educational institutions should integrate hygiene education into academic programs, promote peer-led initiatives to strengthen social norms, and implement targeted campaigns to encourage shared responsibility for environmental cleanliness. These interventions are crucial for fostering sustainable hygiene behavior within university communities. Future research should expand the sample size and consider mixed-method approaches to explore underlying motivational, cultural, and contextual factors that influence student engagement in environmental health practices.

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