

A STUDY ON STUDENTS' PERCEPTION OF CLEANLINESS AND SANITATION IMPROVEMENTS IN MUMBAI UNDER SWACHH BHARAT ABHIYAN

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ABSTRACT

This study explores students' perspectives on cleanliness and sanitation improvements in Mumbai under the Swachh Bharat Abhiyan (SBA). Data was gathered from students across various educational institutions to assess their awareness, participation in cleaning programs, and the initiative's overall impact. Findings indicate gradual improvements in sanitation, though waste management and public restroom facilities remain major concerns. While student involvement in cleanliness campaigns is moderate, opinions on government initiatives are mixed. The study highlights the importance of sanitation education and active student participation in promoting lasting behavioral changes that contribute to a cleaner environment.

INTRODUCTION

Swachh Bharat Abhiyan, launched by the Government of India, is a nationwide initiative aimed at enhancing cleanliness and sanitation. Inspired by Mahatma Gandhi's vision of a hygienic society, the program seeks to eliminate open defecation, encourage waste management, and foster a culture of cleanliness. Implemented in two phases, SBA focuses on both urban and rural sanitation improvements.

Key Objectives of SBA

- Eradicate open defecation.
- Construct individual and community toilets.
- Promote effective solid waste management.
- Increase hygiene awareness through educational campaigns.

The mission involves collaboration among local authorities, NGOs, and communities, emphasizing behavioural change through education. Integrating sanitation into school curricula ensures that future generations develop a strong sense of cleanliness responsibility.

Despite its many benefits—such as reducing disease transmission, improving environmental conditions, and boosting tourism—SBA faces challenges like inadequate awareness, poor infrastructure, and financial constraints. Overcoming these barriers through community participation and better monitoring will ensure long-term improvements in sanitation. Swachh Bharat Abhiyan is more than just a cleanliness campaign; it is a movement toward sustainable development and public well-being.

LITERATURE REVIEW

The reviewed literature provides insights into different aspects of Swachh Bharat Abhiyan (SBA), highlighting key findings and gaps that necessitate the current study.

1. "An Overview of the Clean India Mission: Swachh Bharat Abhiyan" by J. Sadeesh (2024)

Focus: Urban school children's perceptions of SBA in Mumbai.

Findings: General awareness exists, but health implications of poor sanitation are underappreciated. Behavioural change and targeted health education are critical.

Limitations: Urban-centric, lacks emphasis on behavioural shifts.

2. "The Role of Swachh Bharat Abhiyan in Gram Panchayats of Tumkur District" by Govindaraya P H (2023)

Focus: Sanitation improvements in rural Tumkur

Findings: 20% improvement in sanitation; highlights infrastructural gaps. Suggests research into barriers and education interventions.

Limitations: Small sample size limits broader applicability.

3. "Understanding Open Defecation: Agency, Accountability, and Anger in Rural Bihar" by Anoop Jain et al. (2020)

Focus: Cultural and systemic barriers to rural sanitation.

Findings: Cultural norms and mistrust in government hinder sanitation efforts. Recommends nuanced understanding of subsidies and infrastructure investments.

Limitations: Context-specific, not generalizable.

4. "Impact of Knowledge & Perception of SBA on Health Behaviours in Rural India" by Madhankumar et al. (2022)

Focus: Role of education in sanitation awareness in South Tamil Nadu.

Findings: Higher education levels linked to better sanitation awareness. Recommends media strategies for sanitation education.

Limitations: Limited to one rural region.

5. "Environmental and Sustainability Campaigns: SBA (2014–2019)" by Dash & Dash (2021)

Focus: SBA outreach strategies and media integration.

Findings: Advocates 360-degree promotion—media, public engagement, and partnerships. Suggests green tech & sustainable financing for scalability.

Limitations: Lacks empirical data on long-term behavioural change

6. "Sanitation Scheme Analysis: Urban vs. Rural Areas" by Sharma et al. (2022)

Focus: Comparative study on SBA's impact in rural vs. urban poor households.

Findings: Urban households benefit more than rural ones; rural adoption faces socio-cultural and economic barriers

Limitations: Bias in self-reported data.

7. "Study on the Perception of Swachh Bharat Abhiyan and Attitude Towards Cleanliness Among the Residents of Urban Jodhpur" by Suthar, Praveen; Joshi, Nitin Kumar; Joshi, Vibha (2019)

Focus: Assesses awareness and attitudes towards Swachh Bharat Abhiyan (SBA) and cleanliness among urban Jodhpur residents.

Findings: Participants had a positive perception of SBA, but behaviour change programs are needed for reluctant groups.

Limitations: No significant link between education and cleanliness attitude; relies on self-reported data.

8. "A Study on Implication of Swachh Bharat Among Students and Working People in Chennai City" by Dr. K. Pushpam, Janani Gayathri B.J., Kavya R. (2020)

Focus: Examines changes in cleanliness behaviour among students and working individuals while traveling in Chennai.

Findings: Some behavioural improvements were observed, but awareness remains inconsistent.

Limitations: Small sample size (50 respondents); limited to trains and buses in Chennai.

**9. People's Participation in Swachh Bharat Abhiyan of Yadgir District
Shilpa K. Bheemareddy & Dr. Jayakumar Sindhe (2020)**

Focus: Assesses knowledge, perception, and practices regarding Swachh Bharat Abhiyan (SBA) among rural residents in Yadgir district, Karnataka.

Findings: While most respondents were aware of SBA, only 25.98% actively participated; television and newspapers were the main sources of information.

Limitations: Limited to a specific rural district; self-reported data may introduce bias.

RESEARCH GAPS

1. Limited Focus on Student Perceptions: While existing studies analyze urban-rural disparities, government policies, and public awareness of SBA, there is insufficient research on students' perspectives and their role in promoting cleanliness and sanitation.

2. Regional Constraints: Many studies focus on specific urban or rural areas, making it difficult to generalize findings across diverse socio-economic and geographical contexts in India.

3. Lack of Empirical Evidence on Participation: While studies indicate moderate participation in SBA, data on long-term engagement and the effectiveness of various awareness programs remain limited and inconclusive.

4. Inadequate Assessment of Policy Effectiveness: There is a need to evaluate how local government efforts in sanitation management and awareness campaigns translate into measurable improvements in public health and hygiene behaviours.

This study aims to fill these gaps by evaluating student engagement in SBA initiatives in Mumbai.

OBJECTIVES

To evaluate the impact of Swachh Bharat Abhiyan on cleanliness and sanitation in educational institutions and public spaces in Mumbai.

- To assess students' perceptions of the improvements in cleanliness and sanitation since the implementation of Swachh Bharat Abhiyan.
- To identify key areas for further enhancement in cleanliness and sanitation practices.
- To measure the level of student participation in cleanliness drives and community clean-up events
- To analyze the effectiveness of local government efforts in maintaining sanitation standards.

RESEARCH METHODOLOGY

- **Research Design & Approach**

This study employs a descriptive research design with a mixed-methods approach, combining quantitative data (student awareness levels) and qualitative insights (opinions on sanitation improvements).

- **Data Collection Method**

Primary data is gathered through a structured questionnaire via Google Forms, capturing both quantitative metrics on awareness and qualitative insights into students' opinions on sanitation improvements in Mumbai.

- **Source of the Data**

Primary data is collected directly from students across Mumbai's schools and colleges. Secondary data, including government reports, prior studies, and public records, supplements the analysis by providing contextual background on the initiative's objectives and outcomes.

- **Sample Population & Size**

The study includes students from high schools, colleges, and universities across Mumbai, with a sample size of 205 respondents, balancing statistical relevance and feasibility.

- **Sample Technique**

Snowball sampling, a non-probability method, is used to effectively reach school-aged students and obtain insights into their sanitation perceptions.

- **Data Collection Period**

The survey is conducted between September 15, 2024, and October 25, 2024.

- **Statistical Tools Used**

Descriptive statistics, including mean and percentages, summarize the data. T-tests and ANOVA assess differences in sanitation perceptions across demographic groups.

Hypotheses:

- **Hypothesis Test 1**

- **Test to be Applied:** T- Test Hypothesis Test

- **Null Hypothesis (H₀):** There is no significant student participation in cleanliness drives or community clean-up events between male and female students in Mumbai.

- **Alternative Hypothesis (H₁):** There is significant student participation in cleanliness drives or community clean-up events between male and female students in Mumbai.

- **Hypothesis Test 2**

- **Test to be Applied:** ANOVA Single Factor Hypothesis Test

- **Null Hypothesis (H₀):** There is no significant overall impact of Swachh Bharat Abhiyan in Mumbai on the choice of sanitation needs.

- **Alternate Hypothesis (H₁):** There is a significant overall impact of Swachh Bharat Abhiyan in Mumbai on the choice of sanitation needs.

DATA ANALYSIS AND INTERPRETATION

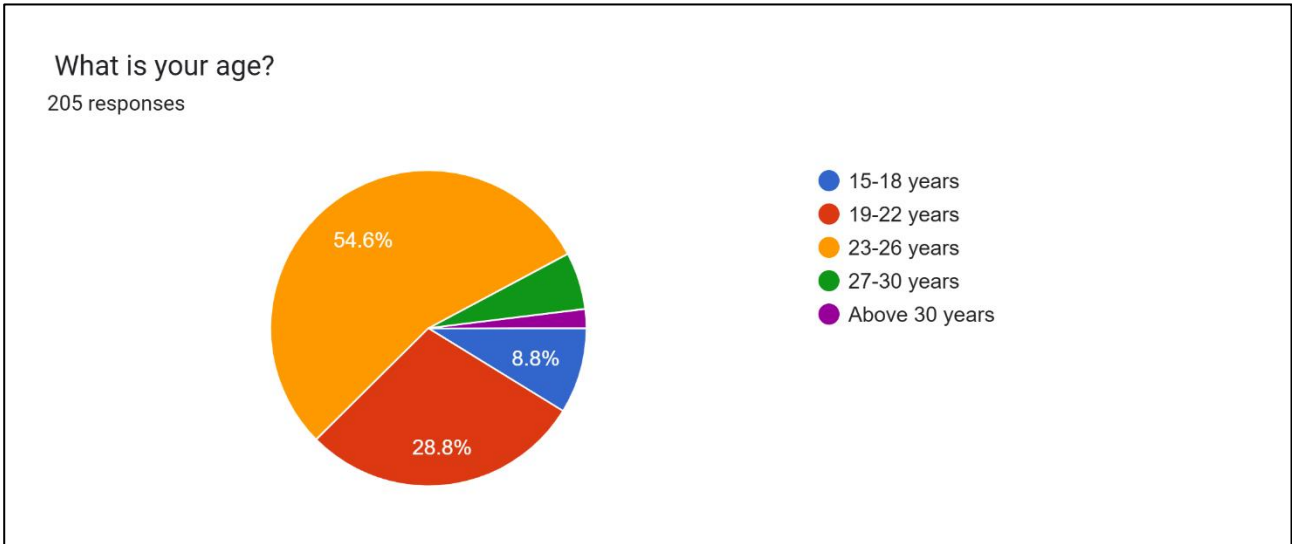


Chart No 01: Age

Interpretation: Most respondents (54.6%) are aged 23-26, followed by 28.8% in the age 19-22 group. Only a small percentage (8.8%) are between 15-18, while 27-30-year-olds account for 5.9%. The least represented group is those above 30, making up just 2%. This indicates that the survey primarily reflects the views of young adults and students.

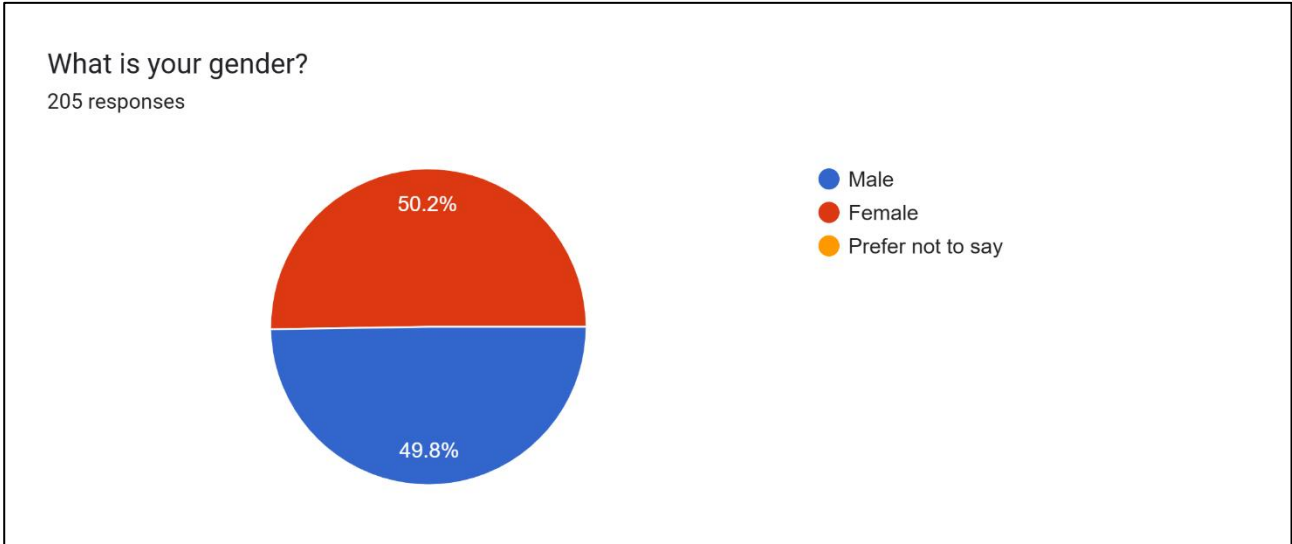


Chart No 02: Gender

Interpretation: The gender distribution is nearly equal, with 50.2% male and 49.8% female respondents. There are no respondents who selected "Prefer not to say." This balanced representation ensures that responses are not skewed

toward a particular gender perspective.

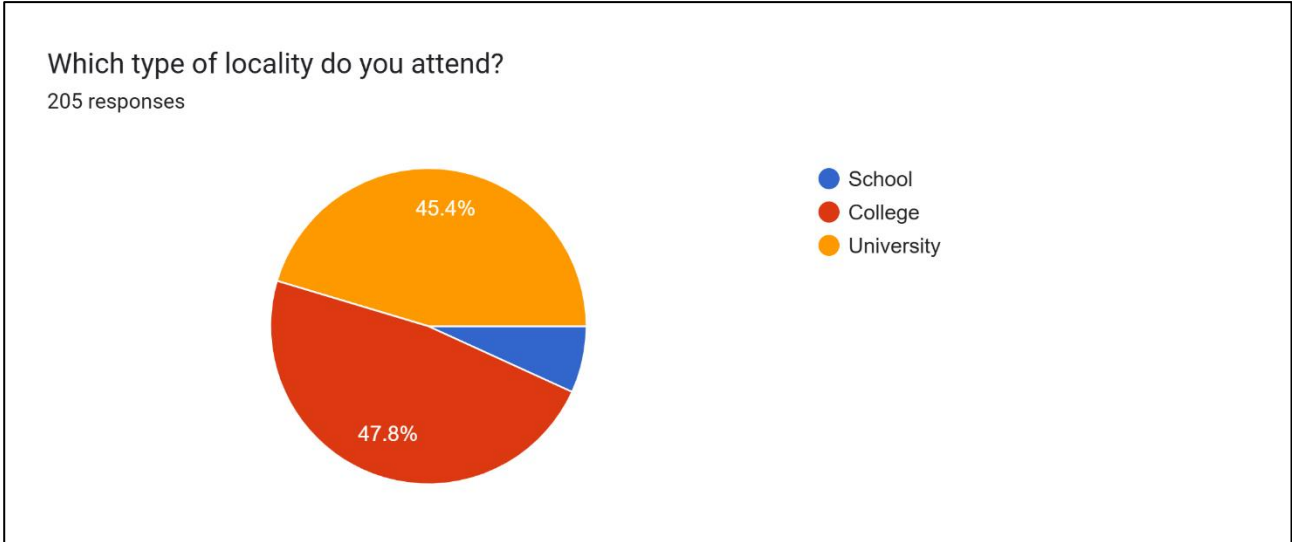


Chart No 03: Type of Educational Institution

Interpretation: Most respondents are affiliated with colleges (47.8%) and universities (45.4%), while only 6.8% are from schools. This suggests that the data is primarily influenced by higher education students, with minimal input from school-going individuals.

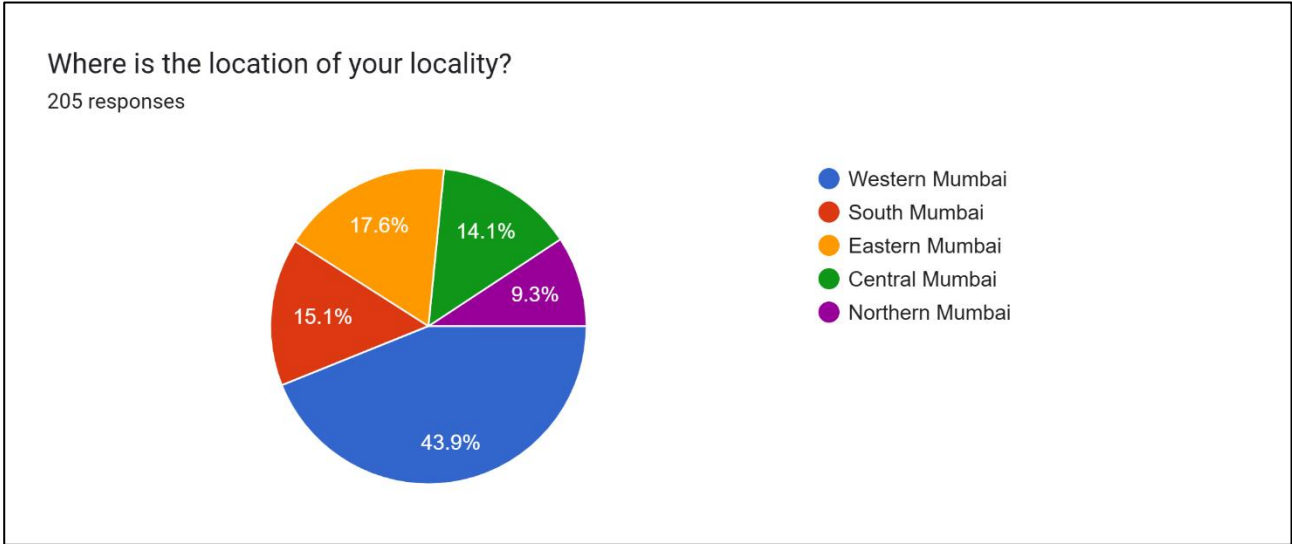


Chart No 04: Location

Interpretation: Western Mumbai has the highest representation (43.9%), followed by Eastern Mumbai (17.6%) and Central Mumbai (15.1%). South Mumbai accounts for 14.1%, while Northern Mumbai has the lowest participation (9.3%). This indicates that responses are concentrated in Western Mumbai, possibly affecting the overall perception of

cleanliness.

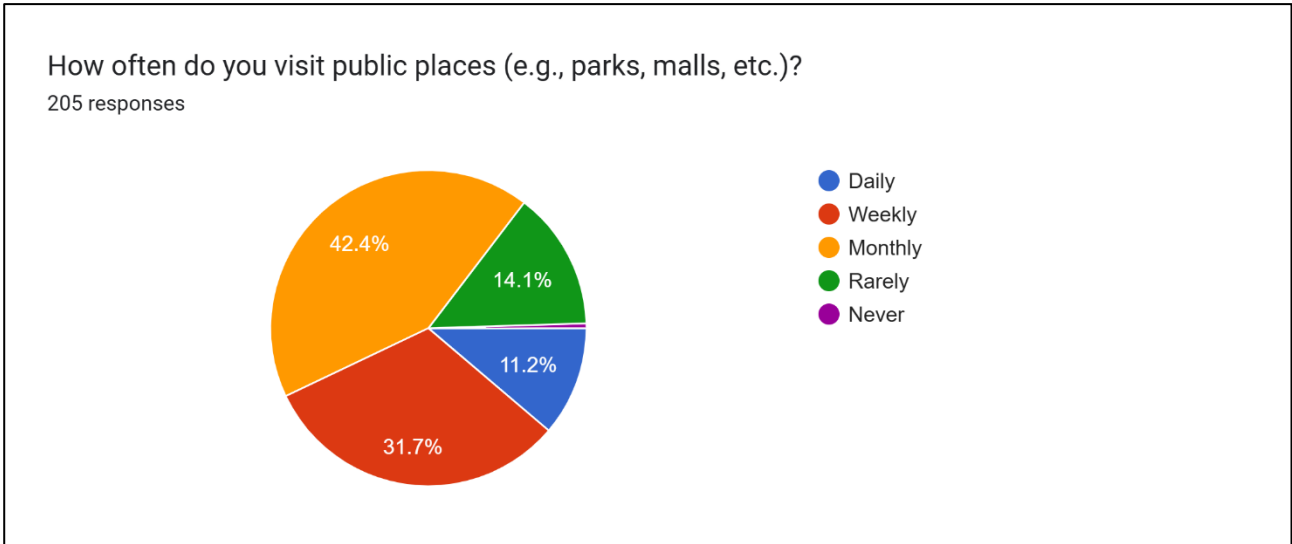


Chart No 05: Frequency of Visits to Public Places

Interpretation: A significant portion of respondents visit public places monthly (42.4%), while 14.1%, visit rarely. Weekly visits are reported by 31.7% and 11.2% visit daily. Only 0.5% never visit public places. This suggests that most respondents interact with public spaces occasionally, shaping their perceptions of cleanliness accordingly.

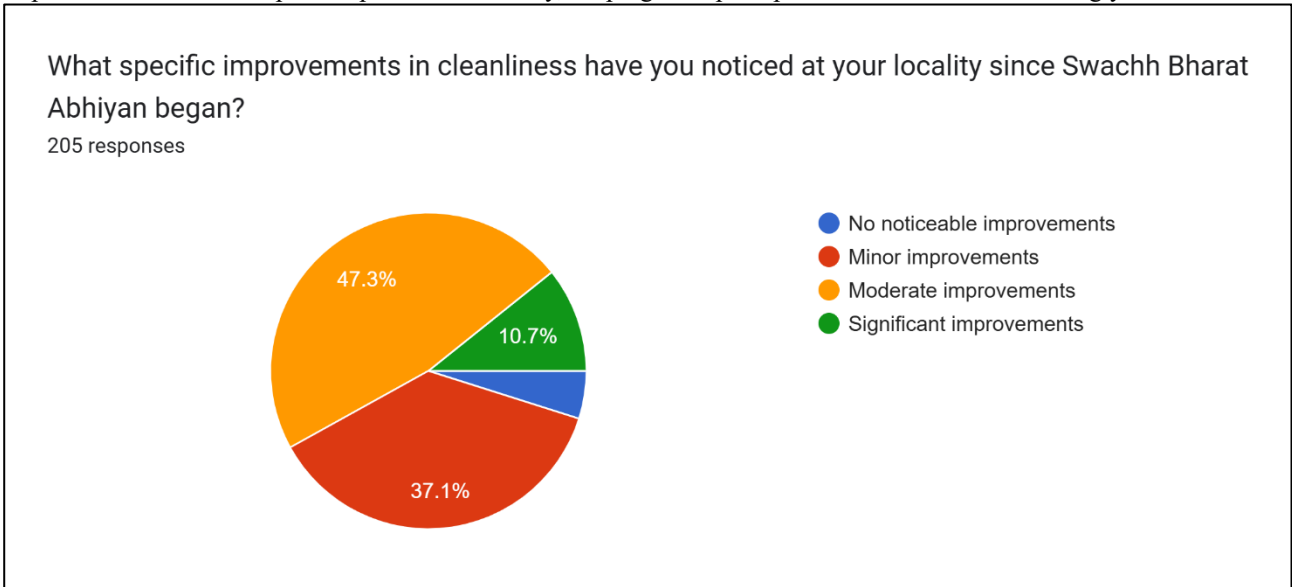


Chart No 06: Perceived Improvements in Local Cleanliness Since Swachh Bharat Abhiyan

Interpretation: The majority observed, with 47.3% noting moderate improvements and 37.1% reporting at least minor improvements. Only 10.7% saw no changes, while 4.9% noticed significant improvements. This suggests that while

progress is evident, there is still room for greater impact.

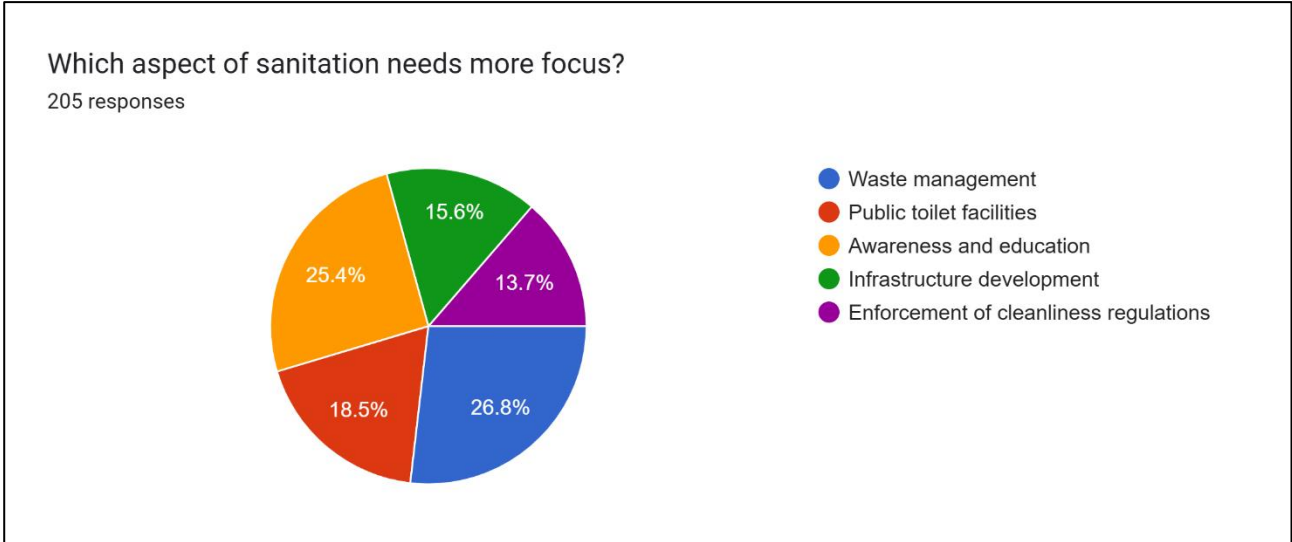


Chart No 07: Sanitation Aspects Needing More Focus

Interpretation: Majorly, the respondents felt a need for better waste management (26.8%), public toilet facilities (18.5%), and increasing awareness and education (25.4%). This shows the most important areas where improvement is required in the sanitation framework of Mumbai.

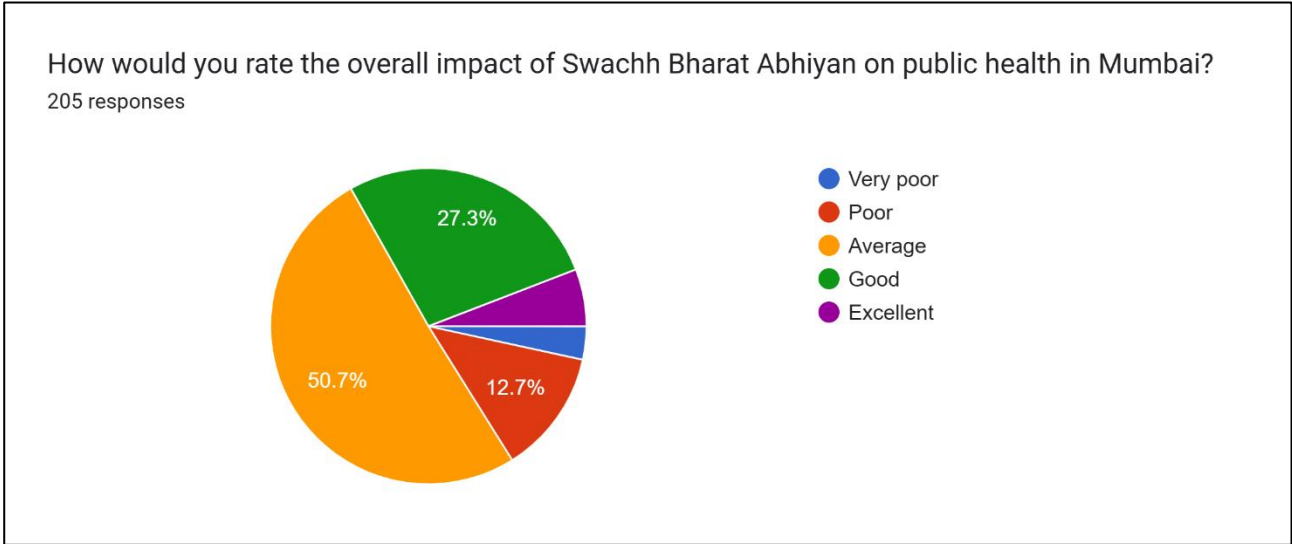


Chart No 08: Overall Impact of Swachh Bharat Abhiyan on Public Health

Interpretation: Of 50.7% average rating given to the impact of this initiative on public health. While 27.3% are positive that the impact is good, only 12.7% rate it as poor, thus cautiously optimistic about being effective.

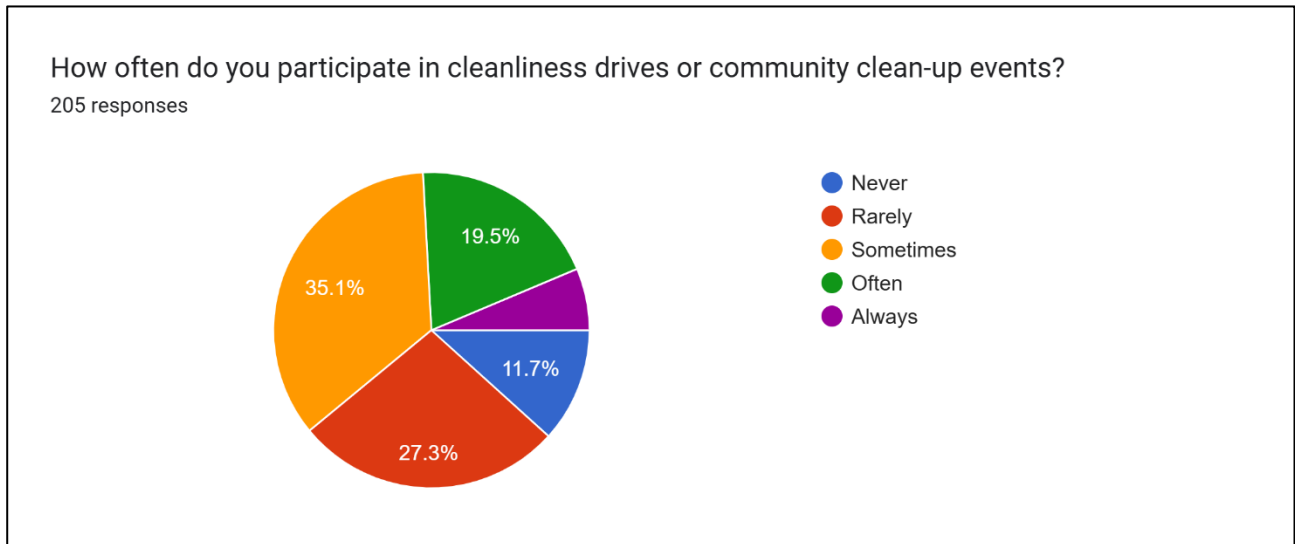


Chart No 09: Frequency of Participation in Cleanliness Drives or community Events

Interpretation: Of those responding, 35.1% participate in cleanliness drives sometimes, while 11.7% never participate. This reflects average students' involvement with room for improvement.

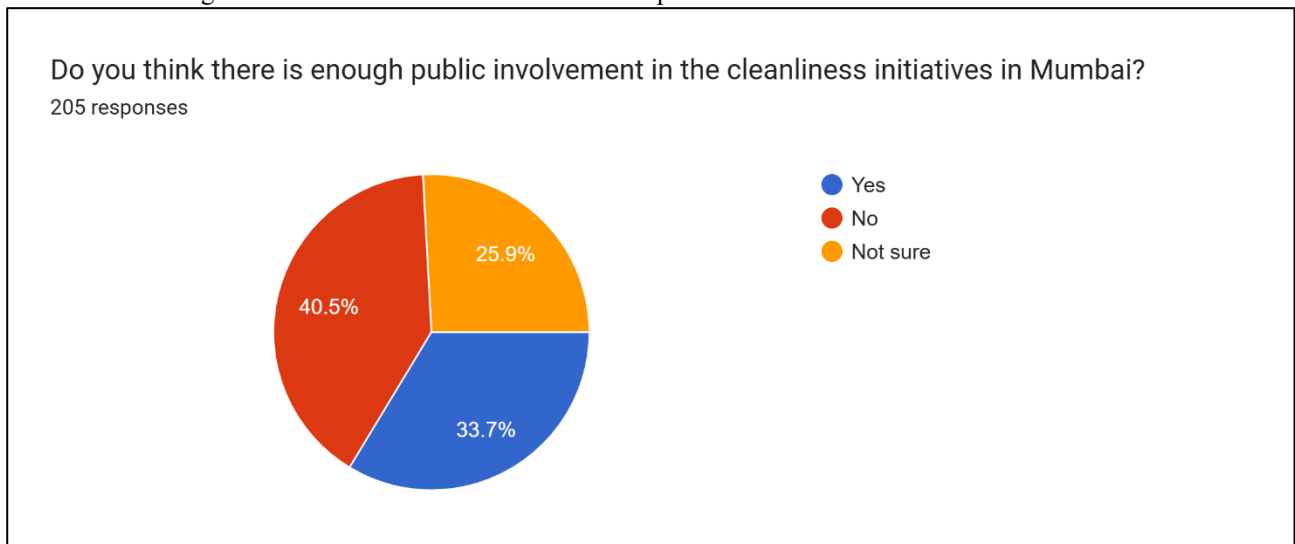


Chart No 10: Opinions on people's participation.

Interpretation: They are divided when it comes to public opinion. About 25.9% stated they were not sure while 40.5% said that opinion is no, 33.7% said that their opinion was yes for the local government's involvement being good enough. This ambiguity leaves an avenue for a possibility gap in students' engagement and its consciousness towards cleanliness initiatives.

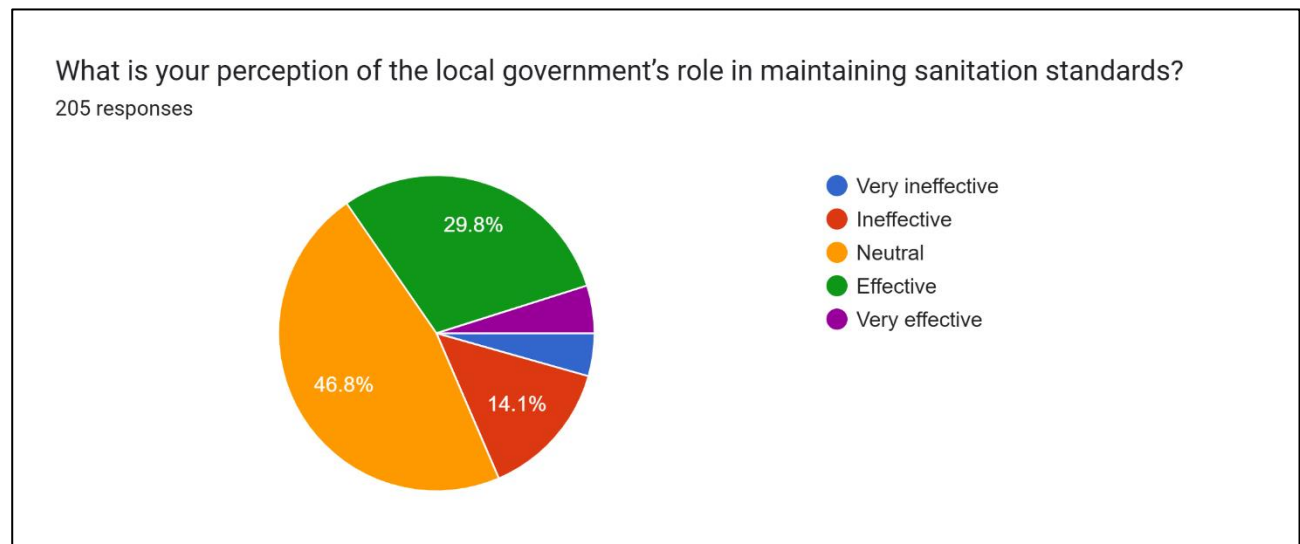


Chart No 11: Perception of Local Government's Role in Sanitation Standards

Interpretation: The majority, 46.8%, are neutral about how effective the government is at maintaining standards of sanitation, whereas 29.8 % think the government is effective or very effective. This is somewhat mixed in the view toward the efforts of the government, with many respondents expressing a desire for clearer communication and action from the authorities.

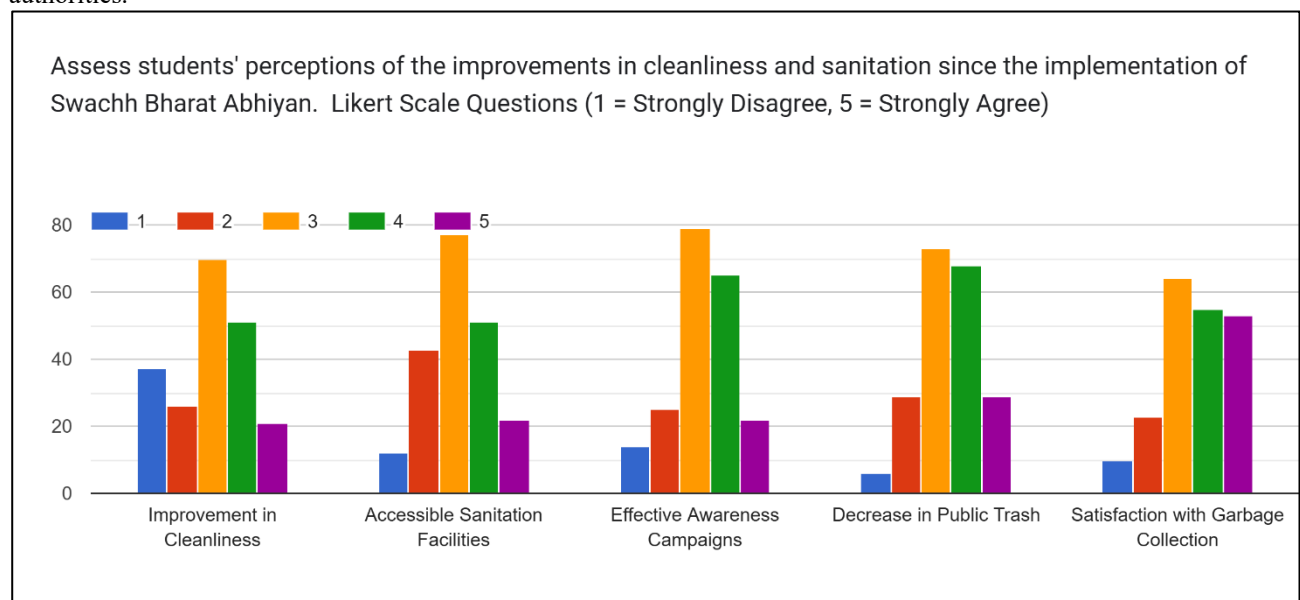


Chart No 12: Perceptions of Cleanliness and Sanitation Improvements

Interpretation: Respondents largely perceive improvements in cleanliness and sanitation under Swachh Bharat Abhiyan positively. Satisfaction with garbage collection and public trash reduction received the highest ratings. However, opinions on sanitation facility accessibility and awareness campaigns are mixed, with notable disagreement, suggesting areas for

further

improvement.

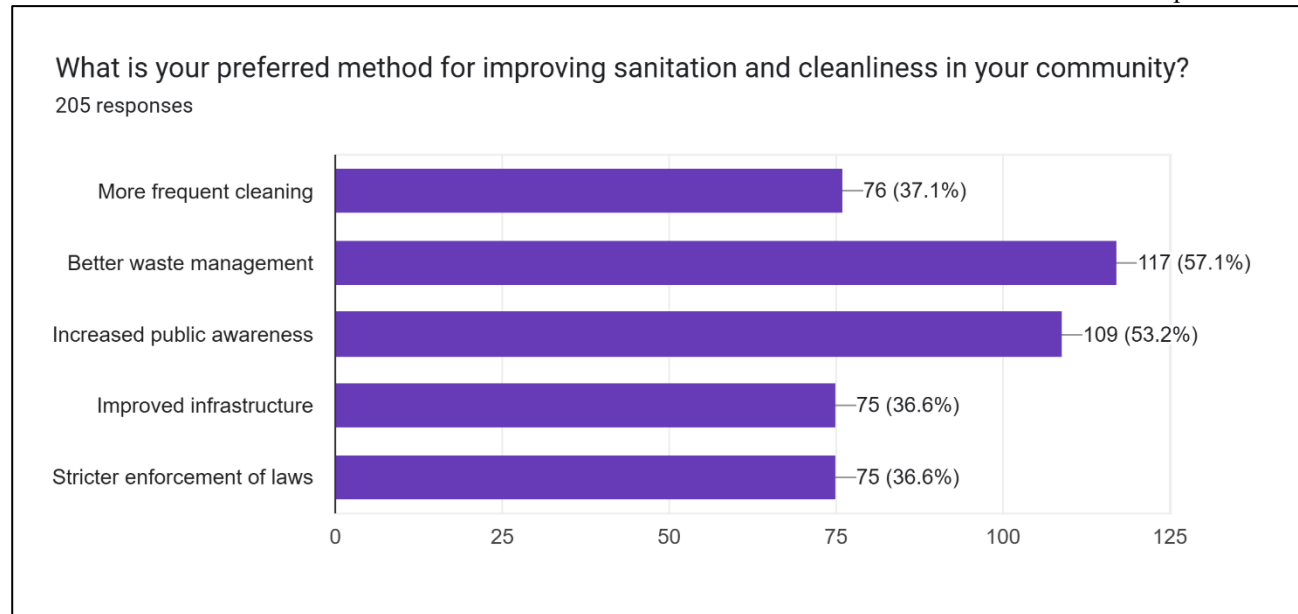


Chart No 13: Preferred Methods for Improving Sanitation and Cleanliness

Interpretation: Most of the respondents support better waste management as the most preferred action at 57.1%, then public awareness at 53.2%, and more frequent cleaning at 37.1%. This points out that more people care about seeing systematic changes in education in the student's level.

HYPOTHESIS

Hypotheses:

Applying T-tests and ANOVA, to determine if there are significant differences in sanitation perceptions under the Swachh Bharat Abhiyan.

Hypothesis Test 1: In the survey questionnaire, cleanliness activity participation is measured on a five-point Likert scale: (1) Never, (2) Rarely, (3) Sometimes, (4) Often, and (5) Always. The scale measures respondents' self-reported frequency of participation. A two-independent samples t-test tests the difference between the mean participation scores of male and female students for hypothesis testing. The independent variable is gender (categorical: male/female), and the dependent variable is participation scores (continuous: 1–5 scale). The t-test examines whether the difference in the level of participation by gender is statistically significant, determining if gender influences student participation in cleanliness activities.

Null Hypothesis (H0): There is no significant student participation in cleanliness drives or community clean-up events between male and female students in Mumbai.

Alternative Hypothesis (H1): There is significant student participation in cleanliness drives or community clean-up events between male and female students in Mumbai.

	MALE	FEMALE
Mean	2.874	2.745
Variance	1.170	1.182
Observations	103	102
Hypothesized Mean Difference	0	
df	203	
t Stat	0.849	
P(T<=t) one-tail	0.198	

t Critical one-tail	1.652
P(T<=t) two-tail	0.397
t Critical two-tail	1.972

Table No 01: T-test

Test	Applied:	T-	Test
Significance	Level	(Alpha):	0.05
P-Value: 0.397			

Analysis: Since the two-tailed p-value is greater than 0.05 with a value of 0.397 we fail to reject the null hypothesis. There is no significant difference in student participation in cleanliness activities between male and female students for any gender, Thus, gender does not appear to significantly affect participation rates.

Hypothesis Test 2:: A One-Factor ANOVA is conducted to analyze whether the choice of sanitation needs (independent variable) significantly impacts the overall effectiveness of the Swachh Bharat Abhiyan on public health in Mumbai (dependent variable). The independent factor includes Waste Management, Public Toilet Facilities, Awareness and Education, Infrastructure Development, and Enforcement of Cleanliness Regulations. The dependent variable is measured on a rating scale from 1 (Very Poor) to 5 (Excellent).

Null Hypothesis (H_0): There is no significant overall impact of Swachh Bharat Abhiyan in Mumbai on the choice of sanitation needs

Alternate Hypothesis (H_1): There is a significant overall impact of Swachh Bharat Abhiyan in Mumbai on the choice of sanitation needs.

SUMMARY				
Groups	Count	Sum	Average	Variance
Waste management	55	163	2.964	0.813
Public toilet facilities	38	121	3.184	0.695
Awareness and education	52	168	3.231	0.534
Infrastructure development	32	103	3.219	0.693
Enforcement of cleanliness regulations	28	100	3.571	0.921

Table No 02: Summary of ANOVA testing

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	7.00066082	4	1.750165205	2.444	0.047855923	2.417
Within Groups	143.1944611	200	0.716			
Total	150.195122	204				

Table No 03: ANOVA

Test Applied: ANOVA Single Factor

Significance Level (Alpha): 0.05

P-Value: 0.0479

Analysis: Since the p-value (0.0479) is less than the significance level ($\alpha = 0.05$), we reject the null hypothesis (H_0). This indicates that Swachh Bharat Abhiyan has a significant overall impact on the choice of sanitation needs in Mumbai.

FINDINGS

- The study reveals that while Swachh Bharat Abhiyan has led to some improvements, its impact remains incremental. About 37.1% of respondents observed minor improvements in cleanliness, while 47.3% noted moderate progress. However, only 10% found sanitation facilities user-friendly, indicating a need for further enhancement. Awareness programs received 46.8% neutral responses, with 29.8% considering them effective.

- Key areas requiring attention include better waste management (26.8%), improved public toilets (18.5%), and increased awareness initiatives (25.4%). Participation in cleanliness drives is moderate, with 435.1% engaging occasionally and 11.7% never participating, highlighting the need for greater encouragement.
- Perceptions of the local government's role in sanitation are mixed, with, 46.8% remaining neutral and 45% rating its efforts as effective. This suggests a need for better communication regarding government initiatives.
- Research findings emphasize the importance of student involvement in sanitation efforts, as youth participation fosters responsibility and leadership. Studies indicate that student-driven initiatives contribute to the success of cleanliness programs and help instill a culture of hygiene. Promoting hygiene education among students can strengthen their role as change agents, enhancing sanitation awareness and fostering a cleaner urban environment in Mumbai.

SUGGESTIONS

- Schools and colleges should integrate sanitation education into their curricula to enhance student participation in cleanliness initiatives. Workshops and interactive sessions by experts can help raise awareness and encourage responsible sanitation habits.
- Local authorities should leverage social media platforms like Facebook and Twitter to communicate sanitation activities, gather public feedback, and make necessary improvements.
- Schools and colleges excelling in cleanliness programs should be recognized and rewarded to encourage student enthusiasm and responsibility.
- Public toilets should be more accessible, well-maintained, and hygienic to encourage widespread use. Waste management programs should involve students to promote responsible disposal habits.
- Effective waste segregation and disposal systems should be established to enhance Mumbai's overall cleanliness and sustainability.

LIMITATIONS

- The study is limited to 205 respondents, primarily from Western Mumbai, which may not represent the broader student population.
- The research excludes community members and other stakeholders, limiting a comprehensive public perspective.
- Participants may exaggerate their engagement in sanitation drives, leading to potential inaccuracies in findings.
- Likert scale responses may not fully capture individual opinions, limiting the depth of analysis.
- The study does not consider socio-economic factors that might influence sanitation perceptions and program effectiveness.

FUTURE SCOPE

- Future research should analyse differences in perceptions across various demographics, including socio-economic backgrounds and different regions of Mumbai.
- Long-term studies should evaluate the direct impact of Swachh Bharat Abhiyan on public health by comparing cleanliness levels with health data.
- Conducting interviews and focus groups can provide deeper insights into sanitation challenges and personal experiences.
- Exploring mobile apps for sanitation reporting, educational campaigns, and awareness programs can enhance the initiative's effectiveness.

CONCLUSION

The study provides valuable insights into students' perceptions of cleanliness and sanitation improvements under Swachh Bharat Abhiyan in Mumbai. While some respondents acknowledged minor improvements, many believe sanitation facilities remain inadequate and not user-friendly.

Student participation in cleanliness drives is moderate, indicating interest but also the need for increased engagement. Additionally, perceptions of the local government's role in maintaining sanitation standards are mixed, highlighting the necessity for better communication and stronger efforts from authorities.

Enhancing public health and hygiene requires a combination of education and community participation. Strengthening sanitation awareness through schools, colleges, and public initiatives is essential for fostering a long-term culture of cleanliness. Collaborative efforts between government agencies, educational institutions, and students are crucial to sustaining improvements in sanitation. By addressing key gaps and encouraging greater involvement, Swachh Bharat Abhiyan can achieve its goal of creating a cleaner and healthier environment for future generations.

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