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# Environmental Awareness of the Government College Students in Dhaka City: Sources, Demographic Influences and Pathways for Improvement towards Achieving SDGs

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***Abstract***

Students' sustainability and environmental understanding helps address global environmental challenges. This study examines the environmental awareness of government college students in Dhaka city by exploring sources of environmental knowledge, analyzing links with demographic traits, and identifying pathways to achieve the SDGs. Using a quantitative approach, data were collected through a semi-structured questionnaire from 382 students across three Government Colleges. Stratified random sampling ensured proportional representation by institution, discipline, and gender, while colleges were purposively selected based on coeducation, large student populations, disciplinary diversity, and strategic location. Findings show students possess positive attitudes and moderate to high environmental knowledge; however, this knowledge remains largely theoretical with limited real-life application. While, low participation in environmental issues reflects structural and institutional barriers rather than indifference. Concurrently, students are influenced more by formal education and mainstream media than by peer, community, or student-led engagement. Furthermore, The demographic uniformity suggests the influence of a centralized education system. Bridging the awareness–action gap requires an institution-wide, immersive, interdisciplinary sustainability approach integrating curriculum, campus life, and participatory learning.

***Keywords:*** *Demographic Influence; Dhaka; Environmental Awareness; Government College; SDGs.*

## INTRODUCTION

In contemporary development discourse, especially in the context of the accelerating pace of climate change, pollution, deforestation, and ineffective resource management, environmental sustainability has emerged as one of the most critical global concerns. As countries strive to fulfill global environmental governance commitments, these environmental challenges necessitate maintaining a balance between economic development and environmental conservation (United Nations Environment Programme, 2015). The United Nations Sustainable Development Goals (SDGs) strongly reflect the urgency of addressing such challenges, emphasizing environmental protection, climate action, sustainable resource use, and responsible consumption as integral components of sustainable development. Achieving these goals requires not only policy interventions but also enhanced environmental awareness and behavioral transformation among individuals, particularly youth.

Toward environmental protection, individuals' attitudes and behaviors are significantly shaped by environmental awareness. Environmental problems are often underestimated by students with negative environmental attitudes, and they show lower engagement in environmentally responsible behavior (Ugulu et al., 2013). Pro-environmental behavior is considered essential for sustainable environmental management, which includes both private actions, such as responsible consumption, and public actions, such as participation in environmental policymaking and activism (Stern et al., 2000). Individuals who possess environmental awareness are more likely to consider the impacts of environmental problems on society and tend to adjust their activities accordingly (Gadenne et al., 2009). Moreover, environmental consciousness is highly connected with environmental literacy, as it encompasses ecological knowledge, cognitive skills, environmental consciousness, and responsible environmental behavior (Gheith, 2019; McBride et al., 2013).

In particular, higher education and college-level institutions can greatly contribute to enhancing knowledge, shaping attitudes, and developing the competencies required to address environmental challenges and promote sustainability education. As such, educational institutions play a fundamental role in promoting sustainability practices and environmental awareness among youth (Carmi et al., 2015; Kioupi & Voulvoulis, 2019; Prati et al., 2017). In terms of improving students' environmental knowledge, sustainability awareness, and sustainable practices, Education for Sustainable Development (ESD) has been recognized as an effective approach that can directly contribute to achieving the SDGs (Mahat et al., 2017). In addition, Environmental Education (EE) contributes to sustainable development by enhancing knowledge and skills, nurturing environmental attitudes, and encouraging responsible environmental actions (Debrah et al., 2021; Sterling, 2016; White et al., 2018).

Bangladesh is a rapidly developing country in the Global South, and due to its climate sensitivity, dense population, and physical features, it faces significant environmental vulnerabilities. The country's low-lying delta landscape makes it highly susceptible to environmental calamities such as floods, cyclones, salinity intrusion, and other climate-induced hazards (Ahsan & Warner, 2014; Amin, 2021). According to the Global Climate Risk Index, Bangladesh is one of the most climate-vulnerable countries in the world, facing frequent extreme weather events and substantial economic losses (Germanwatch, 2021). Furthermore, the country's environmental hazards are being exacerbated by rapid industrialization, urbanization, and population growth (United Nations, 2024). Although Bangladesh has made notable progress in economic development and demonstrated a commitment to achieving the SDGs by 2030, ensuring environmental sustainability remains a major challenge, emphasizing the need to enhance environmental education and awareness among citizens, particularly students (Debrah et al., 2021; Sarkar, 2011). Previous research has also emphasized the need for implementing new policies and incorporating the UN-suggested SDGs to ensure sustainable growth across countries in the Asian continent (Herath et al., 2021).

Previous studies have highlighted the insufficient environmental awareness among Bangladeshi students. Scholars have identified gaps in environmental education, where limited practical learning opportunities, institutional weaknesses, inadequate policy implementation, and cultural barriers are the major contributing factors. While students often recognize the importance of environmental education in mitigating environmental problems, translating knowledge into environmentally responsible behavior remains challenging (Majumder, 2017; Sarkar, 2011). Furthermore, although they may demonstrate awareness of environmental sustainability activities, studies have revealed that students'

involvement in environmental practices is limited, and many lack knowledge of fundamental sustainability measures such as recycling and environmental participation activities (Braßler & Sprenger, 2021; Brudermann et al., 2019; Fourati-Jamoussi et al., 2021; Griebeler et al., 2022).

Not only environmental education but also students' demographic factors significantly influence their environmental awareness and behavior. Gender differences have been widely documented, showing that female students often tend to be more knowledgeable, aware, and responsible regarding environmental and sustainability issues than their male counterparts (Ahmed et al., 2021; Ahmed et al., 2022; Davis et al., 2019). Furthermore, a large part of students' environmental awareness and pro-environmental behavior is influenced by their educational background, study habits, and exposure to environmental courses (Simpson et al., 2021). In addition, the influence of media and information dissemination channels on environmental awareness has also been highlighted, with evidence suggesting that these channels may sometimes exert a greater influence than formal educational institutions (Al-Maliki et al., 2022). People's intentions to make green purchases are also significantly influenced by psychological factors (Diddimani, 2025).

The substantial representation of the youth population in Bangladesh holds significant potential for driving environmental sustainability initiatives. A considerable proportion of the country's population consists of youth aged between 18 and 35, who can play a critical role in promoting environmental awareness and encouraging sustainable practices within society (Bangladesh Bureau of Statistics, 2019). Students' environmental awareness is essential for achieving sustainable development and the SDGs, as they will become future leaders, decision-makers, and professionals. At the same time, their environmental engagement can contribute to sustainability practices, climate resilience, and environmental solutions relevant to local development.

Despite the recognized significance of youths' environmental awareness, empirical research focusing specifically on the sources of environmental awareness, demographic influences, and potential strategies for improving the environmental knowledge and behavior of public college students in Dhaka city remains limited. Public colleges accommodate a large number of students from diverse socio-economic and educational backgrounds, making them a significant representation of the tertiary education system in Bangladesh. Hence, understanding their environmental knowledge is crucial for shaping effective educational interventions, policy frameworks, and awareness programs that support the country's sustainable development objectives.

Therefore, this study aims to examine the environmental awareness status of public college students in Dhaka city by exploring their sources of environmental knowledge, analyzing the relationship between their awareness and demographic traits, and identifying future improvement pathways for achieving the SDGs. By linking students' environmental awareness with the broader framework of the SDGs, this research seeks to contribute to sustainable development initiatives by providing evidence-based insights for policymakers, educators, and stakeholders working toward environmental sustainability in Bangladesh.

Hence, the study objectives are

1. To examine the status of environmental awareness of the students of Public Colleges in Dhaka city.
2. To find the sources of environmental awareness of the students of Public Colleges in Dhaka.
3. To determine the demographic factors influence the students' awareness.
4. To analyze students' thinking to improve environmental awareness.

## METHODOLOGY

### Study design

This research investigates the environmental consciousness of government college students in Dhaka city, aiming to identify the sources of environmental awareness, the influence of demographic factors, and possible policies for improvement. A quantitative research methodology with a descriptive survey design was employed to collect

standardized data suitable for statistical analysis and to ensure the study's precision, relevance, and suitability to the Bangladeshi context.

### Study area

The study locations, Government Titumir College, Government Bangla College, and Kabi Nazrul Government College, were selected purposively on the basis that they offer a co-educational environment with a diverse and large student body representing all regions of Bangladesh. The wide variety of academic disciplines, including Science, Business Studies, Arts, and Social Sciences, provides an ideal setting to assess environmental awareness and practices. In addition, their relatively large student populations ensure fair representation of both genders, while their geographical significance and active engagement in environmental initiatives increase their relevance as research sites.

### Sampling

A total of 382 samples were selected based on a 95% confidence level and a 5% margin of error using a stratified random sampling technique. Proportionate representation across diverse institutions, academic disciplines (Science, Business Studies, Arts, and Social Sciences), and gender was ensured to enhance the accuracy and generalizability of the study.

| Institution | Faculty | Female | Male | Total |
|---|---|---|---|---|
| Government Titumir College | Science | 24 | 28 | 52 |
| | Business studies | 22 | 25 | 47 |
| | Arts and Social Science | 38 | 42 | 80 |
| Government Bangla College | Science | 11 | 12 | 23 |
| | Business studies | 11 | 13 | 24 |
| | Arts and Social Science | 14 | 16 | 30 |
| Kabi Nazrul Government College | Science | 15 | 17 | 32 |
| | Business studies | 16 | 18 | 34 |
| | Arts and Social Science | 29 | 31 | 60 |
| Total | | 180 | 202 | 382 |

**Table 1: Sample Distribution across Institution, Faculty and Gender**

### Data collection

A semi-structured questionnaire served as the primary instrument for data collection, allowing for both closed- and open-ended responses, including Likert-scale items, to capture a broader spectrum of insights. Both English and Bengali versions of the questionnaire were developed to ensure clarity and accessibility for all respondents. Prior to the full-scale survey, a pilot study involving 30 students was conducted to test the reliability and clarity of the questionnaire, and feedback from the pilot study was used to refine the instrument and ensure its appropriateness for the main data collection phase. In addition, a team of eight people collected the data.

### Data analysis

The study utilized SPSS software for data analysis, including descriptive statistics, cross-tabulations, chi-square tests, and content analysis to summarize key variables, explore demographic relationships, and identify statistically significant differences.

### Ethical consideration

This research complied with the ethical standards for studies involving human subjects. Before the study began, informed consent was obtained from all participants, and measures were taken to ensure the privacy and confidentiality of the information collected. Participants were assured that they could withdraw from the research at any time without facing any consequences.

### Study Limitation

Although the study includes three colleges, it has limitations that restrict its generalizability to all public college students in Bangladesh, including the possibility of social desirability bias and its cross-sectional design.

## FINDING OF THE STUDY

### Demographic characteristics:

| Demographic Characteristics | Frequency | Marginal percentage |
|---|---|---|
| Respondent's Institution | | |
| Titumir College | 179 | 46.9 |
| Bangla College | 77 | 20.1 |
| KabiNazrul College | 126 | 33.0 |
| Respondent's Age | | |
| <20 | 77 | 20.2 |
| 20-22 | 190 | 49.7 |
| >22 | 115 | 30.1 |
| Respondent's Gender | | |
| Female | 180 | 47.1 |
| Male | 202 | 52.9 |
| Respondent's Study Year | | |
| 1st Year | 93 | 24.3 |
| 2nd Year | 120 | 31.4 |
| 3rd Year | 91 | 23.8 |
| 4th Year | 71 | 18.6 |
| Masters | 7 | 1.8 |
| Respondent's Study Field | | |
| Science | 107 | 28.0 |
| Business studies | 105 | 27.5 |
| Arts and Social Science | 170 | 44.5 |
| Respondent's Residential Status | | |
| Hostel | 59 | 15.4 |
| Mass | 107 | 28.0 |
| With Family | 214 | 56.0 |
| Relatives | 2 | .5 |
| Respondent's Origin | | |
| Urban | 144 | 37.7 |
| Semi Urban | 44 | 11.5 |
| Rural | 194 | 50.8 |
| Respondent's Family Income | | |
| <20000 | 128 | 33.5 |
| 20000-40000 | 137 | 35.9 |
| 40000-60000 | 89 | 23.3 |
| >60000 | 28 | 7.3 |

**Table 2: Demographic Characteristics of the Respondents**

**Table 1's descriptive statistics analysis reveals the respondents' socioeconomic and demographic characteristics. More than two-fifths (46.9%) of the respondents are presently enrolled at Govt. Titumir College, almost one-**

**third (33.0%) at Kabi Nazrul College, and the least (20.1%) at Bangla College. Nearly half of the overall population (49.7%) belongs to the 20-22 age group, while 30.1% are over 22 years old, and 20.2% are under 20 years old, indicating a predominant presence of individuals in their early twenties. Furthermore, there were somewhat more male responses (52.9%) than female respondents (47.1%). In terms of academic year, roughly one-third (31.4%) are in their second year of undergraduate studies, followed by first year (24.3%), third year (23.8%), fourth year (18.6%), and master's level (1.8%). The Arts and Social Science stream had the largest proportion (44.5%) when participants were categorized by area of study, followed by Science (28.0%) and Business Studies (27.5%). This indicates that the greatest number of undergraduate students are enrolled in the arts and social science faculties. Over half of them (56.0%) reside with their family, followed by mass housing (28%), college dorms (15.4%), and relatives' homes (0.6%). 37.7% and 11.5%, respectively, are from urban and semi-urban regions, while 50.8% are from rural areas. Only 7.3% of the respondent family's monthly income exceeded 60,000 BDT, compared to 35.9% who earned between 20,000 and 40,000 BDT, 33.5% who earned less than 20,000 BDT, and 23.3% who earned between 40,000 and 60,000 BDT.**

***Environmental awareness status***

| Variable | Very High | High | Moderately | Low | Very Low |
|---|---|---|---|---|---|
| How would you rate your awareness of environmental issues? | 12.8% | 35.9% | 47.1% | 3.7% | 0.5% |
| How well do you understand the impact of your daily activities on the environment? | 15.2% | 34.3% | 31.7% | 16.2% | 2.6% |
| Variable | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| Do you believe that your individual actions can make a significant impact on the environment? | 23.0% | 54.2% | 18.8% | 3.1% | 0.8% |
| Variable | Always | Often | Sometimes | Rarely | Never |
| How well do you discuss environmental issues with your friends or family? | 5.2% | 42.4% | 29.1% | 21.2% | 2.1% |
| How well do you read articles or watch documentaries about environmental issues? | 4.5% | 34.8% | 27.5% | 28.3% | 5.0% |

**Table 3: Environmental awareness status of the respondents**

The findings indicate that most of the students are environmentally aware; just below half (48.7%) are highly aware, and 47.1% rated them as moderately aware. Additionally, more than four-fifths (81.2%) of students understand the impact of their daily activities on the environment, while almost 78% of students agreed that their individual actions can make a significant impact on the environment. Following their understanding, nearly half (42.4%) of the students often discuss environmental issues with their friends or family, whereas 29.1% sometimes do so. Although, in terms of reading environment-related articles or watching documentaries, 34.8% often and 28.3% rarely do such activity.

*Sources of environmental awareness*

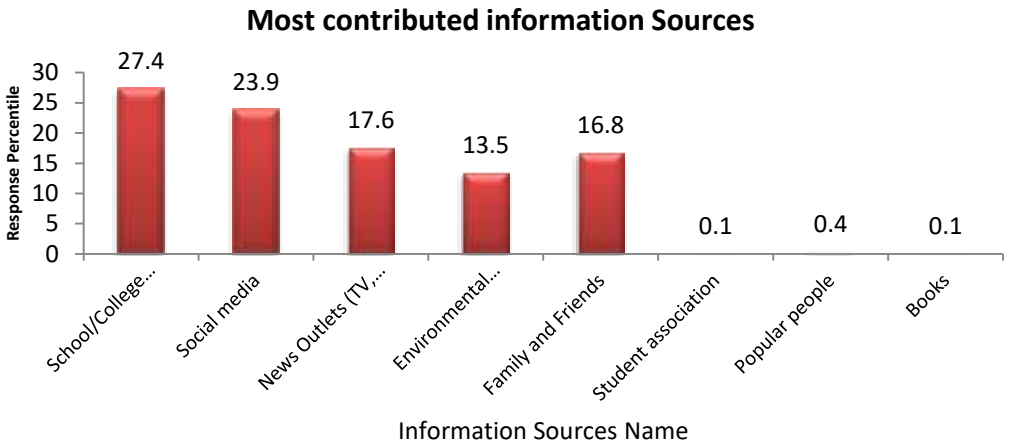


Figure 1: Most Contributed sources to respondent Awareness

The table of most contributory information sources revealed that more than one-fourth of the students (27.4%) receive environmental knowledge from the school/college curriculum, followed by 23.9% from social media and 17.6% from news outlets (TV, newspapers, etc.). Family and friends and environmental organizations also play a significant role in providing environmental knowledge with 16.8% and 13.5%, respectively, whereas student associations, popular people, and books are the least impactful sources with less than 1%. The chi-square test between information sources and respondents' backgrounds shows that there is no significant relationship except for their origin with a .022 p-value.

*Influential demographic factors' on students' awareness.*

To determine the demographic influence on students' awareness, chi-square tests were conducted between respondents' demographic data and awareness-defining variables, namely, "How would you rate your awareness of environmental issues?" "How well do you understand the impact of your daily activities on the environment? Do you believe that your individual actions can make a significant impact on the environment? How well do you discuss environmental issues with your friends or family? How well do you read articles or watch documentaries about environmental issues? The chi-square test revealed that most demographic variables, specifically institution, gender, year of study, residential status, and family income, are not statistically significantly associated with their awareness level. However, respondents' study field significantly influences their level of practical environmental understanding, with a p-value of 0.030. Additionally, age showed a significant association with discussing environmental issues with friends or family ($p = 0.049$), suggesting variation in communication behavior across age groups.

*Students' thinking to improve environmental awareness*

| Variable | No | Yes | Not sure |
|---|---|---|---|
| Do you think the government is doing enough to address environmental issues? | 59.9% | 23.6% | 16.5% |
| Would you support the better implementation of environmental rules and regulations? | 1.3% | 97.9% | 0.8% |
| Do you believe that education on environmental issues should be made a mandatory part of the college curriculum? | 2.1% | 95.5% | 2.4% |
| Would you be willing to participate in college-organized environmental awareness campaigns? | 7.9% | 74.1% | 18.1% |

**Table 5: Students' perceptions**

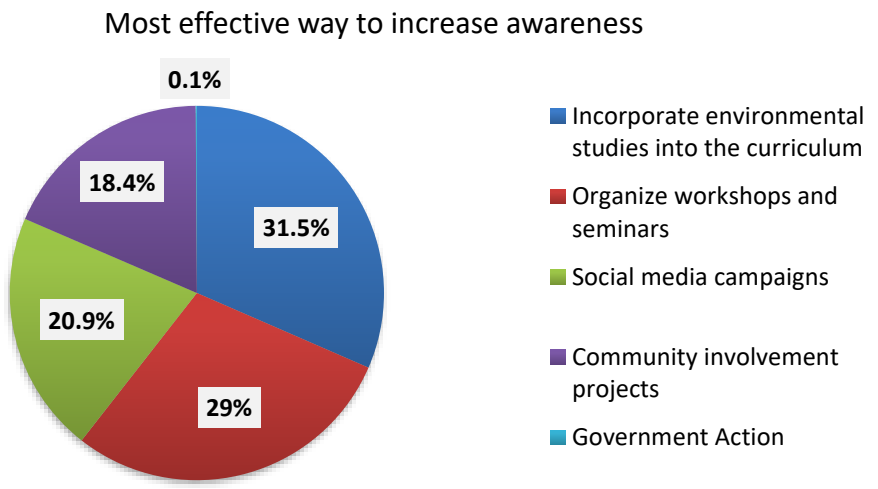


Figure 2: Most effective way to increase awareness

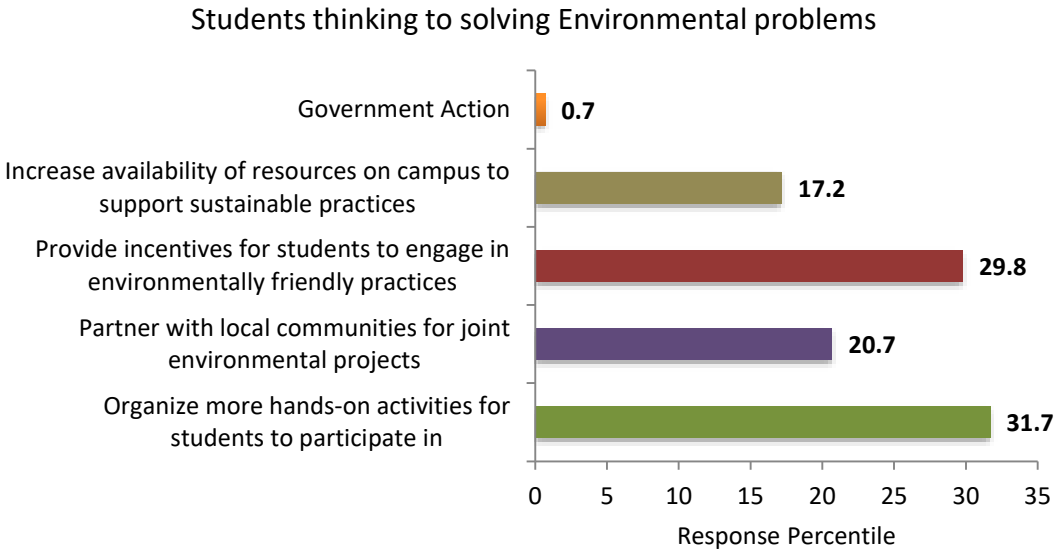


Figure 3: Students thinking to solving Environmental problems

When asking about their thoughts about improving awareness, nearly two-thirds, approximately 60% of the respondents, think that the government is not doing enough work to address environmental issues, while a vast majority of 97.9% support the better implementation of environmental rules and regulations, and 95.5% support incorporating environmental education mandatorily in the college curriculum. Moreover, 74.1% of students are willing to participate in college-organized environmental awareness campaigns.

On top of that, 31.5% of respondents say that incorporating environmental studies into the curriculum is the most effective method for increasing awareness. Organizing workshops and seminars and social media campaigns were also highly valued for raising awareness, which is pointed out by 29.0% and 20.9% of respondents, respectively. Community involvement projects (18.4%) are considered another effective strategy, whereas, notably, government action (0.1%) is seen as the least effective.

Furthermore, to solve environmental issues, 31.7% of students prefer organizing more hands-on activities for students to participate in, and 29.8% support the provision of incentives for students to engage in environmentally friendly practices. While 20.7% of respondents suggested making partnerships between local communities for joint environmental projects and 17.2% of students said to increase the availability of resources on their campus to support sustainable practices, lastly, only 0.7% of students spoke for government action.

## DISCUSSION

The findings of this study indicate that government college students in Dhaka possess a generally positive level of environmental awareness, suggesting that environmental issues have become an established component of students' cognitive understanding. Nevertheless, a closer examination of the results reveals an important distinction between environmental awareness and practical environmental understanding. Although most respondents reported being aware of environmental issues and acknowledged the environmental consequences of individual behavior, a considerable proportion demonstrated only a moderate understanding of how their daily activities contribute to environmental outcomes. This finding suggests that environmental knowledge among students may remain largely informational rather than transformative, functioning primarily as awareness of environmental problems rather than as a framework for guiding everyday behavioral choices. Such a pattern is particularly significant because awareness alone does not necessarily translate into environmentally responsible behavior.

The strong belief among respondents that individual actions can contribute meaningfully to environmental protection further reflects positive environmental attitudes and perceived personal responsibility toward environmental outcomes. These characteristics are widely recognized as important antecedents of environmentally significant behavior because individuals are more likely to engage in pro-environmental actions when they perceive their behavior as capable of producing meaningful environmental outcomes (Gadenne et al., 2009). However, the coexistence of positive environmental attitudes with only moderate levels of practical environmental understanding suggests that awareness alone may be insufficient to stimulate sustained behavioral change. This finding aligns with the environmental literacy framework, which conceptualizes environmental awareness as only one component of a broader developmental process involving ecological knowledge, cognitive competencies, environmental values, critical thinking skills, and environmentally responsible action (Gheith, 2019; McBride et al., 2013). Consequently, the findings suggest that the primary challenge facing Bangladeshi public college students is not a lack of environmental awareness itself, but rather the limited opportunities available for translating awareness into meaningful environmental engagement. From the perspective of Education for Sustainable Development (ESD), this distinction is particularly important because sustainable development outcomes depend not merely on the acquisition of knowledge but on the development of competencies capable of influencing real-world decision-making and behavior (Kioupi & Voulvoulis, 2019; Mahat et al., 2017).

Despite these encouraging levels of awareness and perceived responsibility, students' actual engagement with environmental issues appears considerably less robust. Only a limited proportion of respondents regularly discussed environmental issues with friends or family or consistently consumed environment-related media content, while the majority reported participating only occasionally or rarely. This discrepancy reflects a broader pattern frequently identified within environmental psychology, whereby environmental concern and positive attitudes do not automatically translate into active environmental participation (Park & Lin, 2020). Rather than indicating indifference toward environmental issues, the findings suggest the presence of institutional, social, and contextual barriers that constrain opportunities for engagement. Students may possess sufficient environmental knowledge and positive attitudes but lack supportive environments through which these attitudes can be practiced, reinforced, and sustained.

This interpretation is consistent with previous research demonstrating that practical learning experiences and participation-oriented educational approaches are significantly more effective in promoting environmental knowledge, attitudes, and sustainable behavior than purely theoretical instruction (Kerret et al., 2020; Park & Lin, 2020). The findings therefore suggest that environmental education that prioritizes information transmission over behavioral engagement may have limited capacity to foster environmentally responsible behavior among students. Instead, experiential learning opportunities such as field-based activities, environmental campaigns, student-led sustainability initiatives, community projects, and participatory problem-solving exercises may play a more influential role in

transforming environmental awareness into sustained behavioral practice. Such approaches provide students with opportunities to experience environmental responsibility directly rather than merely learning about it conceptually. Furthermore, scholars have argued that young people develop stronger environmental competencies when they are encouraged to apply knowledge critically and creatively rather than simply memorize environmental information (Ramnath & Sivakumar, 2012). Consequently, the integration of experiential learning and sustainability-oriented campus activities may strengthen environmental engagement while supporting the operationalization of the SDGs in everyday student life (Mahat et al., 2017).

The findings further reveal that formal educational institutions and mainstream media constitute the primary sources of environmental awareness among government college students, whereas peer networks, community engagement, student associations, and other informal channels exert comparatively limited influence. At one level, the prominent role of the curriculum is encouraging, as it indicates that educational institutions continue to function as a central mechanism for environmental knowledge dissemination. However, the dominance of formal education as an information source should not automatically be interpreted as evidence of effective environmental learning. When considered alongside students' moderate practical understanding and limited environmental engagement, the findings suggest that the current educational approach may be more successful in transmitting environmental information than in cultivating environmentally responsible behavior. This interpretation is consistent with previous studies conducted in Bangladesh, which have repeatedly highlighted the predominance of theoretical and examination-oriented environmental education at the expense of experiential and practice-based learning opportunities (Asik et al., 2026; Sarkar, 2011).

The strong influence of social media and news outlets also reflects the growing importance of mediated environmental learning among contemporary youth. While these platforms substantially increase exposure to environmental information, they often provide fragmented and event-driven representations of environmental issues. As a result, students may become informed about environmental problems without necessarily developing the deeper critical understanding and behavioral competencies required for sustained environmental action. This observation supports previous arguments that media can significantly shape environmental awareness and, in some contexts, complement or rival formal educational institutions in influencing environmental perceptions (Al-Maliki et al., 2022). Nevertheless, awareness generated through information exposure alone may have limited capacity to produce long-term behavioral transformation if it is not reinforced through practical experience, social participation, and institutional support (Majumder, 2017). From an environmental literacy perspective, knowledge acquisition and information exposure should therefore be complemented by opportunities for active environmental engagement if awareness is to translate into meaningful behavioral outcomes (Gheith, 2019; McBride et al., 2013).

An equally important finding concerns the relatively limited influence of peer groups, student associations, and community-based participation in shaping environmental awareness. Environmental attitudes and behaviors are often strengthened through social interaction, collective engagement, and shared environmental norms. The minimal contribution of student-led and community-based mechanisms may therefore indicate the existence of institutional and social environments that provide insufficient opportunities for environmental participation beyond formal classroom settings. Consequently, students may acquire environmental knowledge without becoming embedded within social contexts that reinforce and normalize pro-environmental behavior. This may partly explain why relatively high levels of awareness coexist with comparatively limited environmental engagement among respondents. Strengthening student organizations, campus environmental initiatives, and community-based sustainability projects may therefore provide important pathways for enhancing environmental participation and reinforcing environmentally responsible behavior.

The demographic analysis provides additional insight into the factors shaping environmental awareness among government college students. The absence of statistically significant relationships between most demographic characteristics and environmental awareness indicators suggests that environmental awareness is distributed relatively uniformly across student groups. This pattern may reflect the highly centralized nature of Bangladesh's public education system, where students are exposed to similar curricula, comparable institutional environments, and shared educational experiences regardless of gender, income level, residential status, or institutional affiliation. Rather than indicating that demographic characteristics are unimportant, these findings suggest that broader educational and institutional influences appear to play a comparatively more prominent role in shaping environmental awareness. Such an interpretation shifts attention away from individual-level explanations and highlights the importance of structural factors in shaping environmental learning opportunities.

Nevertheless, two notable exceptions emerged. First, students' field of study was significantly associated with their understanding of the environmental impacts of daily activities, highlighting the important role of disciplinary exposure in shaping environmental comprehension. This finding supports previous research demonstrating that educational attainment, academic specialization, and exposure to sustainability-related content can significantly influence environmental awareness and pro-environmental behavior (Mobley et al., 2010; Ogunbode & Arnold, 2012; Simpson et al., 2021; Xiao & Hong, 2010). Students who encounter environmental concepts more frequently through their academic training may develop stronger capacities to connect environmental issues with everyday behavior and decision-making. Second, age exhibited a marginally significant relationship with environmental discussions among friends and family, suggesting that environmental communication may be influenced by gradual processes of socialization and accumulated educational experiences. Although this relationship appears relatively weak, it nevertheless indicates that environmental engagement may develop progressively through continued exposure to environmental information and discussion. Collectively, these findings reinforce the argument that environmental awareness among government college students is shaped more strongly by educational experiences and institutional structures than by most conventional socio-demographic characteristics. Consequently, efforts to enhance environmental awareness and engagement should prioritize institution-wide and interdisciplinary educational interventions rather than targeting specific demographic groups.

A particularly noteworthy finding of this study is the contrast between students' dissatisfaction with current environmental governance efforts and their overwhelming support for stronger implementation of environmental regulations. Although a majority of respondents believed that the government is not doing enough to address environmental issues, almost all expressed support for improved enforcement of environmental rules and regulations. This combination suggests that students do not fundamentally reject existing environmental policies; rather, they perceive a substantial implementation gap between policy commitments and observable environmental outcomes. Such perceptions are important because individuals' willingness to engage in environmental action is often influenced by their confidence in the effectiveness of institutions and governance systems. When environmental policies are perceived as inadequately implemented, individuals may become less convinced that collective environmental efforts can produce meaningful change, even when they personally support environmental protection. Therefore, strengthening the visibility, consistency, and effectiveness of environmental policy implementation may be important not only for environmental management itself but also for reinforcing public confidence in environmental governance.

This interpretation is particularly relevant within the Bangladeshi context, where environmental policies and sustainability commitments have expanded considerably in recent years, yet challenges associated with institutional capacity, policy enforcement, and practical implementation continue to persist (Debrah et al., 2021; Sarkar, 2011). The students' responses therefore reflect a broader recognition that environmental problems cannot be addressed solely through policy formulation; effective implementation mechanisms are equally necessary. In this regard, educational institutions can play an important intermediary role by creating opportunities for students to observe, participate in, and evaluate environmental initiatives, thereby strengthening the perceived connection between environmental policies and tangible environmental outcomes.

Another significant finding is the overwhelming support for the mandatory integration of environmental education into the college curriculum. The near-consensus among respondents suggests that students view environmental learning as a fundamental educational necessity rather than an optional or supplementary topic. This finding reinforces the growing recognition that environmental education constitutes one of the most effective mechanisms for developing environmental literacy, sustainability competencies, and environmentally responsible behavior (Roth, 1992). Importantly, students' strong preference for curriculum-based environmental learning aligns with the broader objectives of Education for Sustainable Development (ESD), which emphasizes the integration of sustainability principles into formal educational systems as a means of promoting long-term behavioral transformation and supporting the achievement of the SDGs (Kioupi & Voulvoulis, 2019; Sterling, 2016). The findings therefore indicate that students themselves recognize the need for more structured and systematic environmental learning opportunities within higher education institutions.

However, the results simultaneously reveal a more nuanced challenge. Although support for environmental education is exceptionally high, willingness to participate in institutionally organized environmental campaigns is comparatively lower and accompanied by a notable degree of uncertainty. This discrepancy reinforces the broader

pattern identified throughout the study, whereby environmental concern does not automatically translate into active participation. While students clearly acknowledge the importance of environmental issues and support educational interventions, translating these positive attitudes into sustained engagement appears more complex. Such hesitation may stem from limited time, inadequate institutional incentives, insufficient opportunities for meaningful participation, or uncertainty regarding the effectiveness of environmental activities. Consequently, increasing environmental awareness alone may not automatically result in higher levels of environmental engagement unless supportive institutional conditions are simultaneously established.

Students' preferences regarding strategies for improving environmental awareness provide further evidence for this interpretation. The strongest support was observed for curriculum integration, workshops and seminars, hands-on environmental activities, and incentive-based participation mechanisms. Collectively, these preferences indicate that students favor structured, experiential, and participatory approaches to environmental learning rather than passive awareness campaigns. This finding is consistent with previous research demonstrating that experiential learning opportunities can substantially strengthen environmental knowledge, foster pro-environmental attitudes, and encourage environmentally responsible behavior (Kerret et al., 2020; Park & Lin, 2020). Furthermore, the strong support for hands-on activities and community-based environmental projects suggests that students recognize the importance of applying environmental knowledge in practical contexts. Such preferences are particularly significant because they indicate a demand for educational environments that allow students to experience environmental responsibility directly rather than merely learning about environmental issues in theoretical terms.

Taken together, these findings suggest that effective environmental awareness initiatives within government colleges should move beyond information dissemination and adopt a more holistic approach that integrates curriculum reform, experiential learning, institutional support, and opportunities for active participation. Beyond its practical implications, this study contributes to the environmental psychology literature by demonstrating that environmental awareness and positive environmental attitudes alone are insufficient to ensure sustained environmental engagement among college students. The findings suggest that the translation of awareness into behavior is mediated by educational experiences, opportunities for participation, and institutional support structures. Consequently, environmental literacy should be understood not merely as knowledge acquisition but as a developmental process through which awareness, responsibility, and action become meaningfully connected within students' everyday lives. By fostering these connections, higher education institutions can play a critical role in strengthening environmentally responsible behavior and supporting broader sustainability transitions and the achievement of the Sustainable Development Goals (SDGs) (Kioupi & Voulvoulis, 2019; Mahat et al., 2017).

## CONCLUSION

This study found that government college students in Dhaka possess generally positive environmental attitudes and a moderate to high level of environmental awareness. However, this awareness is not consistently reflected in active environmental engagement, indicating a gap between environmental knowledge and behavior. The findings suggest that environmental awareness is influenced more by educational and institutional factors than by most socio-demographic characteristics. While formal education and media serve as important sources of environmental knowledge, opportunities for practical engagement remain limited. Therefore, higher education institutions should move beyond knowledge-based approaches and promote experiential learning, curriculum integration, and participatory sustainability initiatives. Strengthening environmental literacy through action-oriented educational strategies may help translate awareness into environmentally responsible behavior and contribute to broader sustainability goals and the achievement of the Sustainable Development Goals (SDGs).

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## DISCLOSURE AND DECLARATION OF AI USE

During the preparation of this manuscript, the authors used ChatGPT (OpenAI, free version; accessed in 2026) as an assistive tool to support editorial enhancement. Its use was limited to text refinement and condensation, language editing, improving readability and coherence across sections, and assistance with reference formatting.

All research objectives, study design, data collection, analytical and methodological decisions, interpretation of findings, conclusions, and preparation of the final manuscript remained under the full control of the authors. Any AI-assisted output was carefully reviewed, critically evaluated, and revised where necessary before inclusion. The authors collectively approved the final version of the manuscript and accept full responsibility for its accuracy, integrity, and overall scholarly content.

## AUTHORS CONTRIBUTIONS

The first author conceptualized the study and prepared the original manuscript draft. The second author contributed to the study conception and provided overall guidance throughout the research process. The third and fourth authors were responsible for data analysis and critically revising the manuscript. All authors reviewed, approved, and agreed to the final version of the manuscript.

## STATEMENTS AND DECLARATIONS

- **Ethical Considerations:** Yes, the research was conducted in accordance with ethical principles, including voluntary participation, informed consent, confidentiality, and protection of participants' anonymity.
- **Consent to Participate:** Informed consent was obtained from all participants before data collection, and participation was undertaken voluntarily without any form of coercion.
- **Declaration of Conflicting Interest:** No conflicts of interest to the best of our knowledge.
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- **Data availability statement:** The data supporting the findings of this study are available from the corresponding author upon reasonable request. Data are not publicly available to protect participant confidentiality.

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Annexure

Figure 1: Most Contributed sources to respondent Awareness

| Most contributed information Sources | N | Percent |
|---|---|---|
| School/College Curriculum | 189 | 27.4 |
| Social media | 165 | 23.9 |
| News Outlets (TV, Newspapers, etc.) | 121 | 17.6 |
| Environmental Organizations | 93 | 13.5 |
| Family and Friends | 116 | 16.8 |
| Student association | 1 | 0.1 |
| Popular people | 3 | 0.4 |
| Books | 1 | 0.1 |
| Total | 689 | 100.0 |

Figure 2: Most effective way to increase awareness

| Most effective way to increase awareness | N | Percent |
|---|---|---|
| Incorporate environmental studies into the curriculum | 217 | 31.5 |
| Organize workshops and seminars | 200 | 29.0 |
| Social media campaigns | 144 | 20.9 |
| Community involvement projects | 127 | 18.4 |
| Government Action | 1 | 0.1 |
| Total | 689 | 100.0 |

Figure 3: Students thinking to solving Environmental problems

| Students thinking to solving Environmental problems | N | Percent |
|---|---|---|
| Organize more hands-on activities for students to participate in | 236 | 31.7 |
| Partner with local communities for joint environmental projects | 154 | 20.7 |
| Provide incentives for students to engage in environmentally friendly practices | 222 | 29.8 |
| Increase availability of resources on campus to support sustainable practices | 128 | 17.2 |
| Government Action | 5 | 0.7 |
| Total | 745 | 100.0 |

**Additional Table**

Sources of environmental awareness

**Table 1: Most Contributed sources based on Origin**

| Sources of information have contributed | Origin | | |
|---|---|---|---|
| | Urban | Semi Urban | Rural |
| School/College Curriculum | 64 | 23 | 102 |
| | 33.9% | 12.2% | 54.0% |
| Social media | 63 | 23 | 79 |
| | 38.2% | 13.9% | 47.9% |

| | | | |
|---|---|---|---|
| News Outlets (TV, Newspapers, etc.) | 39 | 16 | 66 |
| | 32.2% | 13.2% | 54.5% |
| Environmental Organizations | 20 | 13 | 60 |
| | 21.5% | 14.0% | 64.5% |
| Family and Friends | 35 | 14 | 67 |
| | 30.2% | 12.1% | 57.8% |
| Student association | 1 | 0 | 0 |
| | 100.0% | 0.0% | 0.0% |
| Popular people | 1 | 1 | 1 |
| | 33.3% | 33.3% | 33.3% |
| Books | 1 | 0 | 0 |
| | 100.0% | 0.0% | 0.0% |

**Chi-Square Test of information sources and origin of the respondents.**

Pearson Chi-Square Tests

| | | **Origin** |
|---|---|---|
| Sources of information | Chi-square | 29.324 |
| | Sig. | .022*,b,c |

Influential demographic factors' on students' awareness

Table: Awareness status

| **Variable** | **Very High** | **High** | **Moderately** | **Low** | **Very Low** |
|---|---|---|---|---|---|
| How would you rate your awareness of environmental issues? | 12.8% | 35.9% | 47.1% | 3.7% | 0.5% |
| Variable | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| Do you believe that your individual actions can make a significant impact on the environment? | 23.0% | 54.2% | 18.8% | 3.1% | 0.8% |
| Variable | Very Well | Well | Moderately | Poorly | Not at All |
| How well do you understand the impact of your daily activities on the environment? | 15.2% | 34.3% | 31.7% | 16.2% | 2.6% |
| Variable | Very Well | Well | Moderately | Poorly | Not at All |

| | | | | | |
|---|---|---|---|---|---|
| How well do you understand the impact of your daily activities on the environment? | 15.2% | 34.3% | 31.7% | 16.2% | 2.6% |
| Variable | Always | Often | Sometimes | Rarely | Never |
| How well do you discuss environmental issues with your friends or family? | 5.2% | 42.4% | 29.1% | 21.2% | 2.1% |
| How well do you read articles or watch documentaries about environmental issues? | 4.5% | 34.8% | 27.5% | 28.3% | 5.0% |

**4. Field of Study * 11. How well do you understand the impact of your daily activities on the environment?**

**Chi-Square Tests**

| | Value | Df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 16.995[a] | 8 | .030 |
| Likelihood Ratio | 18.803 | 8 | .016 |
| Linear-by-Linear Association | 3.668 | 1 | .055 |
| N of Valid Cases | 382 | | |

a. 3 cells (20.0%) have expected count less than 5. The minimum expected count is 2.75.

Age of the respondent * 12. How well do you discuss environmental issues with your friends or family?

**Chi-Square Tests**

| | Value | Df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 15.568[a] | 8 | .049 |
| Likelihood Ratio | 15.473 | 8 | .051 |
| Linear-by-Linear Association | .002 | 1 | .965 |
| N of Valid Cases | 382 | | |

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 1.61.