Knowledge, Awareness, and Practices Regarding Climate Change Among Undergraduate Students

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Abstract

The undergraduate students' knowledge, perception, and practices regarding climate change in the Department of Agricultural Science at Daffodil International University, Bangladesh, were studied. In total, 150 students were surveyed in a cross-sectional study using a structured questionnaire. This paper will highlight the level of understanding that the students have with regard to causes, impacts, and mitigation strategies related to climate change, and their involvement in climate- friendly practices. Results show a high overall awareness of 86% on climate change, while 80.67% perceive manifestations within their communities. Students also showed good knowledge in the causes of climate change, with the burning of fossil fuel at 68.6% and deforestation at 68.0% being the most mentioned causes. On the impact, sea-level rise at 78.6% is most identified, closely followed by desertification at 78.0%. These are practical mitigation measures, and the response was very overwhelming for: reduction of industrial pollution with 82% agreeing, adoption of renewable energy with 81.3% agreeing. The analysis of climate-friendly practices indicated that the highest engagement in tree planting stood at 82.6%, while water conservation was at 82%. There is a weak positive correlation between knowledge about climate change and mitigation practices, as the correlation coefficient was very small ($r = 0.057$, $p = 0.495$), signifying that with more knowledge, more action is not necessarily taken. Chi-square tests indicated no statistically significant associations of gender or academic level with knowledge of climate change.

Keywords: Climate Change, Agricultural Education, Environmental Awareness, Mitigation Practices, Bangladesh

1. Introduction

Climate change is considered one of the most significant global problems in the 21st century, seriously affecting all environmental systems and human wellbeing. Therefore, the Intergovernmental Panel on Climate Change (IPCC) has warned repeatedly, through numerous reports, that the pace at which climate change occurs is accelerating and the primary driving element for global warming and atmospheric changes consists of anthropogenic activities [1]. The average global temperature has already risen by about 0.8°C since the late 19th century and is projected to rise by as high as 1.5-2°C above pre-industrial levels by the mid-21st century, in the absence of vigorous mitigation [2]. Further increase in temperature leads to cascading impacts on ecosystems, health, food security, and the economy in general. Agriculture is among the most vulnerable sectors given its deep reliance on stable climatic conditions. It has been largely affected by changes in temperature and precipitation patterns, which determine crop productivity, pest dynamics, and water supply for irrigation [3].

The developing countries, however, especially with agrarian economies, are still at the receiving end of any constraining capacities that are oftentimes impounded through financial and technological constraints. For instance, in Bangladesh,

climate- induced stresses such as flooding, salinity intrusion, and shifting monsoon patterns are emerging as growing risks to agricultural production and food security [4]. The pathway toward resilience includes public awareness and adaptive capacities. Higher education institutions bear a great deal of responsibility in shaping the knowledge of and perceptions about climate change among students, since they are the potential future decision-makers and leaders of society [5]. A number of studies have singled out the university level for enhancing climate literacy and pro- environmental behavior through environmental education. For example, in one study from Turkey, although university students were found to be aware of climate change in general, their knowledge about its impacts on agriculture was limited [6].

Research in Nigeria indicated that while the students had awareness regarding climate change, such awareness did not always translate into substantial adaptive action [7]. In Bangladesh, since agriculture forms the backbone of the economy, it is imperative to understand how future agriculturalist's view, perceive, and approach the issue of climate change. Limited research focusing on climate literacy has been conducted among students enrolled in agricultural programs. The present study tries to fill this gap through assessment of the knowledge, perception, and practice about

climate change among agricultural students in Daffodil International University. It does this in an offer to know how prepared the students are in addressing various challenges arising from climate change in agriculture. The results of this study are expected to add to the general discussion of climate change education, with emphasis on developing countries where agriculture still is a vital sector. In addition, understanding students' attitudes toward climate change may help shape future educational interventions aimed at enhancing their adaptive capacities and preparing them to respond to the rapid changes in climate.

2. Methodology

2.1. Research Design

The present study was a cross-sectional survey and was designed to analyze knowledge, perception, and practices about climate change among undergraduate students of the Department of Agricultural Science, DIU. The major tool for data collection was a structured questionnaire. The entire research was done online for the convenience and accessibility of respondents.

2.2. Study Population and Sampling

The population that was targeted in this research involved undergraduate level students in the Department of Agricultural Science. The sample size of this research involved 150 students. Convenience sampling method was adopted because the method actually asks to students to volunteer by filling out this online questionnaire. It is one of the ways through which widely encompassed views may be represented in the department.

2.3. Data Collection Tool

The method for this study is a structured self-administered questionnaire, developed based on the relevant literature related to climate change knowledge, perception, and practices; it consists of four sections: Socio-demographic details, Knowledge, Perception and Attitude, Practices. This was conducted in online, using Google Forms for anonymity and confidentiality. These questionnaires had two weeks' time to respond; a reminder was also sent every week by e-mail to request their response on the questionnaires.

2.4. Data Analysis

Following the close of data collection, responses were downloaded, cleaned, and coded into analysis. The demographic characteristics and overall trends in knowledge, perception, and practices were summarized as descriptive statistics-for instance, frequencies and percentages. The

knowledge score was computed by adding up correct responses among the questions related to climate change. Similarly, attitude and practice scores were rated on a Likert scale with high scores indicating a higher level of awareness and active engagement by respondents to address the issue of climate change. Data analysis was done using SPSS, version 27, and Python. All the demographic variables must be tested against any possible relation using the test of the correlation analysis to levels of knowledge, perception, or practices related to climate change.

3. Results and Discussion

Table 1 shows the demographic information of the 150 undergraduate students who participated in this study. From the age distribution of respondents, it can be observed 52% of respondents were 20 to 23 years old and 48% were 24 to 27. This means that there is quite a reasonable balance in the age group representation, common within undergraduate populations, as observed in related studies on climate change knowledge among university students [8]. The gender distribution was 64% male and 36% female students. The observed gender disparity is representative of the typical enrollment numbers in most agricultural or science-related fields where male students often be more than female students. As a matter of fact, previous related studies have also documented similar gender distribution when measuring knowledge and perception of climate change [9]. In the sample, 16% were in the first semester of study, 46.67% in the third semester, and 37.33% in the second semester. This would appear to indicate that the largest number of respondents were those in the early years of undergraduate studies. A study by (Olufunke et al.) presented that academic seniority was characterized by increased awareness and information on issues related to environmental problems, which means that third-semester students in the current study could give a better insight into climate change. Regarding residence, 62.67% of the students came from urban areas, whereas 37.33% were from rural settings. This trend of urban and rural balance corresponds to the same trend at the national level regarding enrollment in higher education, which happens to favor the urban setting. This is supported by the fact that generally, urban students have a better and wider exposure to environmental education and resources, which would increase their awareness of climate change [10,11]. On the other hand, rural students may be exposed to the consequences of climate change on the ground-which, in agricultural contexts, are likely to be perceived and practiced very differently by them [12].

Item	Frequency (Percentage) *N=150*
Age	
20-23	78(52.00)
24-27	72(48.00)
Gender	
Male	96(64.00)
Female	54(36.00)

Academic level	
First Semester	24(16.00)
Second Semester	56(37.33)
Third Semester	70(46.67)
Residence	
Urban	94(62.67)
Rural	56(37.33)

Table 1: Demographic Characteristics of the Respondents

Results indicated that a massive 86% of the respondents were aware of climate change. This high level of awareness aligns with the findings of previous studies conducted among university students globally; most have demonstrated that an educational environment is most likely to enhance the learning of climate change issues [13,14]. The remaining 14% who had never heard about climate change could represent gaps in either communication or curriculum integration that need to be addressed with if complete awareness is to be achieved. A total of 80.67% respondents answered "yes" to the question of whether they perceived their community to have been affected by climate change. This indicates a very strong perception in the belief that climate change is real and is also a cause for concern at global and local levels. Similar results are found in various countries; at a community level, the after-effects of the change in climatic conditions evident as a shift in the weather pattern and the increase in extreme events [15].The 19.33% who did not perceive climate change as affecting their community may reflect variation in direct experiences of climate-related events or perhaps an absence of knowledge that more delicate changes are part of greater climate shifts [16]. While there is a high level of awareness about climate change, only 42.67% of the respondents knew about the United Nations SDGs on climate action. This therefore illustrates the gap that remains between general awareness and specific knowledge of international frameworks working against the threat of climate change. Previous studies have noted that more specific education regarding international programs such as the SDGs would better encourage proactive student involvement [17]. The high percentage of respondents (57.33%) who reported not knowing the SDGs suggests the inclusion of these global goals in academic curriculum to raise awareness and create common actions.

Item	Frequency (Percentage) *(N = 150)*	
	Yes	No
Have you ever heard about climate change?	129(86.00)	21(14.00)
Do you think your community has been affected by climate change?	121(80.67)	29(19.33)
The United Nations Sustainable Development Goals for climate action, do you know what they are?	64(42.67)	86(57.33)
initiative in mitigating the rate of climate change?	106(70.67)	44(29.33)

Table 2: Demographic Characteristics of the Respondents

The majority of respondents (70.67%), are aware about Bangladeshi government initiatives on climate change mitigation. This is an encouraging indicator that at least the students are well- informed of governmental efforts, which even include the National Adaptation Plan (NAP) and Climate Change Strategy and Action Plan (BCCSAP). At the same time, the remaining 29.33% showed that they were uninformed about the initiatives, which hinted at probable barriers in communicating these to the younger generations. These findings are in agreement with those from other studies, indicating that most of the governmental actions are very comprehensive, though not visible and well understood by the public [18]. These findings of the present study bring to the various strengths as well as weaknesses in the climate change education and response of undergraduate students toward awareness. As much as a good level of awareness about climate change added to the perception of its local impacts is an encouraging result, gaps in certain kinds of knowledge at the international and national levels of climate frameworks mark the need for an integrative approach toward climate education. Educational institutions play a critical role in bridging this knowledge gap. Research indicates that the integration of climate change issues into university curricula enhances students' knowledge and stimulates active participation in climate change activities [19] [20]. Active engagement with frameworks like the SDGs can empower students to take action on a global scale, while awareness of national policies ensures they remain informed about local efforts.

3.1. Students' Ranking of the Most Observable Environmental Changes in Bangladesh
These results from the study indicate that undergraduate students have different perceptions concerning the observable effects that climate change has on the environment; temperature changes are the most observable. Figure 1 indicates that 38% of the students mentioned temperature changes as the most observable effect of climate change. This accords with the results obtained from other studies, which have also pointed out increased temperature as one of the major manifestations of climate change, particularly for tropical countries like Bangladesh, where

the incidents of heat waves and temperature variability are rising [21,22].

The other environmental change that the students noticed was an excessive temperature, as observed by 28% of the students. This perception may thus be informed by recent experiences from the region, where there have lately been increased frequencies and intensities of heat waves [23]. Students are also conscious of excessive heat probably because most of the media and state reports continue to highlight the adverse health outcomes of long exposure to excessive temperatures, especially in urban areas. Others mentioned seasonal shifts -18.6%. These changes refer to the disruption of the pattern of seasons that seriously imposes upon agriculture, the supply of water, and biodiversity. This includes disruption to the seasonal cycle that would affect crop yield and food security, key matters of Bangladesh's agrarian economy. The result is also supported by another study which reported disrupted seasonal patterns as one of the most critical impacts of climate change in South Asia [24,25]. Surprisingly, only 7.3% of respondents observed changes in rainfall.

The percentage is comparatively low, probably because people do not feel this change as immediate or as observable as other environmental factors. On the other hand, however, erratic rainfall, long rainless periods, and sudden falls leading to heavy monsoon rains have been increasingly affecting Bangladesh in recent years, too, with resulting dangers of both drought and flood [21,26]. Least considered by the students were floods, which had a rating of 4%, drought 3.3%, and others because they are highly localized and at times may not be even visible to people who live in urban areas. Notwithstanding the above, the high risk of heavy Bangladesh floods may also mean that the recent infrastructural improvements, like embankments and flood management systems, have reduced these risks, thus decreasing their perceived imminence among students [27,28]. Only a really negligible percentage-0.66%-of respondents replied that they did not know about the environmental changes taking place due to climate change. This calls for increasing awareness on climate change, as students are one of the biggest stakeholders in the building of future climate action and policies in Bangladesh.
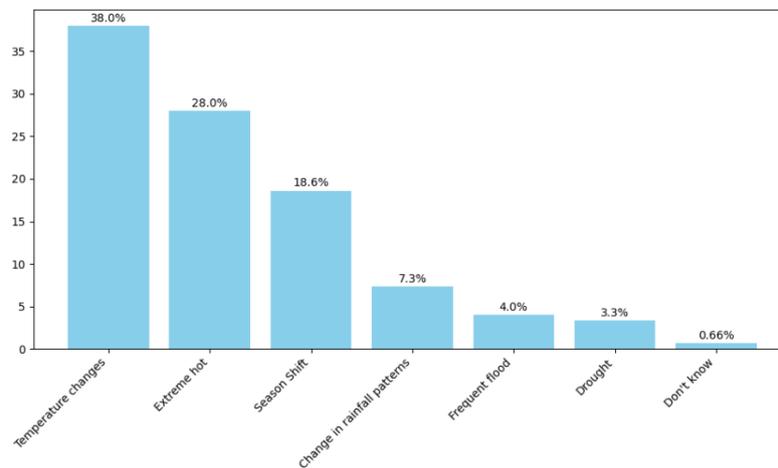

Figure 1: Students' Ranking of the Most Observable Environmental Changes in Bangladesh

3.2. Students' Knowledge About the Causes of Climate Change

Figure 2 represents a relatively high awareness of the main causes of climatic change among undergraduate students through analysis of students' response. The presentation of data shows that the highest causes of climate change are contributed by "burning fossil fuels" at 68.6%, while the second one is "deforestation" at about 68.0%. This aligns with existing literature, which identifies these factors as significant anthropogenic drivers of climate change [29,30]. Studies have consistently shown that fossil fuel combustion, particularly for energy production and transportation, is the largest source of greenhouse gas emissions globally [31]. On the other hand, it leads to the emission of stored carbon in trees and increases the loss of carbon sinks [32]. While "industrial pollution" is identified by 67.3%, it is also perceived as one of the causes. Most of the industrial activities and processes that these CO2 and CH4-emitting gases participate in contribute greatly to atmospheric pollution and the enhancement of the greenhouse effect.

As expressed, it is relevant in terms of awareness on the part of the students for far-reaching environmental training programs on the contribution of pollution to the climate process [33]. Of interest was the fact that "natural cycles" were acknowledged by 66.6% of the students hence an awareness of complexity with respect to climate variability. Where natural climate variability contributes to weather patterns, the overwhelming weight of scientific evidence shows that the recent rapid climate change is mainly caused by human activities and not by natural causes (NASA, 2023) [34].This forms a critical difference in how students perceive anthropogenic versus natural influences. Finally, 66.0% of the students said "transport-related carbon emission", which is also reported by literatures such as, saying that the transport field contributes a larger share to global carbon emissions [35]. Since with each growing rate of urbanization, there will be expected increases in private vehicles, transport-related emission is foreseen to be one of the major concerns during climate change mitigation.
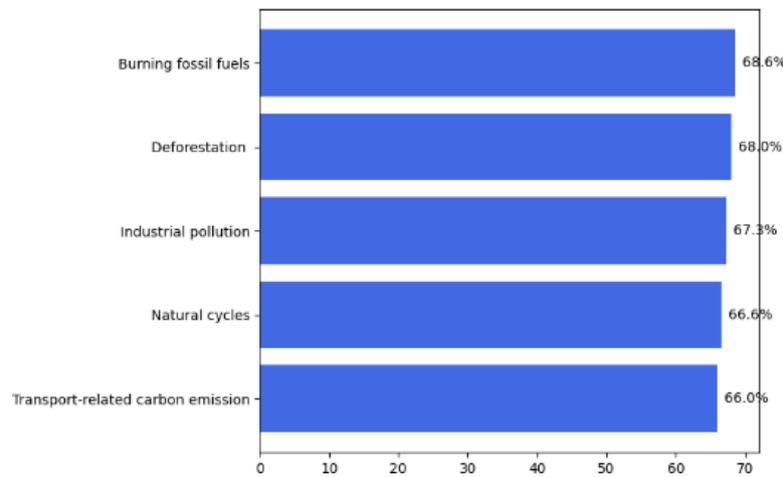
Figure 2: Students' Knowledge About the Causes of Climate Change

3.3. Students' Knowledge About the Impact of Climate Change

Figure 3 shows the results of the knowledge test on climate change impacts. It could be concluded that a rather high number of the students acquired middle- and high-level knowledge about various climate change impacts. The highest levels of awareness were found in questions related to increasing sea levels and desertification at 78.6% and 78.0%, respectively. This figure demonstrates a growing awareness regarding issues well-publicized both within academia and popular media [36]. It also stands in agreement with various other studies in which sea level rise has often been found to be among the most acknowledged impacts of climate change by students [37,38]. On the one hand, 74.6% mentioned extreme temperature events, which is evidence of the prevalence of extreme heat and cold spells reported all over the world. Agreeing with the same survey, the result of the research study by had shown that extreme fluctuation in temperature is more recognized nowadays because students have already experienced these phenomena in the recent past [39].

Another important issue like floods, hurricanes, and droughts was stated by 73.3% of the respondents, and it really shows that students become more and more aware of the fiercer meteorological impacts caused by climate change. This figure is in close agreement with previous studies indicating a widespread understanding of the link between climate change and the intensification of extreme weather events [40,41]. It also means 72.0% of these students are aware that climate change disrupts the health care workplace.

Such an inference enumerates education of importance with regard to how climate change impacts public health systems, especially within areas where natural disasters could even render health infrastructures inept. Regarding this, comment that increasing awareness of climate change health risks is basically relevant for both responses at the personal and public health level when it comes to reducing such health hazards [42]. In turn, the level of awareness about ozone holes and loss of biodiversity was comparatively lower, 68.0% and 63.3%, respectively.

These are again very significant rates; however, they do show the points where further educational efforts are necessary. In addition, research by has shown that the depletion of the ozone layer is an important component of environmental education, though less discussed in modern climate change discourse [43]. Biodiversity loss, though less tangible for students when compared to extreme weather events, is another important consequence of climate change that needs to be brought forth in educational curricula [44]. General findings tend to reveal that there is a tendency for the students to have general information about the changes brought by the climatic change mainly on the increase of sea level, desertification, and extreme temperatures though specific effects in terms of loss of biodiversity and ozone hole still remain a mystery to them due to a lack of emphatic study. These results are consistent with the existing literature and form part of the burgeoning body of evidence on how education shapes young people's perceptions about climate change. Such a trend is reinforced by findings from [45].
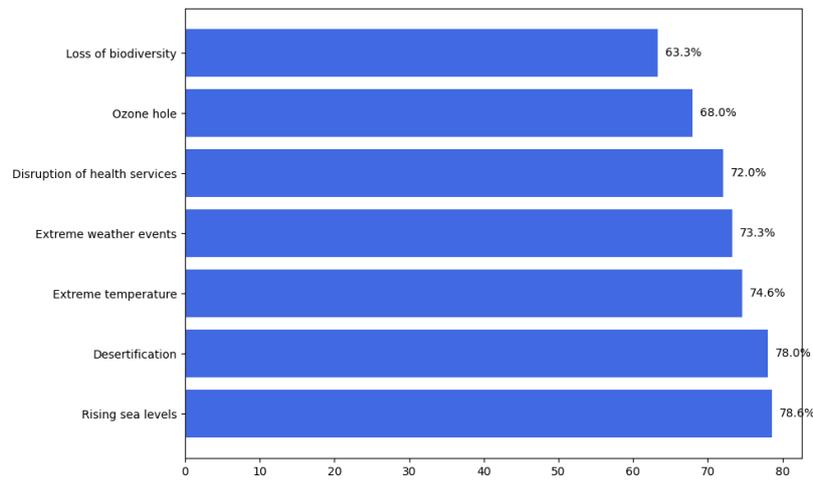
Figure 3: Students' Knowledge About the Impact of Climate Change

3.4. Respondents' Awareness of Climate Change and their Perceived Solutions

These findings indicate substantial awareness among undergraduate students that climate change is a serious problem globally. 64% of the 150 respondents agree that climate change is a serious problem, while 32% disagree. These findings uphold earlier studies such as that by, which also found that a sizeable proportion of young adults' view climate change as a serious problem [46]. The uncertainty of climate change is, however, still present because 4% of the responded are still undecided about the seriousness it holds. Furthermore, 64% of respondents believe that climate change could reduce the quality of life for future generations, aligning with findings from previous studies indicating that younger generations are increasingly aware of the long-term impacts of environmental degradation [15]. However, 17.3% showed uncertainty, while 18.6% disagreed with this statement, which may be indicative of certain gap in the depth of understanding or exposure related to climate change science, as identified by [47]. In the question about the proposed solution mitigation of climate change, the majority strongly agreed with practical actions such as decreasing industrial pollution 82%, using renewable energy sources 81.3%, and finally waste disposal at 79.3%. This is consistent with existing literature, where mitigation actions are often considered essential in climate change discourse (IPCC 2021). Notably, water conservation and reuse were supported by 78.6% of respondents, which reflects an increasing recognition of water as a critical resource, as suggested by works like [48]. Encouraging community participation and making international agreements were also perceived as vital strategies, with 78.6% and 78% agreement, respectively. This underscores the growing perception among students that collective and policy-driven actions are essential for addressing climate change [49]. Public awareness and education are recognized as key factors, with 76% agreeing on the need to increase climate change awareness, aligning with findings by, who emphasized the role of education in fostering sustainable behaviors [50]. The same confidence in technology as an ecological tool in combating climate change was supported by, showing the role of green innovation in mitigating impacts to the environment, while on the other hand, strong support was gained for technological solutions: 75.3% of respondents believe that environmentally friendly technologies are to be used [51]. Interestingly, the lowest percentage of agreement, which obtained a higher level of disagreement, 29.4%, than in other solutions. This indicates possible conflicts between pressures for urban development and the protection of the environment, which have been similarly observed in various studies, including [52]. It may thus point toward the more vigorous inclusion of climate resilience methods in an urban planning education so that future professionals are better placed to navigate such complexities.

Item	Frequency (Percentage) N = 150		
	Agree	**Uncertain**	**Disagree**
Climate change is one serious problem.	96(64.0)	6(4.0)	48(32.0)
It can reduce the quality of life for future generations by changing climate.	96(64.0)	26(17.3)	28(18.6)
For each of the following statements about coping with climate change, indicate how strongly you agree:			
Decrease industrial pollution	123(82.0)	8(5.3)	19(12.7)
Use renewable energy sources	122(81.3)	6(4.0)	22(14.7)
Dispose of waste properly	119(79.3)	11(7.3)	20(13.4)
Encourage water conservation and reuse	118(78.6)	8(5.4)	24(16.0)
Encourage community participation	118(78.6)	6(4.0)	26(17.4)
Make international agreements	117(78.0)	14(9.3)	19(12.7)

Increase public awareness about climate change	114(76.0)	9(6.0)	27(18.0)
Use environmentally friendly technologies	113(75.3)	13(8.7)	24(16.0)
Increase tree planting	108(72.0)	11(7.3)	31(20.7)

Table 3: Respondents' Awareness of Climate Change and their Perceived Solutions

3.5. Students' Practices to Prevent or Reduce the Impact of Climate Change

These findings indicate the full involvement of students in the adoption of practices that contribute to reducing climate change. The most reported behaviors were tree planting, where 82.6% had participated in tree plantation activities. This points to a deep-seated realization of the role of trees in carbon sequestration and is in line with global research that promotes afforestation as a workable and effective climate mitigation strategy. Tree planting is important not only in that it offers a direct measure against carbon emission, but also because it has fit into the increasingly observable awareness in academia with regard to ecological preservation. Closely following is 82% of the students who reported that they pay attention to their water consumption. This practice is very important in easing the stressful situation brought about by climate change on water resources. On this aspect, appropriate water management practices among students, especially in towns and cities, are indicative of increased consciousness of the demand for sustainable water usage. The efforts of 80% of students in limiting the use of air conditioning, show awareness of the relationship between energy consumption and greenhouse gas emission; after all, cooling technologies are amongst the leading causes of energy demand in warm climates [53]. 79.3% of the students always turn off the lights and devices not needed.

This behavior is included in the category of energy conservation, which has been identified to make a significant potential impact on carbon footprint reduction in everyday life [54]. More specifically, energy-saving practices at home or on campus may be translated into quantifiable reduction of electricity use and hence carbon emissions in general [53]. These include walking for short distances instead of using motorized transport 77.3% and using the stairs instead of elevators 77.3%, an integrated low-carbon behavior into the daily routine of students. This could mean a very

positive disposition toward the adoption of sustainable transport options and energy conservation. These habits, which have been normalized in the students' daily lives, may simultaneously help decrease reliance on fossil-fuel-based transportation, associated with improved air quality and lower emissions in cities. Furthermore, a large proportion of students use energy-efficient lightbulbs 76.6% and public transportation 75.3%. These are similar to uses of greener technologies and more sustainable transportation modes, leading to energy consumption and carbon emissions being increasingly reduced [55].

Public transportation cannot be underestimated in its contribution to urban sustainability, especially in highly concentrated cities where transportation by personal car contributes much to the production of greenhouse gases [56,57]. In regard to plastic consumption, 74.6% of students reported "reducing active use" of plastic items-a consideration of utmost importance since plastic waste has now been heightened with climate change. Plastic reduction efforts, coupled with the use of recyclable products at 73.3%, is representative of a model of a circular economy which sustains minimal production of waste through consumption. Another trend, part of the more general trend of sustainable agriculture, is the consumption of organic food, adopted by 73.3% of students, which has been shown to decrease the carbon footprint linked to the production and consumption of food. Interestingly, the least practiced behavior involved using paper bags instead of plastic ones, which only 67% of students engaged in. Whereas using paper bags has, for many, been touted as one step closer to removing plastic pollution, access or awareness might create different levels of limitation in its application. This discrepancy suggests a need for further educational efforts on the environmental impacts of single-use plastics and the benefits of sustainable alternatives [58].
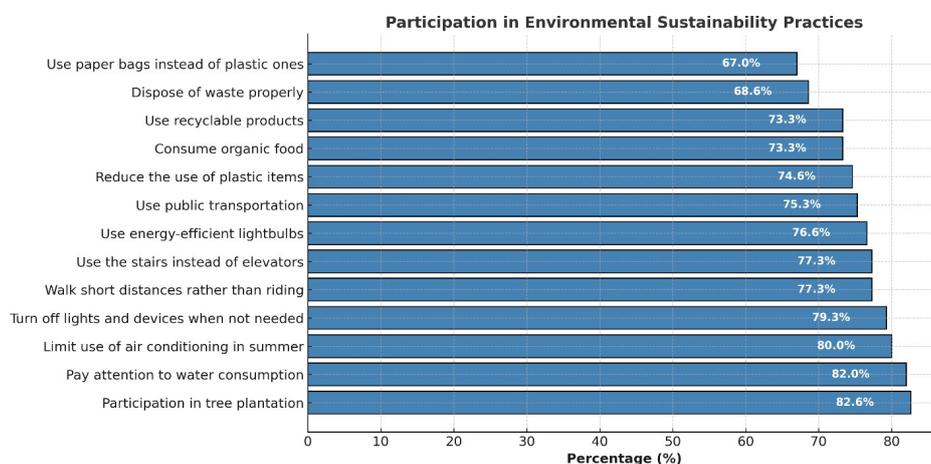

Figure 4: Students' Practices to Prevent or Reduce the Impact of Climate Change

A Pearson correlation analysis was conducted to examine the relationship between the undergraduate students' knowledge of climate change and the number of mitigation practices undertaken. The result identified a weak positive correlation ($r = 0.057$), though it is not significant statistically ($p = 0.495$), suggesting that a greater knowledge in climate change will not exactly manifest to more mitigation practices. To further explore this relationship, the study has done an Ordinary Least Squares regression analysis. The results reveal that climate change knowledge contributes only a small, positive but not significant effect on the number of practices done ($B = 0.0909$, $p = 0.495$). The model accounted for only 0.3% of the variance in practices, (R-squared = 0.003, Adjusted R-squared = -0.004). Diagnostic tests, which included the Durbin-Watson statistic, showed no significant problem of autocorrelation; it was estimated at 1.845. Conversely, Omnibus and Jarque-Bera tests indicated possible significant deviations from normality of the residuals.

3.6. Gender vs Knowledge Level
The Chi-square test was 0.56, the p-value is 0.45 and it is greater than the conventional level of significance 0.05. Therefore, there exists no significant association between gender and knowledge about climate change ($\chi^2 = 0.56$, $p = 0.45$). To put it differently, the male and female students possess relatively equal knowledge about climate change. These have pointed out that environmental knowledge is usually imparted through the agency of formal educational setups rather than being affected by gender.

3.7. Academic Level and Knowledge Level
The correlation between the academic level and semester with the level of knowledge on climate change was not statistically significant; Chi-Square: 1.69, $p = 0.43$ ($\chi^2 = 1.69$, $p = 0.43$). This means that students at different levels and semesters show quite a comparative level of understanding of climate change. These findings are further supported by previous works, in which they indicated that knowledge about climate change does not markedly differ throughout academic progression for undergraduate students. Perhaps this may be due to the uniformly consistent coverage of climate change topics within the undergraduate curriculum or even through the exposure of the students to climate information through non-academic channels.

4. Conclusion
The findings from this study indicate that there is a high level of general awareness of climate change among undergraduate agricultural students at Daffodil International University, while there is reasonably good recognition of the local impacts. Knowledge about international and national climate initiatives, however, remains lacking, such as the SDGs or Bangladeshi government policies. While all these good climate-friendly behaviors among students are going on, the correlation between knowledge and practices is weak, thus calling for more focused educational interventions. Inclusion of the topic of climate change in the curriculum, together with building of awareness of policy frameworks, is very instrumental in empowering students with the ability to deal

with climate change concerns at the local and global levels. That means agriculture is the backbone of Bangladesh, and thus training the future professionals with full knowledge of climate and its practices will be vital in lessening the vulnerability of the country to climate risks. This study signifies enhancing climate education as important to foster proactive and informed participation in climate action.

Declarations
Conflict of interest
The authors declare that there are no conflicts of interest.

Ethical approval
This study has obtained ethical approval from the Department of Agricultural Science, Daffodil International University, Dhaka, Bangladesh, ensuring compliance with all ethical standards and guidelines governing research involving human participants. In accordance with the Declaration of Helsinki, participants provided voluntary informed consent after receiving comprehensive information about the study's objectives, procedures, risks, and benefits. Confidentiality and anonymity were strictly maintained, with personal information securely stored and used solely for research purposes. Participants were assured that their decision to participate or decline would not impact their rights or privileges. Verbal consent was obtained before data collection, and efforts were made to maintain privacy and impartiality throughout the process. The research report upholds respondent anonymity.

Uses of AI
I hereby declare that generative AI has been used in this research paper for refining wording and enhancing the clarity and readability of the content. However, the core ideas, analysis, and conclusions presented are entirely my own.

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