European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

A Study on Awareness and Identifying Major Information Sources of Climate Change Communication among the Students of Pondicherry University, India

Sirasani Anilkumar
Ph.D. Scholar in Mass Communication,
School of Media and Communication,
Pondicherry University, Puducherry – 605014

Dr. V. Santhi Siri
Associate Professor,
School of Media and Communication,
Pondicherry University, Puducherry – 605014

Abstract:
Climate change has become a global issue, affecting every living and non-living entity on our planet and becoming a major challenge in the 21st-century era. Since the Industrial Revolution, developing countries have witnessed the severe effects of climate change. India, one of such nations with vast geographical diversity, is no exception. Among various geographical regions, coastal areas are more severely affected by these extreme climatic events. Youth participation in the development of developing countries is crucial, and it is greatly needed in disaster risk reduction activities and climate crisis situations. This is particularly enhanced by higher levels of knowledge and the creation of effective communication systems on climate change awareness among the students. The study chooses one of the coastal areas, Puducherry (formally known as Pondicherry), one of India's union territories located in the southeast coastal region of India. The study attempts to look into students' awareness of this coastal area university, Pondicherry University. By following an exploratory research method, surveys, and questionnaires, the study collects data from Pondicherry University's Integrated, PG, PhD students, as it is essential to understand how students are understanding today's climate change issue based on their previous knowledge, present curricula, and media publicity from different information sources about getting knowledge on climate change. Finally, the study attempts to understand that anthropogenic climate change is an important contributor to environmental degradation, which might potentially undermine the UN SDGs. Overall, the study helps us understand that youth awareness is crucial to developing mitigation and adoption strategies.

Keywords:
Climate Change, Youth Participation, Anthropogenic Climate Change, Awareness, Communication Sources, UN-SDGs.

Introduction:

Universities are home to different regions of students who come from national and international levels, and the youth of the nation are building blocks for any country. As it comes to our country, India, India is a developing country with a larger youth population than the other age groups. The Human-induced causes of climate change can be reduced by creating awareness among the youth. However, the reality is, in the present scenario, youth levels of awareness are not up to the mark for tackling climate change or implementing climate action measures in the form of mitigation and adoption strategies. Pondicherry University is located in the coastal area of the Bay of Bengal Sea. We know that, compared to other regions, coastal areas are more

prone to climate change; its effects and impacts are more visible in the coastal regions than in other locations. It is often known that universities can play a more significant role in promoting climate change adoption and mitigation techniques like campus greening techniques and sustainable development through curriculum development, reduction in plastics and carbon emissions by operational management, etc. In addition, worldwide research on climate change and sustainable development has grown significantly in universities. These points are enough to understand the educational institution's role in promoting sustainability and climate action.

According to Roger A. Pielke, JR, there are two different focusses of definitions given by one Framework Convention on Climate Change related to international policy and the other Intergovernmental Panel on Climate Change connected to scientific assessments in support of the above (Pielke, R.A. 2004). In general, climate change is defined as the process of long-term change in patterns of weather and temperature, mainly due to natural or human activities. Natural processes include the Sun's activity and volcanic eruptions. Human activities include predominantly burning fossil fuels and emitting GHGs. For the above causes, the induced effects are mainly hot days due to heat waves, severe storms, warming seas, etc. However, to avoid the above effects, climate action is needed in terms of mitigation techniques and methods of adoption.

Anthropogenic Climate Change is increasing Environmental Degradation and accelerating natural disasters, weather extremes, sea level risings, and many more. As we know, many causes triggered by humans, such as the burning of fossil fuels and production processes in industries by these more greenhouse gases like Carbon dioxide, Methane, Nitrous oxide, Hydrofluorocarbons, and fluorinated gasses, are releasing into the atmosphere above natural levels. So chiefly, these gasses are responsible for the long-term changes in weather patterns, increases in global temperatures, and changes in the conditions of the atmosphere. The detrimental impacts of climate change on living and non-living entities outweigh those mainly on the society, economy, environment, and natural resources, including soil, water, and air. Glacier melting, rising sea levels, and extreme weather events are increasing because of global warming, which is responsible for risks to food security, water availability, and loss of biodiversity. To solve the above problems, understanding climate change and adopting and mitigating the issue are more critical for achieving sustainable development goals.

Sustainability refers to fulfilling current demands without undermining the potential of future generations to meet their own needs. Indirectly, climate change undermines sustainable development goals because it shows its effects in every field. So, awareness of climate action in terms of mitigation and adoption tactics is greatly needed. Due to human activities, the process of climate change has risen to the maximum extent since the 1800s.to combat climate change, collective action is needed among the countries (FCCC). We have come across many agreements and protocols (Kyoto) even though we lack the collective action to combat climate change today. In some cases, our society is unable to realize that this process will ring the danger bells for our survival. For example, we are facing food and water insecurity, increased temperatures after the Industrial Revolution, and rising sea levels over the decades. If it continues in the future, for sure tomorrow or some other day, it will make extinct our civilization.

Significance of the study:

The article titled A Study on Awareness and Identifying Major Information Sources of Climate Change among the Students of Pondicherry University, India is significant because it addresses the gap in the existing research literature in the field of climate change awareness among university students. It emphasizes the significance of primary sources in getting information about climate change among the student community. It highlights the value of climate action adoption to the daily life of students, giving importance to the usage of the university's community radio for information dissemination and opportunities for the university to create climate change awareness among students by using different communication tools.

Objectives:
This study has aimed to achieve the following objectives:

- To assess the student's awareness of climate change.
- To investigate the various sources of communication for climate change issues among the students.
- To examine student's willingness to adopt the mitigation and adoption strategies into their daily lifestyle.

Hypothesis:
H_0: There is no difference in the mean awareness scores of climate change between male and female students.
H_1: There is a difference in the mean awareness scores of climate change between male and female students.

1. H_0: There is no difference in the awareness scores of climate change among the age groups of the students.
H_1: There is a difference in the awareness scores of climate change among the age groups of the students.

2. H_0: There is no difference in the awareness scores of climate change among the educational levels of the students.
H_1: There is a difference in the awareness scores of climate change among the educational levels of the students.

3. H_0: There is no difference in the awareness scores of climate change between the educational streams of the students.
H_1: There is a difference in awareness scores of climate change between the educational streams of the students.

4. H_0: There is no difference in the awareness scores of climate change between the hometown location types of the students.
H_1: There is a difference in the awareness scores of climate change between the hometown location types of the students.

5. H_0: Less percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change.
H_1: More percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change.

6. H_0: Less percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives.
H_1: A greater percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives.

7. H_0: After coming to the university, student's knowledge of climate change has not increased.
H_1: After coming to the university, student's knowledge of climate change has increased.

Research Questions:
The Main research questions are,
1. Is there any difference in the mean awareness scores of climate change between male and female students?
2. Is there any difference exist according to the age groups in the awareness scores of the students?
3. Is there any difference exist according to the educational levels in the awareness scores of the students?
4. Is there any difference that exists according to the educational Streams in the awareness scores of the students?
5. Is there any difference exist according to the native type in the awareness scores of the students?
6. How much percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change?
7. How much percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives?
8. Does the student's awareness got increase after coming to the university?
9. Are the students prepared for accidental climatic disasters or not?
10. From where the students are getting more information about climate change?

Literature Review:
The majority of the students at the university level are aware of climate change (Devkota & Phuyal, 2017) (Batool et al., 2023) (Magulod, 2018) and its Causes (Batool et al., 2023) (EsriNgü & Toy, 2022) (Ogunsola et al., 2018), risks (Filho et al., 2023) and consequences, particularly on health (Nigatu et al., 2014) in contrary to the above, some students having less awareness also from some respective study areas (Oruonye, 2011) (Morgado et al., 2017) (Salehi et al., 2016), with some misconceptions and misunderstandings (Ofori et al., 2023) (Wachholz et al., 2014). From the findings of previous studies; age, gender, department, and faculty had given more impact on students about answering the questions about climate change (EsriNgü & Toy, 2022) and also religion (Ofori et al., 2023), region of native place, participation in an environmental-related organization's activities and studying the courses that are related to climate change or environmental education (Haq & Ahmed, 2020), and culture, scientific representations also had a specific impact on university students about knowledge on climate change (Arto-Blanco et al., 2017), but the awareness of global climate change is not that much impacted by the semesters studied (Salehi et al., 2016); in opposite to the above, in the result of some studies, it is mentioned that Senior students have more awareness of climate change than the juniors and first-year students, and awareness also got increased by an increase in the year level (Barreda, 2018) particularly on the health impacts of the public (Nigatu et al., 2014). According to one study titled Awareness of Climate Change and Sustainability among University Students: A Case from District Attock, as it comes to gender differences in climate

change awareness, it is essential to remember that gender disparities could present, based on the cultural and associated variables and further research is needed (Batool et al., 2023) (Radaković et al., 2017), in opposite to this, the study named Awareness of Climate Change and Sustainable Development among Undergraduates from two Selected Universities in Oyo State, Nigeria; showed that there were not such noteworthy key differences in terms of gender about sustainable development and climate change awareness (Sola & Michael, 2016).

Most of the students acknowledge that climate change is caused by human-induced causes. (Haq & Ahmed, 2020) (Arto-Blanco et al., 2017) (Wachholz et al., 2014) like Deforestation, fuel burning, taking of sand from rivers, development of industry, etc., than the natural processes (Filho et al., 2023). Most of the students said that they receive information from previous educational levels, mass media (EsriNgü & Toy, 2022) (Nigatu et al., 2014), public sources, and from personal experiences (Sola & Michael, 2016). But still, there is a crucial need to give education about climate change at the higher educational levels of universities (Filho et al., 2023) and to make the students aware of policies and plans (Devkota & Phuyal, 2017) because students are getting more information from the Internet and global-level media than the curriculum of the courses (Ayanlade & Jegede, 2016). So, in this way, it is essential to do this because it gives the information and has the necessary influence to imbibe pro-environmental attitudes by incorporating environmentally friendly and sustainable practices into daily operations and increasing awareness of climate change. Higher educational institutions can additionally address the climate action procedures, especially on a university level (Filho et al., 2023), in the form of the establishment of climate change awareness clubs inside the universities for increasing campaigns to communicate more about climate change (Oruonye, 2011), and via training (EsriNgü & Toy, 2022), campus greening techniques, and collaborating with other local actors in that area, and Integration of climate change studies into the curriculum of education at all levels of tertiary educational institutions (Ogunsola et al., 2018) (Radaković et al., 2017) especially on mitigation strategies, when they go through the life, which might potentially have an effect on coming up future generations, but only less number of studies acknowledge that climate change education in universities (Molthan-Hill et al., 2019), along with universities, there is a need to develop well-organized climate change education curricula and integrate it into all academic levels of school education (Sola & Michael, 2016) and as a mandatory course at UG & PG levels irrespective of departments of sciences, social sciences, and humanities, because most of the students from science streams have more class exposure on climate change than other streams (Ayanlade & Jegede, 2016).

Research Methodology:

The main aim of this research is to study climate change awareness among the students and examine the main information sources of climate change among the student community of Pondicherry University; for this, the research study followed the descriptive research design. To achieve the Research Objectives, the study employed a survey method and involved the students of Pondicherry University, India. Respondents were selected (n= 100) from the Integrated, PG, and PhD student populations using a simple random sampling method. By applying the primary data collection method, the data was collected using a self-administrated questionnaire with 25 close-ended questions. This questionnaire was divided into two sections. Section 1 consists of 7 general demographic questions, with questions about Name, gender, Age, current educational level, department/stream, years of study completed in the university, and the type of native region and Section 2 consists of 18 questions, which are about climate change awareness, main information sources regarding climate change (in general, as specific

to media channels, media levels and as specific to university communication system), about its causes, effects, and adoption of mitigation techniques to daily life, on preparation level of accidental climatic disasters, and about acting as a communication source to share information about climate change. The format of the questionnaire was developed in such a way that the results would provide insightful information regarding the objectives and research questions of the study. The questionnaire was distributed in the online mode to collect the responses to the questions in the questionnaire. The study's survey was conducted online from May 2024 to April 2024 in online mode by using a random selection of university students; the questionnaire's Google form link was shared and asked to be forwarded to the different WhatsApp groups of the student community to get the filled Google forms. Hence, there was no risk of self-selection bias in the research study. The experts undertook the questionnaire for validity and reliability, along with the content and construct validity, to get the study's objectives. The data was analyzed using descriptive statistics methods like the mean and percentages, independent samples t-tests, and ANOVA from the quantitative data analysis technique for results and discussion. The analyzed data will be presented using tables and graphical representations such as bar charts and mean plots.

Pilot Study:
In May 2024, before collecting the primary survey data, a pilot study was initially conducted using 31 university students for testing purposes to get the face validity and ambiguities in the questionnaire and for the quality. After sharing the questionnaire with 31 students randomly, the feedback from the students in the pilot study was noted down. The questionnaire's final set of questions was chosen on the basis of the preliminary results of a pilot study. Required corrections were made to the questionnaire, The final version of the questionnaire underwent a few changes, and it was prepared based on the suggestions, criticisms and corrections from the experts, feedback and results from the pilot study. Then, the actual primary survey data collection process was performed with the students of different disciplines of the university to continue the further steps of the research study.

Data Analysis:
The Data obtained from the primary data collection process, i.e., the survey method of the study through Google Forms with a total number of 100 respondents, was converted into a Microsoft Excel sheet and then analyzed with IBM SPSS (Statistical Package for the Social Sciences) a quantitative analysis software, version 20. Mainly Descriptive statistics were used to analyze the data. In this Mean, Frequencies and percentages with cumulative percentages were used in Tables and bar charts. Along with descriptive statistics, independent samples T-tests, ANOVA, Crosstabs, and Binomial tests with an assumed p-value of 0.05 and confidence interval of 95% were used to analyze the climate change awareness score between male and female students through gender as a grouping variable and Awareness score as a test variable. The socio-demographic variables of the study are gender, age, education level, educational stream, and native type, which are analyzed to determine differences in the awareness scores of climate change. Along with the above, the main sources of information about climate change were also analyzed.

Results and Interpretation:
After examining tables 1, 2, 3, 4, and 5 (tables are given below), results obtained from socio-demographic variables show that more male students participated in the study, with a frequency rate of 72, and female students 28. This means male students are more interested in filling out

the online data collection form through the Google Forms method. The study's second finding is that more young students between 15-24 years of age have participated in this study, with 59%. Regarding the educational level, PG-pursuing students took part in the study (with 47%) compared to Integrated and PhD students. Then, if we analyze the students via the educational stream, the social science and humanities stream's students participated with 68% and science and technology students with 32%. Then it comes to the native type; more rural hometown students took part in the study, with 67% than the urban hometown location type students. The above-discussed data is shown below in the table form:

Table 1: Gender with the frequency & percentage of the students.

Gender	Frequency	Per cent	Valid Percent	Cumulative Percent
Male	72	72.0	72.0	72.0
Female	28	28.0	28.0	100.0
Total	100	100.0	100.0	

Table 2: Ages with the frequency & percentage of the students.

Age	Frequency	Per cent	Valid Percent	Cumulative Percent
15-24 years	59	59.0	59.0	59.0
25-29 years	32	32.0	32.0	91.0
30-35 years	5	5.0	5.0	96.0
above 35 years	4	4.0	4.0	100.0
Total	100	100.0	100.0	

Table 3: Educational level with the frequency & percentage of the students.

Educational level	Frequency	Per cent	Valid Percent	Cumulative Percent
Pursuing PG	47	47.0	47.0	47.0
Pursuing Integrated UG	15	15.0	15.0	62.0
Pursuing PhD	38	38.0	38.0	100.0

Total	100	100.0	100.0	

Table 4: Educational stream with the frequency and percentage of the students.

Educational Stream	Frequency	Per cent	Valid Percent	Cumulative Percent
Social Sciences & Humanities	68	68.0	68.0	68.0
Science & Technology	32	32.0	32.0	100.0
Total	100	100.0	100.0	

Table 5: Table on hometown location type with the frequency and percentage of the students.

Native type	Frequency	Per cent	Valid Percent	Cumulative Percent
Rural	67	67.0	67.0	67.0
Urban	33	33.0	33.0	100.0
Total	100	100.0	100.0	

As it comes to the main analysis part of the study, i.e., Hypotheses and research questions, the results have been tabulated and shown in the bar charts below:
The mean score of awareness of climate change is more (>50%), which means more students have awareness of climate change. This mean score of awareness is analyzed in terms of gender, educational level, educational stream, and hometown location type; the results are shown below regarding hypotheses and research questions with tables and charts.

Research Question 1: Is there any difference in the mean awareness scores of climate change between male and female students?

For the above research question, the hypotheses are:
H_0: There is no difference in the mean awareness scores of climate change between male and female students.
H_1: There is a difference in the mean awareness scores of climate change between male and female students.
For the above hypotheses, the SPSS results for the independent samples t-test are given below:

Table 6: Group Statistics between awareness scores and gender.

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Score	male	72	5.2639	1.76821	.20839

female	28	5.8929	1.77094	.33468

Table 7: Independent Samples Test for awareness scores and gender.

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	.098	.755	-1.596	98	.114	-.62897	.39398	-1.41081	.15287
	Equal variances not assumed.			-1.595	49.182	.117	-.62897	.39425	-1.42117	.16323

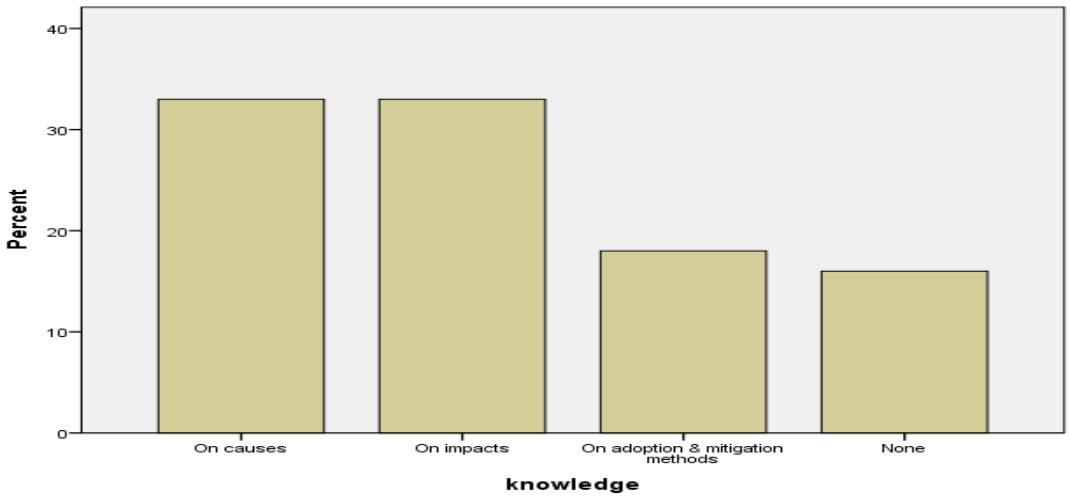
After analysing the table 6 and 7, Since the p-value of the test is 0.114, which is greater than 0.05 (p-value > 0.05), the null hypothesis cannot be rejected. Hence, there is no difference in the mean awareness score of climate change between male and female students. It means there is no gender difference in awareness of climate change

Table 8: Table on having enough knowledge about causes, impacts, adoption, and mitigation levels of climate change.

Enough knowledge	Frequency	Per cent	Valid Percent	Cumulative Percent
On causes	33	33.0	33.0	33.0
On impacts	33	33.0	33.0	66.0
On adoption and mitigation methods	18	18.0	18.0	84.0
None	16	16.0	16.0	100.0
Total	100	100.0	100.0	

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

Chart 1: Bar chart on having enough knowledge about causes, impacts, adoption, and mitigation levels of climate change.



From Table 8 and Bar Chart 1 above, we are getting that 33% of students have enough knowledge of the causes of climate change, 33% of students have enough knowledge of the impacts of climate change, 18% of students have enough knowledge of adoption and mitigation measures of climate change and 16% of the students having no knowledge on impacts, causes, adoption and mitigation measures of climate change. It means there is less knowledge about adoption and mitigation ways than the causes and impacts of climate change. Along with this, some of the students (16%) of the students having no knowledge about climate change concepts.

Research question 2: Is there any difference exist according to the age groups in the awareness scores of the students?
For the above research question, the hypotheses are:
H_0: There is no difference in the awareness scores of climate change among the age groups of the students.
H_1: There is a difference in the awareness scores of climate change among the age groups of the students.
For the above hypothesis, the SPSS results for non-parametric analysis are shown below in the table form.

Table 9: Table on test summary of the age and awareness scores of the students.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Score is the same across categories of Age.	Independent-Samples Kruskal-Wallis Test	.585	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

According to Table 9, Since the p-value of the test is 0.585, which is greater than 0.05 (p-value > 0.05), the null hypothesis cannot be rejected. Hence, there is no difference in awareness scores

about climate change among the age groups of the students. This means there is no difference in age groups on the awareness of climate change.

Research Question 3: Is there any difference exist according to the educational levels in the awareness scores of the students?
For the above-mentioned research question, the hypotheses are:
H_0: There is no difference in the awareness scores of climate change among the educational levels of the students.
H_1: There is a difference in the awareness scores of climate change among the educational levels of the students.
For the above hypothesis, the results of SPSS for the ANOVA test are shown below:

Table 10: A table on the educational level and awareness scores of the students.

Descriptives

Score

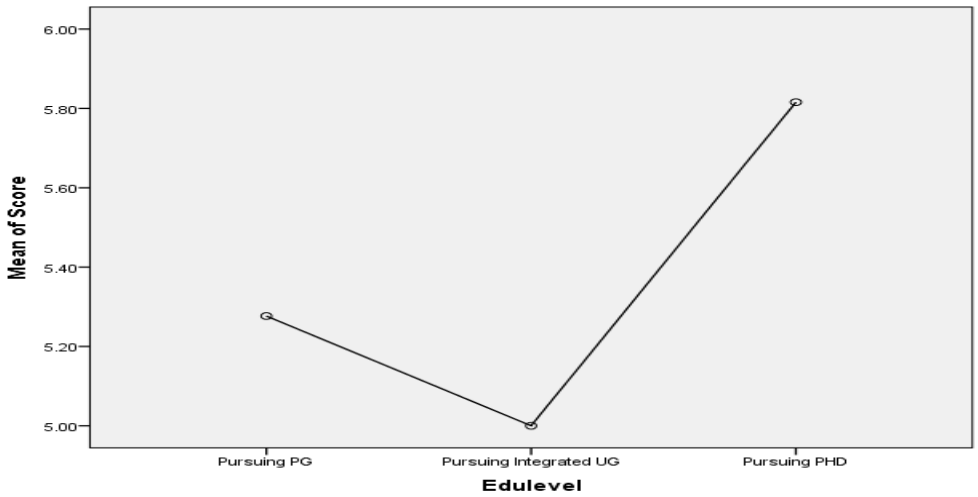
Educational level	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Pursuing PG	47	5.2766	1.84982	.26982	4.7335	5.8197	1.00	11.00
Pursuing Integrated UG	15	5.0000	2.29907	.59362	3.7268	6.2732	1.00	9.00
Pursuing PhD	38	5.8158	1.41144	.22897	5.3519	6.2797	3.00	9.00
Total	100	5.4400	1.78275	.17827	5.0863	5.7937	1.00	11.00

Table 11: ANOVA table.

Score	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.525	2	4.763	1.514	.225
Within Groups	305.115	97	3.146		
Total	314.640	99			

Chart 2: Means chart showing differences in the educational levels.

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk



Based on the results presented in Tables 10 and 11 with mean chart 2, Since the p-value of the test is 0.225, which is greater than 0.05 (p-value > 0.05), the null hypothesis cannot be rejected. Hence, there is no difference in awareness scores of the climate change among the educational levels of the students. It indicates that there is no effect of educational levels on the awareness scores of climate change among the students.

Research Question 4: Is there any difference that exists according to the educational Streams in the awareness scores of the students?
For the above research question, the hypotheses are:
H_0: There is no difference in the awareness scores of climate change between the educational streams of the students.
H_1: There is a difference in awareness scores of climate change between the educational streams of the students.
For the above hypotheses, the results of SPSS for the independent samples T-test are shown below:

Table 12: Table on educational stream and awareness of the students.

Group Statistics

	Stream	N	Mean	Std. Deviation	Std. Error Mean
Score	Social Sciences & Humanities	68	5.5588	1.75671	.21303
	Science & Technology	32	5.1875	1.83931	.32515

Table 13: Table on Independent Samples Test.

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

Equal variances assumed	.075	.785	.971	98	.334	.37132	.38228	-.38730	1.12995
Equal variances not assumed			.955	58.352	.343	.37132	.38872	-.40669	1.14933

According to Tables 12 and 13, Since the p-value of the test is 0.334, which is greater than 0.05 (p-value > 0.05), then the null hypothesis cannot be rejected. Hence, there is no difference in awareness scores of the climate change between the educational streams of the students. This means that educational streams have no effect on the awareness of climate change.

Research Question 5: Is there any difference exist according to the native type in the awareness scores of the students?
For the above research question, the hypotheses are:
H_0: There is no difference in the awareness scores of climate change between the hometown location types of the students.
H_1: There is a difference in the awareness scores of climate change between the hometown location types of the students.
For the above-mentioned hypotheses, the results of SPSS are shown below:

Table 14: Native type and awareness scores of the student.

Group Statistics

	Native type	N	Mean	Std. Deviation	Std. Error Mean
Score	Rural	67	5.4776	1.84521	.22543
	Urban	33	5.3636	1.67366	.29135

Table 15: Independent sample t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	.510	.477	.299	98	.765	.11398	.38089	-.64189	.86984

	Equal variances not assumed			.309	69.677	.758	.11398	.36838	-.62079	.84874

After examining tables 14 and 15, Since the p-value of the test is 0.765, which is greater than 0.05 (p-value > 0.05), the null hypothesis cannot be rejected. Hence, there is no difference in awareness scores of the climate change between hometown location types of the students. Which means there is no effect of hometown location type on the awareness of the students.

Research Questions 6,7,8:

- How much percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change?
- How much percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives?
- Does the student's awareness got increase after coming to the university?

For the above research question, the hypotheses are:

- H_0: Less percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change.

H_1: More percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change.

- H_0: Less percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives.

H_1: A greater percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives.

- H_0: After coming to the university, student's knowledge of climate change has not increased.

H_1: After coming to the university, student's knowledge of climate change has increased.

For the above-mentioned hypotheses, the results of SPSS for the binomial test are shown below:

Table 16: Binomial test for enthusiasm to act as communication ambassadors to share information about climate change, adoption of sustainable consumption methods into their day-to-day lives, and increment in the knowledge about climate change after coming to the university.

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Communication Ambassador	Group 1	Yes	72	.72	.50	.000
	Group 2	No	28	.28		
	Total		100	1.00		
	Group 1	Yes	93	.93	.50	.000

Sustainable consumption to daily life	Group 2	No	7	.07		
	Total		100	1.00		
Knowledge increased after coming to university	Group 1	Yes	72	.72	.50	.000
	Group 2	No	28	.28		
	Total		100	1.00		

Chart 3: Bar chart showing enthusiasm to act as communication ambassadors to share information about climate change.

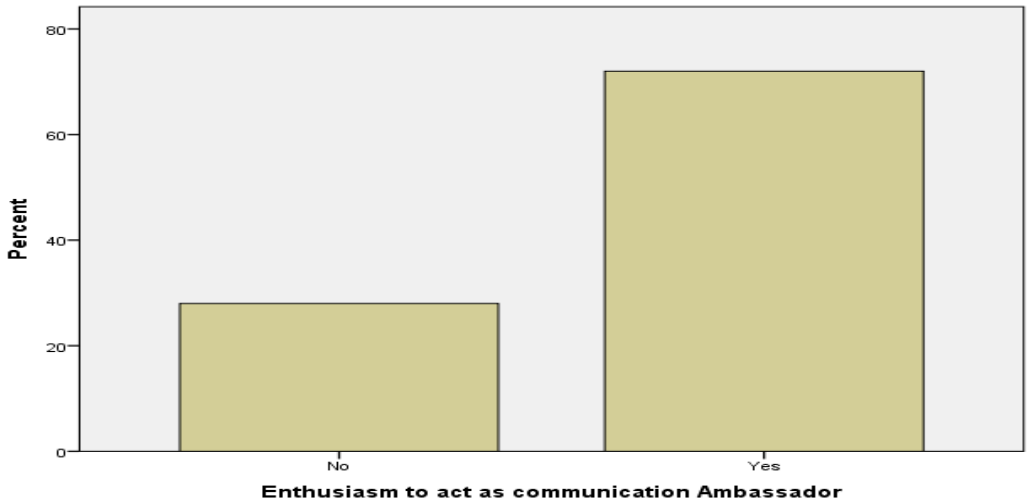
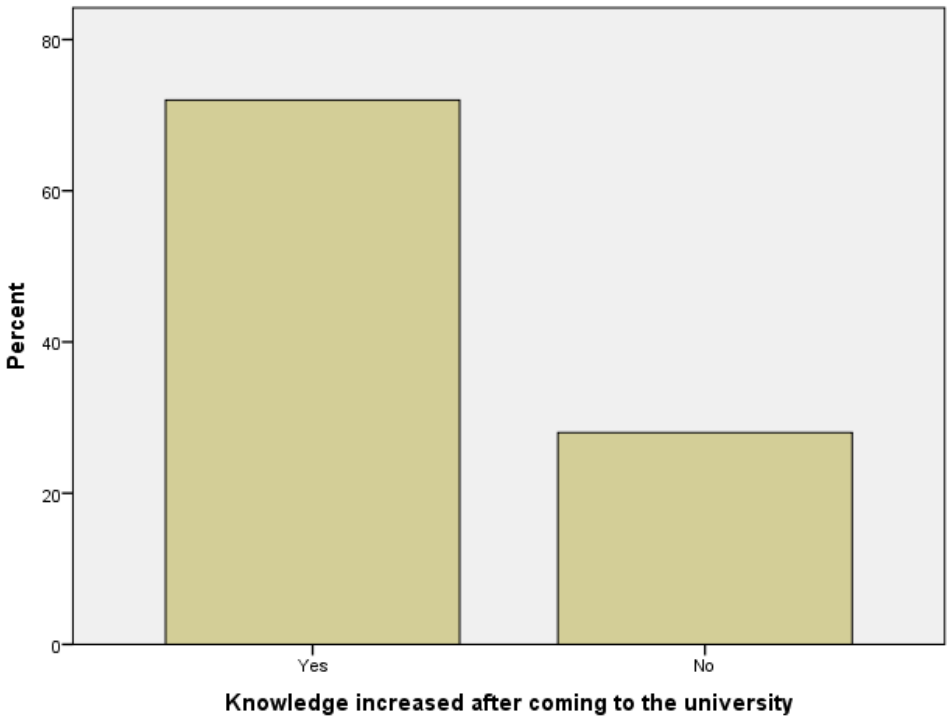


Chart 4: Bar chart showing the adoption of sustainable consumption methods into their day-to-day lives.

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

Chart 5: Bar chart showing an increment in the knowledge about climate change after coming to the university.



After examining the table 16, the test result for the percentage of students' enthusiasm to act as communication ambassadors:

Since the p-value of the test is 0.000, which is less than 0.05 (p-value < 0.05), therefore the null hypothesis is rejected. Hence, a greater percentage of students have the enthusiasm to act as communication ambassadors to share information about climate change.

Test result for the percentage of students' agreement on the adoption of sustainable consumption methods about climate change:

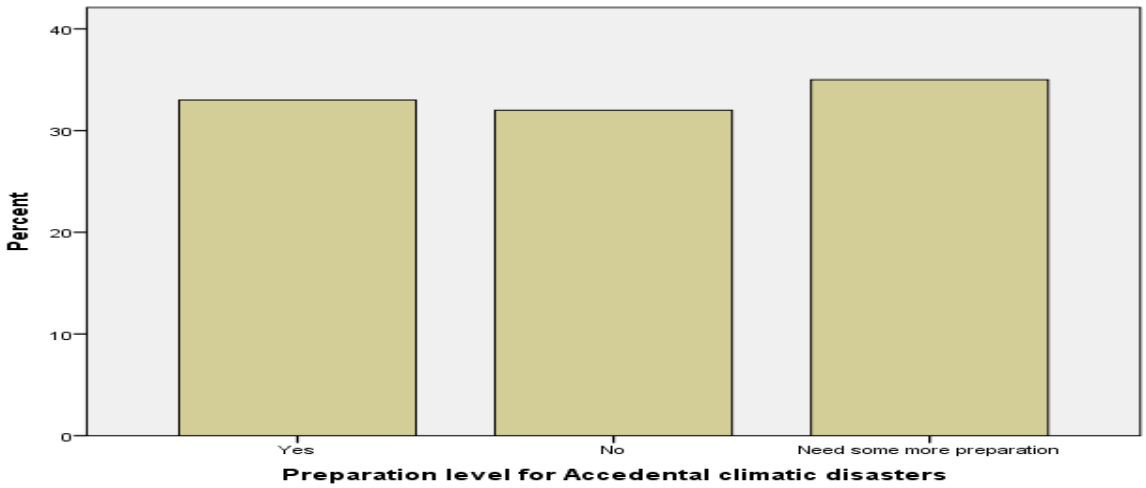
Since the p-value of the test is 0.000, which is less than 0.05 (p-value < 0.05), therefore the null hypothesis is rejected. Hence, a greater percentage of the students have agreed to adopt sustainable consumption methods into their day-to-day lives.
Test result for increment in the knowledge about climate change after coming to the university:

Since the p-value of the test is 0.000, which is less than 0.05 (p-value < 0.05), the null hypothesis is rejected. Hence, after coming to the university, student's knowledge of climate change is increased.

Research Question 9: Are the students prepared for accidental climatic disasters or not?
For the above research question, the results of SPSS are shown below:
Table 17: Preparation of the students for accidental climatic disasters.

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	33	33.0	33.0	33.0
No	32	32.0	32.0	65.0
Need some more preparation	35	35.0	35.0	100.0
Total	100	100.0	100.0	

Chart 6: Bar chart showing the preparation percentage of the students for accidental climatic disasters.



The above table and Bar chart show that, out of 100%, 33% of the students have prepared for accidental climatic disasters, 32% of students are not prepared yet, and 35% of students do not have enough preparation and need more preparation to tackle accidental climatic disasters to save the lives.

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

Research Question 10: From where are the students getting more information about climate change?
For the above research question about the main information sources of climate change among the students, the results from SPSS software are shown below:

Table 18: Major sources of communication about climate change.

Major source

	Frequency	Percent	Valid Percent	Cumulative Percent
Educational sources	39	39.0	39.0	39.0
Public sources	6	6.0	6.0	45.0
Media sources	52	52.0	52.0	97.0
Personal sources	3	3.0	3.0	100.0
Total	100	100.0	100.0	

Chart 7: Bar chart showing percentages for major sources of information about climate change.

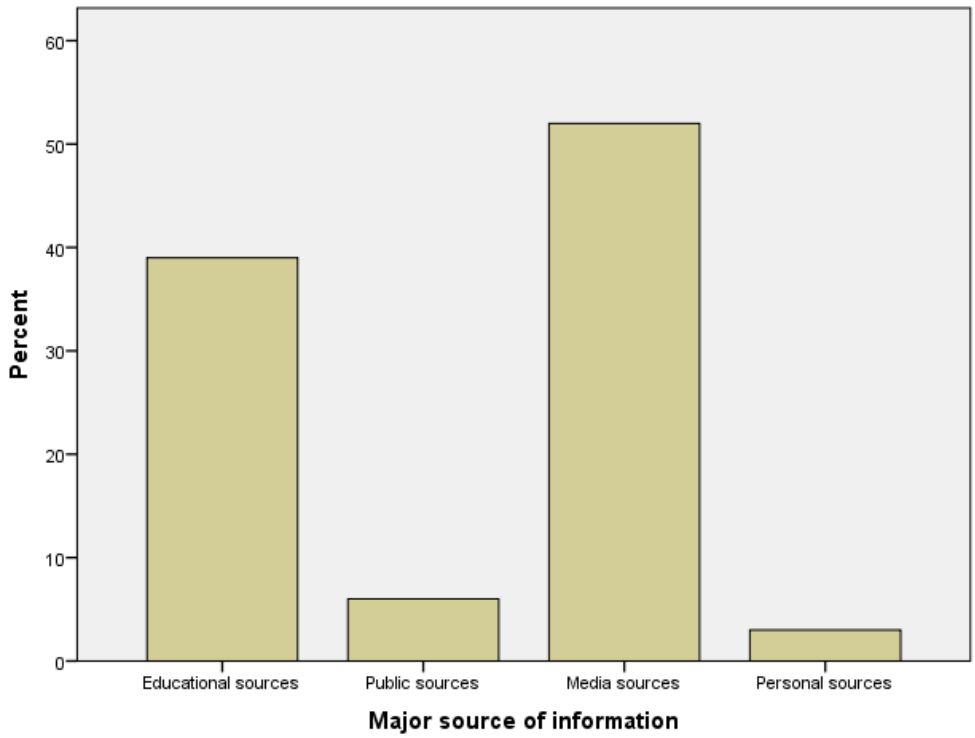


Table 19: Media type about getting climate change information.

Media type	Frequency	Percent	Valid Percent	Cumulative Percent
T.V	7	7.0	7.0	7.0

Radio	1	1.0	1.0	8.0
N.P/Magazines	12	12.0	12.0	20.0
Internet	38	38.0	38.0	58.0
Social media	42	42.0	42.0	100.0
Total	100	100.0	100.0	

Chart 8: Bar chart showing media type for getting information about climate change.

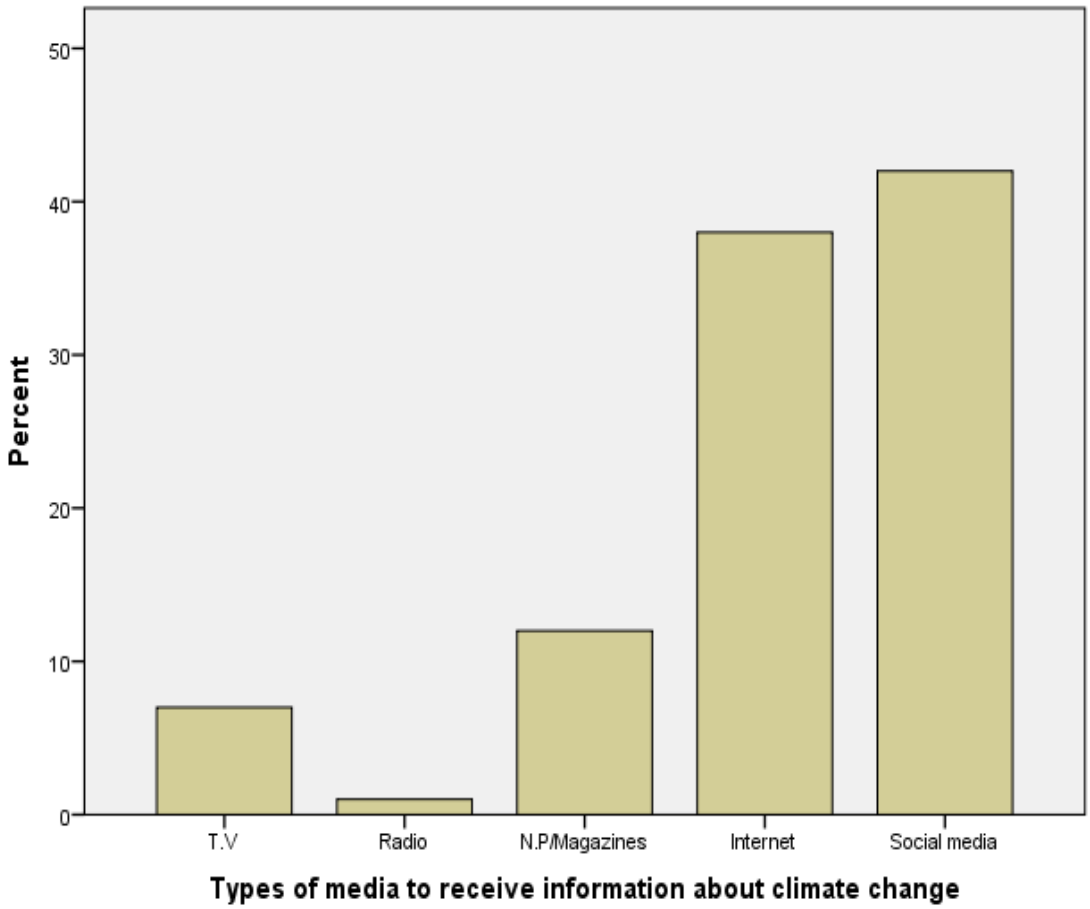


Table 20: Media level about getting climate change information.

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

Media level	Frequency	Percent	Valid Percent	Cumulative Percent
Local media	21	21.0	21.0	21.0
Regional media	22	22.0	22.0	43.0
National media	21	21.0	21.0	64.0
Global Media	36	36.0	36.0	100.0
Total	100	100.0	100.0	

Chart 9: Bar chart showing the type of media level for getting information about climate change.

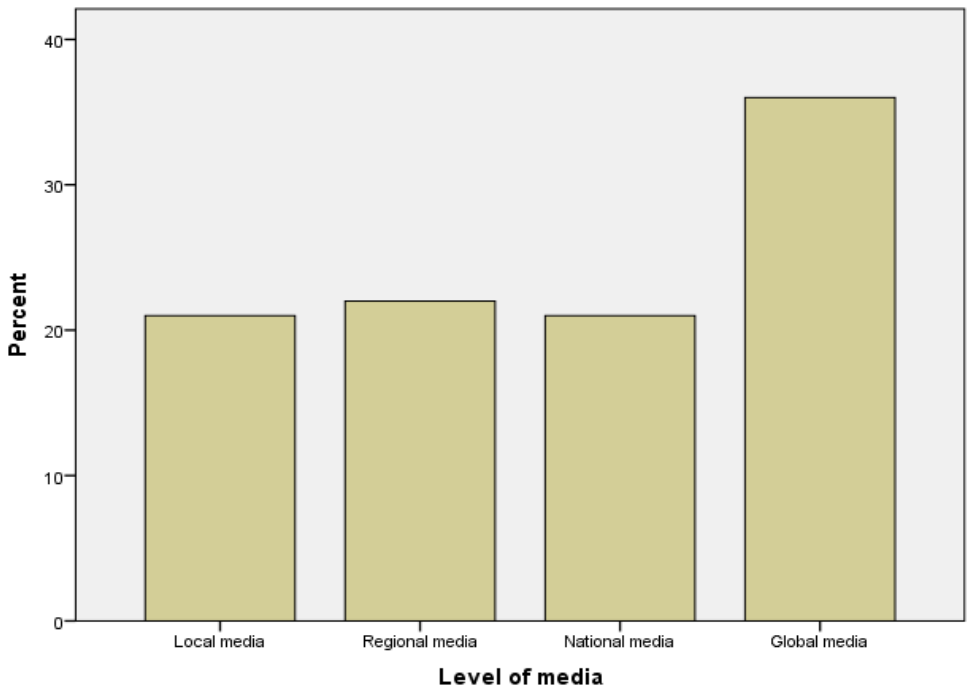
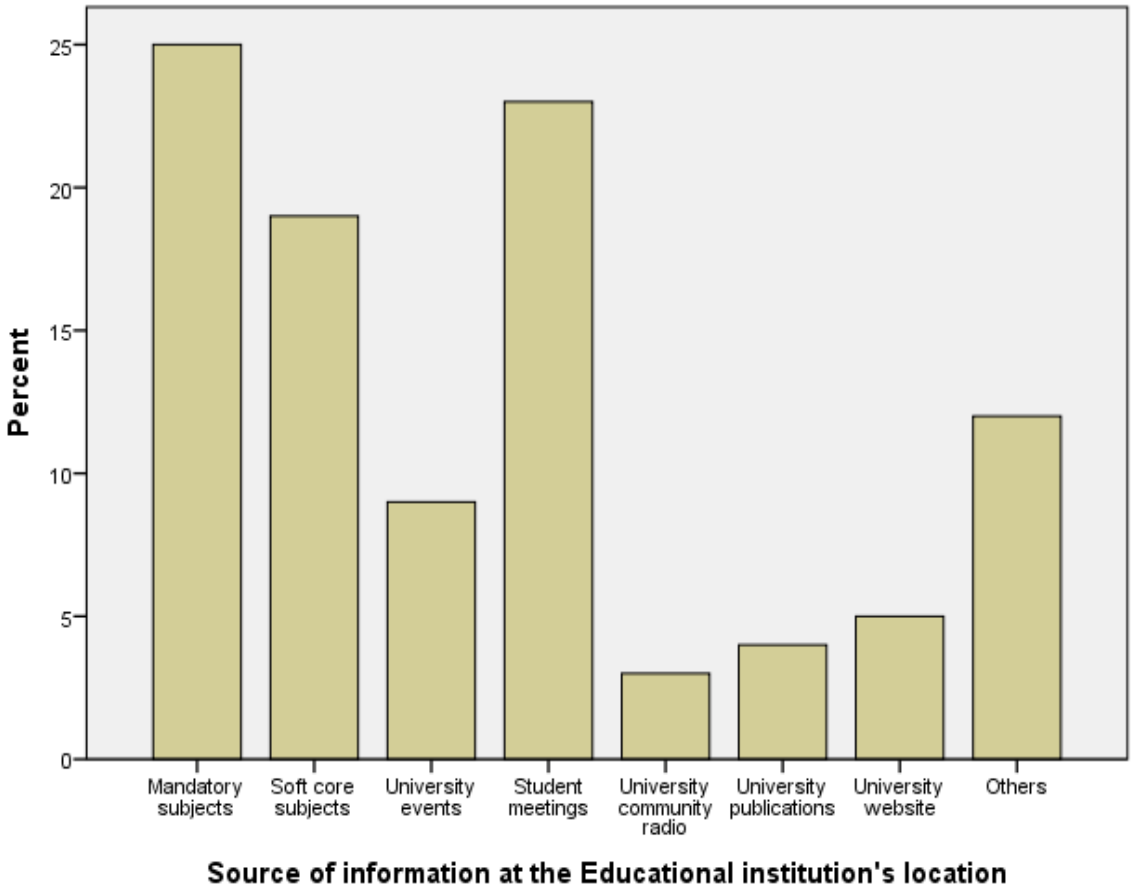


Table 21: Information sources at educational location about getting climate change information.

European Economic Letters
ISSN 2323-5233
Vol 15, Issue 2 (2025)
http://eelet.org.uk

Sources at the Educational location	Frequency	Percent	Valid Percent	Cumulative Percent
Mandatory subjects	25	25.0	25.0	25.0
Softcore subjects	19	19.0	19.0	44.0
University events	9	9.0	9.0	53.0
Student meetings	23	23.0	23.0	76.0
University community radio	3	3.0	3.0	79.0
University publications	4	4.0	4.0	83.0
University website	5	5.0	5.0	88.0
Others	12	12.0	12.0	100.0
Total	100	100.0	100.0	

Chart 10: Bar chart on information sources at educational location about getting climate change information.



From the above Tables (18-21) and Charts (7-10), it is known that 52% of the students have chosen Media sources like print, electronic, social and web media as the main sources for getting information about climate change, and for 39% of students have chosen educational sources like schools colleges and universities and other educational institutions are main sources of getting information, only 5% of students have chosen public sources like libraries and NGOs, Publicity events as a main information source and 3% of students have chosen personal sources like friends, family, neighbors and colleagues as main information sources for getting information.

As it comes to the type of media through which more information about climate change got by students is, social media platforms like Facebook, Instagram, etc., with 42%, the internet with 38%, then newspapers and magazines with 12%, TV and Radio with 7 and 1 percentages.

If we analyze the data according to media level, through global or international media, students are getting more information about climate change about 36%, then regional media about 22% and then national and local media with each of 21 percentages.

According to the source of information for getting climate change knowledge at the educational location, through mandatory subjects (25%), they got more knowledge about climate change. Then, from student meetings (23%), students got more knowledge about climate change. Lastly, from Community Radio (1%), students are getting less knowledge about climate change.

Discussion and Conclusion:

The present study, named "A Study on Awareness and Identifying Major Information Sources of Climate Change among the Students of Pondicherry University, India", evaluated the awareness on climate change in terms of socio-demographic variables (like gender, educational level, educational stream and hometown location type), and identified the main information sources of climate change in terms of general communication/information sources (public, personal, educational and media), main information sources at educational location (like curriculum, university's community radio, student meetings and university events), media type (T.V, radio web and social media) and media level (local, regional, national and international levels). As it comes to awareness levels, the present study shows that students have more awareness of climate change; similarly, they still have inadequate knowledge and misconceptions about climate change like the difference between climate and weather, about its main causes, impacts, mitigation and adoption strategies, so more publicity and awareness increasing ways like campaigns, awareness clubs are needed on the issue of climate change for the better understanding about its causes, impacts, mitigation and adoption methods. When they are informed enough about climate change issues, then they positively contribute their role to reduce the causes of climate change because more climate change is happening rapidly due to anthropogenic sources after the industrial revolution around the world. Climate change communication at the universities is precious to make the students aware of climate change issues and to increase their pro-environmental behaviours, which affects society in a positive way and increases the knowledge about the present and future impacts of climate change. Universities mostly have youth populations with different education levels integrated, PG and PhD levels. If higher educational institutions make the students aware of climate change causes, impacts, and mitigation adoption methods, including sustainable production and consumption techniques, reducing the causes and impacts, automatically, these youth act as a communication source like climate change communication ambassadors at their native places and in the society

after learning about climate change in their all-education levels, through curriculum and other ways at the university. However, the results of this study show that the majority of the students have knowledge of the causes and impacts of climate change, but a lesser percentage of students have knowledge of mitigation and adoption methods than the causes and impacts of climate change. It means more climate action communication (CAC) is required than climate change communication to adopt sustainable practices into their daily life.

From the results of the study, the relationship between socio-demographic variables and awareness scores of climate change, according to gender disparities, there are no effects of gender regarding awareness of climate change. According to the ages of students, there is no effect of age on the awareness of climate change. Regarding the educational levels, there is no effect of the educational levels on the knowledge of climate change. According to the effect of educational streams, there is no effect of educational streams on the awareness of climate change. And there is no effect of hometown location type on the awareness of climate change. As it comes to communication sources of climate change, among educational, public, media and personal sources of communication about climate change, Media sources (52%) are likely to give more knowledge about climate change to the students. Among several media types social media (42%) is giving more awareness about climate change. After analyzing the impact of media levels, global or international media (36%) is having more impact on students about awareness of climate change and according to specific information sources at the educational location, mandatory subjects (25%) and student meetings (23%) giving more impact to get the awareness about climate change issues. It also strongly recommends that at least the minimum number of programs should be broadcasted in the specified time period from the university's community radio station to increase the knowledge about climate change. Based on the results of the research study, it is concluded that more students (72) have agreed to act as communication ambassadors for sharing information about climate change. This study revealed that a significant number of students (93) have agreed to adopt sustainable consumption methods into their daily lives. The results of the study also revealed that, a greater number of student's (72) knowledge got increased on climate change after coming to the university.

Moreover, this study suggests that there is a need for the integration of climate change studies into all courses' curricula, irrespective of educational streams and departments at all educational levels of the university, for inculcating adequate knowledge on climate change. From the university side, frequent events on climate change are required, like seminars and workshops, conferences, etc., to increase knowledge about climate change. Similarly, research has shown that there is a need to use and strengthen the university's communication tools, like community radio, posters, and wall paintings proactively for the promotion of knowledge about climate change. To sum up, our research findings supported previous research studies that showed awareness of climate change among the students. One of the major findings of the study is that the majority of students have less knowledge of the major causes (human actions) of climate change, and students do not have enough knowledge on adoption and mitigation methods as compared to the causes and impacts of climate change. However, according to the survey's findings, the majority of students (57.3%) are not aware of the Swachhata – MoHUA (Ministry of Housing and Urban Affairs) Government of India's official mobile app to make complaints on sanitation-related issues at local public places. It also indicated the importance of curriculum preparation to raise awareness of climate change issues at all education levels. It is known that climate change is related to sustainable development, and this research supports the statement "Transforming our world: Agenda 2030 for SDGs", which clearly shows that climate change

undermines all sustainable development goals and there is a need to take urgent action to combat climate change and its effects, which can be done by increasing awareness across the world specifically among the students via curriculum change and usage of communication tools effectively in the universities and other higher educational institutions.

Limitations and Recommendations:

This study has several limitations; the main limitation of this study is that it has a small sample size and is limited to Pondicherry University and its students. Other limitations include, it considered only the quantitative data for result finding and limited to survey research design with closed-ended questions. It is also limited to quantitative data analysis technique, and another limitation is about sharing the online questionnaire, which means sharing the questionnaire in WhatsApp groups, and taking online responses rather than offline mode. Those who did not have internet access were unable to take part in the survey. This empirical research is based on the students who are pursuing in this current year. Another limitation is that the study did not compare the climate change awareness of students according to the departments due to the small sample sizes of the study. Future studies can overcome these limitations to provide a better understanding of climate change awareness evaluation among students who are pursuing different study years and in different departments. Despite several constraints, the study has certain strengths, which include the evaluation of knowledge on the Swacchata portal (G.O.I's MoHUA official portal) for sanitation at the local places and knowing the knowledge on NAPCC. Other strengths include, studying the major communication sources at the university location and analysis of mean climate change awareness scores with the streams of the university, etc.

Since this research study is a baseline assessment of knowledge on climate change and for identification of major sources of communication about climate change by using the quantitative approach, more detailed in-depth research might be needed to further exploration of climate change knowledge like reasons for socio-demographic variables effects and for better understanding of major information sources effect on students' knowledge by using other approaches, like the same, the future subsequent research investigations have to focus on delving further into university students' climate change knowledge of certain subjects and concepts like the risks of climate change in the future, the effectiveness of climate action communication, and environmental attitude and behaviors of the students etc. The interesting thing is that further a comparative research study on the climate change issue among distinct universities like public, private and deemed universities would be worthwhile to carry out as well. There is a scope for replication of this study in other educational institutions in order to know the student's awareness of climate change issues may be possible. There is a scope to conduct the same study for future purposes with many independent variables and larger sample sizes. For future research studies, year-wise analysis of the study at all educational levels is also possible, and there is a scope to compare the awareness of the students with other university students. Further, there is a scope to do research on the same research topic with qualitative data with mixed research methodology for in-depth analysis to know more perceptions of the students on climate change. There is another scope to study the climate change awareness inside the university, among the teaching and non-teaching staff on the perception of the university's approach towards climate change.

References:

1. Arto-Blanco, M., Gutiérrez-Perez, J., & Meira Cartea, P. Á. (2017). Climate literacy among university students in Mexico and Spain: Influence of scientific and popular culture in the representation of the causes of climate change. International Journal of Global Warming, 12, 448. https://doi.org/10.1504/IJGW.2017.10005896

2. Ayanlade, A., & Jegede, M. O. (2016). Climate Change Education and Knowledge among Nigerian University Graduates. Weather, Climate, and Society, 8(4), 465–473. https://doi.org/10.1175/WCAS-D-15-0071.1

3. Barreda, A. B. (2018). Assessing the level of awareness on climate change and sustainable development among students of Partido State University, Camarines Sur, Philippines. 17.

4. Batool, S., Bibi, S., & Hanif, S. (2023). Awareness of Climate Change and Sustainability among University Students: A Case from District Attock. Journal of Contemporary Trends and Issues in Education, 2(3), Article 3. https://doi.org/10.55628/jctie.v3i1.75

5. Devkota, N., & Phuyal, R. K. (2017). An Analysis of Nepalese Youth Understanding Level on Climate Change. Asian Journal of Economic Modelling, 5(3), 342–353. https://doi.org/10.18488/journal.8.2017.53.342.353

6. EsriNgü, A., & Toy, S. (2022). The Effect of Climate Change Education on the Knowledge and Awareness Levels of Atatürk University Students. Kent Akademisi, 15(2), 595–610. https://doi.org/10.35674/kent.1041157

7. Filho, W. L., Yayeh Ayal, D., Wall, T., Shiel, C., Paco, A., Pace, P., Mifsud, M., Lange Salvia, A., Skouloudis, A., Moggi, S., LeVasseur, T., Vinuesa Antonio, G., Azeiteiro, U. M., Ioannis, N., & Kovaleva, M. (2023). An assessment of attitudes and perceptions of international university students on climate change. Climate Risk Management, 39, 100486. https://doi.org/10.1016/j.crm.2023.100486

8. Haq, S. M. A., & Ahmed, K. J. (2020). Perceptions about climate change among university students in Bangladesh. Natural Hazards, 103(3), 3683–3713. https://doi.org/10.1007/s11069-020-04151-0

9. Magulod, G. C. (2018). Climate change awareness and environmental attitude of College students in one campus of a State University in the Philippines. Journal of Biodiversity and Environmental Sciences, 12(2), 211–220.

10. Morgado, F., Bacelar-Nicolau, P., Rendon, von O. J., Santos, P., Bacelar-Nicolau, L., Farooq, H., Alves, F., Soares, A. M. V. M., & Azeiteiro, U. M. (2017). Assessing university student perceptions and comprehension of climate change (Portugal, Mexico and Mozambique). International Journal of Climate Change Strategies and Management, 9(03), 316–336. https://doi.org/10.1108/IJCCSM-08-2016-0123

11. Nigatu, A. S., Asamoah, B. O., & Kloos, H. (2014). Knowledge and perceptions about the health impact of climate change among health sciences students in Ethiopia: A cross-sectional study. BMC Public Health, 14(1), 587. https://doi.org/10.1186/1471-2458-14-587

12. Ofori, B. Y., Ameade, E. P. K., Ohemeng, F., Musah, Y., Quartey, J. K., & Owusu, E. H. (2023). Climate change knowledge, attitude and perception of undergraduate students in Ghana. PLOS Climate, 2(6), e0000215. https://doi.org/10.1371/journal.pclm.0000215

13. Ogunsola, O., Araromi, O., & Adeshina, O. (2018). Studies on Students' Awareness on Climate Change Education in Nigeria: A Case Study of the. 9, 251–257.

14. Oruonye, Emeka Daniel. (2011). An assessment of the level of awareness of the effects of climate change among students of tertiary institutions in Jalingo Metropolis, Taraba State Nigeria. J Geogr Reg Plan. 4.

15. Pielke, R.A. (2004). What is Climate Change? Energy & Environment, 15, 515 - 520. https://doi.org/10.1260/0958305041494576

16. Radaković, J. A., Petrović, N., Milenković, N., Stanojević, K., & Đoković, A. (2017). Improving Students' Higher Environmental and Climate Change Knowledge: A Case Study. Polish Journal of Environmental Studies, 26(6), 2711–2719. https://doi.org/10.15244/pjoes/69645

17. Salehi, S., Nejad, Z. P., Mahmoudi, H., & Burkart, S. (2016). Knowledge of global climate change: View of Iranian university students. International Research in Geographical and Environmental Education, 25(3), 226–243. https://doi.org/10.1080/10382046.2016.1155322

18. Sola, A., Omowunmi, & Michael, E. (2016). Awareness of Climate Change and Sustainable Development among Undergraduates from two Selected Universities in Oyo State, Nigeria. World Journal of Education, 6(3), p70. https://doi.org/10.5430/wje.v6n3p70

19. Wachholz, S., Artz, N., & Chene, D. (2014). Warming to the idea: University students' knowledge and attitudes about climate change. International Journal of Sustainability in Higher Education, 15(2), 128–141. https://doi.org/10.1108/IJSHE-03-2012-0025