

A Study on Carbon Footprint Awareness and Sustainable Behaviour With Reference to Undergraduate and Postgraduate Students

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ABSTRACT

This study fully analysing the level of carbon footprint awareness and sustainable behaviour among undergraduate student and postgraduate students. It mainly examines key dimensions that are environmental knowledge, identification of carbon intensive activity, attitudes towards sustainability, personal responsibility, institutional support, and willingness to adopt environment responsible action for the study. Primary data were collected from UG and PG 155 respondent using a structured questionnaire using simple random sampling and the data has been analysed using the statistical tools such as the Regression and the Annova , these indicates strong awareness and favourable attitudes toward sustainable behaviour from this result High levels of awareness observed in particular area such as energy conservation, waste management, environmental consciousness, reflecting the positive impact of academic exposure and campus-based sustainability initiatives. However, lower scores it's related to carbon footprint measurement and consistent sustainable practices it will highlight gaps between awareness and practical implementation. The study shows that environmental education is really important. We need to teach students about the environment in a way. Universities should also try to be sustainable. We should encourage students to behave in ways that help the environment. This is a thing because it will help students develop good habits that the students will keep for a long time. The environment is very important. The students can really help the environment by doing things that help the environment. This way they can help create people who really care about the environment. Which can make an impact on the sustainability in their working organisations which would lead to the development of the country and on how society thinks about the environment.

Keywords: Carbon footprint awareness, Sustainable behaviour, Environmental literacy, Higher education students, Sustainability initiatives.

INTRODUCTION

The environment is getting worse now a days because people are putting carbon into the air. This is causing problems, like climate change and it is really hurting the earth. People are making the climate change problem worse and also damaging the earth. The concept of carbon footprint is important now because it measures how harm our daily activities cause to the environment. Colleges that teach education are very important in teaching people to take care of the environment. Students are the leaders and decision makers who will help make the earth a sustainable place.

We need to know how much students understand about carbon footprint and if they are doing things to help the environment. This is necessary to solve the problems that will affect us in the long run. Students who are getting postgraduate degrees are in different colleges and social settings that affect what they think and do about sustainability. Carbon footprint is an issue and students need to know about it to make a difference. Universities play a role, in teaching students about carbon footprint and how to live in a way that helps the environment. Understanding carbon footprint which enables students to recognise the environmental challenges of daily activities such as electricity consumption, transportation choices, and waste disposal. However, awareness alone does not always convey into consistent sustainable practices. In now days, universities and colleges have introduced sustainability initiatives, environmental courses, and green campus programmes make to promote

eco-friendly behaviour. Despite these and all efforts, variations persist in student's understanding and regularly adopting of sustainable practices. This study mainly aims to evaluate carbon footprint awareness and institutions.

LITERATURE REVIEW

Kalpana, Rajkumar, and Rita (2013). examined students awareness and behaviour related to energy conservation in higher education institutions in the Vellore district of Tamil Nadu. Their study reveals that while most students possessed basic environmental knowledge, actual conservation behaviour was influenced by convenience and motivation. Institutional interventions such as stair-use reminders and improved campus transportation which I will positively affected student behaviour and the authors concluded that sustained and visible awareness initiatives are essential for encouraging energy-efficient practices.

Doddapanen, et al. (2024). evaluated that the environmental awareness, education, and ethics among undergraduate and post graduate students in Mysuru, Karnataka. The findings specify a generally positive level of awareness regarding pollution, resource conservation, and sustainability. Environmental education was identified as an important factor in influencing students' attitudes towards environmental protection, emphasising the importance of early and continuous environmental learnings.

Manjunath, Ravikumar (2025). investigated stakeholder awareness of carbon trading and found an above average level of understanding, while awareness of sustainability goals and government communication was strong, knowledge of global carbon market trends was relatively less. The study highlighted the need for the targeted training programmes to enhance participation in carbon trading initiatives.

Objectives Of The Study

- To study the level of carbon footprint awareness among degree students.
- To evaluate the inclusion of carbon education within academic curriculum.
- To analyse behavioural changes related to carbon-conscious decision-making.
- To know strategies for improving carbon literacy in higher education institutions.

Scope Of The Study

- The study focuses on undergraduate and postgraduate students.
- It analyses students' awareness and understanding of carbon footprints.
- Its disclosures student knowledge of sustainable and eco-friendly practices.
- It analyses students' attitudes and perceptions towards carbon awareness behaviour.
- The study is limited to universities and colleges as the area of review.
- It aims to understand sustainable practices followed within the higher education institutions.

Hypothesis Of The Study

H0: Being aware of carbon footprint does not really change how undergraduate and postgraduate students behave in terms of sustainability. This awareness includes knowing about issues recognising activities that produce a lot of carbon understanding school sustainability programs being personally responsible and ready to live in an eco-friendly way.

H1: Awareness of carbon footprint-which includes knowledge of environmental issues, recognition of carbon heavy activities, understanding of sustainability programs in institutions, personal accountability, and readiness

to embrace eco-friendly habits-substantially impacts sustainable behaviour among both undergraduate and postgraduate students.

RESEARCH METHODOLOGY

This study looks at how students know about the carbon footprint they make and how it affects the way they behave in a way. The responses were collected from 155 students who are doing undergraduate and postgraduate work. They filled out a questionnaire with five answers, to each question. The study is trying to see what students think about their carbon footprint and how it affects the way they live in a way.

Statistical methods were employed to summarize the awareness and comprehension levels of students; Regression and the ANOVA analysis was utilized to investigate the connection between awareness of carbon footprint and sustainable behaviour. Ethical principles were up held by guaranteeing voluntary involvement, obtaining informed consent, and ensuring respondents confidentially.

Regression Analysis

Regression analysis was conducted to examine the impact of carbon footprint awareness on sustainable behaviour among undergraduate and postgraduate students.

Model	R	R Square	Adjusted R Square	Std. Error
1	0.64	0.41	0.39	0.52

The R value of (0.64) shows a positive link between carbon footprint awareness and sustainable behaviour among students. The R² value of 0.41 shows that 41% of the variation in sustainable behaviour is due to carbon footprint awareness. Carbon footprint awareness explains 41% of what students behave sustainably. So, there's a connection between knowing about carbon footprint and acting sustainably. Carbon footprint awareness plays a role in shaping sustainable behaviour among students. The relationship, between the two is positive and carbon footprint awareness is a factor.

Students who are aware of their carbon footprint tend to exhibit sustainable behaviour.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	28.47	1	28.47	21.35	0.000
Residual	40.81	153	0.27		
Total	69.28	154			

The ANOVA results mainly show that the regression model is statistically significant($p < 0.05$) This means that being aware of carbon footprint really affects how students behave in a way. Students' awareness of carbon footprint significantly influences their behaviour.

Variable	Beta	Std. Error	T	Sig.
Constant	1.21	0.18	6.72	0.000
Carbon Footprint Awareness	0.58	0.09	6.54	0.000

The coefficient value, which is ($\beta = 0.58$) shows that if students are more aware of their carbon footprint, they are more likely to behave in a way. This means that when students know more about their carbon footprint it makes them act sustainably. The student's behaviour becomes more sustainable as they understand their carbon footprint.

Regression

The study of how things are related shows that knowing about carbon footprint is very important for undergraduate students and postgraduate students to behave in a sustainable way. This means that the idea that carbon footprint awareness affects behaviour, which we call the alternative hypothesis is true. So we accept(H1). Reject the opposite(H0) which is the null hypothesis that says carbon footprint awareness does not affect sustainable behaviour, among undergraduate students and postgraduate students.

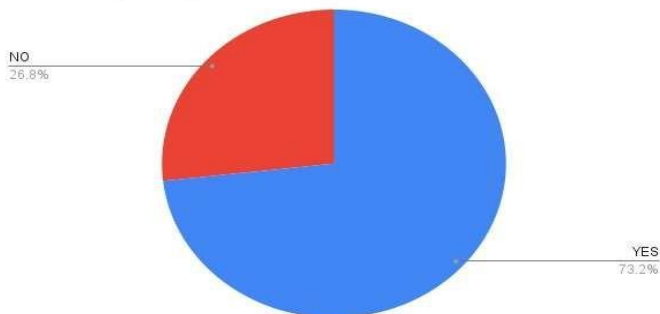
Interpretation Of Data

The Analysis of responses from 155 students that indicates a moderate to higher level of awareness regarding this carbon foot print and environmental issues. Most respondents Displaying an understanding of the carbon footprint concept and identified in everyday activities such as energy usage, transportation and consumption habits as major contributors to carbon emissions. Postgraduate students, exhibited relatively higher awareness levels than the undergraduate students, suggesting the influence of advanced academic exposures.

Table1. Analysing Awareness of Carbon Footprints.

SI No	Description	Respondents	Percentage
1	Yes	113	73%
2	No	42	27%
	Total	155	100%

Figure 1 Analysing Awareness of Carbon Footprints.



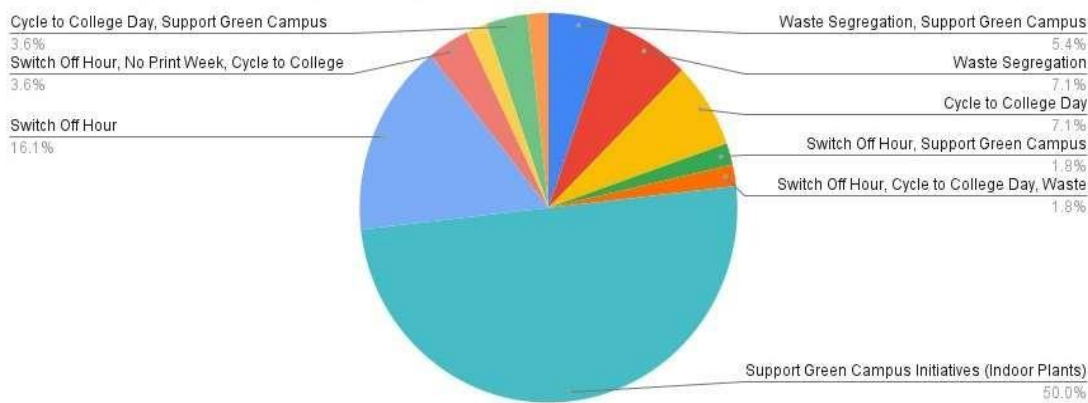
The results shows that 73.2 percent of people know what the term carbon footprint means. This is a sign that people have a basic understanding of environmental causes. On the hand 26.8 percent of people do not know what carbon footprint means. This shows that there is a gap, in what people know about the environment and we need to teach people about it. We need to do a job of educating people about carbon footprint and other environmental causes.

Table 2. Responses On Challenges Accepted to Reduce Carbon Footprint.

SI No	Description	Respondents	Percentage
1	Support green campus initiatives (indoor plants)	75	48%
2	Switch off hour	25	16%
3	Waste segregation	12	8%

4	Cycle to college day	12	8%
5	Waste segregation+ support green campus	8	5%
6	Cycle to college day+ support green campus	6	4%
7	Switch Off Hour+ no print week+ cycle to college	6	4%
8	Switch off Hour+ support green campus	5	3%
9	Support green energy (solar/renewable use)	6	4%
	Total	155	100%

Figure 2 Responses on Challenges Accepted to Reduce Carbon Footprint.



Regarding sustainability initiatives, 50% of respondents expressed willingness to support green campus which measures such as indoor plants, highlighting strong support for institution-led efforts. About 16.1% shown interested to participate in initiatives like “Switch Off Hour,” Displaying awareness of energy conservation. Other actions such as waste segregation and cycling to college received moderate responses, while combined initiatives were less frequently chosen.

These results give suggestions like students should prefer simple, organised, and institution-supported sustainability measures.

Although awareness levels were relatively high and the regular practice of sustainable behaviour was found to be medium. Students expressed willingness to conserve electricity, choose sustainable transport, reduce wastage, and support environmental responsible actions. Overall the findings show a relationship between being aware and wanting to act in a sustainable way. This highlights that institutions play a role in helping people turn what they know into actions they do every day. The findings stress that institutions can support people in acting So when people know about sustainability and institutions help them they are more likely to act on it. The study results show awareness and intention to act sustainably are connected. Also institutional support helps people to make behaviour a habit.

The awareness helps people to have the intention to act sustainably. Institutions are key, in making this happen.

Key Findings

- Most students possess basic knowledge of carbon footprint and environmental issues
- Postgraduate students display a higher awareness and better sustainable behaviour more than the undergraduate students

- Education will play a very important role in creating environmental awareness and Despite awareness, sustainable practices are not consistently followed in daily life.
- Students are more likes to adopting the eco-friendly practices when supported by institutional initiatives.

Suggestions

- The Carbon footprint and sustainability topics should be integrated across all academic programmes.
- Regular workshops and awareness campaigns must should be conducted to promote simple environmental protection practices and Institutions should encourage practical actions such as energy conservation, Wastage reduction, and use of public transport.
- We should really support students when they want to join clubs and do things that are good for the earth.
- This is because when we regularly check how much students know about taking care of the environment it can actually make our schools plans, for being sustainable a lot better.
- The Environmental topics should be included in the regular curriculum of colleges.

CONCLUSION

The study concludes that the undergraduate and postgraduate students possess a good level of understanding about the carbon footprint and environmental issues. Most students think that things they do every day like using electricity, traveling and choosing what to buy add to carbon emissions. Students who are doing postgraduate studies are more aware. Often do eco-friendly things, which shows that higher education has an impact. There is a gap between knowing what is right and doing it all the time. Students have an attitude and want to be sustainable but they do not always do it. The findings show that students need to learn about carbon in a way have practical sustainability initiatives and get strong support, from their institution to make sustainable behaviour a habit.

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