

A QUESTIONNAIRE-BASED SURVEY OF GREEN SENSE AMONG UNDERGRADUATE STUDENTS RESIDING IN DELHI/NCR

Dr. Uzma Nadeem^{1*}, Dr. Kavita Singh² and Prof. Harpreet Kaur³

^{1,2}Assistant Professor, Department of Environmental Studies, Mata Sundri College for Women, University of Delhi, Delhi- 110002

³Principal, Mata Sundri College for Women, University of Delhi, Delhi- 110002

Email: uzmanadeem3@gmail.com*

ABSTRACT

Environmental education and awareness along with participation can begin at the early stages of education; however, at the higher education level students not only can learn and accumulate knowledge about the environment but they can also develop responsibility towards the stewardship of the ecosystems and respect other species' right to a healthy environment. Assumption is that educational institutions are appropriate venues to propagate such awareness. How people react and behave in return to ecological problems is important in perceiving responses from individual groups. Behaviour is one of the important factors which determines environmental awareness. Students nowadays pay less attention to their environment and as future decision-makers of the society their attitude towards environmental protection and economic priorities and issues and effects are vital to one's' society and its developing cycles. Overall, greening the educational institution has become an important issue as the future decision makers are prepared to have commitment to protect and value the environment and university's commitment to a green education agenda on the other hand.

A questionnaire-based survey was conducted to analyse the environment awareness and participation level in environmental protection activities by undergraduate students of Delhi/NCR region of Mata Sundri College for Women, University of Delhi. As per the analysis of the responses received it was observed that the level of awareness of students was found to be far above the ground, but it was also observed that the percentage of students with high levels of awareness is extremely low whereas, a very high percentage of students was observed with very low level of environment awareness. Moreover, the level of environmental awareness amongst the students is very high with constructive attitudes towards the environment, but the participation level in environmental protection activities is moderate. The questionnaire survey highlighted that student are concerned about environmental issues but up to some extent and also expressed a very positive behavior.

Keywords: *Environmental awareness, Environmental knowledge, Students, Questionnaire, Survey*

INTRODUCTION

Environment is pivotal and humans are dependent on the environment for our survival and quality of life. It has been observed that species and environment both are interdependence to each other and in the last few decades we have observed the widespread incidence of environmental degradation, natural calamities all over the world due to the consequences of overexploitation by anthropogenic activities majorly by urbanization and industrialization. Therefore, there is a need to draw the attention of the global community to work for a better environment by adopting sustainable development practices.

With the growing population demand for basic needs leads to waste generation which is the main cause of environmental quality degradation. Various kinds of pollution of the environment result in serious health

**Corresponding Author*

hazards on humans (Karatat et al., (2016)). The chemical responsible for the degradation of quality of each component of the environment reaches to the organs of the human body via food chain which leads to biomagnifications in the organs and causing cancer.

In the past few decades, global problems concerning environmental pollution have been increasing day by day and extreme use of non-renewable natural resources leads to the depletion of the resources. Major issues we are facing are freshwater scarcity on a global scale, deforestation, degradation of area around the rivers, depletion of soil quality and biodiversity loss, pollution, over exploitation of energy resources and increase in solid wastes have become a major concern. Increased levels of pollution have resulted in serious health problems like cancer, as well as adverse impact on the environment, and certainly inducing projections for long-term monetary progress. The main sources responsible for the contamination of water are industrial effluent, domestic sewage, agricultural runoff, medical wastes, institutional waste etc. (Lutterodt, et al., 2018). Environmental pollution has a direct and indirect effect on health. So, there is a need to create environmental awareness among the students related to environmental degradation and its management by environmental education from the childhood age.

The term environmental awareness means knowledge about the environment which offers skills to solve environmental problems. Apart from education there is a need of vigorous checking of the awareness and consciousness level of the students by various research methodologies. Some of the literature reviews depicted the awareness level of the student's related environmental problems as an individual (K. Ghosh, 2014; Abbas and Singh, 2014; Sindu and Singh, 2014; Kumar, J., 2012; Danielraja. R., 2019; Ahmad et. Al, 2021; Verma, A. & Verma, V., 2022).

To attain sustainability in the environment, awareness by education and public contribution is the key requirement and according to UNESCO (1981), environmental education is a method of executing the goals of environmental protection. It is not a separate branch of science but a lifelong interdisciplinary field of study. Which suggests that education towards protection and improvement of the environment and education works as a tool of development for refining the quality of life of social communities and to attain this goal, environmental education and awareness turn out to be important tools to encourage community participation in environmental protection and conservation.

This research paper tried to analyse the environmental awareness amongst the undergraduate students of Department of Environmental Studies of Mata Sundri College for Women of University of Delhi by a questionnaire-based survey.

The main objective of the survey is to study the student's environmental awareness and participation for the management of the environmental problems related to their college campus and their residential area. The outcome provided the idea regarding the awareness level of students regarding environmental initiatives which should be taken in the campus and their residential areas. This survey investigated the levels of awareness in terms of environmental issues among the undergraduate students and the students participating in the survey mostly belong to Delhi/NCR region.

The study has been undertaken to analyze: (1) level of environment awareness; (2) sense of responsibility and attitudes of students towards the environment and its issues; and (3) student's participation and engagement level of students in various environmental protection activities.

METHODOLOGY

Research sample: The survey was conducted among undergraduates of the age group 18-21 year. The survey included a closed-ended questionnaire and the students responded voluntarily. During the survey a goal-oriented sampling method was adopted, and we have received a total 701 responses over the prescribed timeline. The survey questionnaire consists of four sections related to general environmental awareness, energy and water issues awareness, waste management and water pollution and health awareness (Annexure -1).

Research analyses report comprises weighing the data, calculation of descriptive statistics and percentages calculation based on student's response. The outcome provided the idea regarding the awareness level of students regarding environmental initiatives and the responsibility of the students as an individual in the campus. Moreover, issues related to poor water quality status at their residence and techniques they are using for the purification of drinking water along with energy conservation and waste minimization strategies.

Questionnaire design: In the questionnaire, questions were composed with the format of pre-selected answers and were used as the main tool of this research. The survey also collected some demographic information including age, gender, and education etc. of the students.

RESULT AND DISCUSSIONS

The results from the study revealed that students have high environmental awareness, and positive attitudes towards the environment, but moderate levels of participation in environmental protection activities and improvement.

Analysis of section 1 of environmental survey questionnaire representing general environmental awareness among undergraduate students: As depicted in Table A almost fifty three percent (52.99%) of respondents stated that litter/ garbage and trash are the most important environmental issue on campus whereas other issues like water issues, pollution, energy issues and green cover were less vital. Awareness of all these issues have to be intercalated among the students to increase conservation programmes. Maximum students were aware of domestic and industrial waste categories whereas awareness of other waste categories like commercial, biomedical, construction/demolition and e-waste were lacking. The next awareness question about environmental initiatives in the college campus showed that purchasing recyclable products, the use of alternative energy sources, sustainable use of water along with reduction of plastic use should be at par except composting. Composting being one of the most important initiatives must be understood by the students. Moreover, maximum students were unaware about the functioning of the eco club in the college campus.

Table A: Analysis of section 1 of environmental Survey questionnaire representing general environmental awareness among undergraduate students. Number of students who responded to the questionnaire was 701.

S. No.	Close ended questions	Selective preferences	No. of response	% Response among students
Q. 1	What is the most important environmental issue on campus?	Litter/garbage/trash	372	52.99
		Water Issues	230	32.81
		Pollution	174	24.82
		Energy issue	59	8.42
		Green cover	179	25.53
Q. 2	How many waste categories are you aware of?	Domestic waste	608	86.73
		Industrial waste	545	77.75
		Commercial waste	347	49.50
		Bio-medical waste	338	48.22
		Construction/demolition waste	372	52.07
		E-waste	331	47.22
Q. 3	What environmental initiatives should be taken in your college?	Purchasing recyclable products	274	39.09
		Using alternative energy sources for campus needs	337	48.07
		Sustainable use of water	319	45.50
		Plastic use reduction	290	41.31
Q. 4	Are you aware of the functioning of the Eco club of your college?	Yes	308	43.93
		No	393	56.06

Analysis of section 2 of environmental survey questionnaire representing awareness about energy and water issues among undergraduate students: As analyses in Table B majority of accepted that they make effort to reduce energy and water consumption at their residence always or sometimes. Only a few students responded that they never take any effort to reduce the consumption of energy and water at their residence. Majority of students turn off the tap while brushing teeth, hand washing, shaving etc. at their residence while other initiatives like reducing the shower time, reusing the water, less capacity flushing, washing only full loads of laundry showed less response from students. Previous socio-economic behavioural research studies have demonstrated that primary education can be a big influencing factor in creating awareness towards issues related to water and household activities on hygiene (Plappally, et al, 2011). Majority of the students replied about supply of drinking water via Municipal Corporation. Maximum students used to turn off the lights when not in use, use CFL/LEDs to conserve the energy along with turning off the electronics when not in use.

Table B: Analysis of section 2 of environmental survey questionnaire representing awareness about energy and water issues among undergraduate students. Number of students who responded to the questionnaire was 701.

S. No.	Close ended questions	Selective preferences	No. of response	% Response among students
Q.1	As an individual how frequently do you make efforts to reduce energy and water consumption at your residence?	Always	304	43.36
		Sometimes	379	54.06
		never	19	2.71
Q.2	Which of the following ways do you adopt to conserve water at your residence?	Reduce shower time	303	43.22
		Turn off the sink while teeth brushing, hand washing, shaving, etc.	624	89.01
		Only wash full loads of laundry	155	22.11
		Reusing water	268	38.23
		Using less capacity flush tanks	180	25.67
Q.3	Are you aware of your drinking water supply?	Municipal corporations	450	64.19
		Well, / groundwater	190	27.10
		River	52	7.42
		Tap	116	16.55
		Don't know	116	16.55
Q.4	In which of the following ways do you conserve energy at your residence?	Turn off lights when not in use	522	74.46
		Turn off electronics when not in use	461	65.76
		Use Compact Fluorescent Light bulbs (CFLs) /LED's	469	66.90

Analysis of section 3 of environmental survey questionnaire representing waste management awareness among undergraduate students: As assessed in Table C maximum students used two dustbins at their home for waste segregation. The result indicates that very few students are aware of waste segregation methods and their importance. Larger numbers of students reuse and recycle newspapers, old notebooks and old clothes whereas fewer students were aware about recycling cell phones, batteries and cells. Recycling of cell phones, batteries and cells are very important environmental concerns. Maximum number of students used double sided copies along with avoiding plastic packaging, but fewer number of students replied in favour of use of reusable plates, cups, or utensils and carrying a reusable bottle or coffee mug on campus. Maximum number of students reported having a recycling bin in their area.

The study indicates the requirement of ecological awareness and citizen participation to segregate waste at source, door-to-door collection, and disposal in appropriate collecting bins is imperative. However, in India, the present scenario reveals that there is almost no segregation of garbage at source which leads to various environmental problems. There is no organized and scientifically planned segregation of municipal solid waste either at household level or at community bins. Lack of coordination among the citizens and lack of planning in some areas of Delhi, the citizens throw litter wrongly. Apart from this, students specified that the community bins are not located in the close locality and similar studies have been reported in the literature (Joshi and Ahmed, 2016). Large number of respondents reuses old notebooks and recycles newspapers and half of the population avoid using plastic packaging indicates the awareness level among the students. Most of the students specified that they use reusable plates, cups and utensils to reduce the waste generation in the campus which is a very sign. The results stated that students are very sincerely aware of waste management and they are adopting the measure to control and minimize the waste generation in the campus.

Table C: Analysis of section 3 of environmental Survey questionnaire representing waste management awareness among undergraduate students. Number of students who responded to the questionnaire was 701.

S. No.	Close ended questions	Selective preferences	No. of response	% Response among students
Q. 1	How many kinds of bins are there at your home for waste segregation?	One	326	46.5
		Two	418	59.62
		Four	33	4.71
Q. 2	What type of waste do you often reuse and recycle at your home?	Newspapers	543	77.46
		Old notebooks	466	66.47
		Old clothes	433	61.91
		Old plastic and glass bottles	307	43.79

		Cell phones	40	5.7
		Batteries and cells	45	6.42
Q. 3	Which of the following ways do you adopt to minimize waste on your campus?	Use double sided copies	379	54.06
		Use reusable plates, cups, or utensils	232	33.09
		Carry a reusable bottle or coffee mug	259	36.94
		Avoid plastic packaging	422	60.19
Q. 4	Is there any recycling bin in your area?	Yes	362	51.64
		No	228	32.52
		Don't know	205	29.24

Analysis of section 4 of environmental survey questionnaire representing awareness about water pollution and health among undergraduate students: As assessed in Table D nearly all students agreed that the most dangerous hazard is posed by environmental pollution. Majority of students responded that industrial effluents are the main cause of water pollution whereas other factors marked as domestic wastes, agricultural runoff; medical and institutional wastes are not a threat to water bodies. Popular technique used by students at their home to purify the water is filtration techniques instead of boiling and chlorination methods. Most students agreed to have good water quality at their locality.

Table D: Analysis of section 4 of environmental survey questionnaire representing awareness about water pollution and health among undergraduate students. Number of students who responded to the questionnaire was 701.

S. No.	Close ended questions	Selective preferences	No. of response	% Response among students
Q. 1	The most dangerous hazard to health is posed by environmental pollution.	Agree	700	99.86
		Disagree	29	4.14
		Don't know	40	5.7
Q. 2	Who is responsible for water pollution?	Industrial effluent	625	89.15
		Domestic sewage	465	66.33
		Agricultural runoff	265	37.8
		Medical waste	254	36.23
		Institutional waste	254	36.23
		None	19	2.71
Q. 3	Which safe technique you are using at your home to purify the water?	Boiling	226	32.23
		Chlorination	60	8.56
		Filtration	611	87.16
Q. 4	What is your opinion regarding the water quality of your locality?	Excellent	79	11.26
		Good	355	50.64
		Satisfactory	288	41.08
		Poor	63	8.98

The study concluded that the majority of educated youth (~99%) considered water pollution as an environmental challenge and most of the respondents ranked it as the greatest threat and counterparts with the literature data (Ahmed and Ismail, 2018). Most students are aware of water pollution and its causes and aware of safe water purification technologies.

CONCLUSIONS AND RECOMMENDATIONS

The study analyses the environment awareness status, sense of accountability, attitudes towards the environment, student's participation, and engagement status in various environmental protection activities. Environmental sustainability is not a new concept, but it requires the execution with a long-term series of strategic plan, policy, and conservation practices. The students at higher education institutes are the hope for future development of policies and technologies focusing on environment issues.

The survey analysis reveals that students at Mata Sundri College for Women possess a good level of understanding in terms of environmental awareness with positive attitudes to work for the environment protection, but they have a moderate level of participation in environmental protection actions and improvement.

As per the survey analysis, only a good level of awareness of environment, and environment related problems does not motivate students to participate vigorously in the environment protection activities. The results suggested that awareness and knowledge of environment issues does not play a key role in the motivation students to participate in the environment conservation and protection activities.

The study also revealed that students need to acquire good attitudes and a higher sense of responsibility towards the environment along with high environmental awareness. At last, the study suggests that there is a need to conduct some awareness raising campaigns related to environmental issues. Rigorous hygiene practices and environmental conservation issues should also be addressed through organizing widespread public awareness programmes/seminars/activities focusing on sustainable development goals.

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