



ASSESSING UNDERGRADUATE STUDENTS' ATTITUDES TOWARDS ENVIRONMENTAL POLLUTION IN MAYURBHANJ DISTRICT: AN ANALYTICAL STUDY

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ABSTRACT

Environmental pollution has emerged as one of the most urgent global challenges, with its consequences deeply affecting ecosystems, public health, and overall quality of life. Understanding young adults' attitudes toward environmental issues is crucial, as they represent the future custodians of environmental protection and policy advocacy. This study aims to assess the attitudes of undergraduate students toward environmental pollution in Mayurbhanj District and to examine how these attitudes vary across gender, locality, and academic discipline. The study was conducted on 240 undergraduate students of Mayurbhanj district of Odisha, India. The investigator adopted the descriptive survey research design to assess the attitudes of undergraduate students toward environmental pollution in Mayurbhanj district of Odisha. For the collection of samples for the study, simple random technique was adopted. The findings of the study revealed that gender does not significantly influence students' attitudes toward environmental pollution, indicating an almost equitable level of environmental awareness among male and female undergraduate students. Also, the urban undergraduate students exhibit slightly more favourable attitudes than that of rural students, the difference remains statistically insignificant, highlighting the need to strengthen environmental awareness efforts in rural contexts. Moreover, a statistically significant difference was observed between academic disciplines, with Science students demonstrating more positive attitudes toward environmental issues than their Arts counterparts. The study underscores the importance of inclusive, context-responsive, and discipline-specific environmental education strategies to foster stronger environmental responsibility among all undergraduate learners. In addition to this, educational implications and recommendations were given on the basis of obtained findings of the study.

KEYWORDS: Environmental Pollution, Attitude, Undergraduate Students, Gender, Locality, Discipline, Mayurbhanj District.

INTRODUCTION

Environmental pollution has become a critical global concern in the 21st century, posing serious threats to natural ecosystems, human health, economic growth, and sustainable development of living being. Rapid urbanization, industrial growth, technological advancement, and changing lifestyle patterns have intensified environmental degradation, leading to air, water, soil, and noise pollution at unprecedented levels. In developing regions, including India, these challenges are further complicated by limited awareness, inadequate policy implementation, and socio-economic disparities. As environmental issues increasingly affect everyday life, cultivating environmental consciousness among citizens has become an essential priority. As young people particularly undergraduate students, occupy a significant position as they represent not only the educated segment of society but also the future decision-makers, teachers, researchers, administrators, policy makers and community leaders who will influence environmental planning and conservation efforts. Their attitudes toward environmental pollution play a vital role in shaping environmentally responsible behavior, participation in environmental programmes, and support for sustainable

development initiatives. Positive environmental attitudes are often linked with higher levels of environmental awareness, proactive engagement, and willingness to contribute to environmental protection.

Mayurbhanj district is known for its ecological richness and cultural diversity, presents an important setting for examining environmental attitudes. Despite its natural resources, the district faces growing environmental pressures due to urban expansion, human activities, educational transitions, and socio-economic changes. Understanding how undergraduate students in this region perceive environmental pollution is therefore essential for designing effective educational and policy interventions. Every human being is a part and parcel of the environment and need be aware about the positive and negative environmental influence on him/her. Environmental education is nothing but teaching of a man how to interact fully with the surrounding world, so as to improve his own inner worlds. Environmental education enables one to maintain smooth life. In the present context spreading awareness of pros and cons of environment among people at large is as urgent as important for the fact that the environment is in degradation that led to change

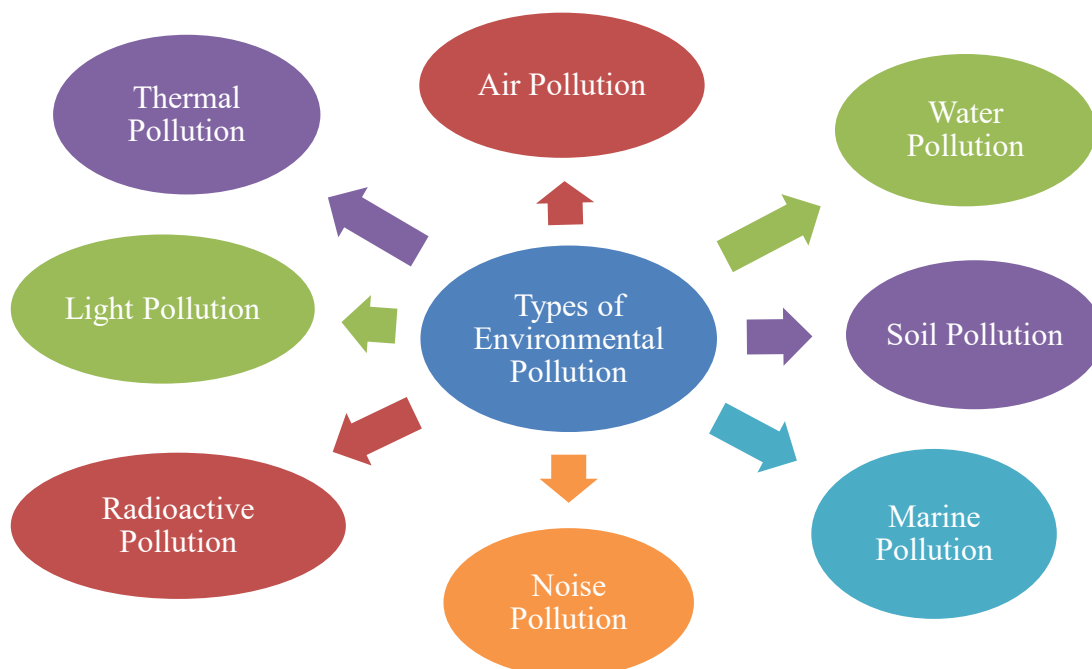


in weather, rising temperature, polluted air, water and land, earthquakes, draught, floods, ice bergs melting, global warming, acid rain threatening the coastal areas and large number of people are killed by thunderbolt. The countries around the globe have enacted drastic laws to protect the environment, so also environment as a science subject finds place in curriculums of all levels of education to enlighten the tomorrow's global citizens and to spread awareness about environment pollution in their locality. Environmental pollution is defined as any undesirable change in physical, chemical or biological characteristics of any component of the environment i.e. air, water, soil which can cause harmful effect on various forms of life or property. The pollution can be defined as influence of any substance causing nuisance, harmful effects and uneasiness to the organisms.

Types of Environmental Pollution: There are various types of environmental pollution such as air pollution, water pollution, soil pollution, thermal pollution, radioactive pollution, noise pollution, light pollution and thermal pollution.

- **Air Pollution:** Air pollution occurs due to the presence of undesirable solid or gaseous particles in the air in quantities that are harmful to human health and the environment. Basically, the air pollution is caused by the burning of fuel that directly releases hazardous chemicals into the air and cause of global warming and acid rain.
- **Water Pollution:** Water pollution not only affects the fish and animals living in the water but also affects the whole food chain by transferring the contaminants to the consumers depending on these animals.

- **Soil Pollution:** Soil pollution involves the contamination of soil by the release of harmful substances into the soil. Soil pollution causes an indirect damage to humans and other animals it consisting soil consisting of contaminants not only affects the plants growing on the soil but also indirectly harms the entire food chain.
- **Marine Pollution:** It is defined as the introduction of substances to the marine environment directly or indirectly by man resulting in adverse effects such as hazards to human health, obstruction of marine activities and lowering the quality of sea water.
- **Radioactive Pollution:** It is defined as the presence of radioactive substances or chemicals in the environment. Radioactive chemicals occur due to improper transport or to containers breaking, spill out into the atmosphere and onto the ground.
- **Noise Pollution:** Noise pollution is the increase in the rate of noise in the environment. Noise is defined as an unpleasant sound that has an adverse effect on the human ear. Noise pollution is caused by the moving vehicles, manmade machines and loud music.
- **Light Pollution:** Light pollution is defined as the unwanted change of natural light levels in the environment due to effects of man-made light sources. Light pollution is detrimental to both plants and animals.
- **Thermal Pollution:** An increase in the optimum water temperature by industrial process (steel factories, electric power houses and atomic power plants) called as thermal pollution.



(Fig.1, Types of Environmental Pollution)

This study seeks to assess the attitudes of undergraduate students toward environmental pollution in Mayurbhanj district and to explore whether these attitudes differ based on gender, rural-urban background, and academic discipline. By identifying strengths and gaps in environmental awareness, the study aims to provide meaningful insights for educators, policymakers, and institutions to develop more inclusive,

engaging, and discipline-sensitive environmental education initiatives.

II.LITERATURE REVIEW

Several studies have witnessed students' attitudes and awareness towards environmental issues across different levels of education, locations, and academic streams. Sowmya &



Kumar (2023) ^[12] revealed that gender and locality did not significantly influence the environmental attitudes of secondary school students in Mysore, suggesting a relatively uniform level of environmental concern among boys and girls as well as urban and rural learners. Similar findings were obtained by **Yousuf & Bhutta (2012)** ^[15], who also found no gender difference in students' attitudes towards environmental issues in Karachi. However, these findings are not universally consistent. For instance, **Kapri (2017)** ^[6] reported a significant difference between male and female pupil teachers' attitudes towards environmental pollution, and **Choudhary (2010)** ^[3] found that female B.Ed. students demonstrated higher awareness and more positive attitudes toward environmental education than males. Such contrasting results indicate that gender differences may be influenced by specific socio-cultural contexts, educational exposure, and levels of maturity.

Regarding academic discipline, several studies consistently highlighted notable differences. **Danielraja (2019)** ^[5] found significantly higher environmental awareness among science group students compared to arts students, although no difference existed between science and vocational groups or between vocational and arts students. Similarly, **Qasim & Singh (2016)** ^[9] observed that science teachers possessed stronger environmental awareness and concern compared to social science teachers, largely attributed to their subject familiarity. **Dahiya & Ritu (2013)** ^[4] also confirmed that science students exhibited higher environmental awareness than arts students. These findings collectively suggest that curriculum exposure and subject orientation play a major role in shaping environmental perspectives. **Asthana & Dwivedi (2015)** ^[1] reported that higher environmental awareness among urban B.Ed. students than rural students, possibly due to better access to information, infrastructure, and environmental initiatives. Consequently, **Poonam (2012)** ^[8] found significant differences between government and private school students, reflecting disparities in institutional resources and exposure to environmental education. **Choudhary (2010)** ^[3] revealed that students from economically higher backgrounds and those studying in Tamil medium exhibited greater environmental awareness than their counterparts, emphasizing the role of socio-economic capital and medium of instruction in shaping environmental understanding. While many studies agree that science background enhances environmental awareness, findings related to gender and locality vary across contexts. These variations underline the need for context-specific environmental education policies and emphasize expanding environmental learning beyond science disciplines to ensure equitable awareness among all learners.

III. RATIONALE OF THE STUDY

Environmental pollution has emerged as one of the most pressing challenges facing humanity in the 21st century. Rapid industrialization, urbanization, and unsustainable practices have led to the degradation of air, water, and soil quality, significantly impacting ecosystems and human health. In India, the consequences of environmental pollution are increasingly evident, with various regions experiencing severe air quality issues, water scarcity, and waste management crises. Mayurbhanj is known for its rich biodiversity and cultural heritage, as a hub of educational

institutions and a substantial population of undergraduate students who represent the future generation of decision-makers of the decade. Understanding their attitudes towards environmental pollution is crucial for fostering a culture of environmental awareness and sustainable practices. By considering the following key points the study is aimed to be conducted in the Mayurbhanj district.

- ✓ **Youth Engagement:** Undergraduate students are at a formative stage in their lives, where attitudes and behaviours regarding environmental issues are often established. Investigating their perspectives on environmental pollution provide insights into the effectiveness of current educational interventions and the potential for their future.
- ✓ **Local Context:** Mayurbhanj known for its unique environmental challenges, presents a specific context for attitudes towards pollution and insights gained from this help local educational policies and initiatives aimed to addressing environmental issues.
- ✓ **Informing Policy and Education:** By understanding the attitudes and perceptions of students, educational institutions and policymakers tailor programs to enhance environmental literacy, encouraging engagement in environmental protection.
- ✓ **Social Responsibility:** As future professionals and community leaders, undergraduates play a vital role in shaping societal norms around environmental stewardship. Investigating their attitudes can highlight areas for growth in social responsibility and community involvement.

This research work contributes to the growing body of literature on environmental attitudes, particularly within the Indian context. It helps bridge gaps in understanding how socio-cultural factors influence environmental perceptions among youth. By understanding the essence, the study aims to explore undergraduate students' attitudes towards environmental pollution in Baripada region to better understand their perceptions, enhance educational strategies, and foster a generation committed to sustainable development.

IV. OBJECTIVES OF THE STUDY

The objectives of the research work are:

1. To study the difference in attitudes towards environmental pollution between male and female undergraduate students.
2. To study the difference in attitudes towards environmental pollution between rural and urban undergraduate students.
3. To study the difference in attitudes towards environmental pollution between Arts and Science undergraduate students.

V. HYPOTHESES OF THE STUDY

The hypotheses of the research work are:

1. There is no significant difference in attitude towards environmental pollution between male and female undergraduate students.
2. There is no significant difference in attitudes towards environmental pollution between rural and urban undergraduate students.



- There exists a significant difference in attitudes towards environmental pollution between Arts and Science undergraduate students.

VI. DELIMITATION OF THE STUDY

The population of the study delimited to undergraduate students only. The study is delimited to **240 undergraduate** students as sample. The study is confined to undergraduate students of **M.S.C.B. University, Baripada** of Mayurbhanj district only. The study is delimited to variables like gender, location and stream only.

VII. METHODOLOGY

Taking into consideration the nature of study the investigator adopted the **descriptive survey** research design to assess undergraduate students' attitudes towards environmental pollution in the Baripada region. In the present study, the population constituted out of undergraduate students studying in different colleges of M.S.C.B. University, Baripada of Mayurbhanj district. For the collection of samples for the study, simple random technique was adopted. In this study, study attitude is considered as dependent variable and gender, locality, and streams are considered as independent variables. For the present study a total number of 240 undergraduate students were selected as sample by aforementioned sampling technique. The following table depicts the details of sample for the study.

(Table 1: Description of the sample of the study)

Variables (Gender)	Locality		Stream		Total
	Urban	Rural	Science	Arts	
Male	60	60	60	60	120
Female	60	60	60	60	120
Total	120	120	120	120	240

VIII. TOOLS AND TECHNIQUES

Tools and techniques are prime components of research work as they play significant role in collection, analysis and interpretation of data. In the present study, the researcher used a self-developed research tool for the data collection i.e. 'Attitude scale for students on environmental pollution'. The self-developed Attitude scale was developed by the researcher with five-point scale i.e. **Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1)** to obtain thoughtful views of the students regarding

environmental pollution in the Baripada region. The attitude scale consisted of 40 items on different aspects of environmental pollution i.e. 5 items from 8 components. Each item presents a brief, simple and precise statement about the attitude of students towards environmental pollution in the Baripada region. Reliability of the scale is calculated by **Split Half Method** and found **0.74** which is reliable. The content of the tool was checked by the language and subject expert to find out the content validity of the tools. For validity, the scale used simple language and a clear five-point system, making it accessible for all students.

IX. ANALYSIS AND INTERPRETATION

(Table 2: Attitude towards environmental pollution between male and female undergraduate students)

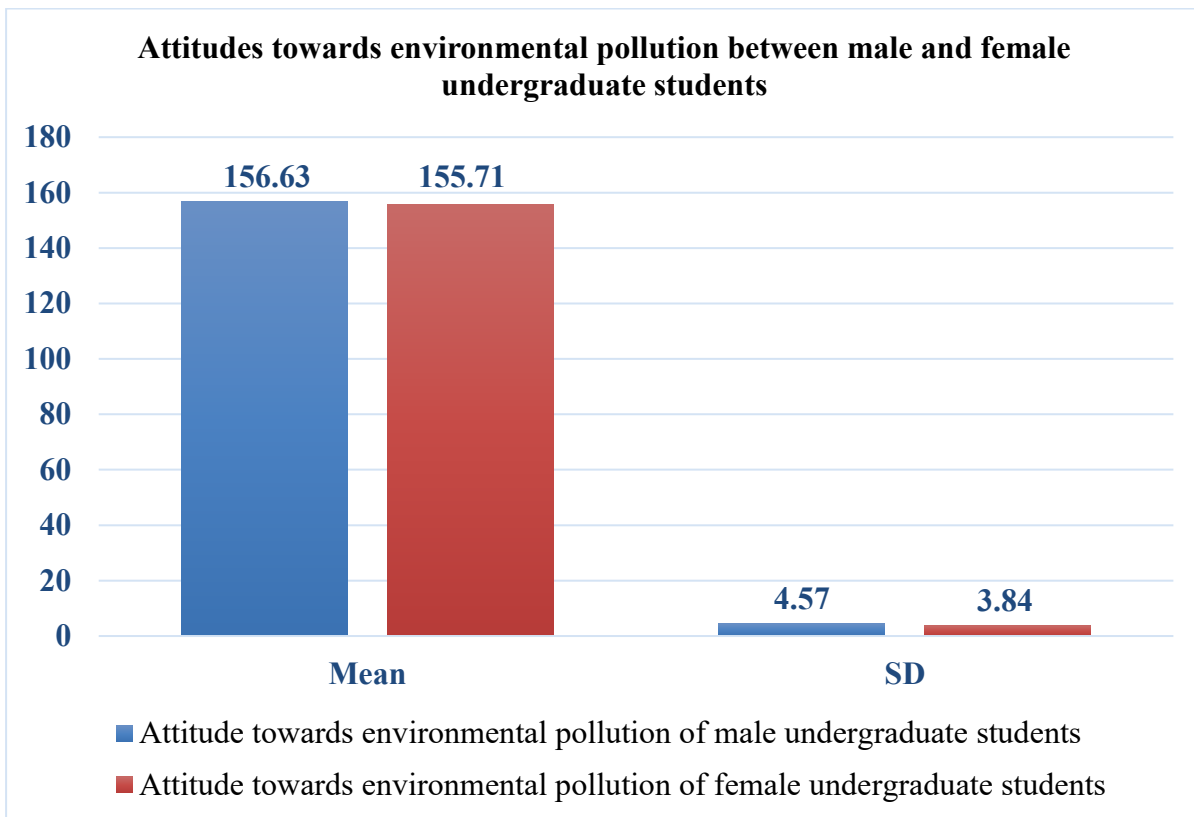
Sl. No	Variables	N	Mean	SD	SED	t-ratio	Level of Significance
1	Attitude towards environmental pollution of male undergraduate students	60	156.63	4.57	0.77	1.19	Not Significant at both level i.e. 0.01 & 0.05 level
2	Attitude towards environmental pollution of female undergraduate students	60	155.71	3.84			

(Degree of freedom = 118, at 0.05 level = 1.98, at 0.01 level = 2.63)

It is shown from above table that the mean scores for attitude towards environmental pollution of male and female undergraduate students are 156.63 and 155.71, with standard deviations of 4.57 and 3.84, respectively. The calculated t-value of 1.19 is much less than the critical values at both the 0.05 level (1.98) and the 0.01 level (2.63) with a degree of freedom (dof)=118. This indicates no statistically significant difference between the attitude towards environmental pollution of male

and female undergraduate students which concludes that the attitude towards environmental pollution of male and female undergraduate students are comparable.

Graphical Representation: Attitudes towards environmental pollution between male and female undergraduate students is depicted in the table 2 and represented by the following bar diagram.



(Fig. 2: Attitudes towards environmental pollution between male and female undergraduate students)

(Table 3: Attitude towards environmental pollution between rural and urban undergraduate students)

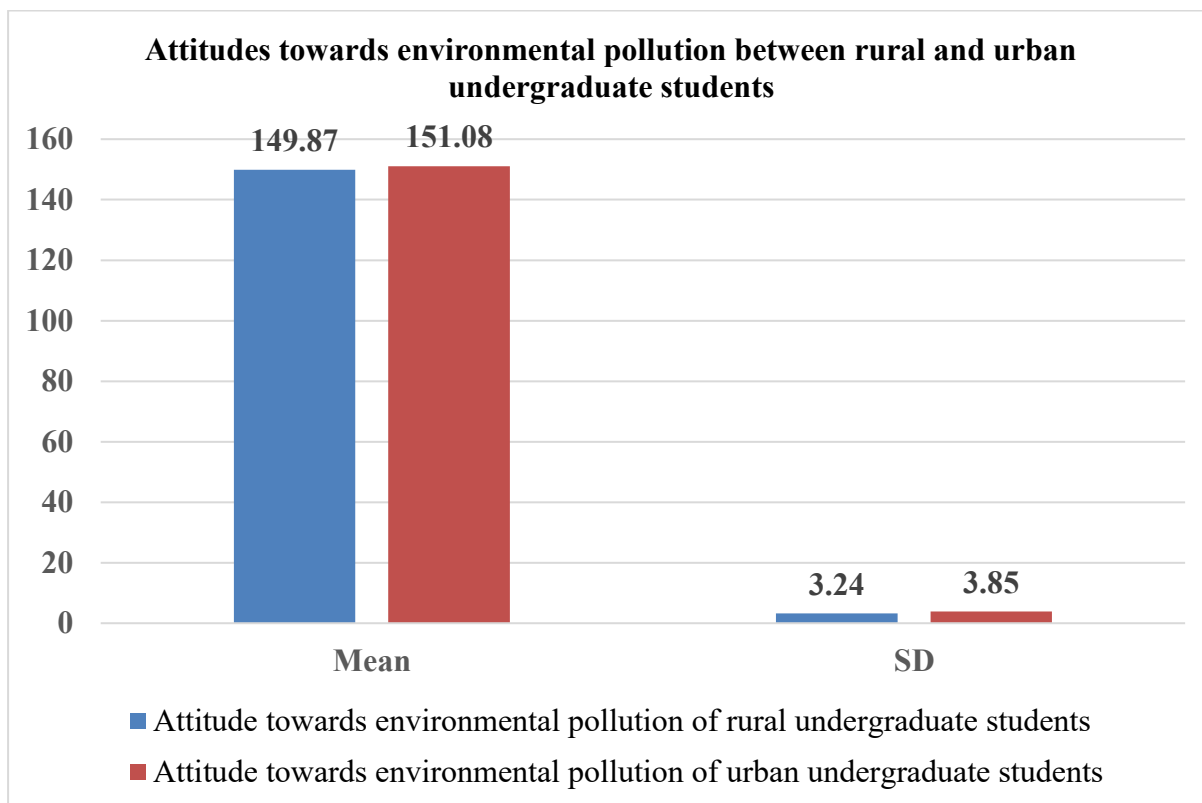
Sl. No	Variables	N	Mean	SD	SED	t-ratio	Level of Significance
1	Attitude towards environmental pollution of rural undergraduate students	60	149.87	3.24	0.64	1.89	Not Significant at both level i.e. 0.01 & 0.05 level
2	Attitude towards environmental pollution of urban undergraduate students	60	151.08	3.85			

(Degree of freedom = 118, at 0.05 level = 1.98, at 0.01 level = 2.63)

It is observed from the above table that the mean scores for attitude towards environmental pollution of rural and urban undergraduate students are 149.87 and 151.08, with standard deviations of 3.24 and 3.85, respectively. The calculated t-value of 1.89 is much less than the critical values at both the 0.05 level (1.98) and the 0.01 level (2.63) with a degree of freedom (dof)=118. This indicates no statistically significant difference between the attitude towards environmental pollution of rural

and urban undergraduate students which signifies that the attitude towards environmental pollution of rural and urban undergraduate students are comparable.

Graphical Representation: Attitudes towards environmental pollution between rural and urban undergraduate students is depicted in the table 3 and represented by the following bar diagram.



(Fig. 3: Attitudes towards environmental pollution between rural and urban undergraduate students)

(Table 4: Attitude towards environmental pollution between Arts and Science undergraduate students)

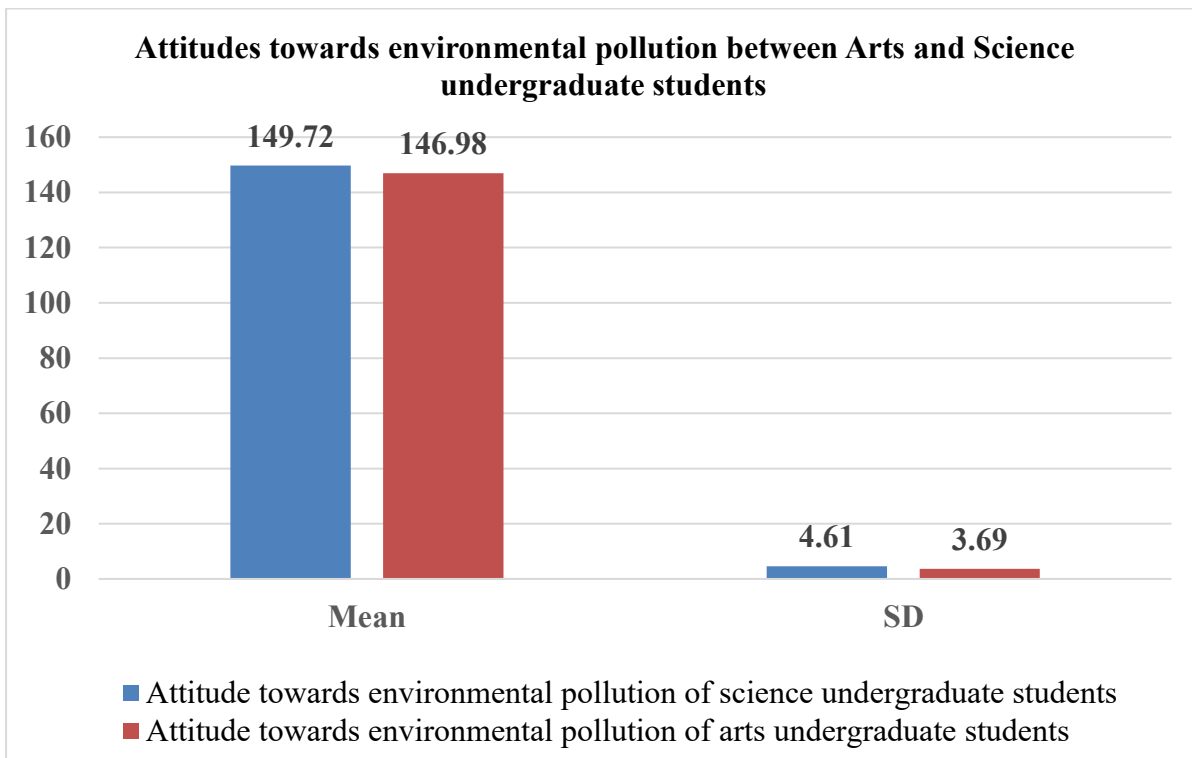
Sl. No	Variables	N	Mean	SD	SED	t-ratio	Level of Significance
1	Attitude towards environmental pollution of Arts undergraduate students	60	146.98	3.69	0.76	3.60	Significant at both level i.e. 0.01 & 0.05 level
2	Attitude towards environmental pollution of Science undergraduate students	60	149.72	4.61			

(Degree of freedom = 118, at 0.05 level = 1.98, at 0.01 level = 2.63)

It is revealed from the above table that the mean scores for attitude towards environmental pollution of Arts and Science undergraduate students are 146.98 and 149.72, with standard deviations of 3.69 and 4.61, respectively. The calculated t-value of 3.60 is much more than the critical values at both the 0.05 level (1.98) and the 0.01 level (2.63) with a degree of freedom (dof)=118. This indicates there exists statistically significant difference between the attitude towards environmental

pollution of Arts and Science undergraduate students which shows that the academic stream (Arts vs. Science) influences students' attitudes towards environmental pollution.

Graphical Representation: Attitudes towards environmental pollution between Arts and Science undergraduate students is depicted in the table 4 and represented by the following bar diagram.



(Fig. 4: Attitudes towards environmental pollution between Arts and Science undergraduate students)

X.FINDINGS AND EDUCATIONAL IMPLICATIONS

Every study provides some meaningful information and knowledge to the related field and this study also has some systematic, organized and meaningful information. The findings of the study revealed that there is no statistically significant difference between the attitude towards environmental pollution of male and female undergraduate students in the Baripada region of Mayurbhanj district which implies that the attitude towards environmental pollution of male and female undergraduate students are comparable. Secondly, there is no statistically significant difference between the attitude towards environmental pollution of rural and urban undergraduate students in the Baripada region of Mayurbhanj district which signifies that the attitude towards environmental pollution of rural and urban undergraduate students are comparable. Lastly, there exists a statistically significant difference between the attitude towards environmental pollution of Arts and Science undergraduate students which shows that the academic stream (Arts vs. Science) influences students' attitudes towards environmental pollution in the Baripada region of Mayurbhanj district.

The educational implications of the research work were as follows:

1. The findings were relevance for stakeholders such as schools, teachers, students, parents, policymakers and community members, as they highlighted the attitudes of undergraduate students towards environmental pollution in the Baripada region of Mayurbhanj district.
2. The findings indicated that the male undergraduate students perceived environmental issues slightly more than that of female, the lack of significant difference suggests a

potential uniformity in awareness and concern across genders.

3. The urban undergraduate students displayed a positive attitude towards environmental pollution; the lack of significant difference suggests that rural undergraduate students may also hold comparable views.
4. This finding is crucial for designing effective environmental awareness programs that cater to both rural and urban populations, emphasizing the shared responsibility for environmental stewardship.
5. The science undergraduate students benefited from advanced, research-oriented environmental initiatives that align with their curriculum, while Arts students required more awareness programs to enhance their understanding of environmental issues.

XI.RECOMMENDATIONS

The recommendations of the research work were:

1. It is suggested that the alike type of study may be conducted for elementary, secondary, and higher secondary level students in the Mayurbhanj district or other districts.
2. It is suggested that the similar study may be undertaken on attitude of Postgraduate, B.Ed., M.Ed., Int. B.Ed.-M.Ed., B.P.Ed., D.El.Ed. students towards environmental pollution.
3. It is suggested that the similar study can be undertaken on attitude of parents, teachers and community members towards environmental pollution.
4. Further it is suggested that the research work could be conducted on other demographic variables such as age, educational background, and locality that may influence attitudes towards environmental pollution.



XII.CONCLUSION

Based on the results of research work it was concluded that there is no statistically significant difference in attitudes between male and female undergraduate students is not statistically significant. Gender does not play a meaningful role in shaping undergraduate students' attitudes towards environmental pollution in the Baripada region of Mayurbhanj district. Secondly, the result revealed that the difference in attitudes between rural and urban students is not statistically significant toward environmental pollution which implied that the attitude towards environmental pollution of rural and urban undergraduate students are comparable. Lastly, the findings indicated that the difference in attitudes between Arts and Science students is statistically significant which concluded that the academic stream has a meaningful impact on students' attitudes towards environmental pollution. The findings of the study revealed a nearly equitable attitude towards environmental pollution among male and female undergraduate students which suggests that environmental awareness initiatives have been reaching both genders uniformly, thereby supporting inclusive participation in environmental education. However, although urban undergraduate students exhibit slightly more positive attitudes towards environmental issues than rural students, the difference is not statistically significant. This highlights the need to strengthen environmental education efforts in rural contexts, ensuring equitable exposure, awareness, and opportunities for meaningful engagement in environmental sustainability initiatives. Furthermore, the study indicates that Science undergraduate students possess a significantly higher positive attitude towards environmental concerns compared to their Arts counterparts which implies that there is necessity of designing discipline-specific environmental education strategies, enhanced exposure to environmental concepts, curriculum enrichment, and experiential learning opportunities to foster stronger environmental sensitivity. Collectively, these findings emphasize the importance of inclusive, context-sensitive, and discipline-responsive environmental education interventions to nurture informed and responsible environmental attitudes among all undergraduate students.

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