**Report on**

**Department of Statistics**

**St. Ann’s College for Women, Mehdipatnam,**

Hyderabad (Autonomous), Osmania University,

NAAC Reaccredited 3rd cycle with ‘A+’ Grade, College

A SURVEY ON ENVIRONMENTAL AWARENESS, ATTITUDE AND PARTICIPATION

By- II B.Sc. MSCs

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Declaration

The project titled “**A Survey on Environmental Awareness, Attitude and Participation**” is based on our original research work carried out and submitted for Skill Enhancement Course (SEC) – **Data Scaling techniques and Report Writing** in the program B.Sc. II year during the year 2023-2024, under the supervision of Mrs. Srikala, lecturer, St. Ann’s College for Women. We assert that the Statements made and conclusions drawn are an outcome of our research. We further certify that whatever data, text and analysis that has been used from other sources, have given the due credit to them in the report and have mentioned the details in the reference.

Acknowledgement

We would like to express our deep gratitude to Mrs. Srikala, Head, Department of Statistics, and Mrs. Deepika, lecturer, our research supervisor for their patient guidance, enthusiastic encouragement and useful critiques for this research work. Also, thankful for their advice and assistance in keeping our progress on schedule.

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ABSTRACT

Environmental awareness is the idea of being well informed about the environment. In the current scenario, knowing, identifying, and familiarizing ourselves with our environmental surroundings has made us aware of the grave danger that it is in. The conservation, protection, and preservation of the natural environment have become of utmost importance because of the constant neglect that the public has shown towards it.The purpose of this study was to determine peoples' environmental awareness levels. 129 individuals of different age groups who were randomly selected from the Indian state of Telangana provided data for this study via Google Forms. Karl Pearson's Chi-Square Test for Independence of attributes has been used in the analysis to determine the significance of the association between the attributes. There is a significant association between usage of eco-friendly modes of transportation and gender, and Disposal of e-waste and gender. To determine the respondents' level of awareness, the questionnaire replies are evaluated and examined.

Chapter 1:

INTRODUCTION

Earth has limited land and resources that is valuable on which we rely for fibre, food and fuel wood and for the basic needs of sustaining life.

Numerous dangers and issues are happening to the climate, for example, global warming, ozone exhaustion, dry spell, soil disintegration, deforestation, and contaminations which are corrupting our current circumstance.

The vast majority of these consuming environmental issues are happening by human exercises fundamentally. Human beings are routinely misusing environmental resources without appropriate arranging and natural reasoning.

People should be aware of their environment because the individuals who are well educated about the environment can solve the environmental issues and make the right decisions to curb the same. So, environmental awareness is very important in order to know the environmental issues and hence to reduce these issues.

Now more than ever, it is important that we understand the impact out actions on the environment.

Chapter 2:

Literature Review

Paper I:

**Study:** A Study on the Environmental Awareness of Students Studying at Secondary Level in Government Schools of South Sikkim

**Author:** Dr. Dona Rai, Ms. *Parumita* Rai

Environment includes everything that we need for our survival such as air, water, soil, other living organisms etc. Environmental awareness is an ideology that evokes the necessity and responsibility of humans to respect, protect, and preserve the natural world from its anthropogenic afflictions. Hence, this paper is an attempt to understand the attitude of students of Government Secondary School towards environmental protection and the level of awareness they have on the impact of environmental degradation.

Descriptive survey method has been applied to conduct the present study. Population consists of students studying in classes IX and X in various secondary and senior secondary government schools in South Sikkim. Sample of 80 students were drawn out randomly from the population. Tool used to collect data was Environmental Awareness Ability Measure (EAAM) constructed and standardized by Praveen Kumar Jha (1998) . Collected data were analyzed by applying Pearson’s Coefficient of Correlation.

Mean score was used for each variable to determine the extent of environmental awareness among the sample. The values of standard deviation were used to measure the dispersion of scores in distribution. The t-value (critical ration) was calculated to test the significance of difference in the means of environmental awareness scores for the samples

Conclusion:

1.Majority of the students are having ‘above average’ environmental awareness level and none of them are having ‘extremely low ’or ‘low’ environmental awareness level.

2. Locality does not significantly contribute towards the environmental awareness of students studying at secondary level.

3. Being a boy or a girl does not make much difference in environmental awareness of students studying at secondary level.

Paper II

**Study:** A Study of Environmental Awareness of Students at Higher Secondary Level

**Author(s):** R.Danielraja, B.T Assistant, Government High School, Madurai, Tamil Nadu, India

Environmental issues became international priorities all though they were seen as local or regional concerns, because they have become extraneous to economic growth, health, nature and aesthetics. A higher degree of environmental awareness is essential to save the world from extinction and preserve the ecosystem.The issues such as global warming, soil erosion, deforestation and depletion of ozone may cause major damage to the world.

A questionnaire was prepared, based on the articles of the experts on environmental studies. The sample for final study consists of 180 students of which 90 students belong to the Government institution and other 90 to Management institutions with due representation to gender. The reliability of the Environmental awareness questionnaire scores as calculated by the split-half method was found to be 0.88. Environmental awareness questionnaire was administered on a sample of 100 and this analysis provided information about the internal consistency and discriminant validity of various dimensions of the scale.

Conclusion:

1. There exists significant difference in the mean scores of Environmental awareness between the students belonging to science group and arts group

2. There exists significant difference in the mean scores of Environmental awareness between the students belonging to science group and vocational group

3. There exists no significant difference in the mean scores of Environmental awareness between the students in terms of gender.

The achievement of the students in Environmental awareness is not of higher order. The reason may be that they have not been exposed to scientific literature at a concrete stage at a lower level and suddenly they find it difficult to cope with the scientific literature at the higher level which involves abstract thinking.

OBJECTIVES

This study is conducted to achieve the objectives that are

* To study the extent of awareness of people to issues related to environment.
* To study the adoption of ecofriendly behaviors and lifestyle.
* To study the extent of awareness towards recycling

Chapter 3:

Data and methodology

**3.1 Data source**

Data was collected from a questionnaire by a circulating a Google form.

The questionnaire has simple questions like, how much information do people get about the environment from televisions or social networking sites, do they recycle, which techniques do they use to recycle various materials and some questions about the disposal conditions in their neighborhood areas, and simple environmental awareness question

**3.2 Statistical Analysis**

Karl Pearson’s Chi-square test- It is used to check the association between two attributes but not the nature of association.

If *p-value* ≤ α, there is a significant association. The confidence levels are 90% and 95%. Here, α= 0.05 and 0.1.

Likert Scale: Total 8 questions were graded based on Likert scale.

Descriptive Statistics: Minimum and maximum scores are calculated to create interval fitting the data. Mean, Median and mode is calculated

Data Visualization- Pie charts, bar graphs, multiple-bar graph and line charts are created and interpreted.

**3.3 Methodology and techniques**

Attribute-Percentage tables are created and interpreted. Karl Pearson’s Chi-Square test is calculated for -

1. Usage of eco-friendly modes of transportation and gender at 10% level of significance.
2. Disposal of Electronic waste and gender at 5% level of significance.
3. Awareness scores and age at 5% level of significance.

There is significant association between attributes.

Environmental awareness levels - For getting the scores for levels of awareness 4 questions with options Always, Often, Rarely, Never were given 3,2,1,0 points respectively. 2 questions with positive and negative responses were graded with 1 and 0 points respectively. For 2 questions where more than one option can be selected 1 point per option was given. The sum of all these responses is calculated.

Using minimum and maximum values of the score, 4 class intervals are made to fit the calculated data

|  |  |
| --- | --- |
| ***LEVEL*** | ***INTERPRETATION*** |
| **Nature Novice**  **(Least Aware)** | Limited knowledge and engagement with environmental issues. |
| **Eco-Learner** | Actively seeks understanding and solutions for environmental challenges. |
| **Green Guardian** | Makes conscious choices and advocates for environmental protection. |
| **Earth Whisperer**  **(Most Aware)** | Deeply connected to the environment and actively works for its well-being. |

**3.4 Software source**

MS Excel (Version 2019)

R Studio and R console (2022.07.2)

Chapter 4:

Results and discussion

**Interpretation Tables (Parameter-Percentage table)**

|  |  |
| --- | --- |
| ***Parameters*** | ***N (%)*** |
| **Gender**  Male  Female  Transgender | 10(7.8%)  118(92.2%)  0 |
| **Age**  17-20  21-25  26-35  36-45  45+ | 115(88.8%)  7(5.5%)  3(2.3%)  2(1.6%)  1(0.8%) |
| **Highest Education Qualification**  SSC  Intermediate  Diploma  UG  PG | 5(3.9%)  38(29.7%)  3(2.3%)  73(57%)  9(7%) |

Table 1: Demographic table

Table 1 gives the details about the respondents. Among 128 respondents 92.2% are female,7.8% are male and 0% are transgender. The percentage of 17-20 years age group is 88%, 21-25 age group is 5.5%, 26-35 age group are 2.3%, 36-45 age group are of 1.6% and 45+ age is 0.9%. Educational level for out of 128 respondents, 7% respondents’ highest education is till PG, 5.7% is till UG, 3.9% is till SSC, 2.7% is till intermediate and for 2.3% is till diploma.

|  |  |
| --- | --- |
| ***Parameters*** | ***N (%)*** |
| **Using eco-friendly modes of transportation**  Always  Often  Rarely  Never | 43 (33.6%)  51 (39.8%)  33 (25.8%)  1 (0.8%) |
| **Choosing products with eco-friendly labels**  Always  Often  Rarely  Never | 32 (25%)  64 (50%)  27 (21.1%)  5 (3.9%) |
| **Use any renewable energy source at home**  Yes  No | 49(38.3%)  79(61.7%) |
| **Turn off electronics/electrical gadgets when not in use**  Yes  No  Sometimes | 104(81.3%)  8(6.3%)  16(12.5%) |

Table 2- Eco-friendly ways

Table 2 shows the commitment to using eco-friendly modes of transportation among the respondents. Specifically, 73.4% (33.6% always and 39.8% often) actively choose eco-friendly transportation options. A smaller percentage, 25.8%, rarely opts for such modes, and 0.8% never use eco-friendly transportation. Out of 128 respondents a portion of respondents prioritize choosing products with eco-friendly labels. Specifically, 75% (25% always and 50% often) actively seek eco-friendly labelled products. Meanwhile, 21.1% rarely do so, and 3.9% never consider products with eco-friendly labels. The responses indicates that 39.3% of respondents use renewable energy sources at home, while 61.7% do not. The majority of respondents, 81.3%, indicate that they turn off electronic or electrical gadgets when not in use. A smaller percentage, 6.3%, do not turn them off, and 12.5% do so only occasionally.

|  |  |
| --- | --- |
| ***Parameter*** | ***N (%)*** |
| **Recycling products at home/workspace**  Always  Most of the times  About half of the time  Once in a while  Never | 17 (13.3%)  48 (37.5%)  28 (21.9%)  27 (21.1%)  8 (6.3%) |
| **Regularly recycled items**  Plastic  Glass  Paper  Batteries  Other | 59(46.1%)  30(23.4%)  76(59.4%)  23(18%)  31(24.2%) |
| **The best ways to recycle more often**  Use double sided copies  Use reusable plates, cups or utensils  Carry a reusable bottle or coffee mug  Avoid plastic packaging | 48(37.5%)  72(56.3%)  37(28.9%)  68(53.1%) |

Table 3- Recycling

Table 3 The responses indicate that a majority of respondents, 72.7%, actively participate in recycling practices at home or in their workspace. Specifically, 13.3% always recycle, 37.5% do so most of the time, and 21.9% recycle about half of the time. A smaller portion, 21.1%, recycles once in a while, while only 6.3% never engage in recycling. Also, 59.4% regularly recycle paper. 46.1% regularly recycle plastic. 24.2% other things. 23.4% respondents recycle glass regularly and 18% response recycle batteries regularly. We can observe that most of the respondents who use reusable place, cups and utensils are 56.3%. 53.1% avoid plastic packaging. 37.5% use double sided copies . 28.9% respondents carry a reusable bottle or coffee mug.

**Data Visualization:**

Figure 1- The line chart shows that paper is the most recycled item where 76 respondents usually recycle it. However, 59 respondents recycle plastic. Glass, Batteries and other items are recycled by 30, 23 and 31 respondents respectively.

Figure 2- The pie chart highlights the environmental issues in their neighborhood, 20.16% face problems with air pollution, 12.40% have issues with deforestation, 31.01% have issues with non-availability of dustbins and 36.43% don’t have proper sewage treatment.

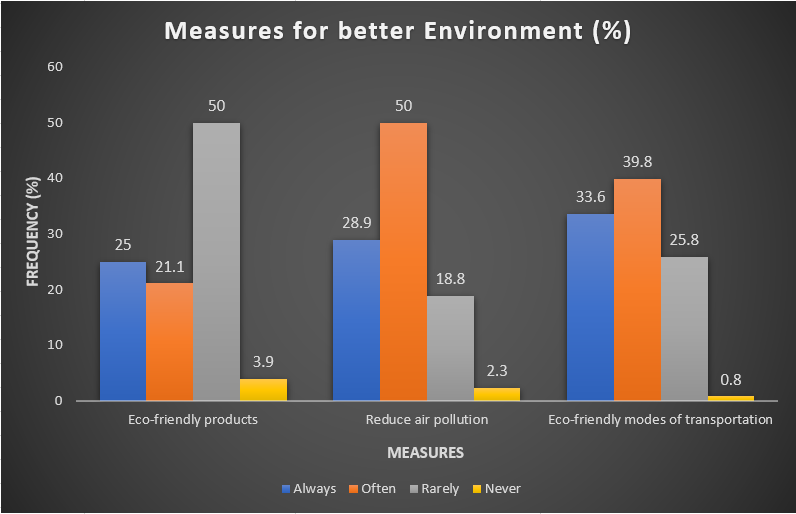
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Figure 3- The multiple-bar graph shows the frequency of different methods used by respondents for a better environment, like using eco-friendly products, eco-friendly modes of transport and methods to reduce air pollution. 25% always, 21.1% often, 50% rarely and 3.9% never, use eco-friendly products. Then, 28.9% always, 50% often, 18.8% rarely and 2.3% never use methods to reduce air pollution. 33.6% always, 39.8% often, 25.8% rarely and 0.8% never, use eco-friendly transport.

Figure 4- The bar graph illustrates how frequently news about the environment is watched. 17 respondents daily, 56 respondents weekly, 14 respondents monthly and 41 respondents rarely watch news about environment.

**Karl Pearson’s Chi- Square Test**

|  |  |  |
| --- | --- | --- |
| *Parameters* | *p-value* | *Interpretation* |
| Usage of eco-friendly modes of transportation and Gender | 0.069449659\*\* | There is a significant association  (p-value =0.069449659) between  usage of eco-friendly modes of transportation and gender at 10% Los. |
| Disposal of e-waste and Gender | 0.023158666\* | There is a significant association  (p-value =0.023158666) between disposal of e-waste and gender at 5% of Los. |
| *\* significant at 0.05 (5%) level of significance (los)*  *\*\* significant at 0.1 (10%) level of significance (los)* | | |

**Analysis for Awareness levels among the respondents**

Karl Pearson’s Chi-square test:

Environmental Awareness and age, p-value = 0.0004

Significant at 0.05 (5% ) level of significance (los) .

Descriptive Statistics:

Median of scores : 14

Mean of scores: 13.581

Below Average scores: 58

Above Average scores: 69

|  |  |  |
| --- | --- | --- |
| **Interval** | **Frequency** | **%** |
| **2-6** | **7** | **5.426** |
| **7-13** | **51** | **39.535** |
| **14-19** | **66** | **51.163** |
| **20+** | **5** | **3.876** |
| **Total** | **129** |  |

**SCORE (2-6) 🡪 Nature Novice**: Limited knowledge and engagement with environmental issues.

**SCORE (7-13) 🡪 Eco-Learner**: Actively seeks understanding and solutions for environmental challenges.

**SCORE (14-19) 🡪 Green Guardian**: Makes conscious choices and advocates for environmental protection.

**SCORE (20+ ) 🡪 Earth Whisperer**: Deeply connected to the environment and actively works for its well-being.

Figure 5 illustrates: 7 out of 128 are least aware about the environment (Nature novice), 51 know about environmental issues and solutions for it (Eco-learner), 66 take steps towards betterment of environment (Green Guardian) and only 5 take steps towards the environment and encourage others also to do so, they are most aware and care most about the environment (Earth Whisperer).

Chapter 5:

Conclusion

**Karl Pearson’s c2 Test**

* There is a significant association between disposal of e-waste and gender at 5% level of significance. This means that there is a less than 5% probability that this association occurred by random chance.
* There is a significant association between usage of eco-friendly modes of transportation and gender at 10% level of significance. This means that there is a less than 10% probability that this association occurred by random chance.

**Awareness level:**

* The score ranges from 2 to at least 20. A higher score indicates greater awareness.
* Most respondents (69) scored between 14-19, which is categorized as “Green Guardian”. This means they make conscious choices and advocate for environmental protection.
* Fewer respondents scored either very low (7) or very high (5) on awareness.
* There is a significant positive correlation between environmental awareness and age (p-value = 0.0004). This means that people are more likely to be aware of environmental issues as they get older.

Questionnaire

**Q1. How often do you read or watch news related to environmental issues?**

1. Daily b) Weekly c) Monthly d) Rarely

**Q2. Are you aware of impact of deforestation on environment?**

1. Very aware b) Somewhat aware c) Neutral d) Unaware

**Q3. Do you believe protecting biodiversity is critical for a healthy environment?**

1. Strongly agree b) Agree c) Neutral d) Disagree e) Strongly disagree

**Q4. Are you aware of negative impact of human activities on wildlife?**

a) Yes b) no

**Q5. How do you feel about the impact of human activities on wildlife habitat?**

a) Very Concerned b) Concerned c) Unconcerned d) Very Unconcerned

**Q6. Do you know that water pollution harms aquatic wildlife?**

a) Yes b) No c)Maybe

**Q7. To what extent do you feel individual actions can contribute to minimizing the negative impact on wildlife?**

a) A lot b) Somewhat c) Neutral d) Not much e) Not at all

**Q8. How often do you choose products with eco-friendly labels?**

1. Always b) Often c) Rarely d) Never

**Q9. Do you conserve water at home?**

Always b) Often c) Rarely d) Never

**Q10. Do you take measures to reduce air pollution in your daily life?**

a) Always b) Often c)Rarely d) Never

**Q11. In which of the ways do you conserve water where you live?**

1. Limit shower time b) Turn of the sink while hand washing, shaving etc.

c) Only wash full loads of laundry d) Others

**Q12. Do you take measures to reduce air pollution in your daily life?**

a) Always b) Often c) Rarely d) Never

**Q13. How often do you use eco-friendly modes of transportation (walking, using electric vehicles and bicycles)?**

a) Always b) Often c)Rarely d) Never

**Q14. How frequently do you recycle products in your home/workspace?**

a) Always b) Most of the time c) About half of the time d) Once in a while e) Never

**Q15 What type of items do you regularly recycle?**

a) Plastic b) Glass c) Paper d) Batteries e) Other

**Q16. How do you dispose of electronic waste?**

a) Recycle b) Donate c) Throw in regular trash d) Other

**Q17. Do you believe that more usage of papers impacts environment?**

1. Yes b) No

**Q18. Do you think recycling plays a role in conserving natural resources (trees etc.)?**

1. Yes b) No c) May be

**Q19. In your opinion, what are the best ways to encourage the community to recycle more often?**

a) Use double sided copies b) Use reusable plastics, cups, utensils

c) Carry a reusable bottle or coffee mug d) Avoid plastic packaging

**Q20. What is the most important environmental issue in your neighborhood in your opinion?**

a) No proper sewage treatment b) No availability of trash cans and dustbins

c) Deforestation d) Air pollution (fire crackers, industries)

**Q21. Do you use any renewable energy source at home? (Wind energy etc.)**

a) Yes b) No

**Q22. Are biodegradable pads readily available in your local store? How satisfied are you with the effectiveness of Biodegradable menstrual pads compared to traditional once?**

a) Very satisfied b) Satisfied c) Neutral d) Dissatisfied e) Very dissatisfied

**Q23. To what extent do you think that making a human activity environmentally aware and friendly is more important than increasing economic performance?**

a) To full extent b)To large extent c)To moderate extent d) To little extent e) Not at all

**Q24. Are you aware of technological innovations aimed at promoting environmental sustainability?**

a) Yes b) No

**Q25. Are you involved in any local environmental groups or initiatives?**

a) Yes b) No

**Q26. Do you believe individuals can influence environmental policies?**

a) Yes b) No

**Q27. Do you turn off electronic/electrical gadgets when not in use?**

a) Yes b) No c) Sometimes

**References:**

Google form (Questionnaire):-

<https://forms.gle/FZHrCZLnsFdRDchJ6>

Literature review:

Paper I-<https://ijepr.org/download.php?id=711>

Paper II-

[A Study of Environmental Awareness of Students at Higher Secondary Level](https://eric.ed.gov/?q=A+Study+of+Environmental+Awareness+of+Students+at+Higher+Secondary+Level&id=EJ1245148)