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A Study to Evaluate the Effectiveness of Planned Teaching Program of Environmental Health Among Community People in Selected Rural Area of Gwalior

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Abstract

Context*: Environmental health is the subfield of public health that focuses on identifying and altering environmental contributors to illness and injury. The state of the environment in a certain area, especially as it relates to ecological diversity and pollution. The purpose of this research was to evaluate the efficacy of an environmental health education program for the local population. This study follows a quantitative research approach for its methodology. The study used a before-and-after test design. Gwalior's rural area was the site of the pilot study. The sample was selected using the most practical method. The health of the environment was evaluated using a structured knowledge questionnaire. Fifty students were used for the final study, which included a pre-test and a post-test 7 days later using the same instruments. The data were analyzed using inferential statistics. Mean scores before and after learning about environmental health are displayed. The depicted increase in mean score from pre-test to post-test is 4. The actual percentage of new information gained is 8.125%, with post-test standard deviation (SD) = 3.25, pre-test SD = 4.50, and a paired t-test (p = 2.04) at the 0.05 significance level. The results of the t-test, which compared the data with a predetermined value (= 2.18), demonstrated a significant difference and the efficacy of the planned education program in raising community members' awareness of environmental health at the level of 0.05. At the 0.05 level of significance, the computed "t" value (t = 9.3235) was greater than the table value (t = 2.04). Hence, we may say that H1 was a successful research hypothesis. The results of the study showed that the community members' understanding of environmental health improved after the planned education program was implemented.*

Keywords: Environmental education, impact assessment, knowledge acquisition, evaluation

INTRODUCTION

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The immediate purpose of this article is to contribute to the conceptualization of social determinants of health, with a specific focus on environmental health issues; the loftier long-term purpose is to better ensure that environmental health promotion programs are explicitly designed, and thus more effective, in reducing health disparities within and across population groups. Our focus is on how socioeconomic and ecological factors interact to produce health inequities. Disparities in environmental exposures (e.g., between and within populations) can be attributed to a variety of factors, including, but not limited to, racism and the unequal distribution of material resources. In addition to

environmental factors, social disparities play a role in how communities are affected by environmental burdens. Different communities have varying degrees of access to resources that can assist to alleviate some of these loads, such as healthy food and medical treatment [1–3].

We use our backgrounds in sociology and epidemiology to outline the ways in which social factors lead to unequal environmental exposures and, in turn, health disparities. To begin, we offer a conceptual framework that expands on and integrates existing frameworks in order to better comprehend environmental health inequalities. We then look at the ways in which racial/ethnic, socioeconomic, gender, and sexual orientation inequalities interact with four environmental health concerns to demonstrate the various pathways by which these social inequalities contribute to shaping health disparities. Finally, we propose techniques for advancing environmental health promotion beyond environmental remediation toward sustainable health promotion, with the hope that doing so will help alleviate health disparities, equalize exposure to environmental toxins, and close the gap in social mobility [3–5].

LITERATURE REVIEW

To be healthy means to be in a perfect state of mental and physical fitness. In a perfect world, everyone would be in the best of health. Good health is a key factor for stress management and leading a satisfying life. It is not an end in itself, but rather a means to achieve the goal of serving one's community. Adopting healthy habits, such as eating nutritious food and engaging in regular exercise, can help individuals reach their fullest potential and lead a fulfilling life [6].

A word used to define health by the World Health Organization (WHO) is still used by experts today. The absence of disease or disability is only one aspect of what it means to be healthy [7].

The study and management of environmental influences on human health is known as environmental health, a subfield of public health. In other words, the state of the local ecosystem, whether in terms of biodiversity or pollution. More physical, chemical, biological, mechanical, and so on, environmental risks are present in modern India [8–9].

The discipline of public health known as “environmental health” keeps tabs on the physical, chemical, and biological elements outside our control that may have an effect on human well-being. It's challenging to exercise outside if, for instance, you live in a neighborhood with dangerous walkways or filthy air. The materials used in construction, the types of bugs in the area, and the foods available to you can all have an impact on your family’s health. To put it briefly, environmental health is the branch of public health concerned with the many ways in which our external environment might have an effect on our health [10–14].

METHODOLOGY

The investigator secured approval from the Gwalior countryside in writing (M.P.). The date range for submitting data was extended from January 2, 2023 to February 26, 2023 at the discretion of the relevant authority. All respondents had their privacy protected and had been briefed on the study’s goals. The members of the community were picked using a simple random sampling method.

After administering PTP and instructing the participants to return on day 5 for the post-test, we gave a total of 5 responders a pre-test to determine whether or not PTP was successful in expanding their knowledge.

DATA INTERPRETATION

Distribution of Community Members by Age, Religion, Education, Occupation, Family Structure, Annual Income, and Whether or Not They Have Attended an Environmental Health Education Program, Percentage, and Frequency are presented in Table 1.

Table 1. Demographic variables, frequency, and percentages of the population.

N = 50

S.N.	Demographic variables	Frequency	Percentage
1	*Age in years*		
	18–29 Years	12	24
	30–39 Years	17	34
	40–49 Years	13	26
	50–60 Years	8	16
2	*Religion*		
	Hindu	15	30
	Muslim	16	32
	Christian	11	22
	Others (specify)	8	16
3	*Education*		
	High school	16	32
	Higher secondary	7	14
	Graduation	17	34
	Postgraduation	10	20
4	*Types of family*		
	Nuclear family	22	44
	Joint family	14	28
	Extended family	14	28
5	*Family income*		
	Below 10000	5	10
	10001–15000	12	24
	15001–20000	17	34
	Above 20000	16	32
6	*Source of information*		
	Mass media	10	20
	Relatives	5	10
	Friends	5	10
	Health personnel	30	60
7	*Have you attained any informational educational program regarding environmental health?*		
	Yes	32	64%
	No	18	36%

Table 1 shows that 26% of the local population falls in the 40- to 49-year-old bracket, 24% do so between the ages of 18 and 29, 32% between the ages of 30 and 39, and 16% between the ages of 50 and 60. The largest religious groups represented in the community were the Hindu (30%), Muslim (32%), Christian (16%), and other (8%) populations. A large percentage of community members have completed some college or university, with 32% holding a bachelor's degree, 34% holding an associate's degree, and 10% having completed some sort of advanced degree program beyond a bachelors. The vast majority of community members were either nuclear family (44%) or joint family (28%), with the remaining 2% belonging to extended families. Most members of the community (32%) have an annual income of between Rs. 15,000 and Rs. 20,000, while 10% have an annual income of less than Rs. 10,000. There were primarily members of the media (10%), friends (10%), family (10%), and health care workers (10%) among the community members.

The majority of the community's population (26%) is comprised of people aged 40 to 49 years, followed by a sizable but still manageable proportion (24%) aged 18 to 29 years, a third (32%) aged 30 to 39 years, and a small but significant minority (16%) aged 50 to 60 years (Figures 1 and 2).

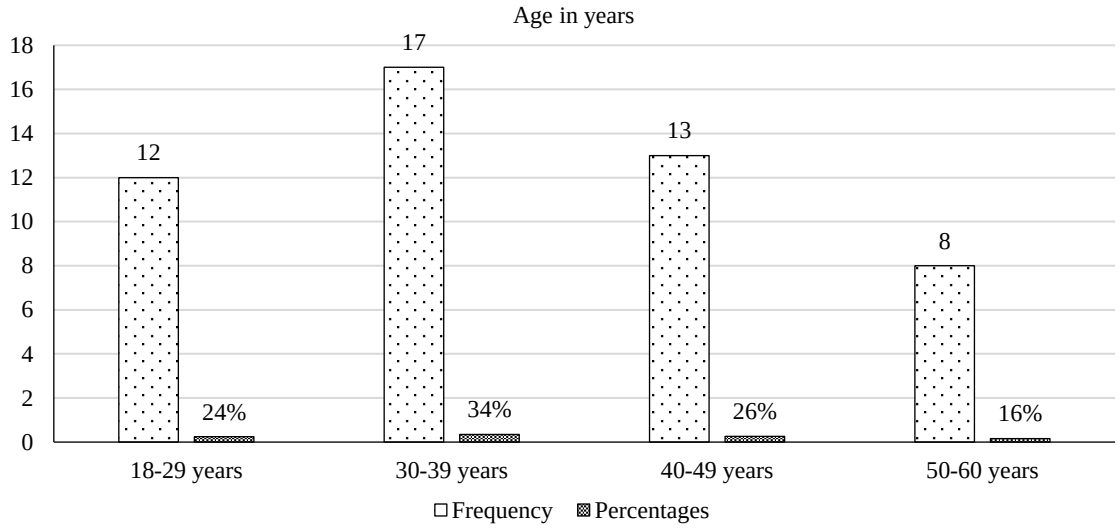

Figure 1. Percentage wise distributions of the community people according to their age.

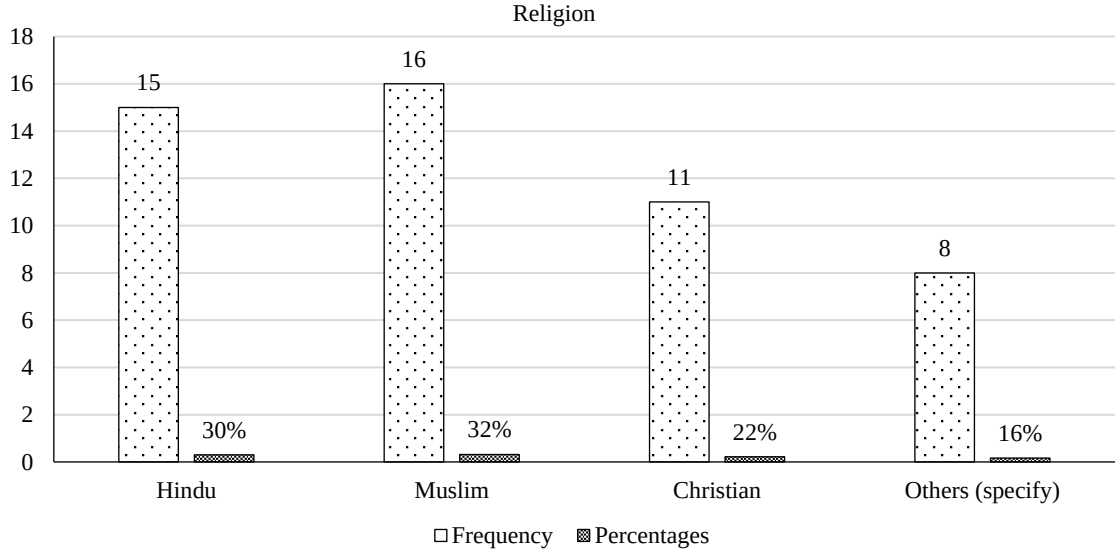

Figure 2. Percentage wise distributions of the community people according to their religion.

Over a third of community members (32%) had completed high school, 34% had completed their undergraduate degree, and 10% had completed graduate school (Figure 3).

As seen in Figure 2, the largest religious groups in the community were Hindu (30%), Muslim (32%), and Christian (16%).

Around 44% of Community residents live in nuclear families, whereas 28% live in joint families, and 28% in extended families, as shown in Figure 4.

According to Figure 5, the majority of people in the community belong to the income bracket below Rs 10,000 (10%), followed by those belonging to the range of Rs. 10001 to 15000 (24%). Furthermore, 34% of people belong to the income bracket below Rs. 15000 to 20000, and 32% belong to the income bracket above Rs 20000.

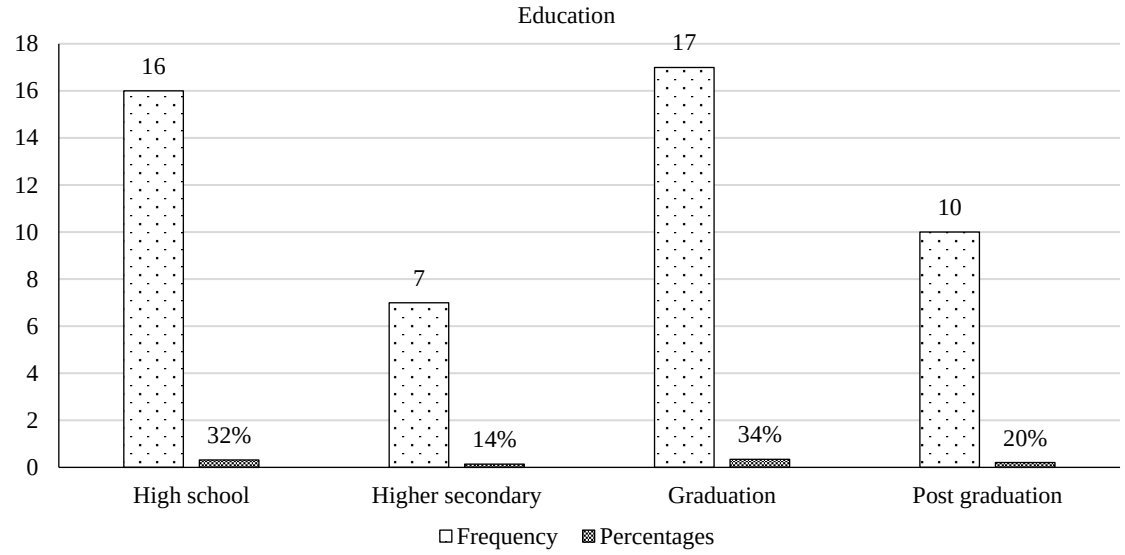

Figure 3. Percentage wise distributions of the community people according to their education.

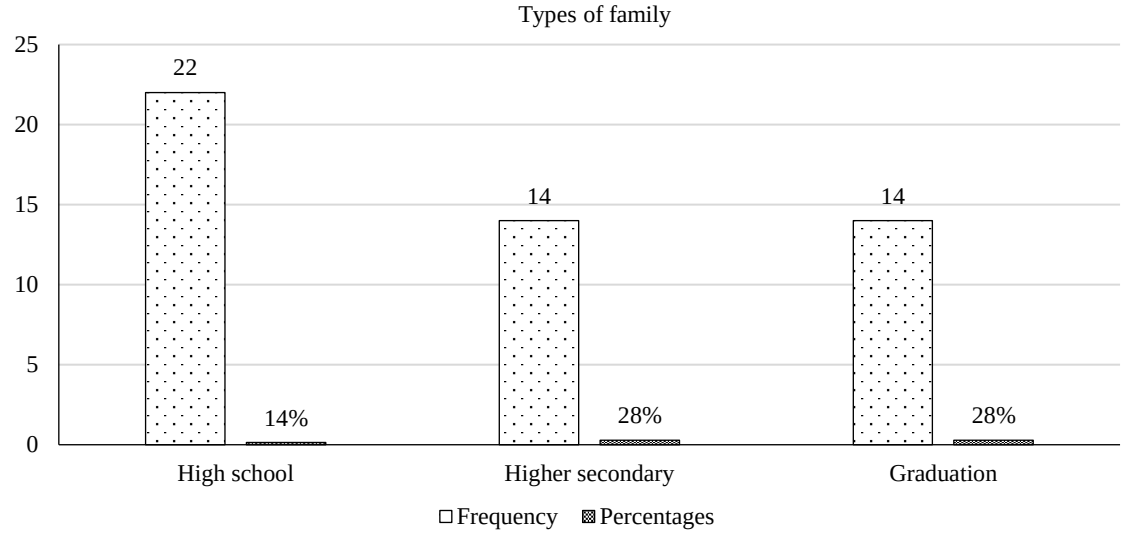

Figure 4. The percentage breakdown of community residents by family composition.

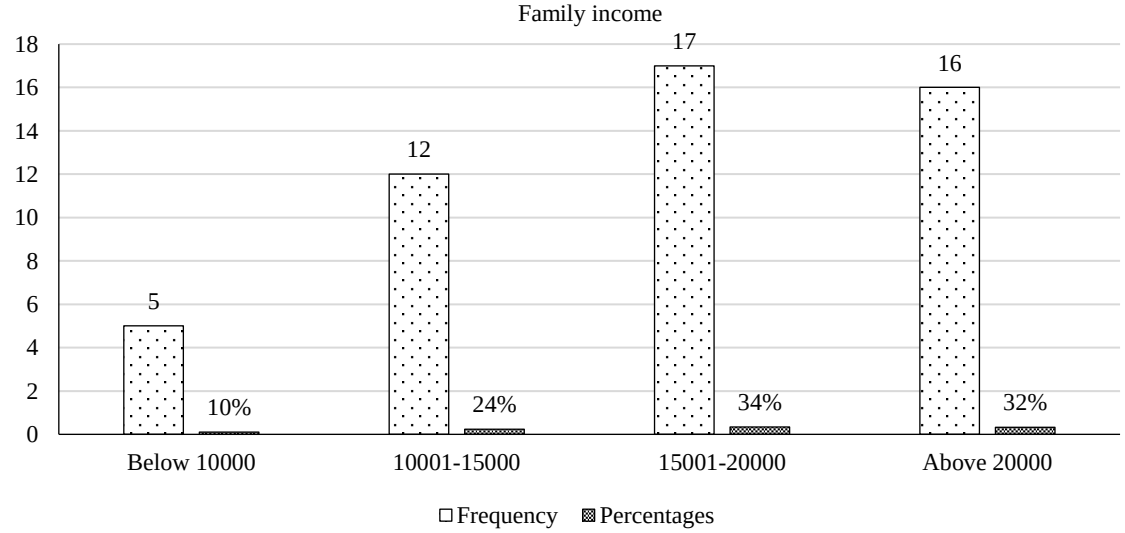

Figure 5. Percentage wise distributions of the community people of their family income.

Figure 6 illustrates that the majority of the community people (20%) obtained their health information from mass media, while 10% received it from friends, and another 10% from relatives and health personnel.

As can be seen in Figure 7, a large percentage of Community members (64.00%) identify as Yes, whereas a smaller percentage (36%) identify as No.

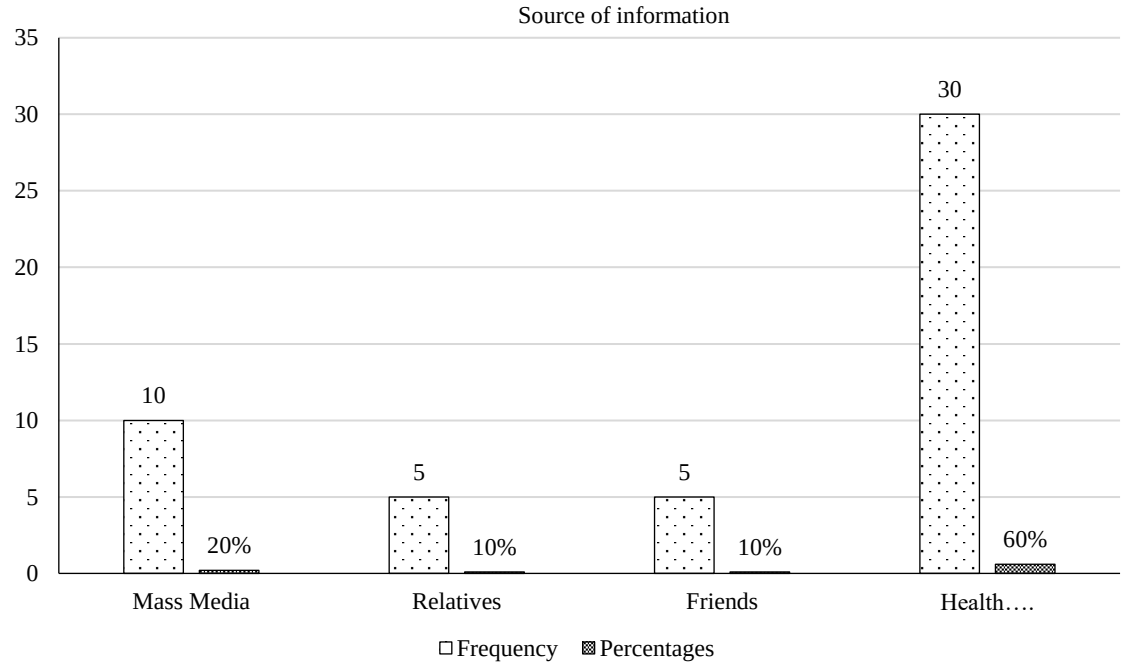

Figure 6. Percentage wise distribution of the Community people according to their source of information.

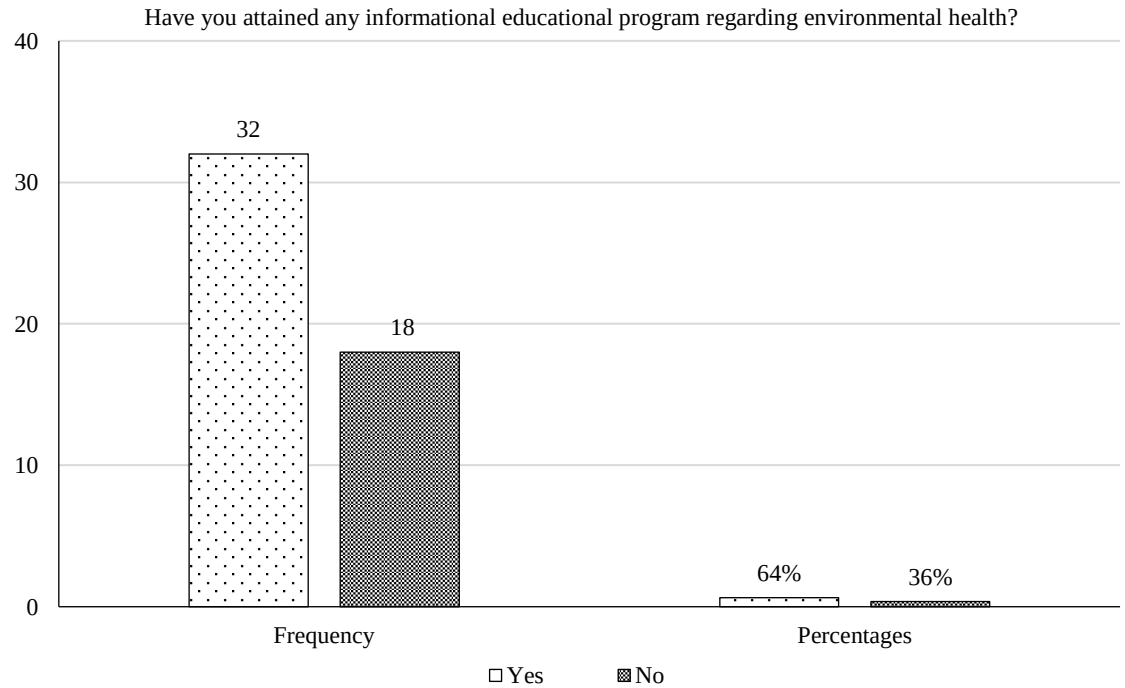

Figure 7. Distribution of community members by their participation in environmental health education programs, as measured by percentage.

Table 2. Frequency and percentage wise distribution of community people based on pre-test level of knowledge score on environmental health.
(Mean, Standard Deviation) N = 50

S.N.	Category	Range	Frequency	Percentage	Mean	Mean %	SD
1	Good	21-30	0	0	11.9	39.66	2.3
2	Average	11-20	18	36			
3	Poor	0-10	32	64			

The pre-test knowledge of community members in a selected rural area of Gwalior is displayed in Table 2 by frequency and percentage (M.P.). There were three discernible levels of knowledge: low, medium, and high. Pre-test results showed that while 36% of residents had adequate knowledge, 64% knew little to nothing, and 0% knew a lot about environmental health. The average results from the preliminary exams were 11.9 (SD = 2.3) and 39.66% (mean).

Table 3. Frequency and percentage wise distribution of post-test knowledge score of community people regarding environmental health.
(Mean, Standard Deviation) N= 50

S.N.	Category	Range	Frequency	Percentage	Mean	Mean %	SD
1	Good	21-30	37	74	24.42	81.40	3.8
2	Average	11-20	13	26			
3	Poor	0-10	0	0			

Table 3 presents the distribution of post-test knowledge levels of community people regarding environmental health in a selected rural area of Gwalior (M.P.). The knowledge levels were categorized into three categories, namely poor, average, and good. In the pre-test, the majority (74%) of the community people had good knowledge, while 26% had average knowledge, and none of them had poor knowledge regarding environmental health. The pre-test mean score was 24.42, with a standard deviation (SD) of 3.8 and a mean percentage of 81.40% (Figures 8–10).

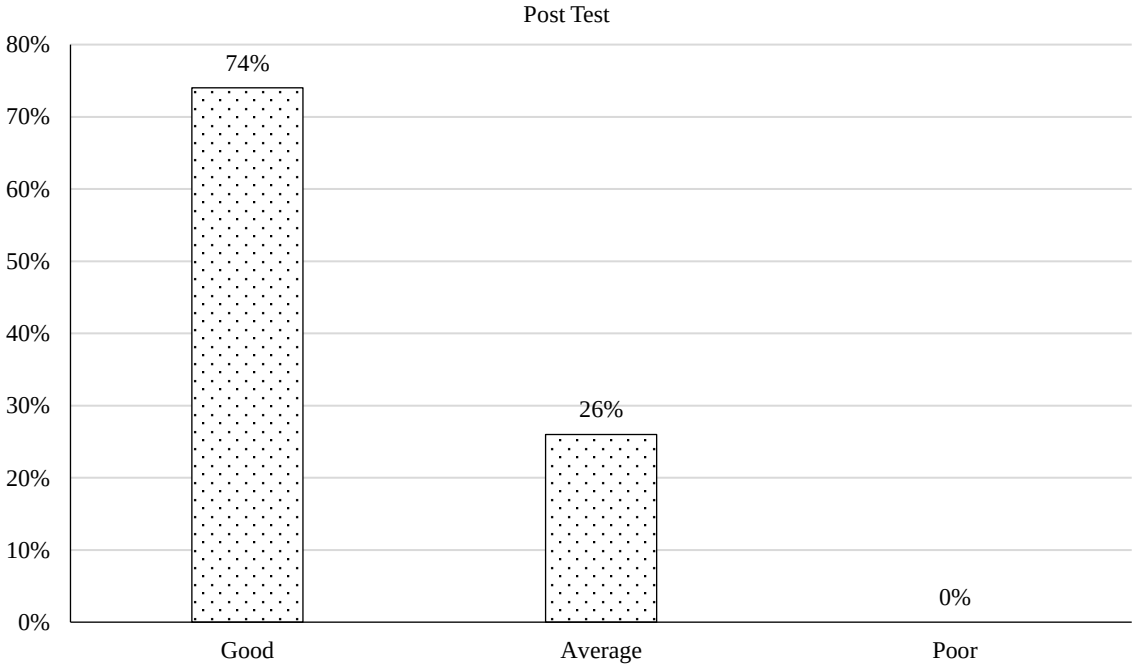

Figure 8. Cylindrical diagram showing pre-test knowledge score of community people regarding environmental health.

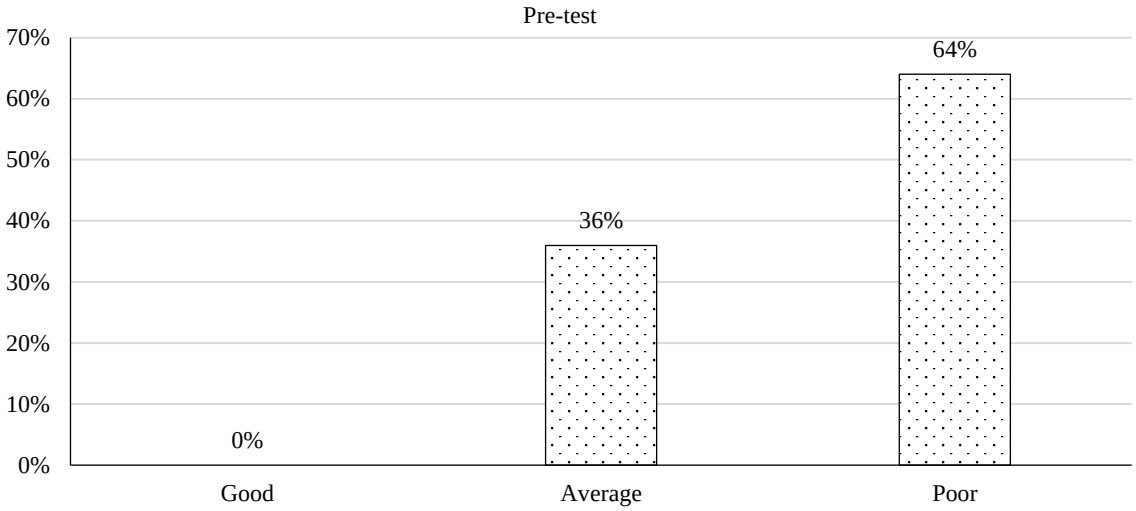

Figure 9. Bar diagram showing post-test knowledge score of Community people regarding environmental health.

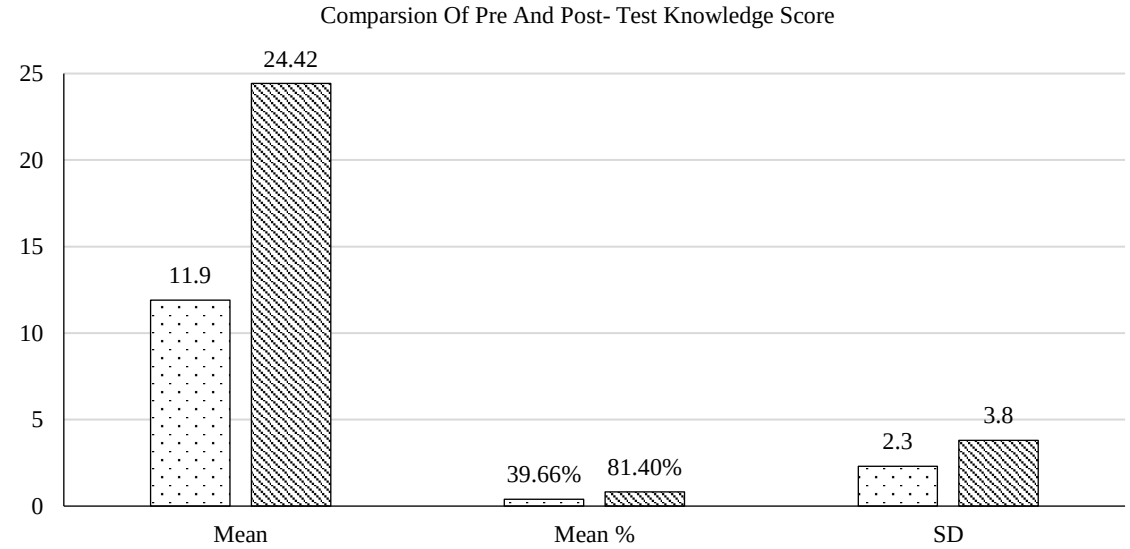

Figure 10. Percentage wise distribution of comparison of pre- and post-test knowledge score of community people regarding environmental health.

Table 4. Description of mean, mean%, SD of Pre- and post-test knowledge scores on environmental health

N= 50

S.N.	Description	Mean	Mean %	SD	t-test	DF	P-value
1	Pre-test knowledge	11.9	39.66	2.3	28.37	49	0.05 (2.18)
2	Post-test knowledge	24.42	81.40	3.8			

P < 0.05* P < 0.01** N = 60 **P < 0.05* S* = Significant

Table 4 shows the pre-test and post-test mean scores of the knowledge of environmental health. The mean post-test score of 24.42 is higher than the mean pre-test score of 11.9, indicating an increase in knowledge. The actual gain in knowledge score is 13.33%, with a post-test standard deviation of 3.8 and a pre-test standard deviation of 2.3. The computed paired t-test value is 28.37, with a p-value of 2.18 at a significance level of <0.05. The data indicates a significant difference and the effectiveness of

the planned teaching program in increasing the knowledge of the community people regarding environmental health, as the computed t-test value is higher than the tabled value of 2.18 at a significance level of <0.05.

Hence H_1 is Accepted

H_1: The results indicate a significant difference between the pre-test and post-test knowledge scores of the community people regarding environmental health. A paired "t" test was used to test the hypothesis, and the calculated "t" value was 28.37, with a significance level of less than 0.05. This suggests that the planned teaching program was effective in improving the knowledge of the community people regarding environmental health.

The calculated "t" value of 28.37 was found to be significantly higher than the table value of 2.18 at a significance level of 0.05. As a result, the research hypothesis (H1) was accepted, suggesting that the planned teaching program had a significant impact on improving the knowledge score of community people regarding environmental health.

Post-test mean score 24.42 is greater than pre-test mean score 11.9 and difference is 13.33. Hence null hypotheses were rejected and research hypothesis (H_1) was accepted.

CONCLUSION

Findings from the study based on data collected from 50 members of the community at a designated community center have been analyzed and interpreted in this chapter. To answer the research questions and test the hypotheses, both descriptive and inferential statistical methods were used to analyze the data. Tables and diagrams were utilized to describe sociodemographic characteristics, and the results were arranged and presented in separate sections. Evaluation of Expertise Standard deviation, mean, and percentage means were used to compare the pre- and post-test scores of community members on a test of their environmental literacy. The success of a planned education initiative to increase community members' understanding of environmental health was measured using frequency tables, bar charts, percentage means, standard deviations, and the t-test. The Chi-square test was performed to determine whether or not there was a correlation between pre-test knowledge and certain sociodemographic characteristics of the community's residents.

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