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"A Longitudinal Study To Assess The Effectiveness Of Planned Teaching Programme On Knowledge Regarding Air Pollution And Its Prevention Among People Living In Selected Urban Areas At Indore City".

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Abstract

INTRODUCTION:-

Air pollution is a cause of morbidity and mortality with open landfills also being major sources of air pollutants. People living near exposed landfills are at more risk of health hazards. air pollution is the leading environmental cause of disease and premature death, and a major contributor to climate change. According to the World Health Organization (WHO), 99% of the world's population lives in polluted air, and 2.83 million deaths (10.95%) among women and 3.62 million deaths (11.81%) among men have been attributed to air pollution.

In 2024, **India's** average annual PM2.5 concentration was 50.6 micrograms per cubic meter of air (µg/m³), a slight decrease from the previous year. While this represents a 30% reduction since 2018, the levels remain significantly above the World Health Organization's recommended limit of 5 µg/m³. Delhi, for example, saw an average PM2.5 concentration of 108.3 in 2024. **Indore's** air quality experienced fluctuations, with periods of satisfactory levels and some instances of severe air pollution. The city's Air Quality Index (AQI) reached the "severe" category on November 1, 2024, with the AQI in Chhoti Gwaltoli reaching 404. While the city is known for its cleanliness, this event highlighted the impact of air pollution. The average level of PM2.5 was recorded at 255.26, and the average level of PM10 was 318.08, further indicating the deterioration of air quality.

OBJECTIVES

To identify the knowledge regarding air pollution and its prevention before and after given planned teaching programme among people living in selected urban areas at Indore city.

HYPOTHESES

There is significant difference between the mean pre and post-test knowledge score of the people living in selected urban areas at Indore.

MATERIAL AND METHODS

A pre experimental study was conducted at urban area of Indore city, Madhya Pradesh India. The population for this study was community peoples living in urban area. The sample size was for the study is 60. Convenient sampling technique was used to select samples. Data was collected through demographic data,

structured knowledge questioners. The data collected was analysed and interpreting based on descriptive inferential statistics.

RESULT- The researchers observed that the analysis of the demographic data in the study post-test mean 13.75 SD±3.48 is higher than pre-test mean 7.1 SD±3.57 and calculated t value t = 10.23***** (df = 59) standard error value 0.65 is found to be significant at the level of 0.05. Hence research hypothesis H_1 is accepted. i.e. there is significant difference between the mean pre and post-test knowledge score value is different at people living in selected urban area at Indore, and null hypothesis is rejected.

CONCLUSION

The findings of this study revealed a significant improvement in the knowledge regarding air pollution and its prevention among people living in selected urban areas of Indore city after the implementation of a planned teaching programme. The post-test scores were notably higher than the pre-test scores, indicating that structured educational interventions can effectively increase public awareness and understanding of air pollution and related health risks. The study supports the use of community-based teaching strategies to empower individuals with the knowledge necessary to take preventive actions against air pollution exposure. Thus, the research hypothesis was accepted, and the null hypothesis was rejected.

KEY WORDS- longitudinal study, effectiveness, planned teaching programme, air pollution

INTRODUCTION

The interaction between man and environment has been studied extensively with ultimately depicting that all activities related to human survival as well as evolution has had a negative impact on his surrounding environment. Among the environmental pollutions, air pollution is a very major cause for concern especially in times like Pandemic where those already suffering from air pollution related morbidities have a poorer outcome if infected.

Air contamination might be portrayed as pollution of the climate by vaporous, fluid, or strong squanders or results that can imperil human wellbeing and government assistance of plants and creatures, assault materials, diminish deceivability. The indoor air contamination became obvious during 80's while outside air contamination has been around for quite a while.

Air contamination happens when hurtful or inordinate amounts of substances are brought into Earth's climate. Air contamination is a huge hazard factor for various contamination related maladies. An air contamination is a material noticeable all around that can effects affect people and the environment. The substance can be strong particles, fluid beads, or gases. A contamination can be of characteristic starting point or man-made. Air contamination chance is a component of the peril of the poison and the introduction to that toxin. Air contamination introduction can be communicated for a person, for specific gatherings. An absence of ventilation inside concentrates air contamination where individuals regularly invest most of their energy. India has the most noteworthy demise rate because of air contamination. India additionally has a bigger number of passing from asthma than some other country as per the World Health Organization. There is a positive connection between pneumonia-related passing and air contamination from engine vehicle emanations.

NEED OF THE STUDY

Air pollution remains one of the most pressing public health and environmental challenges globally and nationally. With rapid urbanization, industrialization, and population growth, cities like Indore are experiencing deteriorating air quality levels, leading to increased risk of respiratory illnesses, cardiovascular diseases, and premature mortality. Despite Indore's reputation as one of the cleanest cities in India, episodes of severe air pollution—as indicated by the Air Quality Index (AQI) reaching alarming levels—highlight an urgent need for public awareness and intervention.

According to the World Health Organization (WHO), 99% of the global population breathes air that exceeds recommended pollution limits. In India alone, millions of deaths annually are attributed to air pollution, making it a critical public health concern. However, the level of awareness and knowledge among the general population about the causes, effects, and preventive measures for air pollution remains limited, especially in densely populated urban settings.

Globally, air pollution is the leading environmental cause of disease and premature death, and a major contributor to climate change. According to the World Health Organization (WHO), 99% of the world's population lives in polluted air, and 2.83 million deaths (10.95%) among women and 3.62 million deaths (11.81%) among men have been attributed to air pollution.
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STATEMENT OF THE PROBLEM

A Longitudinal study to assess the effectiveness of planned teaching programme on knowledge regarding air pollution and its prevention among people living in selected urban areas at Indore city".

OBJECTIVES OF THE STUDY

- To assess the pre-test and post-test knowledge score regarding air pollution and its prevention among people living in selected urban areas at Indore city.
- To evaluate the effectiveness of planned teaching programme on knowledge regarding air pollution and its prevention among people living in selected urban areas at Indore city.
- To find out the significant association between the pre-test knowledge score with their selected demographic variables.

HYPOTHESES

- **H_0:** There is no significant difference between the mean pre and post test knowledge regarding air pollution and its prevention among people living in selected urban areas**.**
- **H1** There will be a significant difference between the mean pre and post test knowledge regarding air pollution and its prevention among people living in selected urban areas**.**

ASSUMPTION:

- There will be increase the knowledge of people regarding air pollution and its prevention.
- There will be more effective to improve the knowledge given to PTP (Planned Teaching Programme) will be effective in air pollution and its prevention

REVIEW OF LITERATURE

Siyona Chavan, Akshra Sharon Bansod etal 2020 descriptive study was conduct in pune Maharastra. Out of 250 samples from selected urban areas. Non probability convenience sampling technique was adopted in this study. The result shows that majority 20.8% of the people have a poor knowledge level on air pollution, its prevention and air quality index; 76% of the people have an average knowledge regarding air pollution, its prevention and air quality index and only 3.2% of the people have good knowledge regarding air pollution, its prevention and air quality index. By using the paired t test formula, the t value is 0.05. The demographic variable of education alone has an association with 0.001 as the closest value to the average. The other demographic variables of gender, age and employment do not have an association with the t value, as they are more than the average with findings of 0.119, 0.643 and 0.481 respectively.

MATERIAL AND METHODS:-

STUDY DESIGN AND APPROACH

A pre experimental study was conducted, to identify the knowledge level of peoples and to evaluate the effectiveness of planned teaching programme knowledge regarding air pollution and its prevention among people living in selected urban areas at Indore city". In this study quantitative approach was used.

STUDY AREA, POPULATION, SAMPLE SIZE AND SAMPLING TECHNIQUES

The study was conducted at urban area of Indore city. The population for this study was Urban People. In this study the sample size is 60. And non probability convenience sampling technique was used for the study.

VARIABLES-

Two types of variables were used in this study Independent variable is PTP (Planned Teaching Programme) Dependent Variable is Improve knowledge level of peoples

INCLUSION CRITERIA-

- People who were willing to participate in the study,
- People who reside in urban areas.
- Those who knows reading and writing English and Hindi Language

EXCLUSION CRITERIA-

- People who were not available at the time of data collection.
- People who werenot willing to participate in the study.

ANALYSIS OF DEMOGRAPHIC DATA

Section l: Distribution of samples with demographic data.

S. No.	DEMOGRAPHIC DATA			FREQUENCY(F)	PERCENTAGE (%)
1	Age	A	15-29	36	60%
		B	30-44	16	23.66%
		C	45-60	5	8.33%
		D	60 and above	3	5%
2	Gender	A	Male	38	63.33%
		B	Female	22	36.66%
3	Education Status	A	Illiterate	8	13.33%
		B	School Education	24	40%
		C	Diploma / Under Graduate	17	28.33%
		D	Post Graduate	11	18.33%
4	Marital Status	A	Married	45	75%
		B	Unmarried	15	25%
5	Source of Information	A	Friends	12	20%
		B	Family Member	7	11.66%
		C	Mass Media	37	61.66%
		D	None of Above	4	6.66%
6	Previous Knowledge on air polution	A	Yes	56	93.33%
		B	No	4	6.66%
7	Fuel used for food preparation	A	LPG	41	68.33%
		B	FIRE Wood	7	11.66%
		C	Both	12	20%

The present table data shows that most of the value in Age group 15-29 between 36(60%), Gender-Male 38(63.33%), Education Status-School Education 24(40%), Marital Status-Married 45(75%), Source of Information- Mass Media 37(61.66%), Previous Knowledge on air pollution-Yes 56(93.33%), Fuel used for food preparation LPG 41(68.33%) sample are found.

Table:-Distribution of knowledge of air pollution according to pre and post test score (N=60)

S. No.	Knowledge level	Pre test score		Post test score	
		No.	%	No.	%
1.	Poor	31	51.66%	3	5%
2.	Average	20	33.33%	9	15%
3.	Good	08	13.33%	22	36.66%
4.	Excellent	01	1.66%	26	43.33%
	Total	**60**	**100%**	**60**	**100%**

This table result show that score were graded in four categories – Poor (0-5), Average (6-10), Good (11-15) Excellent (16-20).

The Pre assessment knowledge score of sample show that majority 31(51.66%) poor, follow by 20(33.33%) average, 08 (13.33%) good, and 01(1.66%) sample had excellent level.

After the intervention (PTP) was given to the peoples knowledge result show that 3(5.%) poor, follow by 09(15.%) average, 22 (36.66%) good, and 26(43.33%) sample had excellent level.

Table- Comparison between Mean, SD, Mean Difference and 't' Value of Pre-test and Post-test knowledge score of peoples (N=60)

Haemoglobin level	Mean	S. D.	D. F.	t-value	Significance
Pre test	7.1	3.57	59	10.23	P<0.05
Post test	13.75	3.48			

The table result show that mean and SD of pre and Post test knowledge score were compared and 't' test was applied. It can be clearly seen that 't' value was 10.23 and p value was 0.05 which clearly show that intervention (PTP) was very effective in increasing the knowledge of peoples in air pollution.

Table Association of Demographic Variables with Pre-test knowledge Score

S. No.	Demographic variables	Chi-square value	Degree of Freedom	Level of significance	Significance
1	Age	19.6	6	P>0.05	Significant
2	Gender	2.07	2	p>0.05	Not Significant
3	Education Status	21.64	6	P>0.05	Significant
4	Marital Status	1.39	2	P>0.05	Not Significant
5	Source of Information	30.88	6	P>0.05	Significant
6	Previous Knowledge on air polution	32.94	2	P>0.05	Significant
7	Fuel used for food preparation	1.67	4	P>0.05	Not Significant

RESULT- The researchers observed that the analysis of the demographic data in the study post-test mean 13.75 SD±3.48 is higher than pre-test mean 7.1 SD±3.57 and calculated t value t = 10.23***** (df = 59) standard error value 0.65 is found to be significant at the level of 0.05. Hence research hypothesis H_1 is accepted. i.e. there is significant difference between the mean pre and post-test knowledge score value is different at people living in selected urban area at Indore, and null hypothesis is rejected.

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RECOMMENDATIONS IN NURSING

Based on the findings of the study, the following recommendations are made for nursing practice, education, administration, and research:

1. Nursing Practice
   - Community health nurses should incorporate environmental health education into routine health promotion activities.
   - Nurses should conduct regular awareness campaigns in urban communities focusing on sources, effects, and prevention of air pollution.
   - Home visits and group teaching sessions can be used to educate families living near high-risk areas like open landfills and traffic-congested zones.
2. Nursing Education
   - Environmental health topics, including air pollution, should be strengthened in nursing curricula at undergraduate and postgraduate levels.
   - Simulation and role-play teaching methods can be integrated to prepare nursing students to conduct effective community health education.
3. Nursing Administration
   - Nursing leaders should support and allocate resources for training and development programs focused on public environmental health.
   - Administrators should collaborate with local municipal bodies to implement air quality awareness initiatives involving nursing staff.
4. Nursing Research
   - Further longitudinal studies with larger sample sizes and diverse settings should be conducted to validate and generalize the findings.
   - Research on the long-term impact of educational interventions on behavioral changes related to air pollution prevention should be encouraged.

Implications in Research

The present study offers several important implications for future research in the field of community health and environmental education:

1. **Foundation for Future Studies:**
   This study can serve as a foundation for further research on the impact of educational interventions on public awareness and behavior change regarding environmental issues, especially air pollution.
2. **Evidence-Based Practice:**
   The results provide empirical evidence that planned teaching programmes are effective tools for enhancing community knowledge. Future research can explore different teaching methods, duration, and formats to determine the most effective strategies for various populations.

3. **Comparative Studies:**
   Similar studies can be conducted in other geographic areas, both rural and urban, to compare the level of knowledge and the effectiveness of interventions in different settings and socioeconomic groups.
4. **Long-Term Follow-Up:**
   Researchers can build upon this study by conducting long-term follow-up to assess whether the increase in knowledge leads to sustained behavioral changes and reduced exposure to air pollution.
5. **Tool Validation:**
   The structured knowledge questionnaire used in this study may be validated further and adapted for use in broader national or regional surveys to assess public knowledge levels on air pollution.
6. **Policy and Program Development:**
   Research findings like these can inform policymakers and public health officials in designing community-based education and intervention programs focused on environmental health promotion.
7. **Interdisciplinary Collaboration:**
   This study encourages interdisciplinary research collaboration among public health, environmental science, education, and urban planning professionals to develop integrated approaches for addressing air pollution and its health impacts.

Source of Funding: Self
Ethical Clearance: Institutional research Committee

KEY WORDS- Pre-Experimental study, effectiveness, planned teaching programme, air pollution

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