



A Survey Of Knowledge About Plastic Pollution Of Malda District, West Bengal

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Abstract: Plastic pollution has emerged as one of the most pressing environmental challenges of the 21st century, significantly impacting ecosystems, human health, and the global economy. In the last decade it has emerged as a global issue in the world, and cause of that it is not disposed of more than other things. Due to the lack of proper knowledge about pollution and its dangerous impact on the environment, its uses have increased. In this study, a survey was done to know the people's knowledge about plastic pollution. A self-made questionnaire was used to collect data after the expert opinion. By using three dimensions of knowledge of causes, effects and solutions of plastic pollution 30 items of a questionnaire and 100 samples were selected at Gajol Block under Malda District in West Bengal. For analyzing data, descriptive statistics and inferential are used such as Mean, Median, Mode, SD and t-test. The study result showed that the mean score of knowledge about plastic pollution of male participants is 49.55 which is significantly higher than that of female participants whose mean score of knowledge about plastic pollution is 44.67. It may therefore be said that male participants were found to have significantly better knowledge about plastic pollution as compared to female participants. The Majority of the participants knew the dangers of plastic but had some gaps in terms of the specific causes, effects, and solutions of plastic garbage.

Keywords: Plastic Pollution, Knowledge, People Knowledge, Causes, Effect, Solution.

I. INTRODUCTION

Nowadays plastic has become an indispensable part of today's world. A material that is made from plastics can easily be shaped or deformed. Plastics are synthetic materials that are made from synthetic resins or organic polymers. Examples of these polymers include nylon and polyethylene. Plastic is so durable that it is non-biodegradable which means it will not break down into simpler compounds and get absorbed into the air, water and soil as beneficial components' large pieces of plastic will only break up into small pieces like confetti or fragments like very thin vermicelli. Plastic is the most used material in the modern world due to its vast-ranging properties, which are used in various areas of our workplace. Different kinds of things are made like bottles, bags, injection series, jars, glass, plates, containers, chip packets, boxes, etc., and most daily life usable carry bags, which were introduced in the 1970s (Williamson, 2003) and gained increasing popularity amongst consumers and retailers. People use it mostly because of the lower price than other bags. That's why in India, plastic pollution has highly increased.

The recently released Environmental Performance Index (EPI) 2022, measured by Yale and Columbia universities, ranks India at the bottom among 180 countries. The most harmful material is plastic, India generates 3.5 million tons of plastic waste annually; in West Bengal, it is 9 %. India is expected to be one of the top four countries contributing microplastics to the world's waterways in 2024 and release an average of

391,879 tons of microplastics and 31,483 tons of chemical additives into the environment It also estimates 7.4 million tons of mismanaged waste (Plastic Overshoot Day - POD) Report-2024)

II. OBJECTIVES OF THE STUDY

1. To study the knowledge of people about plastic Pollution.
2. To study the knowledge of people about the causes of plastic Pollution
3. To study the knowledge of people about the effect of plastic pollution
4. To study the knowledge of people about the solution of plastic pollution
5. To compare the mean scores of knowledge about plastic pollution among male and female participants.

III. Hypothesis:

Ho1- There is no significant difference between the mean scores of Knowledge about plastic pollution among Male and Female participants

IV. Methodology

- Main Variable of:** - Knowledge
- Demographic variable** -Gender (Male and Female)
- Approach of the Study-** The study used descriptive survey method for the study.
- Statistical operation** - In this study descriptive and inferential statistics were used.
- Population & Sample:** This study was done at Malda district of West Bengal. The targeted population was village people of Malda district and 100 samples were selected from 16 villages in the district of Malda.
- Tools:** A Self-made questionnaire was used for the collection of data by taking the expert's opinion and selected 30 questions for collecting data and the questions were in Bengali version. Three dimensions were selected for the questionnaire.

Dimensions	Items
Recalling the causes of Plastic Pollution	9 items (1, 2, 3, 6, 7, 8, 19, 20, 23)
Recalling the Effect of Plastic Pollution	12 items (4, 9, 10, 13, 14, 15, 16, 21, 22, 25, 26, 29)
Recalling the Solution of Plastic Pollution	9 items (5, 11, 12, 17, 18, 24, 27, 28, 30)

- Description of Items:** - 30 items and all are positive types.

Scoring Key:

Yes	Know	Don't Know
2	1	0

- Data Collection and Analysis:**

Question No. 1:

Do you know that plastic does not decompose that's why it causes pollution?

Yes	No	Don't Know
97.95%	2.01%	0%

Question No 2:

Do you know that using extra plastic carry bags causes pollution?

Yes	No	Don't Know
95.57%	4.43%	0 %

Question No 3:

Do you know that using extra plastic carry bags causes more pollution in the environment ?

Yes	No	Don't Know
91.26%	3.45%	5.29%

Question No 4:

Do you know that when plastics fall to the ground there is soil pollution?

Yes	No	Don't Know
80.75%	2.38%	16.88%

Question No 5:

Do you know that to keep the environment beautiful, the use of plastic needs to be stopped?

Yes	No	Don't Know
84.65%	5.62%	9.73%

Question No 6:

Do you know that packets of plastic chips cause pollution?

Yes	No	Don't Know
73.85%	2.05%	24.1%

Question No 7:

Do you know that plastic pesticide bottles used in agriculture cause pollution?

Yes	No	Don't Know
78.61%	8.54%	19.99%

Question No 8:

Do you know that throwing unused plastic bottles everywhere causes pollution?

Yes	No	Don't Know
88.55%	3.57%	7.88%

Question No 9:

Do you know that throwing plastic bottles on agricultural land reduces the fertility of the land?

Yes	No	Don't Know
85.3%	5.83%	8.87%

Question No 10:

Do you know that throwing plastic on the ground prevents the growth of plants?

Yes	No	Don't Know
69.34%	8.20%	22.45%

Question No 11:

Do you know that jute bags should be used instead of plastic bags?

Yes	No	Don't Know
77.62%	9.725%	12.65%

Question No 12:

Do you know that food should not be stored in plastic containers?

Yes	No	Don't Know
84.98%	6.81%	8.21%

Question No 13:

Do you know plastic pollution causes plastic prices to be lower?

Yes	No	Don't Know
43.52%	12.64%	43.84%

Question No 14:

Do you know that contamination occurs in the recycling of unused plastic?

Yes	No	Don't Know
30.13%	8.74%	61.13%

Question No 15:

Do you know that throwing plastic into the pond is harmful to the organisms in the pond?

Yes	No	Don't Know
69.95%	8.86%	21.18%

Question No 16:

Do you know that plastic pollution is endangering the existence of organisms?

Yes	No	Don't Know
53.97%	5.3%	40.72%

Question No 17:

Do you know that plastic should not be burned to minimize pollution?

Yes	No	Don't Know
48.065%	43.385%	8.545%

Question No 18:

Do you know that plastic things should be kept in certain places

Yes	No	Don't Know
85.50%	5.3%	9.19%

Question No 19:

Do you know that plastic use in hospitals causes pollution?

Yes	No	Don't Know
73.10%	8.74%	15.77%

Question No 20:

Do you know that plastic toys sold on the market cause plastic pollution?

Yes	No	Don't Know
66.29%	6.49%	27.21%

Question No 21:

Do you know that throwing food in a plastic bag causes the cattle to die?

Yes	No	Don't Know
57.955	7.35%	34.68%

Question No 22:

Do you know that the use of excess plastic is increasing the amount of disease?

Yes	No	Don't Know
87.35%	2.05%	10.6%

Question No 23:

Do you know that the use of plastic must be stopped if we want to keep the future generation healthy?

Yes	No	Don't Know
73.52%	7.025%	19.45%

Question No 24:

Do you know that plastic pollution can be prevented if we stop using plastic?

Yes	No	Don't Know
60.87%	10.58%	28.53%

Question No 25:

Do you know that the number of mosquitoes is increasing when plastic is stored in the drain?

Yes	No	Don't Know
91.79%	4.43%	3.78%

Question No 26:

Do you know when the drain is clogged with plastic, the flow of water is obstructed and eventually stops?

Yes	No	Don't Know
86.16%	4.11%	7.34%

Question No 27:

Do you know that plastic should not be thrown into the drain?

Yes	No	Don't Know
82.38%	8.20%	7.025%

Question No 28:

Do you know that plastic should not be cast in the soil to maintain the fertility of the land?

Yes	No	Don't Know
72.32%	12.64%	15.02%

Question No 29:

Do you know that water contaminated with plastic is harmful to health?

Yes	No	Don't Know
79.14%	8.20%	12.65%

Question No 30:

Do you know that people need to know about the harmful aspects of plastic use?

Yes	No	Don't Know
81.72%	5.62%	12.65%

ix. **Analysis and Interpretation of knowledge of people about Plastic pollution of Malda district.**

Objective No. 1. To study the knowledge of people about plastic Pollution.

The first objective was to study the knowledge of people about plastic Pollution. The data were analyzed with the help of percentages and the results are given.

Table No.- 1

Percentage-wise knowledge of people about plastic Pollution

Level	Scores	No. of people	Percentage
High Level (Knowledge about plastic Pollution)	Above 53	4	4 %
Low Level (Knowledge about plastic Pollution)	Bellow 41	38	38%

From the table no.1, it can be seen that 4% of people have high scores above 53 which means High level of knowledge of plastic pollution, while 38% of people have scores below 41 which are low level of knowledge of plastic pollution.

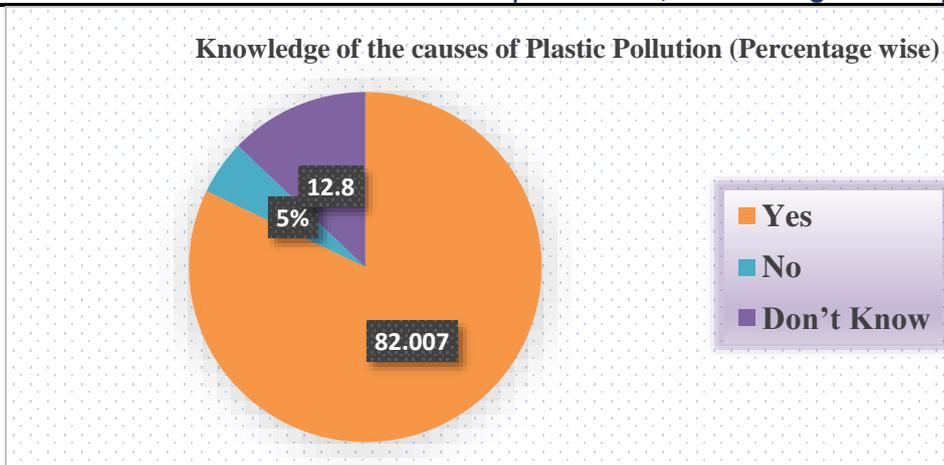
Objective:2 To study the knowledge of people about causes of plastic Pollution

Table No.- 2

Knowledge of the causes of Plastic Pollution (Percentage-wise)

Yes	No	Don't Know
82.007 %	5%	12.8%

The Second objective of the study was to know the knowledge of causes of plastic pollution of Malda district of West Bengal and the investigator created 9 items based on the dimensions (1, 2, 3, 6, 7, 8, 19, 20, 23). From table no. 1, It can be seen that 82.0075% of people responded 'Yes, 2.0021 % responded 'No' and '12.8%' responded 'don't know'.

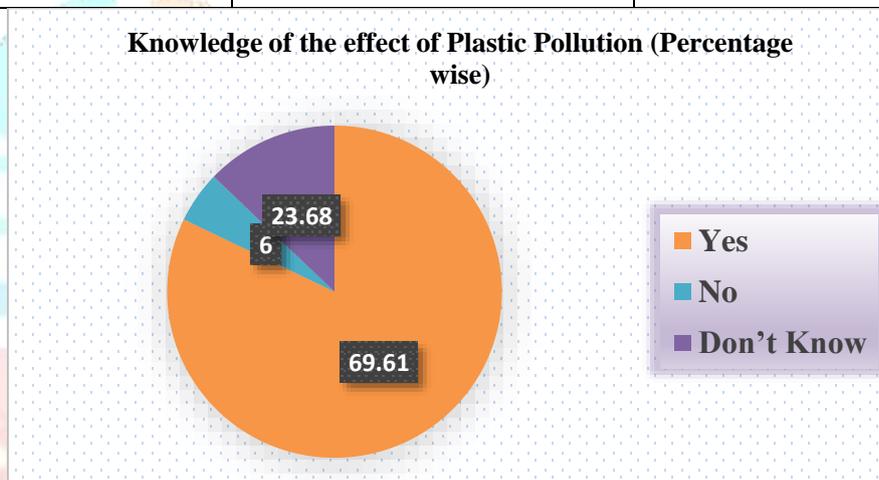


Objective:3 To study the knowledge of people about the effect of plastic Pollution.

Table No.- 3

Knowledge of the effect of Plastic Pollution (Percentage-wise)

Yes	No	Don't Know
69.61%	6.50%	23.68%



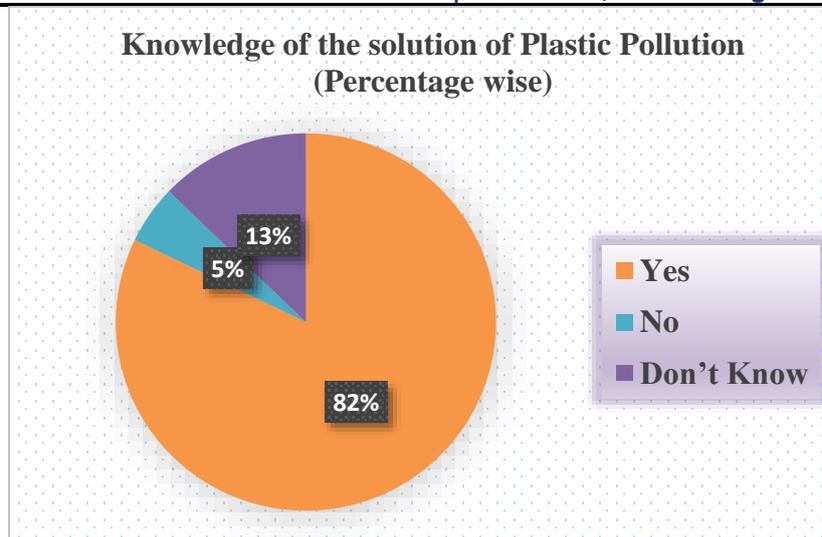
The third objective of the study was to know the knowledge of the effect of plastic pollution of Malda district of West Bengal and the investigator created 12 items based on the dimension (4, 9, 10, 13, 14, 15, 16, 21, 22, 25, 26, 29). From the table no.2, It can be seen that 69.61208 % of people responded 'Yes, 6.50875 % responded 'No' and '23.6775%' responded 'Don't know'.

Objectives:4 To study the knowledge of people about the solution of plastic pollution

Table No.- 4

Knowledge of the solution of Plastic Pollution (Percentage-wise)

Yes	No	Don't Know
75.35%	11.98%	12.39%



The fourth objective of the study was to know the knowledge of solution to plastic pollution of the Malda district of West Bengal and the investigator created 9 items based on the dimension (5, 11, 12, 17, 18, 24, 27, 28, 30) From the table no.2, It can be seen that 75.34722% of people responded 'Yes, 11.98833 % responded 'No' and '12.39611%' responded 'Don't know'.

Objectives: 5 To compare the mean scores of knowledge about plastic pollution among Male and Female participants.

H₀1: - There is no significant difference between the mean scores of Knowledge about plastic pollution among Male and Female participants.

The fifth objective was to compare the mean scores of knowledge about plastic pollution among male and female participants. The data were analyzed with the help of t-test and the results are given in table no-5.

**Table No.- 5
Gender wise M, SD, N, and t-value of knowledge about Plastic Pollution**

Variable	Gender	N	Mean	S.D	df	t-Value	Remarks
Knowledge about plastic Pollution	Male	58	49.55	5.21	98	4.491	Significant at 0.05 level
	Female	42	44.67	4.48			

From the table no.5, it can be seen that t-value is 4.491 which is significant at 0.05 level with the degree of freedom 98. It indicates that the mean scores of knowledge about plastic pollution of male and female participants differ significantly. Thus, the null hypothesis that there is no significant difference in mean scores of knowledge about plastic pollution of male and female students is rejected.

Further, the mean score of knowledge about plastic pollution of Male is 49.55 which is significantly higher than those of Female whose mean score of knowledge about plastic pollution is 44.67. It may therefore be said that **Male participants were found to have significantly better knowledge about plastic pollution as compared to Female participants.**

Findings of the Study

1. The first objective was to study the knowledge of people about plastic Pollution, it can be seen that 4% of people have scores above 53 which are High score and 4% of people have high knowledge about plastic pollution, while 38% people have scores bellow 41 which are law scores and 4% people have low knowledge about plastic pollution.
2. The second objective was to study the knowledge of people about the cause of plastic pollution, it can be seen that 82.01% of people responded 'Yes,' 2.00% responded 'No,' and 12.80% responded 'Don't know' when asked about their knowledge of the causes of plastic pollution.
3. The third objective was to study the knowledge of people about the effect of plastic pollution, it can be seen that 69.61208 % of people responded 'Yes, 6.50875 % responded 'No' and '23.6775%' responded 'Don't know' when asked about their knowledge of the effect of plastic pollution.
4. The fourth objective was to study the knowledge of people about the solution to plastic pollution it can be seen that 75.34722% of people responded 'Yes, 11.98833 % responded 'No' and '12.39611%' responded 'Don't know' when asked about their knowledge of the solution of plastic pollution.
5. The fifth objective was to compare the mean scores of knowledge about plastic pollution among male and female participants. The study result showed that the mean score of knowledge about plastic pollution of male participants is 49.55 which is significantly higher than those of female participants whose mean score of knowledge about plastic pollution is 44.67. It may therefore be said that male was found to have significantly better knowledge about plastic pollution as compared to female participants. The probable reason for male participants' better knowledge may be their high literacy rate (as per the census 2011) compared to females of Malda district in West Bengal.

V. CONCLUSION

This study on the knowledge of plastic pollution among the people of Malda district in West Bengal, reveals notable insights into the local plastic pollution knowledge of this environmental issue. The findings of the study highlight notable variations in knowledge levels over different demographic groups, especially between male and female participants. Male participants displayed a significantly higher knowledge of plastic pollution than female participants, which may be attributed to higher literacy rates. The overall knowledge of plastic pollution among people is concerning, with only a small portion of participants showing a high level of knowledge. Most participants are aware of the plastic hazards but gaps persist, especially regarding the causes, effects, and solutions to plastic pollution. The study highlights the important role of education and knowledge in promoting environmentally sustainable practices and mitigating plastic pollution.

The results also recommend implementing effective policy and community engagement, it is important to enhance public knowledge about the dangerous effects of plastic pollution. This issue is not only for the health environment but also for building well-being for our future generations. Therefore, combined efforts by the government, community organizations', educational institutions and others' welfare are necessary to foster a more informed and responsible approach to plastic use and waste management in the region.

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