

# A Descriptive Study to Assess the Knowledge and Attitude of Adolescents Regarding Mismanagement of Plastic Wastes and its Environmental Hazards in Selected Community Area, Nelamangala

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**Abstract:** ***Aim:** To assess the knowledge and attitude of adolescents regarding mismanagement of plastic wastes and its environmental hazards in selected community area, Nelamangala. **Methodology:** Non Experimental descriptive design was adopted in the present study. Simple Random sampling technique was used to select the sample size of 60 adolescents. The pre-test assessment of knowledge of adolescents was carried out using a structured knowledge questionnaire and attitude questionnaire regarding mismanagement of plastic wastes and its environmental hazards. **Results:** Assessment of the knowledge scores regarding revealed that majority of the adolescents 37 [61.67%] had inadequate knowledge regarding plastic waste mismanagement and its environmental hazards followed by 23 [38.33%] adolescents who had moderate knowledge; while none of them had adequate knowledge regarding plastic waste management and attitude assessment was done by Likert rating scale, 45 [75%] adolescents had positive attitude towards plastic waste management, followed by 15[25%] adolescents who neutral attitude. Chi-square test was used to find the association between knowledge score, attitude with selected demographic variables. The results indicated that there was no association between the knowledge score and the selected demographic variables and there was no association between attitude and selected demographic variables. **Conclusion:** The findings of the study showed that the adolescents had inadequate knowledge regarding plastic waste mismanagement and its environmental hazards and positive attitude towards plastic waste management.*

**Keywords:** Knowledge; Attitude; Mismanagement of plastic waste; Adolescents

## 1. Introduction

“Let every individual and institutions now think and act as a responsible trustee of earth, seeking choices in ecology, economics and ethics that will provide a sustainable future, eliminate pollution, poverty and violence, awaken the wonder of life and foster peaceful progress in the human adventure.” Say John McConnell, founder of International earth day. [1]

A plastic material is any of a wide range of synthetic or semi-synthetic organic solids used in the manufacture of industrial products. Plastics are typically polymers of high molecular mass, and may contain other substances to improve performance and reduce costs. Monomers of plastic are either natural or synthetic organic compounds. [2]

In modern era, even though plastics are an inevitable substance, it is one of the major toxic pollutants of our time. Being a non-biodegradable substance, composed of toxic chemicals, plastic pollutes earth, air and water. There is no way what so ever you can safely dispose of plastic waste. Plastic causes serious damage to environment both during its production and disposal. So the only way to reduce the hazards of plastic is to reduce the use of plastic and there by force a reduction in its production. [2]

Dangerous emissions such as dioxins are released into the air when plastics are burned. Dioxins are toxic to human organs and can easily be inhaled or digested as they attach themselves to growing crops and contaminate local

waterways. Current research by the women in Europe for a common future also indicates that burning plastic can increase your risk of heart disease, damage the nervous system, damage the function of the kidney and liver, aggravate respiratory diseases like asthma, damage the reproductive system and cause physical symptoms like rashes, nausea and headaches. Additionally, the vapors released during the burning process can damage the eyes and affect the central nervous system. [5]

Recycling of plastic is associated with skin and respiratory problems, resulting from exposure to and inhalation of toxic fumes, especially hydrocarbons and residues released during the process. What is worse, the recycled plastic degrades in quality and necessitates the production of more new plastic to make the original product. Plastic wastes clog the drains and thus hit especially urban sewage systems. The plastic wastes being dumped into rivers, streams and seas contaminate the water, soil, marine life and also the every air we breathe. Choked drains provide excellent breeding grounds for disease-causing mosquitoes besides causing flooding during the monsoons. [3]

## 2. Literature Survey

A study conducted by the National Environmental Engineering Research Institute (NEERI) for the Brihan Mumbai Municipal Corporationon Guidelines for recycling of plastics, which handles more than 5,500 metric tons MSW per day shows that plastic waste is 0.75 %. In Europe and U.S.A, plastic waste makes up 8 % of total MSW. The rest is

made up of organic materials (33%), paper and paperboards (30%), glass and metals (16%) and others (13%). The methods of recycling and the technology used for the same at present are quite outmoded and are in need of up gradation. It has also been observed that some of industries even recycle the plastic waste/scrap which is totally unhygienic and such is a health hazard for persons who use items made from such plastics and even used at times for packaging of foodstuff and medicines. [6]

A study was conducted to assess the knowledge, attitude and practices of students regarding plastic waste management. Karimnagar town (Andhra Pradesh) has a population of 5.2 lacks. It has 267 students in the community. Out of 267 students, 47 were selected by systematic random sampling. A total of 500 study subjects were selected from these community and the data were collected by one to one interview using pre-tested pre-designed proforma. The result of this study is 30 % of students dispose the plastic properly. Others need proper health education regarding plastic disposal. [7]

A study was conducted on hospital-based cross-sectional from March to September 2009 in Pune town regarding disposal of plastic. Out of 500 study subjects, 201 (40.2%) were males and 299 (59.8%) were females; 237 (47.4%) were nurses, 132 (26.4%) were lab technicians and 131 (26.2%) were housekeeping staff. Totally 266 (53.2%) study subjects knew about BMW correctly, of which 138 (51.8%) were nurses, 114 (42.85%) were technicians and 14 (5.26%) were housekeepers. Only 8 (1.6%) study subjects knew about categories of disposal of plastic. Total 353 (70.6%) study subjects were having idea about segregation of plastic waste. Only 72 (14.4%) subjects had knowledge about various methods of disposal of plastic. Majority of the study subjects i.e. 479 (95.8%) had knowledge about various health problems related to improper plastic disposal. [8]

A comparative study was conducted between environmental hazards due to plastic uses and respiratory health in young children in Dec 2006 the study period covered 11 years (1996-2006). 640 documents were recovered from the United States accounted for 23.5% of articles and simple random technique was used. The factor most widely studied was air pollution the outdoor air pollution is (50%) and then indoor air pollution is (40%) predominated in children 3 years of age the study concluded environmental hazards is fundamental in the management and prevention of respiratory problems in childhood. Moderation can avoid the using of plastics which leads to environmental pollution can reduce the health problems to the childrens. [9]

### 3. Statement of the Problem

A descriptive study to assess the knowledge and attitude of adolescents regarding mismanagement of plastic wastes and its environmental hazards in selected community area, Nelamangala.

#### Objectives of the study

- 1) To assess the existing knowledge of the adolescents regarding environmental hazards of plastic wastes.
- 2) To assess the attitude of the adolescents regarding

environmental hazards of plastic wastes.

- 3) To correlate the knowledge and attitude of adolescents regarding the environmental hazards of plastic wastes.

#### Hypotheses

**The hypothesis will be tested at 0.05 levels of significance**

**H01-** There will be a significant correlation between knowledge and attitude of adolescents on environmental hazards of plastic wastes.

### 4. Methodology

The non-experimental descriptive research design was used to assess the knowledge and attitude towards the mismanagement of plastic waste and its environmental hazards. In the present study population was comprised of 60 adolescents. The investigator conducted the study at Vishal school ,Nelamangala , Karnataka. Sample was selected by simple random sampling. A validated Demographic profoma , Structured knowledge questionnaire and a likert 3 point rating scale was used to collect the sample characteristics, tp assess the knowledge and to measure the attitude respectively of the subjects.

Administrative permission from the Principal of the Vishal School, Nelamangala, Karnataka was taken to conduct the study. Written informed consent was taken for the study sample regarding their willingness to participate in the research study and the purpose for carrying out research study was explained to the participants. Anonymity and confidentiality of the subjects were maintained while carrying out the study.

#### Reliability of the tool

##### 1) Knowledge questionnaire

To establish the stability of the questionnaire test retest method was done. Six adolescents were given the questionnaire twice in a day. The scores obtained were utilized to check reliability using Pearson's product moment method. It was 0.93. Split- half method used to establish internal consistency of the instrument and it is found to be 0.921

##### 2) Attitude scale

The same method was adopted for establishing the reliability scale. The test re- test reliability was found to be 0.98. The split-half reliability of the scale is 0.90. In general, all tools were found feasible. The collected data was analyzed by using descriptive and inferential statistics.

### 5. Conclusion

The present study assessed the knowledge and attitude of adolescents regarding plastic waste management. The result revealed that majority 61.67% of the adolescents had inadequate knowledge regarding plastic waste management and 75% of them had a positive attitude towards plastic waste management. Demographic variables had influence on the knowledge and attitude of adolescents regarding plastic waste management. There was a positive relationship between knowledge and attitude regarding plastic waste

management.

## 6. Implications of the Study

The findings of the study have following implications in the areas of nursing service, nursing administration, nursing education and nursing research.

### 1) Implications of the present study in the nursing service

Educational programmes with effective teaching strategies will improve the knowledge of people. Nurses in their educative role must conduct educational programmes among the adolescents to improve their knowledge regarding mismanagement of plastic and its environmental hazards.

The interest and willingness of present generation showed a strong need for further education programmes. Promotion of wellbeing is the main aim and responsibility of every nurse. Health education programmes were used even in the olden days. Once awareness is created in the society further step is easier. So the first step of creating awareness has to be done by the nurses through nursing practice.

### 2) Implications of the present study in nursing administration

Nurse as an administrator has a role in planning the policies for imparting health information to the target population. Nurse administrators need to organize nursing education programmes for the nursing personnel and motivate them to conduct health programmes on mismanagement of plastic waste and its environmental hazards. Planning and organizing such work requires efficient team spirit, planning for manpower, money, material, method, time and good will to conduct successful education programme. Nurse administrators will be able to take the initiative in imparting health information through different effective teaching methods.

### 3) Implications of the present study in nursing education

The nursing curriculum is concerned with the preparation of future nurses who will play a major role in the preventive and primitive aspects of community people. The learning experience of the students should be given more emphasis to the present generation that is the youth.

### 4) Implications of the present study in nursing research

Research is a systematic attempt to obtain answers to meaningful questions about phenomena or events through the application of scientific procedures. It is an objective, impartial, empirical and logical analysis and recording of controlled observations that may lead to the development of generalizations, principles or theories, resulting to some extent in prediction and control of events that may be consequences of or cause of specific phenomena.

## 7. Recommendations

- A similar study can be conducted using a larger sample.
- A similar study can be conducted with pre-test and post-test control group design.
- A similar study can be done to assess the effectiveness of

the structured teaching programme on knowledge regarding plastic waste management.

## 8. Result

**Table 1:** Frequency and percentage distribution of subjects according to their knowledge score. n=60

Knowledge score		Level of knowledge
Percentage (%)	Frequency (f)	
61.67	37	Inadequate
38.33	23	Moderately adequate
0	0	Adequate
<b>100</b>	<b>60</b>	<b>Total</b>

Table1 shows that majority of the 61.67% of adolescents had inadequate knowledge regarding plastic waste management, 38.33% had moderate knowledge and minority 0% had adequate knowledge

**Table 2:** Frequency and percentage distribution of subjects according to their level of attitude n=60

Attitude score		Level of attitude
Percentage (%)	Frequency (f)	
0	0	Unfavourable
25	15	Neutral
75	45	Favourable

Table 2 shows that 75% respondents had favourable attitude and only 25% had neutral attitude and unfavourable attitude had 0% on plastic waste management.

**Table 3:** Range, mean, median, mean percentage and standard deviation of knowledge score n=60

SD	Mean %	Median	Mean	Range	Maxi. Possible score	Knowledge score
1.28	31.5	7	7.57	10 – 6	24	Regarding Plastic waste mismanagement

Table 3 reveals that the descriptive measures of knowledge regarding plastic waste mismanagement. Overall mean score was 7.57 with a standard deviation of 1.28 and mean score percentage of 31.5%.

**Table 4:** Range, mean, median, mean percentage, and standard deviation of attitude level n=60

SD	Mean %	Median	Mean	Range	Maxi. Possible score	Knowledge score
1.6	76.6	18	17.9	15 – 22	24	Regarding plastic waste mismanagement

Table 4 reveals that the descriptive measures of attitude regarding plastic waste mismanagement. Overall mean score was 17.9 with a standard deviation of 1.6 and mean score percentage of 74.6%.

**Table 5:** Area - wise knowledge score of adolescents  
 n=60

Knowledge Score		Area
Mean %	Mean±SD	
32.3	4.2±0.88	Knowledge on basic concepts of plastics (K1)
30.6	3.37±0.78	Knowledge on environmental hazards(K2)

The data presented in table 5 shows that the mean percentage actual gain score was highest in area of knowledge on basic concepts of plastics (K1= 32.3) and less in the area of knowledge on environmental hazards (K2=30.6).

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