

# Knowledge Assessment on Hazards of Plastic Use among Residents of Selected Urban Community of Pune City

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## Abstract

**Introduction:** Plastic products have become integral part of our daily lives. Due to which the production of Plastic have gone up worldwide. Plastic consumption in India increased from 61 thousand tons in 1996 to 1.78 million tons in 2017, which is a huge increase. **Objective** of the study is to assess the knowledge about hazards of Plastic use among selected areas of Pune city. **Methods:** Non experimental descriptive survey research design for the study. Sample comprised of 400 residents of selected urban community of Pune city. Non probability convenience sampling technique was used for the study. A self-administered structured knowledge questionnaire on hazards of Plastic use was used. The tool is divided in two sections. Section I is dealt with demographic proforma of the sample. Section II was self-administered structured knowledge questionnaire comprised of thirty questions (Multiple choice questions) in four domains on knowledge of hazards of plastic use, after permission from the concerned authority and informed consent from each sample, the investigator has administered the tool. **Result:** Majority of respondents have average knowledge (46.75%) and 3.5% respondents had poor knowledge on hazards of Plastic use. **Conclusion:** The present study revealed the residents had considerable average knowledge regarding hazards of plastic use. The enhancement in knowledge is greatly required on all aspects of hazards of plastic use.

**Key words:** Knowledge; Plastic; Hazards; Community

## Introduction

Plastic are the group of material either synthetic or naturally occurring, that may be shaped when soft and then hardened to retain the given shape. The development of plastic has evolved from the use of Natural Plastic material to the use of chemically modified natural material and finally to completely Synthetic Materials. Most plastic are durable and degrade very slowly as their chemical structure renders them resistance to many natural processes of degradation. <sup>[1]</sup>

Plastic products have become integral part of our daily lives. Due to which the production of Plastic have gone up worldwide. On an average 150 million tons of Plastic is produced globally. Once Plastic is discarded is termed as Plastic Waste and it is a fact that plastic waste never degrades and remains in landscape for several years. With the largest population, China produce the largest quantity of Plastic at nearly 60 million tons. It is followed by United States and Germany. <sup>[2]</sup>

Whereas India generates 9.4 million tons of Plastic Waste per year out of which 5.6 million tons per year is recycled and 3.4 million tons per year is left and collected or littered. <sup>[3]</sup>

North America is the highest consumer of Plastic at 90kg/ person and India it is 5kg/person. <sup>(4)</sup>

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which is a huge increase. [3]

### **Need for the study**

Plastic waste possess a threat to environment and health problem in human and animal. Due to the non-biodegradable nature of plastic there is negative impact. The negative effect in human beings include birth defect, impaired immunity, endocrine dysfunction, etc.

Not only is human being the Plastic Waste known to be a threat to marine organism as well. In the late 20's it has become to light micro plastics also disrupts the function of living organism.

India recycles 60% of its Plastic Waste, which is highest in world. Maharashtra tops in production in Plastic Waste followed by Gujarat.

Government of India put forward Plastic Waste Management and rule in 2016 which was reinstalled in 2018 which is applicable to all states. According to which, the most favored option is reduce and reuse and least favored option is recovery and landfill. Public awareness and participation is the way forward for curbing the negative impact of Plastic Pollution. [3]

A study conducted in Tamil Nadu among Professional students on Knowledge and Practice regarding plastic pointed out that 46% of students had good knowledge but 27.6% only followed good practices. Though knowledge was good their practice and terms of disposal was less. [4]

A study conducted in Delhi that 76.4% of individual considered of plastic as a threat, but only 40.3% considered paper bag as an alternative. It also remarked that only 48% housewives had attended some sort of sensitization programme related to plastic waste management. [5]

A descriptive study conducted in 2012 among homemakers of urban area in Mangalore, India found that 71% had inadequate knowledge about plastic waste management, also least profession of knowledge was in the area of use and reuse of plastic. [6]

A study conducted on hospital based survey, in order to reduce plastic waste, the popularity of plastic waste management among the public has to be changed. These researches show that imparting

knowledge and creating positive and long lasting behavioral change among the public. As Maharashtra is the top most contributor of plastic waste and since pune which has population of more than 5 million persons. It becomes a major contributor in the state. Pune produces 166 tons of plastic waste per day. out of which 12.5% of plastic waste leaks into environment and rest are recycled and reused. Approximately 70% of plastic waste in packaging. This indicates that main source of plastic waste is related to consumption of packed products. Branded packaging waste, 86% is from food product followed by 8% from personal care product and 6% from household product. Plastic are also used in growing range of building and construction applications which are another large source. [7]

A case study on Pune plastic waste disposal pointed out that increased public awareness and providing education to residents on sorting and segregating is important. [7] Public awareness and education can be undertaken only after accessing the level understanding among the population. This study undertaken to find out the knowledge about the plastic waste management among residents of Pune.

### **Statement of the Problem**

“Knowledge assessment on hazards of plastic use among residents of selected Urban Community of Pune city”

### **Objective of the study**

- To describe the socio demographic characteristics of residents of urban community of Pune city.
- To assess the Knowledge on hazards of Plastic use among residents of selected urban community of Pune city.

### **Assumptions**

Residents of selected urban community of Pune city may have knowledge about hazards of Plastic use

### **Operational Definitions**

**Knowledge** : knowledge refers to the verbal responses of residents of Pune city as measured by the knowledge part of structured questionnaire on hazards

of plastic use.

**Plastic** : Any item made of synthetic or semi synthetic organic compounds that are malleable and is harmful in nature.

**Residents** : People who are residing in urban community and are between the age of 18 years or above of Pune city.

**Material and Method**

The researcher has adopted the Non experimental descriptive survey research design for the study. Sample comprised of 400 residents of selected Urban Community of Pune city. Non probability convenience sampling technique was used for the study.

**Inclusion Criteria**

- Residents of Urban community
- Age of residents to be above 18 years of age.
- Residents who can read and understand English and Hindi

**Exclusion Criteria:**

- Residents of Urban community who are not willing to participant

Reliability was done by using test re test method and reliability coefficient obtained by pearson correlation formula was found reliable 0.808 . Validity of tool was done by giving it to experts in following field Educator, researcher, statistician and Physician

A self-administered structured knowledge questionnaire on hazards of Plastic use was used. The areas has selected after extensive literature review and consultations with expert of concerned discipline. The tool is divided in two sections. Section I is dealt with demographic proforma of the sample. It consisted of information on selected demographic variables like age, gender, educational qualifications and occupation. Section II was self administered structured knowledge questionnaire comprised of thirty questions (Multiple choice questions )in four domains on knowledge of hazards of plastic use. Each correct item was given 01 mark and wrong response received 0 marks..

After permission from the concerned authority and informed consent from each samples, the investigator has administered the tool.

**Findings**

**Section 1:** Sample characteristics

**Table 1: Frequency and percentage distribution of demographic variable**

**n= 400**

Variables		Frequency	Percentage
Age ( In years )	19-25	117	29%
	26-35	182	45%
	36-50	82	21%
	51 and above	19	5%
Gender	Male	185	46%
	Female	215	54%

**Cont... Table 1: Frequency and percentage distribution of demographic variable**

Educational Status	Illiterate	12	3%
	Higher secondary	180	45%
	Graduate	182	45.5%
	Postgraduate and above	26	6.5%
Occupation	Students	38	10%
	Skilled worker	70	18%
	Un -skilled worker	129	32%
	Professional	160	40%

Table 1- shows maximum 45% of sample was in the age in the age group of 26-35 years whereas minimum in the age group of 51 and above age group. Majority of respondents were female (54% ) and 46% was males. Majority of respondents were graduate and undergraduate (45.5% and 45%) and 6.5% were highly qualified as postgraduate and above. Majority (40% )were professionals and 32% were un-skilled workers whereas 18% were skilled workers and only 10% were students.

**Fig 1. Age wise distribution of Respondents**

**Section –II** –Assessment of level of Knowledge of the residents of selected area of pune city on hazards of plastic use.

n= 400

S.No	Level of Knowledge	Frequency	Percentage
1	Very poor (1-6)	0	0%
2	Poor (7-12)	14	3.50%
3	Average (13-18)	187	46.75%
4	Good (19-24)	150	37.50%
5	Excellent (25-30)	49	12.25%

**Table 2 :** Shows level of knowledge of residents of Urban community on Hazards of plastic use**Fig 2: Level of knowledge on hazards of plastic use among residents of urban community**

Table 2 and fig 2 shows the level of knowledge on the basis of frequency and percentage among residents of urban community of Pune city that majority of respondents have average knowledge ( 46.75% ) and 3.5% respondents had poor knowledge

## Discussion

In present study shows that the urban community residents have average level of knowledge related to hazards of plastic use .

Similar findings been revealed in the study of Malathi on knowledge assessment among adolescents on hazards of plastic use .Their study findings says that adolescence has average knowledge on hazards of plastic use.<sup>[8]</sup>

Another study also has similar findings on awareness of hazards of plastic bag usage. Study findings show the participant in the settings had the awareness of hazards of plastic bag usage. Still need for spreading the awareness of using alternative strategies and effective implementation of legislation in order to minimize the usage of plastics in the community. <sup>[9]</sup>

**Conclusion** The present study revealed the residents had considerable average knowledge regarding hazards of plastic use. The enhancement in knowledge is greatly required on all aspects of hazards of plastic use.

**Conflict of Interest :** Nil

**Source of Funding :** Self funding

**Ethical Consideration:** The researcher gained the Institute research Committee approval and Study was approved at Institute Ethical subcommittee. Informed consent was obtained from each sample. Privacy and confidentiality maintained

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