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Knowledge Attitude and Practice on Plastic Usage Among the Residents of Tiruchirappalli Municipal Corporation, Tamil Nadu - A Descriptive Study

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Abstract: *A plastic material is any of a wide range of synthetic or semi-synthetic organic solids that are malleable. Plastics are typically organic polymers of high molecular mass, but they often contain other substances. They are usually synthetic, most commonly derived from petrochemicals, but many are partially natural. Plastics are inexpensive, lightweight, strong, durable, corrosion-resistant materials, with high thermal and electrical insulation properties. Due to their relatively low cost, ease of manufacture, versatility, and imperviousness to water, plastics are used in an enormous and expanding range of products, from paper clips to spaceships. They have already displaced many traditional materials, such as wood, stone, horn and bone, leather, paper, metal, glass, and ceramic, in most of their former uses. In developed countries, about a third of plastic is used in packaging and another third in buildings such as piping used in plumbing or vinyl siding. Other uses include automobiles (up to 20% plastic), furniture, and toys. In the developing world, the ratios may be different - for example, reportedly 42% of India's consumption is used in packaging. A plastic bag, polybag, or pouch is a type of packaging made of thin, flexible, plastic film, nonwoven fabric, or plastic textile. Plastic bags are used for containing and transporting goods such as foods, produce, powder, ice, magazines, chemicals and waste.*

I. Introduction

In simple words Plastic wastages do not get decompose easily, settles down in the earth that leads to increase in the mass of waste in the Earth. It affects the water cycle by disturbing the rainwater to enter into the land as the water and air cannot pass through it. Initially it show decrease in ground water level and it leads to so many environmental issues. Even it sometimes causes death of animals due to the intake of plastic. The cost for recycling the plastic is very high and almost it is a loss process. The half-life period for plastic is too long that it takes some millions of years to decay. The production of plastic with lower number of microns is very cheap; unfortunately lower the microns in the plastic lower the chance to get decompose. Plastics are accustomed in the people's daily life for use. It becomes very popular all over the world for its durability, low cost and its ease availability. Because of cheap cost plastics are made with very low number of microns. Those plastics with low number of microns are non-recyclable. So the researcher planned to do a study on KAP (Knowledge Attitude and Practice) of plastic usage of among the residents of Tiruchirappalli Municipal Corporation.

As a material, plastic has existed for just over a century and mass production began in earnest in the 1950s. By 1988, 30 million tons of plastic products were produced annually, reaching 265 million tons by 2010 and accounting for 8% of global oil production. Most plastic products are lightweight, inexpensive, and durable. These defining characteristics make plastics a convenient material for the manufacture of everyday products. However, these same attributes make plastics a threat to ecosystems. It affects the environment, eco systems, bio diversity, cause to global warming etc. Awareness should be created to the people about the adverse impact of plastic usage to the nature and the plastic should be evaded from the daily use. The people's Knowledge, Attitude and their Practice on plastic usage should be measured would be helpful. Hence the researcher has chosen the topic for the present research study.

II. Review Of Earlier Studies

Turner and Sutton (2012) in their articles reported that plastic bags is a growing problem and can be seen in many different forms. The first part of our project will focus on the various areas affected by the growing use and waste of plastic bags: oceans, streams, landfills, air and natural resources. In developed societies, plastic bags are discarded in landfills where they take up a significant portion of landfill space. Not only is space an issue, but it takes hundreds of years for plastic bags to completely decompose.

Unnikrishnan (2012) in his "A Study on Customer Awareness of Green Marketing and Green Brand Effectiveness" has examined the factors such as customer awareness of green brands, customer perception regarding Price, availability, greenness and effectiveness. Attitudes are changing toward the environment to encourage innovation for conservation.

Park (**2013)** in his article mentioned thatplastic takes up large part of society, from plastics used for furniture, electronics, to small households needs like containers and grocery bags. Since plastic first became available to consumers, it became widely used, due to the advantages it provides, such as lightweight, durability and its ability to mold into any products with chemicals and additives. However, there are also a number of disadvantages that plastic poses, including health problems starting from manufacturing to consumption and negative environmental impacts created by accumulation of plastic wastes. Today, the management of plastic wastes has become one of the most challenging problems in our society. It seems even serious if we think about the future generation that has to deal with continuously growing amount of plastic wastes accumulated in the environment.

III. Methods

Aim

To study the Knowledge, Attitude and Practice on plastic usage among the Residents of Tiruchirappalli Municipal Corporation, Tamil Nadu, India.

Objectives Of The Study

The objectives of the study are as follows

- To study the socio-demographic characteristics of the residents of Tiruchirappalli Municipal Corporation.
- To study the Knowledge Attitude and Practice on plastic usage among the residents of Tiruchirappalli Municipal Corporation.
- To understand the relationship between the various socio demographic variables and KAP on Plastic Usage.

Research Hypotheses

1. There is a significant difference between male and female respondents with regard to their Knowledge, Attitude and Practice on plastic usage.
2. There is a significant difference between the married and unmarried respondents with regard to their Knowledge, Attitude and Practice on plastic usage.
3. There is a significant difference between the nuclear family and joint family respondents with regard to their Knowledge, Attitude and Practice on plastic usage.
4. There is a significant difference among the respondents' occupation with regard to their Knowledge, Attitude and Practice on plastic usage.
5. There is a significant difference among the respondents' religion with regard to their Knowledge, Attitude and Practice on plastic usage.
6. There is a significant difference among the respondents' educational qualification with regard to their Knowledge, Attitude and Practice on plastic usage.
7. There is a significant relationship between the respondent's age and Knowledge, Attitude and Practice on plastic usage.
8. There is a significant correlation between the respondent's annual income and Knowledge, Attitude and Practice on plastic usage.

Pilot Study

Before the research study, researcher collected some basic details of the Tiruchirappalli Municipal Corporation, Tamil Nadu, India.

Research Design

As the researcher has attempted to describe the Knowledge, Attitude and Practice of the residents of Tiruchirappalli Municipal Corporation with regard to their plastic usage hence adopted the Descriptive Design for the present study.According to Kothari (1990) Descriptive Studies are those studies that aim at describing the characteristics of particular individual of group whereas diagnostic research studies determine the frequency with which something on relating something else.

Universe Of The Study

The universe for the present study constitutes the entire Municipal Corporation of Tiruchirappalli in Tamil Nadu, India. The area of the city is about 167.23km². The city is home to 9,16,674 (Census India – 2011) people. It is almost at the centre of the state Tamil Nadu. It is the fourth largest urban agglomeration in the Tamil Nadu state. The Municipal Corporation of Tiruchirappalli is divided in to 4 zones namely K.Abhishegapuram, Srirangam, Ariyamangalam and Ponmalai with 65 wards wholly.

Sampling

The researcher had chosen the Convenient Sampling Method i.e. Non-Probability Sampling Method. Researcher took 60 respondents among 9,16,674 (Census India - 2011) people through this method in Tiruchirappalli Corporation, Tamil Nadu, India.

Inclusion Criteria

1. Those who are residing in Tiruchirappalli Municipal Corporation for at least 10 years.
2. They must be between to years old.
3. Both males and females are included.

Exclusion Criteria

1. Those who are living outside the Corporation limits were excluded.

Sources Of Data

The researcher used the questionnaire method to collect the primary sources of data. The secondary data includes the journals, books periodicals, old researches etc., for the research study.

Tools For Data Collection

The researcher had used self-prepared questionnaire to study the socio demographic details, their Knowledge, Attitude and Practice on plastic usage.The questionnaire consists of the following dimensions.

- Socio Demographic Characteristics
- Knowledge
- Attitude
- Practice

Scoring Pattern

In order to measure the level of Knowledge, Attitude and Practice on plastic usage, the researcher has developed an index in consultation with the research advisor. The index contains totally 48 items which are scored as follows.

Response	**Scoring**
Yes	1
No	0
No Comments / Idea	0

Pre-Test

Before proceeding to data collection the researcher has done a Pre-test in order to validate the questionnaire without any mistakes. The researcher collected responses from 6 respondents for pre-test. The questionnaire was tested by the research guide and with some public. The researcher made relevant changes in the questionnaire.

Statistical Test

The researcher has applied the following tests to find out the relationship between the variables.

1. Student ‘t’ test
2. One way ANOVA test
3. Karl Pearson’s Coefficient of Correlation
4. Inter-Correlation Matrix

Socio – Demographic Characteristics

- More than one third (40%) of the respondents are between the age group of 21 and 30 years.
- Exactly half (50%) of the respondents are Male as well as Female.
- More than half (51.7%) of the respondents are married.
- One third (35%) of the respondents are students.
- Majority (76.7%) of the respondents are belongs to Hindu religion.
- Majority (71.7%) of the respondents are belongs to Nuclear family.
- More than half (51.7%) of the respondents are educated only in school level.
- More than half (60%) of the respondents are having 4 to 6 members in their family.
- Majority (71.7%) of the respondents are having 2 to 3 male members in their family.
- More than half (58.3%) of the respondents are having 2 to 3 female members in their family.
- Exactly half (50%) of the respondents are earning below 50,000 INR per annum.

Table 1: Distribution Of Respondents By Their Kap On Plastic Usage

S.No.	Variable	No. of Respondents (n:60)	Percentage
1.	**Knowledge**		
	Low level	15	25.0
	High level	45	75.0
2.	**Attitude**		
	Low level	26	43.3
	High level	34	56.7
3.	**Practice**		
	Low level	10	16.7
	High level	50	83.3
4.	**Overall**		
	Low level	29	48.3
	High level	31	51.7

It is found from the table that in the dimension of Knowledge exactly three fourth (75%) of the respondents perceived high level on plastic usage and one fourth (25%) of the respondents perceived low level on plastic usage.It is inferred from the table that in the dimension of Attitude more than half (56.7%) of the respondents are having high level on plastic usage and less than half (43.3%) of the respondents perceived low level on plastic usage. It is observed from the table that in the dimension of Practice vast majority (83.3%) of the respondents are having high level on plastic usage and few (16.7%) of the respondents perceived low level on plastic usage. It is evident from the table that in the Overall dimension more that more than half (51.7%) of the respondents perceived high level KAP on plastic usage and less than half (51.7%) of the respondents perceived low level KAP on plastic usage.

Findings Related To Various Dimension Of Knowledge, Attitude And Practice On Plastic Usage

- ♣ Exactly three fourth (75%) of the respondents perceived high level on plastic usage in the dimension of Knowledge.
- ♣ More than half (56.7%) of the respondents are having high level on plastic usage in the dimension of Attitude.
- ♣ Vast majority (83.3%) of the respondents are having high level on plastic usage in the dimension of Practice.
- ♣ More than half (51.7%) of the respondents perceived high level KAP on plastic usage in the Overall dimension.

IV. Findings Related To Hypotheses

Research Hypothesis I

There is a significant difference between male and female respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference between male and female respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

Student 't'test was applied to test the above hypothesis, it was found that there is no significant difference between male and female respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 7)

Research Hypothesis Ii

There is a significant difference between the married and unmarried respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference between the married and unmarried respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

Student 't'test was applied to test the above hypothesis, it was found that there is no significant difference between the married and unmarried respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 8)

Research Hypothesis Iii

There is a significant difference between the nuclear family and joint family of the respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference between the nuclear family and joint family of the respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

Student 't'test was applied to test the above hypothesis, it is found that there is no significant difference between the nuclear family and joint family of the respondents with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 9)

Research Hypothesis Iv

There is a significant difference among the respondent's occupation with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference among the respondent's occupation with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

One way analysis was applied to test the above hypothesis, it is found that there is no significant difference among the respondent's occupation with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 10)

Research Hypothesis V

There is a significant difference among the respondents religion with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference among the respondents religion with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

One way analysis was applied to test the above hypothesis, it was found that there is no significant difference among the respondents religion with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 11)

Research Hypothesis Vi

There is a significant difference among the respondents educational qualification with regard to their Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant difference among the respondents educational qualification with regard to their Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

One way analysis was applied to test the above hypothesis, it was found that there is no significant difference among the respondents educational qualification with regard to their Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 12)

Research Hypothesis Vii

There is a significant relationship between the respondent's Age and Knowledge, Attitude and Practice on plastic usage

Null Hypothesis for Research Hypothesis

There is no significant relationship between the respondent's Age and Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

Karl Pearson's Coefficient of Correlation Test was applied to test the above hypothesis, it was found that there is a significant relationship between the respondent's Age and Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is rejected. (Table 13)

Research Hypothesis Viii

There is a significant correlation between the respondent's Annual Income and Knowledge, Attitude and Practice on plastic usage.

Null Hypothesis for Research Hypothesis

There is no significant correlation between the respondent's Annual Income and Knowledge, Attitude and Practice on plastic usage.

Testing of Hypothesis

Karl Pearson's Coefficient of Correlation Test was applied to test the above hypothesis, it was found that there is no significant correlation between the respondent's Annual Income and Knowledge, Attitude and Practice on plastic usage.

Inference

Hence the Null Hypothesis is accepted. (Table 14)

V. Discussion

The Researcher hereby giving some suggestions to the government, individuals and to the future researchers through the present study and general awareness.

Suggestions to the Government

- Various campaigns and awareness programmes should be conducted by the government to create awareness on illness of plastic bags usage.
- The government should impose heavy tax on plastic products especially with less microns and non-recyclable plastic products so that the production of those can be reduced
- Plastic bag production companies should be ordered to produce plastic bags with high microns, bio degradable, more durable so that it can be reused and there would be a chance for recycling.
- The government should support and encourage the production of environmental friendly alternative bags like jute bags, cloth bags, paper bags etc.
- There should be nationwide policy should be formed regarding the problem of plastic usage.
- Availability of alternative bags should be assured.
- Throwing of plastic wastes in public places should be fined.
- The government should have a clear watch over the overuse of non-recyclable plastic and the production of such.

Suggestions to Individuals

- People should give preference to alternatives of non-recyclable plastic bags.
- People should not buy or use plastic cups, plates or spoons, especially the 'use and throw' ones because mostly they are non-recyclable.
- People should try to reduce the use of plastic wrapped products. Although it would be difficult to do so but they should have an attempt to do such and they should have the awareness about plastic's ill effects.
- If an individual is supposed to choose between the plastic products he/she should go for the recyclable, reusable product. At least such awareness should the people have.
- People should try their best to reuse the plastic bags, bottles again and again instead of one use and disposal.

Suggestions to Future Researchers

- The present study covers the KAP on plastic usage only in the Tiruchirappalli Municipal Corporation and the future Researcher may concentrate more geographical area and more depth on KAP too.
- The future researcher should focus on awareness on ill effects of plastic usage through the questionnaire or at interview.

VI. Conclusion

Generalizing the present study's results indicated that in the plastic usage the people are in satisfactory in the dimension of Knowledge and Practice but only good in the aspect of Attitude but not satisfactory. The Attitude of the people should be changed towards the plastic usage. Also there are less numbers of questions only used in the dimension Practice in the data collection process. So it should be more concentrated also in the dimension of practice. The government, NGOs, social workers and also the people everyone should have their participation in protecting our environment. Everyone living in the planet are having the duty to protect it. But our generation is causing more and more adverse impacts to the Earth. The present generation do have more responsibility to protect our planet.

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