Plastic Pollution in India: An Evaluation of Public Awareness and Consumption Behaviour

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Abstract: Plastic is a cost-effective, durable and easy to manufacture material and its usefulness and convenience has resulted in its ever-increasing demand. The demand for plastics has also been fuelled by the rise of the 'use-and-throw' culture resulting in much of the plastics being designed to be disposed after just one use. These single-use plastics, mostly used as packaging material, account for a substantial chunk of the total plastics manufactured today. However, most plastic is non-biodegradable and it takes up to a thousand years for certain types of plastics to decompose resulting in accumulation of plastic waste, much of it ending up in oceans, causing adverse consequences marine life. The scale of plastic pollution has become alarming with millions of tonnes of plastic waste existing in oceans today. Single-use plastics are the responsible much of this plastic waste and individual consumption behaviour and habits must change to reduce their demand. Presently more than 120 states across the world have some form of regulation on the use of certain types of single-use plastic. India has adopted plastic waste management rules and is committed to abolish all single use plastics in India by the year 2022. While regulating the manufacture and use of these single-use plastics through bans and taxes can influence consumer behaviour, these regulatory policies would be most effective when coupled with increasing the public awareness regarding the risks and harmful effects of plastic pollution, the need for such regulatory policies and the significant impact individual consumption choices can have on reducing the individual's plastic consumption. This paper examines the public attitudes to combating plastic pollution in India, extent of awareness of plastic pollution, level of public satisfaction with government policy relating to plastic pollution and individual plastic consumption behaviour. The methodology adopted in this research paper is empirical and analytical and the authors will collect primary data through the means of a questionnaire to evaluate the public attitudes to combating plastic pollution in India, extent of awareness of plastic pollution, level of public satisfaction with government policy relating to plastic pollution and individual plastic consumption behaviour. The questionnaire was administered to a random sample of 110 respondents belonging to the age group of 18 – 77 years, selected from urban areas in India. The research paper shall examine the public attitudes to combating plastic pollution in India, extent of awareness of plastic pollution, level of public satisfaction with government policy relating to plastic pollution and individual plastic consumption behaviourand make recommendations for effective outreach programs regarding plastic pollution in India.

Keywords: Attitude to Plastic Pollution; Plastic Consumption Behaviour; Plastic Pollution Awareness.

Introduction

The convenience of plastic has resulted in its rampant use in almost all aspects of human life and while the usefulness of plastic cannot be underestimated, the resultant generation of plastic waste has created a massive environmental challenge, since one of plastics main advantage its long life due to its non-biodegradability also means that the all the plastic ever manufactured is still accumulating somewhere, much of it ending up in oceans. According to a Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection Report (Kershaw, 2015), majority of plastics "do not biodegrade but instead they photodegrade by breaking down into

small fragments called microplastics, which are small pieces of plastic found in the ocean, commonly defined as being < 5mm in diameter"[1].The demand has grown exponentially over the years and more than 50% of the plastic ever produced has been produced after the year 2000(Parker, 2018)[2]. This means that in the lasttwo decades we have generated than the preceding 5 decades. Plastic manufacturing is dependent on fossil fuels and according to a report(World Economic Forum, 2016), if current trends continue, "by 2050 the plastic industry may account for 20% of the world's total oil consumption"[3].Thus, plastic production also contributes to global warming and climate change in addition to its other adverse environmental impacts.The problem of plastic waste is exacerbated by the use of single use plastics meant for immediate disposal usually in the form of plastic packaging, carry bags, food packaging, plastic bottles, straws, cutlery and containers. In 2015, according to a study (Roland Geyer, 2017), 47% of the global plastic waste generated constituted plastic packaging [4].Mismanagement of plastic waste results it being ingested by birds and animals. It also results in toxic plastic chemicals entering the food chain leading to various adverse health impacts. Burning of plastics also results in toxic emissions resulting in adverse health impacts. Minimising the use of single use plastics would be an effective way of reducing plastic waste and its adverse impacts and many countries in the world now regulate single use plastics. According to a UN Environment report (Carole Excell, 2018) more than 120 counties regulate the use plastic bags, more than 25 counties have partial or full bans on the use of single use plastic, and almost 30 counties have enacted some type of tax on single-use plastics and more than 60 countries haveExtended Producer Responsibility (EPR) measures in place relating to plastics [5].On 5th June 2018, as per newspaper reports(Mohan, 2018), on the occasion of World Environment Day, India announced its commitment to abolish all single use plastics.[6] According to reports(Dutta, 2018),more than 20 Indian States have either a complete or partial ban on plastic bags, however these bans are not being properly implemented.[7] India has also adopted the Plastic Waste Management Rules, 2016 (Government of India, 2016)which have increased the thickness of plastic carry bags from 40 to 50 micron, introduced a collect back system based on Extended Producers Responsibility, provided for Manufacture and use of non-recyclable multi-layered plasticand also imposed a pre-registration fees on shopkeepers and street vendors willing to provide plastic carry bags on payment of plastic waste management fee of minimum Rs. 48, 000/- at the rate of Rs. 4,000/- per month [8]. The amended Plastic Waste Management Rules of 2018 (Government of India, 2018), laid down that the phasing out of Multi-layered Plastic (MLP) is now applicable to MLP, which are "non-recyclable, or non-energy recoverable, or with no alternate use"(Government of India, 2018) [9]. In addition to proper implementation of laws relating to plastic waste management, the problem of plastic pollution, especially due to the use of single-use plastics can also be addressed by modifying individual consumption behaviour. Raising public awareness regarding the scope of plastic pollution, the risks, harmful effects of plastic and domestic regulatory policies would be effective in promoting attitudes and consumption habits consistent with reducing plastic pollution and the Government of India, must undertake initiatives to raise awareness regarding the same.

Methodology

This paper examines the public attitudes to combating plastic pollution in India, extent of awareness of plastic pollution, level of public satisfaction with government policy relating to plastic pollution and individual plastic consumption behaviour. The methodology adopted in this research paper is empirical and analytical and the authors have collected primary data through the means of a questionnaire to evaluate the public attitudes to combating plastic pollution in India, extent of awareness of plastic pollution, level of public satisfaction with government policy relating to plastic pollution and individual plastic consumption behaviour. The questionnaire was administered to a random sample of 110 respondents belonging to the age group of 18 – 77 years, selected from urban areas in India. The questionnaire had 40 questions and was divided into 6 parts

a. Part I had 5 questions related to attitudes to plastic pollution.
b. Part II had 5 questions on awareness regarding scope of plastic pollution
c. Part III 5 questions on awareness regarding harmful effects of plastic pollution
d. Part IV had 5 questions on awareness regarding India's response to plastic pollution
e. Part V had 5 questions on evaluation of India's response to plastic pollution
f. Part VI 15 questions on consumption behaviour.

Part I had questions number 1-5 related to attitude to plastic pollution and each question had 5 options for indicating their opinion on the statements given. These options included strongly agree, agree, neutral, disagree and strongly disagree options. For questions 1,3,4 and 5 the answer that corelated with the most positive attitude towards combating plastic pollution was strongly agree and was allotted 5 points and the answer that corelated with the least positive attitude towards combating plastic pollution was allotted a score of 1 point. For question number 2 this

order was reversed. Thus, each question related to attitude to plastic pollution was scored out of 25 points. Part II had question number 6-10 related to awareness regarding scope of plastic pollution. Each question had only yes or no options. Scores were assigned to all questions with 1 point for each response indicating awarenessregarding scope of plastic pollution. Part III had question number 11-15 related to awareness regarding harmful effects of plastic pollution. Each question had only yes or no options. Scores were assigned to all questions with 1 point for each response indicating awareness regarding harmful effects of plastic pollution. Part VI had question number 16-20 related to awareness regarding India's response to plastic pollution. Each question had only yes or no options. Scores were assigned to all questions with 1 point for each response indicating awareness regarding India's response to plastic pollution. Part V had question number 21-25 related to evaluation of India's response to plastic pollution. Each question had 6 options. These options included i. Much less needs to be done showing highest level of satisfaction with existing government policy which was allotted 5 points; ii. less needs to be done showing high level of satisfaction with existing government policy which was allotted 4 points; iii. It is adequate showing satisfaction with existing government policy which was allotted 3points; iv. More needs to be done showing dissatisfaction with existing government policy which was which was allotted 2 points; v. Much more needs to be done showing high dissatisfaction with existing government policy which was which was allotted 1 point; and vi. Not aware showing lack of awareness of any governmental policy which was allotted 0 points. Part VI had question number 26-40 related to plastic consumption behaviour. Each question had yes, no and not aware options. Scores were assigned to all questions with 1 point for each consumption habit or behavior that contributes to reduction of individual plastic waste.

Discussion and Findings

1.1. **Demographic Details of Respondents.** The demographic details regarding age, gender, highest level of education and type of employment were collected from the respondents. As can be seen from Table1 below, disproportionately high number of the respondents (61.8%) are from the age group of 18-27 and the lowest number of respondents (1.8%) are from the age group of 68-77.

Table 1: Age of Respondents

Age Group	Number of respondents	Percentage of Respondents
18-27	68	61.8%
28-37	24	21.8%
38-47	6	5.5%
48-57	5	4.5%
58-67	5	4.5%
68-77	2	1.8%

As can be seen from Table 2 below, the percentage of female respondents is higher with 52.7% respondents being female.

Table 2: Gender of the Respondents

Gender	Number of respondents	Percentage
Male	58	52.7%
Female	52	47.3%

As can be seen from Table 3 below, the highest percentage of respondents 46.4% have post-graduation or above as the highest level of education. The second highest percentage of respondents 39.1% have graduation

Table 3: Highest Level of Education of the respondents

Highest Level of Education	Number of respondents	Percentage
High School or below	13	11.8%
Diploma	3	2.7%
Graduate	43	39.1%
Post Graduate and Above	51	46.4%

As can be seen from Table 4 below majority of the respondents (44.5%) are students and the least number of respondents (1.8%) are retired.

Table 4: Type of Employment of the respondents

Type of Employment	Number of respondents	Percentage
Salaried	39	35.5%
Business Owner	7	6.4%
Self Employed Professional	10	9.1%
Student	49	44.5%
Retired	2	1.8%
Home Maker	3	2.7%

Attitude to Combating Plastic Pollution. As can be seen from Table5 below,majority of the respondents show a positive attitude towards combating plastic pollution with more than 82% respondents strongly agreeing that Plastic Pollution has become an international crisis and adversely effects human and animal life. More than 75% respondents strongly agree that Plastic pollution in India is a worrying problem and 63% respondents consider reducing plastic pollution personally important to them. Less than 6% respondents agree that no ban should be imposed on plastic packaging.

Table 5: Attitude to Combating Plastic Pollution

Attitude to Combating Plastic Pollution	Plastic pollution has become an international crisis	Plastic pollution in India is a very worrying problem	Plastic pollution adversely effects plant, animal and human life	Plastic packaging is necessary, and no ban should be imposed on it	Reducing plastic pollution is very important to me personally
Strongly agree	82%	77%	83%	1%	63%
Agree	16%	19%	16%	5%	33%
Neutral	1%	4%	0%	12%	4%
Disagree	1%	0%	0%	49%	1%
Strongly Disagree	0%	0%	1%	33%	0%

1.2. Awareness of Scale of Plastic Pollution. As can be seen from the Table 6 and Fig.1 below, majority of the respondents do not have adequate understanding of the scale of plastic pollution with less than 52% respondents being aware of the global rate of production of plastic and less than 28% respondents being aware of the total plastic recycled in the world. However, more than 60% respondents show an awareness regarding single use plastic, extent of plastic waste in oceans and microplastics.

Table 6: Awareness of Scale of Plastic Pollution

Awareness of scale of plastic pollution	Yes	No
Were you aware that the world produces more than 400 million tons of plastics every year?	51.8%	48.2%
Were you aware that only 9% of the nine billion tonnes of plastic the world has ever produced has been recycled?	27.3%	72.7%
Were you aware that the largest share of plastic produced is used in packaging as single-use material designed for immediate disposal?	63.6%	36.4%
Were you aware that 150 million tonnes of plastic waste,exists in oceans today?	61.8%	38.2%
Were you aware that most plastics slowly break down into smaller fragments known as microplastics?	73.6%	26.4%

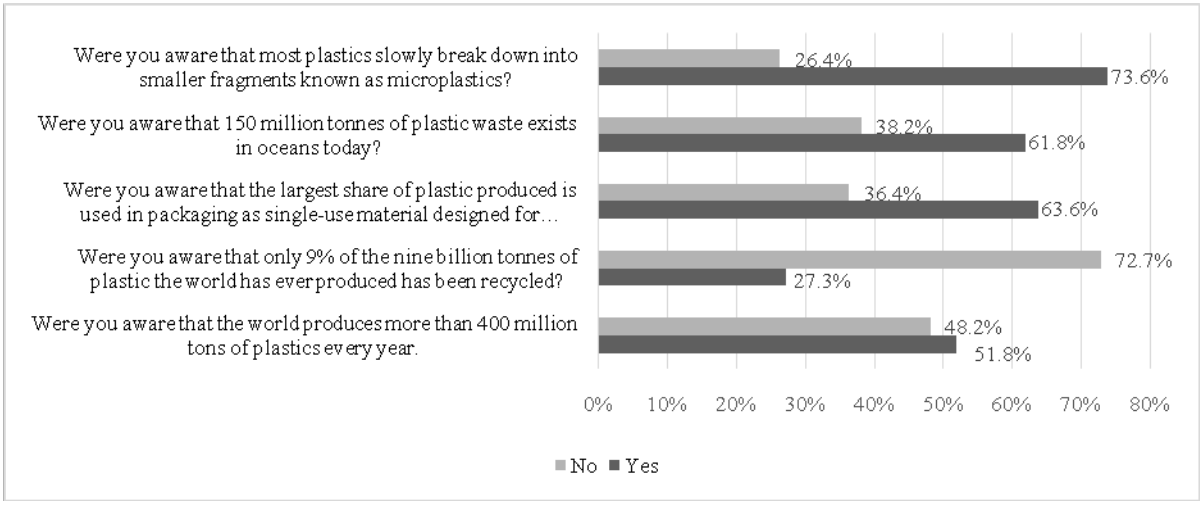

Figure 1: Awareness of Scale of Plastic Pollution

Awareness of Harmful Effects of Plastic. As can be seen from the Table7 and Fig. 2 below majority of the respondents are aware of the harmful effects of plastic with more than 87% being aware of plastic being ingested by animals and birds and the harmful effects of burning plastic waste and more than 67% being aware of the toxic chemicals entering the food chain via plastic as well as the increased risk of vector borne diseases from plastic waste clogging drains etc. However less than 46% were aware of the harmful effects of Styrofoam on human health.

Table 7: Awareness of Harmful Effects of Plastic

Awareness of harmful effects of plastic	Yes	No
Were you aware that high concentrations of plastic materials, have been found blocking the airways and stomachs of hundreds of species who mistake them for food?	87.3%	12.7%
Were you aware that plastic bags can increase the transmission of vector-borne diseases like malaria by clogging sewers and providing breeding grounds for mosquitoes and pests?	68.2%	31.8%
Were you aware that here is evidence that the toxic chemicals added during the manufacture of plastic transfer to animal tissue, eventually entering the human food chain?	67.3%	32.7%
Were you aware that styrofoam products, which contain carcinogenic chemicals like styrene and benzene, are highly toxic if ingested, damaging	45.5%	54.5%

the nervous systems, lungs and reproductive organs and that the toxins in Styrofoam containers can leach into food and drinks?		
Were you aware that burning plastic waste releases harmful gases like furan and dioxin which can cause cause asthma and certain types of cancer?	87.3%	12.7%

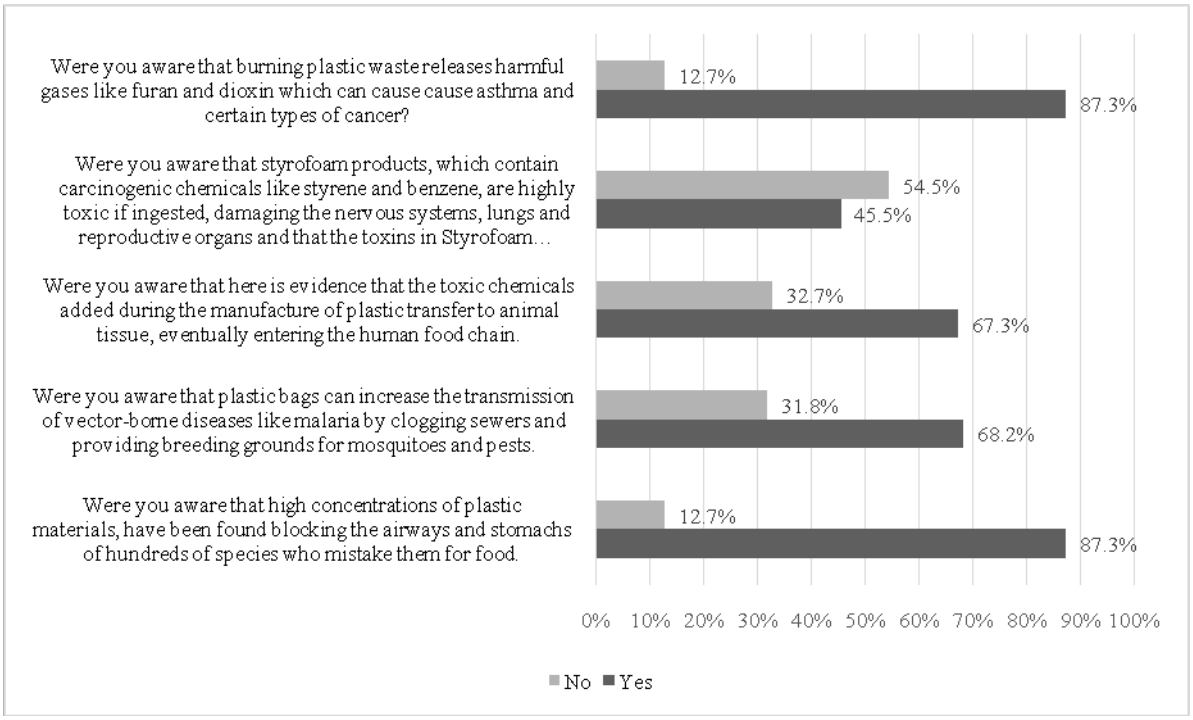

Figure 2: Awareness of Harmful Effects of Plastic

Awareness of India's Response to Plastic Pollution. As can be seen from Table8 and Fig. 3 below majority of the respondents do not have adequate awareness regarding India's response to plastic pollution with less than 40% being aware of India's commitment to abolish single use plastics by 2022, and less than 32% being aware of plastic waste management rules, 2016 or the concept of extended producer responsibility. Further less than 65 % respondents are even aware of the plastic bans imposed in more than 20 states in India and less than 68% being aware of the extensive single use plastic ban imposed on Delhi by the National Green Tribunal.

Table 8: Awareness of India's Response to Plastic Pollution

Awareness of India's response to plastic pollution	Yes	No
Were you aware of India's commitment to abolish all single use plastics by 2022?	38.2%	61.8%
Were you aware that more than 20 Indian States have imposed a ban on use of plastic carry bags?	64.5%	35.5%
Were you aware that the National Green Tribunal has banned all forms of disposable plastics including bags, cutlery, cups, plates and other single-use items in Delhi since 2017?	68.0%	32.0%
Are you aware of the plastic waste management rules, 2016?	30.0%	70.0%
Are you aware of the term "extended producer responsibility"?	32.0%	68.0%

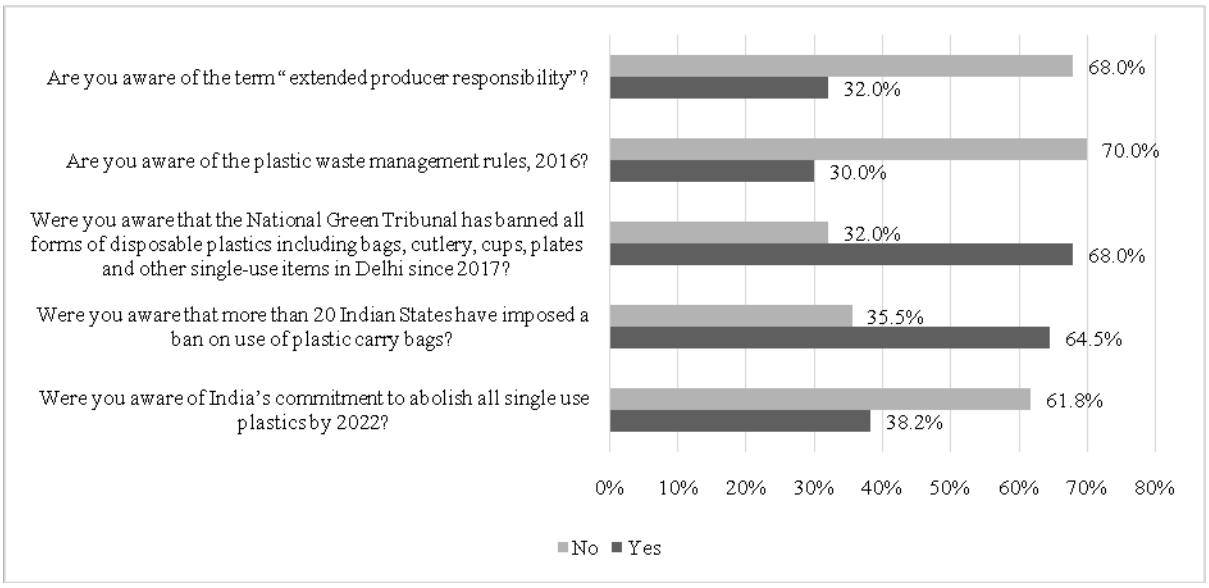

Figure 3: Awareness of India's Response to Plastic Pollution

Evaluation of India's response to plastic pollution

As can be seen from Table 9 and Fig.4 below, majority of the respondents are not satisfied with the government's response to plastic pollution with more than 65% believing that much more needs to be done. More than 60% believe that much more needs to be done regarding reducing plastic waste and regulating disposal and recycling of plastic waste and more than 54% believe that much more needs to be done regarding implementation of plastic bans across the country and for disseminating information relating to harmful effects of plastic.

Table 9: Evaluation of India's response to plastic pollution

Evaluation of India's response to plastic pollution	Much more needs to be done	More needs to be done	It is adequate	Less needs to be done	Much less needs to be done	Not aware
Are you satisfied with the government's response to address plastic pollution?	65.5%	26.4%	3.6%	0.0%	3.6%	0.9%
Are you satisfied with the government's efforts for disseminating information relating to harmful effects of plastic?	59.1%	31.8%	5.5%	1.8%	1.8%	0.0%
Are you satisfied with the government's efforts for reducing plastic waste?	63.6%	30.9%	2.7%	1.8%	0.9%	0.0%
Are you satisfied with the government's efforts for regulating disposal and recycling of plastic waste?	62.7%	29.1%	4.5%	1.8%	0.9%	0.9%
Are you satisfied with the government's efforts for implementation of plastic bans across the country?	54.5%	35.5%	8.2%	0.9%	0.9%	0.0%

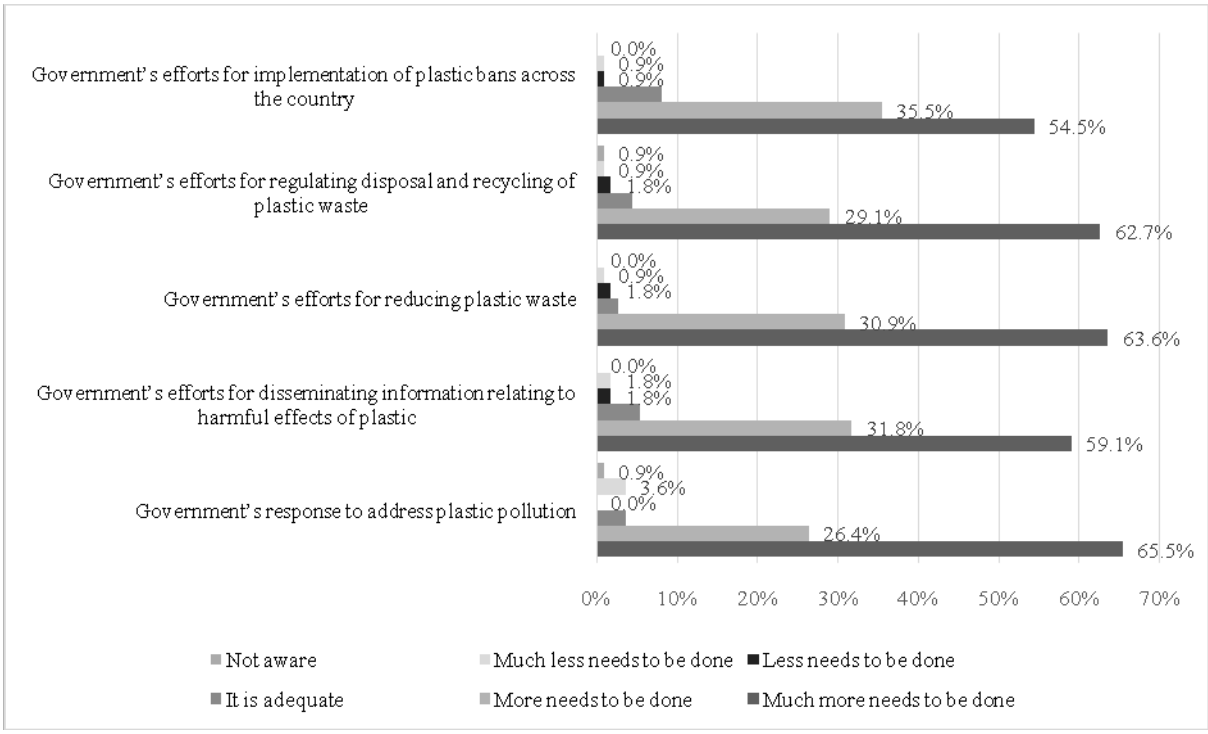

Figure4: Evaluation of India's response to plastic pollution

Individual Consumption Behaviour. As can be seen from the Table and Figure below majority of the respondents either do not adopt consumption behaviour consistent with reduction of plastic waste or are not aware of the same with more than 50% adopting consumption behaviour consistent with reduction of plastic waste only in 6 out of 15 situations that is only 40% of the time.

Table 10: Individual Consumption Behaviour

Questions on Consumption behaviour	yes	no	not aware
26. Do you segregate your waste into three streams: biodegradable, dry and domestic hazardous waste?	44%	45%	12%
27. Do you avoid single-use plastic bags by carrying your own reusable cloth/jute bag and/or return single-use bags to grocery stores for them to recycle?	88%	10%	2%
28. Do you recycle the plastics you no longer need?	35%	56%	8%
29. Do you ask food delivery companies to exclude single use plastic cups and cutlery from deliveries and/or carry your own cutlery to places that serve food with plastic cutlery?	36%	57%	6%
30. Do you bring your own reusable coffee cup when going out to get beverages, refuse plastic straws and/or bring your own reusable stainless steel, glass, or bamboo straws to use instead of plastic ones?	25%	71%	4%
31. Do you carry water in reusable water bottles instead of buying plastic bottles and/or purchase Beverages in Glass Bottles instead of Plastic?	75%	23%	2%
32. Do you use re-fillable containers for food and drinks, avoid using cling wrap for food and/or bring a reusable container to a restaurant with you when you expect to have leftovers?	52%	42%	6%

33. Do you buy items in bulk to reduce the amount of plastic packaging waste and/or avoid purchasing products in travel size packing?	57%	40%	3%
34. Do you choose clothing and other personal items made from earth-friendly materials instead of microfibers and other synthetic fibres, which pollute our water?	56%	33%	11%
35. Do you pick up trash in your neighbourhood and when visiting parks and beaches?	49%	48%	3%
36. Do you avoid chewing gum(which is made of synthetic rubber which is a plastic itself)?	67%	25%	8%
37. Do you avoid using plastic based diapers and sanitary napkins opting for biodegradable alternatives instead?	25%	39%	35%
38. Do you use zippered fabric bags for taking dry cleaned clothes instead of it being sheathed in plastic?	47%	32%	21%
39. Do you boycott beauty products containing microbeads (little plastic scrubbers) that cannot be recycled and pollute water bodies?	38%	22%	40%
40. Do you use solid or powdered versions of the cleaning and personal care products that you use such as body and hair shampoo, conditioner, deodorant and toothpaste?	35%	46%	18%

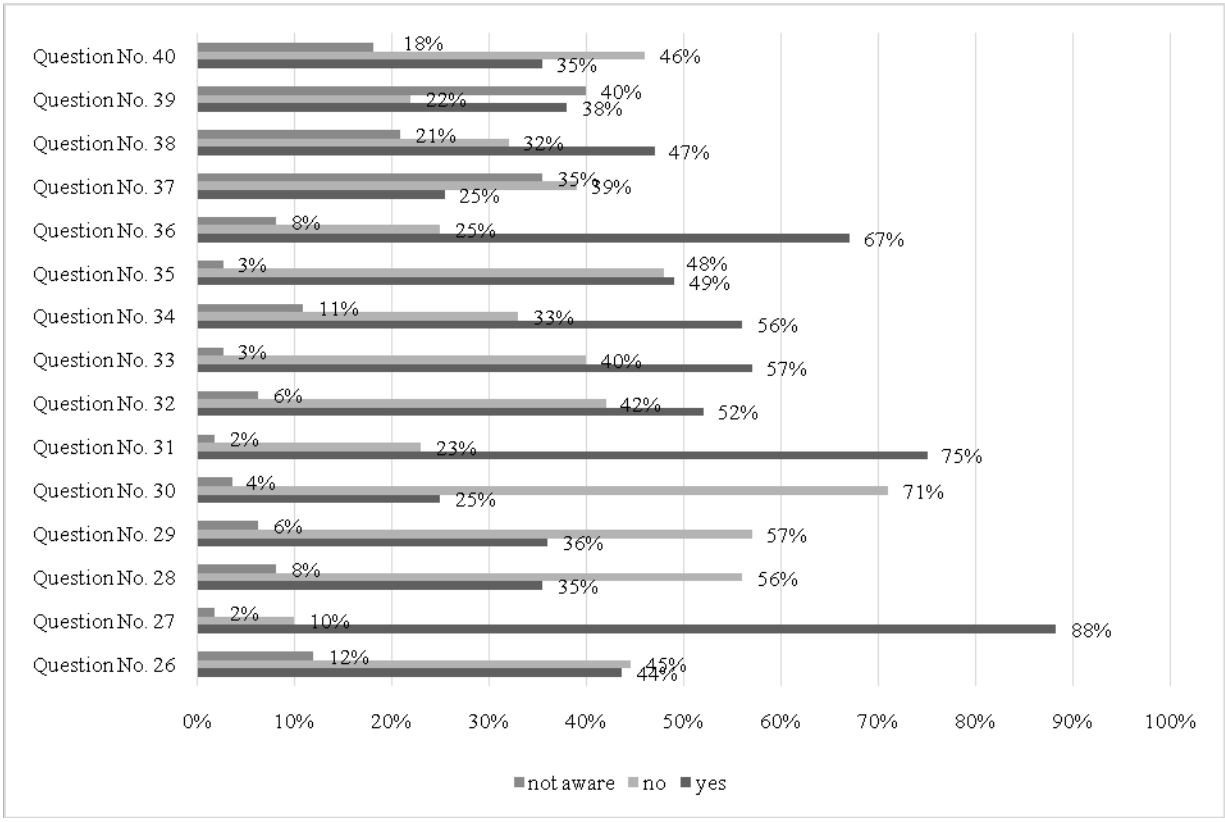

Figure5: Individual Consumption Behaviour

Consumption Behaviour Score. The total individual consumption behaviour score was calculated by adding the total score obtained by an individual out of a maximum of 15 points. As can be seen from the Table11 and Fig. 6 below the lowest consumption behaviour score was 1 and the highest was 15. The mean consumption behaviour

score was 7.445 and the median consumption behaviour score was 7. Thus, 52.8% of the respondents scored less than 50% on individual plastic consumption behaviour.

Table 11: Consumption Behaviour Score

Consumption Behaviour Score	Frequency	Percent
1	2	1.8
2	2	1.8
3	9	8.2
4	6	5.5
5	9	8.2
6	10	9.1
7	20	18.2
8	11	10.0
9	15	13.6
10	8	7.3
11	10	9.1
12	4	3.6
13	1	0.9
14	2	1.8
15	1	0.9

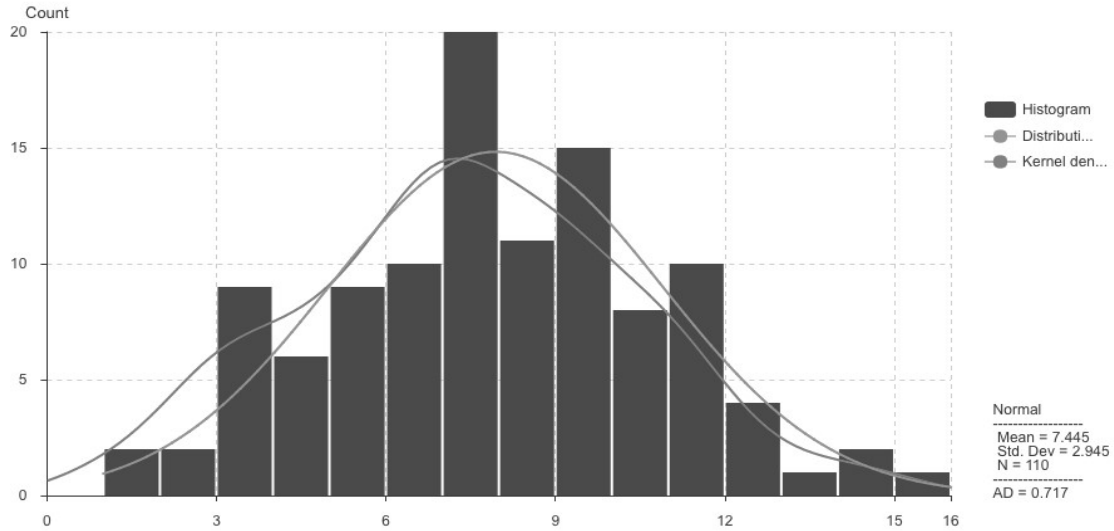

Figure6: Consumption Behaviour Score

Responses by Age. As can be seen from the Table12 and Fig.7 below the mean percentage score to all 6 sections of the questionnaire are tabulated across various age groups. The most positive attitude to combating plastic pollution is shown by the age group of 38-47 with a 98% mean score. The age group of 48- 57 is the least satisfied with the government's response to plastic pollution at 23% mean satisfaction percentage. The highest awareness regarding the scale, harmful effects of plastics and awareness about India's response is shown by the age group of 58-67 and they also have the highest mean consumption behaviour scores at 52%.

Table 12: Mean Scores by Age

Age	Attitude to plastic Pollution	Awareness of scale of plastic pollution	Awareness of harmful effects of plastic	Awareness about India's response to plastic pollution	Satisfaction	Consumption behaviour
18-27	90.9%	60.0%	70.4%	48.0%	29.9%	50.1%
28-37	92.5%	51.6%	67.4%	44.0%	28.2%	51.7%
38-47	98.0%	46.6%	83.2%	40.0%	40.6%	47.7%
48-57	93.6%	24.0%	72.0%	48.0%	23.2%	38.7%
58-67	92.0%	72.0%	96.0%	52.0%	37.6%	52.0%
68-77	94.0%	20.0%	30.0%	20.0%	26.0%	33.3%

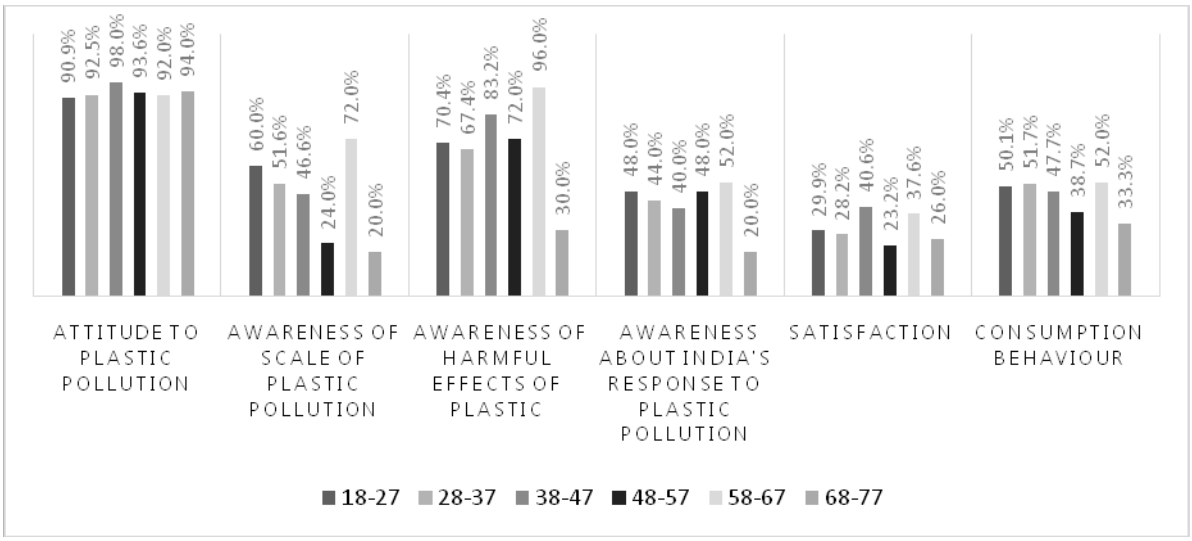

Figure7: Mean Scores by Age

Responses by Gender. As can be seen from the Table13 and Fig. 8 below, femaleshave scored higher mean scores in all aspects. The mean score of females on attitude to combating to plastic pollution is 94.3%, awareness of scale of plastic pollution is 58.4%, awareness of harmful effects of plastic pollution is 78%, awareness of India's response to plastic pollution is 53.4% and mean consumption behaviour score is 53.3%. Women also report less satisfaction with the government's policies related to plastic pollution at 29.8%.

Table 13: Mean Scores by Gender

Gender	Attitude to plastic Pollution	Awareness of scale of plastic pollution	Awareness of harmful effects of plastic	Awareness about India's response to plastic pollution	Satisfaction	Consumption behaviour
female	94.3%	58.4%	78.0%	53.4%	29.8%	53.3%
male	89.7%	53.0%	64.8%	40.2%	30.3%	46.0%

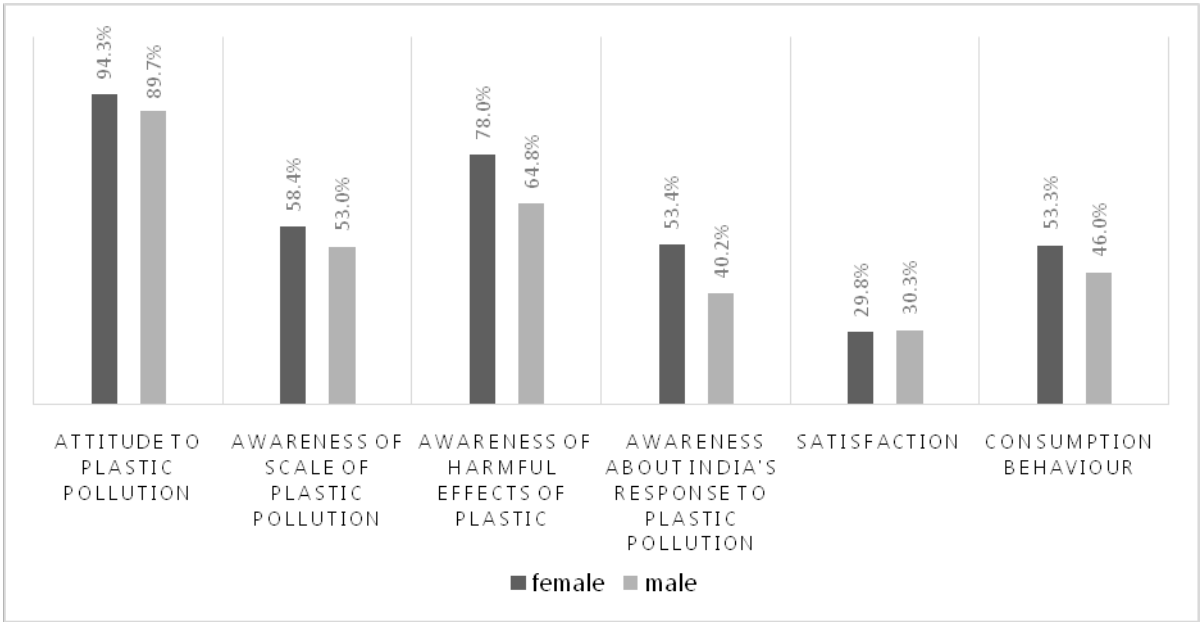

Figure8: Mean Scores by Gender

Responses by Highest level of Education. As can be seen from the Table and Figure below respondents with post-graduation as the highest level education have the most positive attitude to combating to plastic pollution (93.6%) whereas respondents with high school as highest level education have scored higher mean scores inawareness of scale of plastic pollution (75.2%), awareness of harmful effects of plastic pollution (87.6%), awareness of India's response to plastic pollution (61.4%) as well as consumption behaviour (60%). Graduate respondents report the least amount of satisfaction with the government's policies related to plastic pollution (28.3%).

Table 14: Mean Scores by Highest level of Education

Highest level of education	Attitude to plastic Pollution	Awareness of scale of plastic pollution	Awareness of harmful effects of plastic	Awareness of India's response to plastic pollution	Satisfaction	Consumption behaviour
graduate	89.8%	54.8%	60.0%	43.6%	28.3%	45.5%
post graduate or above	93.6%	50.4%	66.8%	47.0%	31.2%	50.0%
diploma	93.3%	66.6%	70.8%	13.2%	30.6%	53.3%
high school or below	92.0%	75.2%	87.6%	61.4%	31.7%	60.0%

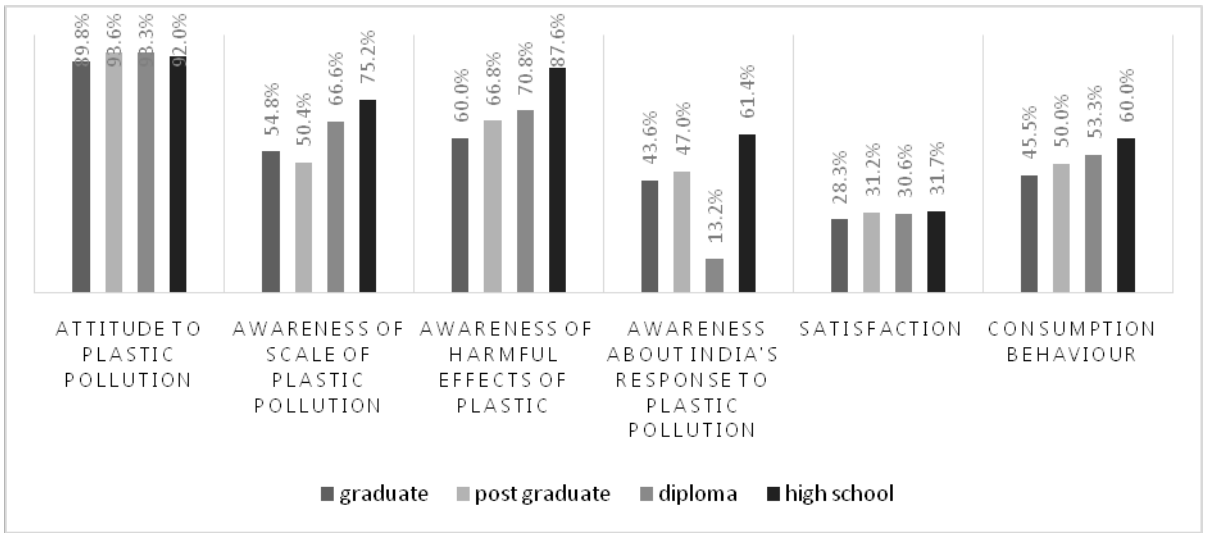

Figure9: Mean Scores by Highest level of Education

Responses by Type of Employment. As can be seen from the Table15 and Fig.10 below retired respondents show the most positive attitude to combating to plastic pollution (98%) and report the least amount of satisfaction with the government's policies related to plastic pollution (26%). Homemakers show the highest level of awareness of harmful effects of plastic pollution (80%). Student have scored the highest mean scores in awareness of scale of plastic pollution (61.6%), awareness of India's response to plastic pollution (48.8%) and they have the highest mean consumption behaviour scores (52%).

Table 15: Mean Scores by Type of Employment

Type of employment	Attitude to plastic Pollution	Awareness of scale of plastic pollution	Awareness of harmful effects of plastic	Awareness ofIndia's response to plastic pollution	Satisfaction	Consumption behaviour
home maker	94.7%	26.6%	80.0%	40.0%	34.4%	35.5%
retired	98.0%	40.0%	60.0%	30.0%	26.0%	40.0%
self employed	92.0%	44.0%	72.0%	46.0%	27.6%	42.7%
business owner	90.8%	48.4%	68.4%	40.0%	37.6%	46.7%
salaried	92.0%	54.0%	68.2%	46.0%	30.0%	50.1%
student	91.5%	61.6%	73.4%	48.8%	29.2%	52.5%

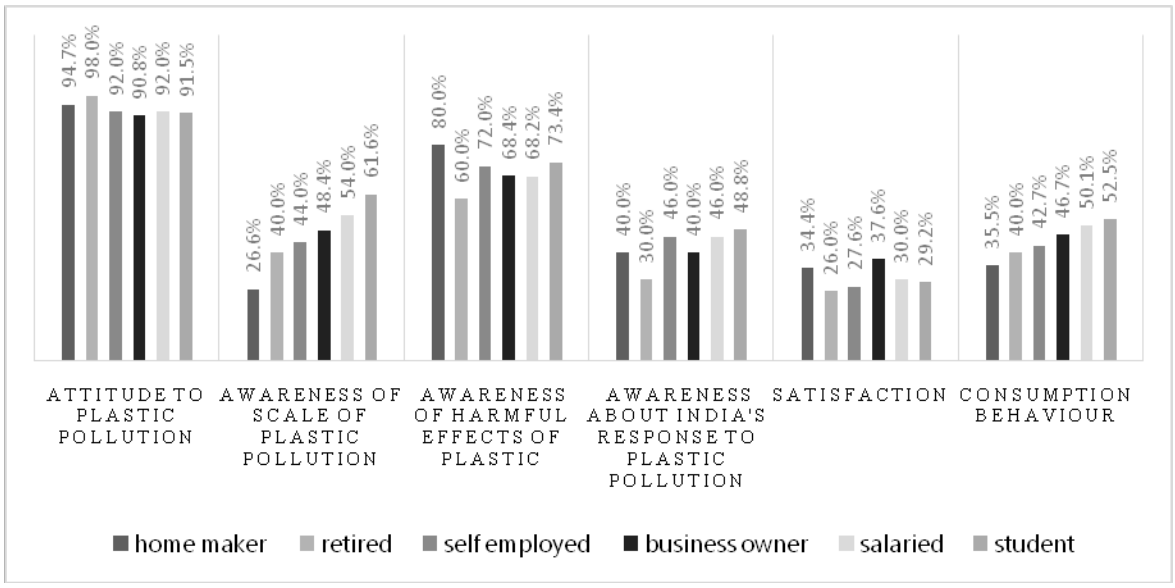

Figure10: Mean Scores by Type of Employment

Limitations of the Study

The present study has been restricted to only urban respondents and been conducted in the English language. Further the questionnaire was administered in an entirely paperless manner by relying on google forms. This has resulted in the study targeting only the educated and computer literate individuals situated in urban cities. Computer literacy and access has also resulted in the underprivileged section of the population in urban cities having been excluded. The study also sees a disproportionately large response (more than 61%) from the youth aged 18- 27 years. It also sees a disproportionately large response from students (more than 44%). The attitude and awareness quotient regarding plastic pollution and their consumption behavior patterns therefore does not represent the entirety of consumers in India.

Conclusion

On the basis of the above discussion it is clear that in urban cities, there is a positive attitude towards combatting plastic pollution and there exists adequate awareness regarding scale of plastic pollution and the harmful effects of plastic pollution. However, the awareness of India's response to plastic pollution is abysmally low. This can be attributed to the fact that while international organisations such as UN Environment have massive outreach programs related to scale of plastic pollution and its harmful impacts, but similar programs are not being conducted related to India's response to plastic pollution, leading to lack of awareness regarding the same. Due to these international outreach programmes, there also exists a positive attitude to combat plastic pollution, however owing to the lack of outreach programs regarding reduction of plastic pollution in the Indian market circumstances, despite such positive attitude, the actual individual consumption behaviour consistent with reduction of plastic waste is also very low. This conclusion is buttressed by the fact that the majority of the respondents are deeply unsatisfied by the government's response to addressing plastic pollution, including with regard to government's response in disseminating information relating to plastic pollution and implementation of plastic bans.It can be seen that women respondents have scored higher in all areas of awareness and show more positive consumption behaviour as compared to men. They also report lower satisfaction with government policies related to plastic pollution. It can therefore be concluded that future outreach programs relating to plastic pollution targeting men should be undertaken. It can also be seen that the younger and student respondents have shown the higher relating to a positive attitude to combating plastic pollution, awareness regarding the scale, harmful effects of plastics and awareness about India's response as also higher consumption behaviour scores. It can therefore be concluded that the school and college curriculums and/or classroom and extracurricular events are effective in raising awareness relating to the problem of plastic pollution. It is therefore suggested that future outreach programs for the older urban and rural population should also be initiated, through television, radio and social media to target all sections of the population including the illiterate populations.

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