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Intuitions of iGeneration—An Empirical Approach on Plastic Waste Management

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Abstract: The plastic waste is the promising environmental pitfall faced across the globe, no matter what India is not exempted. Today we are having digital nativity among the Gen z or iGeneration leads to diverse environmental behavioral pattern. The study was focused area of Bangalore the reason which it is filled with the multi-cultural and diverse community. The study collects the structured questionnaire considering 942 samples. The novelty of the article through a light on identification of major information sources influencing behavioral change, gender-based differences in environmental concern, and limited awareness of health impacts. The methodology incorporated Cronbach Alpha, factor analysis, correlation, and analysis of variance (ANOVA) to ensure empirical rigor and interpret complex relationships in behavior and awareness. The study also limelight to the policy makers to leveraging the educational institutions to mandate to conduct the sustainable drive practices among the growing iGeneration.

Keywords: Plastic waste; iGeneration; Awareness; Beahviour; Waste control

1 Introduction

Plastic is a solid-forming substance composed of synthetic or semi-synthetic organic components. Plasticity is the ability of a material to deform without breaking. The term "polymers" derives from their plastic properties. Most plastics are polymers with molecular weight, though they may also contain other chemicals. They are typically man-made and mostly composed of petrochemicals. However, as worries rise, there is a growing tendency toward producing plastics from sources such as corn-based polylactic acid or cotton linter-derived cellulosic polymers. Plastics have found their way into a variety of items due to its low cost, ease of manufacture, adaptability, and resistance to water. Plastics can be found in objects like paperclips or even highly complicated applications such as aircraft.

Changing lifestyles, more disposable income, rapid unplanned urbanization, and a lack of rules have all contributed to growing volumes of urban solid garbage in the country. India's per person per day average would rise as the country's yearly rubbish production is projected to reach 543 million tonnes by 2050 (Times of India). Plastic garbage has recently been one of the most concerning issues for the general public, society, and government organizations. Plastic has become an integral part of everyone's lives and managing it has become a mammoth undertaking for governments.

1.1 Types of Plastic

People generally believe that all varieties of plastic have the same or comparable qualities. However, plastics are classified into distinct categories based on their chemical composition and features. The first step is to understand the fundamentals of the most common forms of plastic, which are numbered based on their recycling codes. The following are the various varieties of plastic.

• Acrylic or polymethyl methacrylate (PMMA),

• Polycarbonate (PC), and
• Polyethylene (PE).
Here are the common polyethylene densities:
• Low-Density Polyethylene (LDPE),
• Medium-Density Polyethylene (MDPE),
• High-Density Polyethylene (HDPE),
• Ultra High Molecular Weight Polyethylene (UHMWPE),
• Polypropylene (PP),
• Polyethylene Terephthalate (PETE or PET),
• Polyvinyl Chloride (PVC), and
• Acrylonitrile-Butadiene-Styrene (ABS).

1.2 Plastic Waste

Plastic waste is defined as any discarded or abandoned plastic material that is no longer useful and was disposed of illegally. Plastic trash can take many forms, including packaging materials, single-use plastics such as bottles and bags, and industrial or consumer plastic items. Plastic garbage has become a global concern due to its harmful effects on the environment and human health. Here are some essential points regarding plastic waste:

(1) Production and consumption: Plastic manufacture has grown dramatically over the years, driven by its durability, adaptability, and low cost. However, the excessive use and disposal rates lead to the accumulation of plastic garbage.

(2) Slow decomposition: Plastics are made from synthetic materials that are designed to be long-lasting and resistant to deterioration. Plastics swallow hundreds of years to breakdown in nature, lead to in long-term garbage accumulation in landfills and other settings.

(3) Wrong discarding: Ineffective waste administration arrangements and mortal behavior repeatedly result in plastic rubbish being incorrectly disposed of, ending up in environments such as rivers, lakes, and the ocean. Plastic garbage can also be seen on roadways, parks, and other public spots.

(4) Environmental impact: Plastic trash has numerous negative effects on the ecosystem. It pollutes natural habitats, degrades ecosystems, and endangers biodiversity. Plastic trash can affect wildlife by causing ingestion, entanglement, and habitat disruption.

(5) Microplastics: Plastic waste degrades over time into smaller bits identified as microplastics, which evaluate less than 5 millimetres. These bits are everywhere in the environment and can be gotten in soil, water bodies, and even the air. Microplastics can appear the food chain and potentially risk human health.

(6) Resource depletion: Plastic making needs the utilization of fossil fuels, mainly petroleum and organic gas. This causes resource reduction and the release of greenhouse gases, raising climate change.

(7) Recycling challenges: While recycling is viewed as a solution to plastic waste, reprocessing rates for plastics are repeatedly poor. Challenges include the difficulty of classing distinctive categories of plastic, disgrace of plastic waste, and regulated recycling infrastructure.

1.3 Harmful Effects of Plastic Waste

Plastic garbage has numerous destructive consequences for the ecosystem, human health, and animals. Here are some of the meaningful effects of plastic waste.

(1) Green pollution: Plastic rubbish is a major giver to conservational pollution. Plastics degenerate over hundreds of years, and when they pile in landfills or end up in bodies of water, they emit harmful chemicals and toxins into the ecosystem. Pollution has an effect on soil, water, and ecosystem health.

(2) Marine living impact: Plastic toxic waste in the oceans poses a dangerous risk to marine life. Animals including sea turtles, seagulls, dolphins, and whales can get trapped in plastic waste or mistake it for food. Swallowing plastic can lead to internal damage, obstructions, and even death. Likewise, microplastics (little plastic particles) are ate by small species, entering the marine food chain and ultimately reaching people.

(3) Water contamination: Plastics can filter toxic materials into water sources, harmful both surface and groundwater. Bisphenol A (BPA) and phthalates are two combinations observed in certain plastics that can have negative effects on human health, including hormone changes and developmental problems.

(4) Air pollution: When plastic garbage is burned outside or in poorly managed burning plants, poisonous gases and pollutants are released into the atmosphere. These emissions confine toxic substances and contribute to air pollution, which can have destructive influences on human health and the ecosystem.

(5) Oil degradation: Improper plastic trash dumping in landfills can pollute soil. The toxins radiated by plastics can enter the soil, altering its fertility and disrupting the balance of microorganisms and minerals necessitated for good plant growth.

(6) Climate change: Plastics are supplied, transported, and persuaded of in ways that emit greenhouse gases. These emissions impact to climate change and global warming, affecting ecosystems and people across the globe.

(7) Economic impact: Communities and governments face substantial costs when it comes to managing plastic garbage. Cleaning up plastic contamination, managing landfills, and creating recycling arrangement requires considerable financial resources that may be given to other important services.

2 Literature Review

Plastic waste management has become a significant global environmental concern, particularly in rapidly urbanizing regions where consumption patterns and waste generation are continuously increasing. Research [1, 2] indicated that effective plastic waste management requires a comprehensive understanding of environmental conditions, socio-economic factors, and policy frameworks that influence waste generation and disposal practices. Waste generation is largely associated with human consumption behavior and lifestyle patterns, emphasizing the need for sustainable consumption practices and responsible waste disposal mechanisms.

Public awareness and attitudes toward plastic consumption play an important role in determining waste management behavior. Studies examining consumer perceptions revealed that individuals' attitudes toward plastic usage and environmentally friendly alternatives significantly influence their waste disposal practices and willingness to adopt sustainable behaviors [3, 4]. Demographic characteristics and social factors also affect individuals' environmental awareness and responses to plastic pollution challenges.

Educational initiatives have been widely recognized as an important strategy for improving knowledge and attitudes toward plastic waste management. Environmental education programs, particularly those implemented in schools and universities, have demonstrated the potential to enhance students' understanding of plastic pollution and encourage environmentally responsible behavior [5–7]. However, research suggested that while educational interventions often improve knowledge levels, translating awareness into consistent pro-environmental behavior remains a challenge.

Several studies [8–10] have also emphasized the importance of community participation and public engagement in improving waste management systems. Positive attitudes toward waste segregation, recycling, and sustainable waste disposal practices have been observed in communities where awareness campaigns and environmental education initiatives are actively implemented. These findings highlight the role of community-based environmental initiatives in strengthening sustainable waste management practices.

Institutional support and policy interventions are equally important in addressing plastic pollution challenges. Strengthening waste management infrastructure, improving waste collection systems, and implementing effective environmental regulations are essential components of sustainable plastic waste management strategies [11–14]. In many developing countries, inadequate infrastructure and limited coordination between formal and informal waste management sectors continue to create challenges for effective plastic waste management.

Youth and adolescent populations have emerged as important stakeholders in addressing environmental issues, including plastic pollution. Studies focusing on young individuals indicated that although many adolescents demonstrate positive attitudes toward environmental protection, their level of knowledge regarding plastic waste management practices may still be limited [15–17]. Enhancing environmental education programs targeting young populations can therefore play a critical role in promoting sustainable consumption habits and responsible waste disposal practices.

Recycling and resource recovery are frequently identified as essential strategies for reducing plastic waste and minimizing environmental pollution. Effective recycling systems require not only appropriate technological infrastructure but also active public participation and awareness regarding waste segregation and recycling practices [18, 19]. Without adequate awareness and infrastructure, recycling initiatives may fail to achieve their intended environmental benefits.

Furthermore, the growing problem of plastic pollution has highlighted the need for improved data collection and research on waste generation and environmental impacts. Developing reliable indicators and monitoring systems can support policymakers in designing effective waste management strategies and evaluating the success of environmental interventions [20, 21].

Despite increasing awareness about plastic pollution and waste management, several studies indicated that significant gaps still exist between knowledge and actual environmental behavior. Although many individuals recognize the environmental consequences of plastic usage, consistent adoption of sustainable consumption practices and responsible waste management behaviors remains limited [22].

2.1 Statement of the Problem

Plastics is a problem right from production and then till disposal. In short, it has been poisoning our own earth in one way or another for many years now. Nevertheless, we need to consider plastic use in each of its respective industries to avoid misrepresentation and drawing incorrect conclusions. Though there are regulations in place to mitigate plastic waste, the government agencies are not able to achieve their objectives due to several reasons. The

current project will address the gap areas in managing plastic waste and help to understand the level of awareness among iGenerations on plastic waste management.

2.1.1 Research objectives

- To measure the awareness level among the iGeneraions on Reduce, Reuse, Recycle of plastic waste.
- To analyse the attitude of iGeneraions on plastic usage and its impact on environment.

2.1.2 Research hypotheses

Education plays a vital role in increasing sustainable and environmental awareness and encouraging responsible behaviour towards waste management. Higher level of education brings generally high level of awareness about environmental issues and about plastic pollution. It also bring sustainable practices such as reducing, reusing, and recycling plastic materials [5, 6, 10]. Therefore, education may influence the level of awareness regarding plastic waste management.

H1: There is a significant relationship between the level of education and the level of awareness about plastic waste management.

Age is one of the demographic factor that can impact individual's consumption patterns and environmental behaviour. Different age groups may exhibit different levels of environmental awareness and plastic usage habits. Studies suggest that demographic characteristics such as age significantly affect individual's attitudes towards plastic consumption and environmental sustainability [3, 16, 17].

H2: There is a significant relationship between the age of the respondents and plastic usage.

About plastic waste management awareness playa important role in influencing environmentally responsible behaviour. Individuals who aware of the environmental impacts of plastic pollution are more likely to adopt sustainable practices such as reducing plastic use and participating in recycling activities [4, 18, 19].

H3: There is a significant relationship between the level of awareness about plastic waste management and the reduction in plastic waste.

3 Research Design

This is an empirical study that will utilize both qualitative and quantitative methodologies to collect primary and secondary data via self-administered questionnaires in order to obtain critical information about plastic trash management. A systematic questionnaire was used to obtain this data. The questionnaire consisted of multiple items, each of which was designed to meet a specific study purpose. Participants were asked to react on a five-point scale whether they had ever disagreed or strongly agreed with the question presented. The study justified with the simple random sampling techniques including the area-based sampling methods. The study randomness was ensured by stratified samples across different localities and educational institutions, thereby enhancing representativeness. The sample size is 942. The reason for this to ensure an equal playing field. Cronbach Alpha was used to assess its dependability; factor analysis was utilized to determine the influence carrying elements of plastic waste; and correlation and analysis of variance (ANOVA) were used to test hypotheses.

4 Analysis and Results

The collected data were analysed using descriptive and inferential statistical methods to examine the relationships between demographic variables and awareness and behavior related to plastic waste management. Descriptive statistics were used to summarize the characteristics of the respondents. To test the hypotheses, the Chi-square test was applied to determine whether significant relationships exist between variables such as education level, age, awareness of plastic waste management, and plastic usage patterns. The results of the statistical analysis are presented in Table 1 along with their significance values.

Objective 1: To measure the awareness level among the respondents on Reduce Reuse, Recycle of plastic waste.

Table 1 reveals that the level of awareness about plastic waste management among respondents through various media sources such as newspapers, government messages, television, social media, public meeting, educational institutions and interpersonal communication channels. The results indicate that awareness through news papers is relatively high with 30.36% of respondents being somewhat aware, while 30.79% of the respondents are slightly aware through government messages. In contrast social media shows the highest proportion of the respondents who ae not at all aware 49.89% indicating variation in the effectiveness of different communication channels is spreading awareness about plastic management.

According to Table 2, social media platforms have the highest reach for plastic waste awareness events and activities, with a weighted score of 3912 (rank 1). Campaigns for educational institutions come in second with a weighted score of 3792, followed by television networks with a weighted score of 3488. In the medium/source of information supplied, family members/neighbours indicated very little awareness of plastic rubbish, obtaining a weighted score of 2578 and placed ninth or last.

Table 1. The various sources of media for information and message reached the respondents

Various Sources of Media	Not at All Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	Total
Newspaper	120	264	286	202	70	942
	12.74%	28.03%	30.36%	21.44%	7.43%	100.00%
Govt message	142	290	272	158	80	942
	15.07%	30.79%	28.87%	16.77%	8.49%	100.00%
Television	262	328	200	114	38	942
	27.81%	34.82%	21.23%	12.10%	4.03%	100.00%
In public meetings	108	192	266	186	190	942
	11.46%	20.38%	28.24%	19.75%	20.17%	100.00%
In social media	470	252	136	62	22	942
	49.89%	26.75%	14.44%	6.58%	2.34%	100.00%
Word of mouth	182	282	230	174	74	942
	19.32%	29.94%	24.42%	18.47%	7.86%	100.00%
Education institution	398	292	154	74	24	942
	42.25%	31.00%	16.35%	7.86%	2.55%	100.00%
Friends	130	222	240	190	160	942
	13.80%	23.57%	25.48%	20.17%	16.99%	100.00%
Relatives/neighbours	102	172	254	204	210	942
	10.83%	18.26%	26.96%	21.66%	22.29%	100.00%

Table 2. The total weighted score and rank of media sources

Various Sources of Media	Not at All Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	Score	Rank
In social media	2350	1008	408	124	22	3912	1
Education institution	1990	1168	462	148	24	3792	2
Television	1310	1312	600	228	38	3488	3
Word of mouth	910	1128	690	348	74	3150	4
Govt message	710	1160	816	316	80	3082	5
Newspaper	600	1056	858	404	70	2988	6
Friends	650	888	720	380	160	2798	7
In public meetings	540	768	798	372	190	2668	8
Relatives/neighbours	510	688	762	408	210	2578	9

Table 3 presents that the level of awareness among respondents about various methods followed for promoting plastic waste management, such as public announcement, awareness programmes, roadshows/flash mobs, door to door campaigns and notices. The results indicate that the public announcements generate a moderate level of awareness with 34.39% of respondents being somewhat aware. Similarly, awareness programme shows 31.63% of the responders being somewhat aware. Notably door to door campaign appear to be the most effective method with 33.33% of the respondents reporting extreme awareness and 27.18% reporting moderate awareness. These findings suggest that direct and interactive communication approaches play a significant role in enhancing public awareness about plastic waste management.

Table 4 shows that plastic waste awareness activities and events educated by society/government/municipal authorities are more effective, with awareness programs having a weighted score of 3120 (rank 1), followed by public announcements in second place with a weighted score of 2796, and door to door campaign having the least effective method with a weighted score of 2164 (last rank) according to the students' perceptions.

Table 5 shows that just 6.6% of respondents were fully unaware of the effects of littering and believed it was regrettable that so much plastic was wasted. 10% of respondents said they were aware of the consequences of littering and believed it was bad that so much plastic was being discarded. 63.7% of respondents stated they were very aware of the consequences of plastic waste on water, air, and land pollution, while just 20.6% claimed they were only slightly aware of the harmful effects of littering and plastic trash. Another 32.7% stated that they were only mildly aware of the damage plastic trash does to scenic beauty.

Table 3. The respondent's opinion on being educated by the society/government/municipal authorities about plastic waste by any of the following methods

Methods Adopted	Not at All Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	Total
Public announcement	86	224	324	190	118	942
	9.13%	23.78%	34.39%	20.17%	12.53%	100.00%
Awareness programme	142	286	298	156	60	942
	15.07%	30.36%	31.63%	16.56%	6.37%	100.00%
Roadshow/flash mob	86	216	280	168	192	942
	9.13%	22.93%	29.72%	17.83%	20.38%	100.00%
Door to door campaign	50	122	200	256	314	942
	5.31%	12.95%	21.23%	27.18%	33.33%	100.00%
Notices	92	238	264	202	146	942
	9.77%	25.27%	28.03%	21.44%	15.50%	100.00%

Table 4. The total weighted score and rank of awareness activities

Methods Adopted	Not at All Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	Score	Rank
Awareness programme	710	1144	894	312	60	3120	1
Public announcement	430	896	972	380	118	2796	2
Notices	460	952	792	404	146	2754	3
Roadshow/flash mob	430	864	840	336	192	2662	4
Door to door campaign	250	488	600	512	314	2164	5

Table 5. The respondent's opinion on priority concern about the impact of plastic-waste

Priority Concern	Not at All Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Extremely Aware	Total
Littering and looks bad	62	94	194	286	306	942
	6.6%	10.0%	20.6%	30.4%	32.5%	100%
Effects on human health	18	62	94	240	528	942
	1.9%	6.6%	10.0%	25.5%	56.1%	100%
Leading to water/ air/land pollution	8	44	106	184	600	942
	0.8%	4.7%	11.3%	19.5%	63.7%	100%
Damage to scenic beauty	28	54	130	308	422	942
	3.0%	5.7%	13.8%	32.7%	44.8%	100%
Landfill	16	66	136	268	456	942
	1.7%	7.0%	14.4%	28.5%	48.4%	100%

Table 6. Association between the impact plastic wastage on the damage of societal factors

One-Way Analysis of Variance (ANOVA) (Welch's)				
Priority Concern	f	**df1**	**df2**	p
Littering and looks bad	11.4	1	899	<0.001
Effects on human health	19.6	1	824	<0.001
Leading to water/air/land pollution	17.5	1	815	<0.001
Damage to scenic beauty	22.1	1	866	<0.001
Landfill	11.3	1	831	<0.001

Table 6 clearly represent that there is a significant association between the impact of plastic wastage on the damage of societal factors, since littering looks bad (p-value is $0.001 < 0.05$; f stat value is $11.4 > 2.56$), effects on human health (p-value is $0.001 < 0.05$; f stat value is $19.6 > 2.56$), leading to water/air/land pollution (p-value is $0.001 < 0.05$; f stat value is $17.5 > 2.56$), damage to science beauty(p-value is $0.001 < 0.05$; f stat value is $22.1 > 2.56$), landfill (p-value is $0.001 < 0.05$; f stat value is $11.3 > 2.56$). Hence null hypothesis is rejected, and the alternative hypothesis is accepted.

Table 7 shows that the hazards of plastic trash, 7.6% of male respondents and 6.6% of female respondents indicated they were completely uninformed of neurodevelopmental diseases such as autism and Attention-Deficit/Hyperactivity Disorder (ADHD). 11.0% of male respondents and 10.8% of female respondents said they were somewhat aware of the obesity and infertility problems caused by plastic waste, respectively. Because of plastic trash, 14.2% of male and 20.2% of female respondents claimed knowing something about the digestive system. In contrast, 12.5% of males and 17.2% of females reported being acutely aware of the digestive system, growth, and cognitive impairment.

Table 7. The health hazards for humans from plastic waste: Toxic chemicals in plastic

Health Hazards	Not at All Aware		Slightly Aware		Somewhat Aware		Moderately Aware		Extremely Aware	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Digestive system	36	14	66	48	84	102	134	190	118	150
	3.8%	1.5%	7.0%	5.1%	8.9%	10.8%	14.2%	20.2%	12.5%	15.9%
Hormone-related cancers	24	12	60	54	120	112	124	168	110	158
	2.5%	1.3%	6.4%	5.7%	12.7%	11.9%	13.2%	17.8%	11.7%	16.8%
Infertility	42	32	70	66	128	140	106	150	92	116
	4.5%	3.4%	7.4%	7.0%	13.6%	14.9%	11.3%	15.9%	9.8%	12.3%
Neauro development disorders	72	62	74	74	118	134	110	152	64	82
like ADHD and autism	7.6%	6.6%	7.9%	7.9%	12.5%	14.2%	11.7%	16.1%	6.8%	8.7%
Obesity	58	58	104	102	136	124	86	132	54	88
	6.2%	6.2%	11.0%	10.8%	14.4%	13.2%	9.1%	14.0%	5.7%	9.3%
Diabetes	62	44	86	102	138	118	104	136	48	104
	6.6%	4.7%	9.1%	10.8%	14.6%	12.5%	11.0%	14.4%	5.1%	11.0%
Reproductive	60	42	68	48	116	128	114	174	80	112
	6.4%	4.5%	7.2%	5.1%	12.3%	13.6%	12.1%	18.5%	8.5%	11.9%
Prostate or breast cancer	60	48	84	74	116	130	108	124	70	128
	6.4%	5.1%	8.9%	7.9%	12.3%	13.8%	11.5%	13.2%	7.4%	13.6%
Growth and cognitive	50	28	60	48	108	124	106	142	114	162
impairment	5.3%	3.0%	6.4%	5.1%	11.5%	13.2%	11.3%	15.1%	12.1%	17.2%

Note: ADHD, Attention-Deficit/Hyperactivity Disorder.

Table 8 reveals that the awareness of the health impacts associate with plastic waste, a Welch One-Way ANOVA test was conducted. The results are showing the association between awareness of plastic waste and various human health conditions. It's showing significantly relationship across all the identified health hazards, including digestive disorders, hormone related cancers, infertility, neurodevelopmental disorders such as ADHD and autism, obesity, diabetes, reproductive health issues and growth and cognitive impairment as all p-values are less that 0.05. these finding suggest that respondents demonstrate awareness of the potential health risks associated with plastic waste. Therefore, the full hypothesis is rejected and alternative hypothesis is accepted, indicating a significant associate between awareness of plastic waste and its perceived impact on human health conditions.

Table 8. The association between awareness of the impact of plastic wastage on the health system/conditions of human beings

One-Way Analysis of Variance (ANOVA) (Welch's) Health Hazards	f	df1	df2	p
Digestive system	14.66	1	854	<0.001
Hormone-related cancers	13.26	1	895	<0.001
Infertility	5.80	1	903	0.016
Neurodevelopmental disorders (ADHD and autism)	5.18	1	911	0.023
Obesity	8.73	1	932	0.003
Diabetes	16.91	1	930	<0.001
Prostate or breast cancer	14.47	1	922	<0.001
Reproductive health issues	16.80	1	893	<0.001
Growth and cognitive impairment	15.48	1	883	<0.001

Note: ADHD, Attention-Deficit/Hyperactivity Disorder.

Table 9. The respondents' attitude on plastic usage and its impact

Respondents Attitude	Not at All Aware		Slightly Aware		Somewhat Aware		Moderately Aware		Extremely Aware	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Separate different types of plastic-waste at home.	20 2.1%	16 1.7%	30 3.2%	32 3.4%	114 12.1%	80 8.5%	112 11.9%	148 15.7%	162 17.2%	228 24.2%
Dispose of plastic-waste nearby waste container.	24 2.5%	44 4.7%	24 2.5%	46 4.9%	96 10.2%	74 7.9%	148 15.7%	124 13.2%	146 15.5%	216 22.9%
Throw the plastic-waste in open spaces on the road.	174 18.5%	228 24.2%	104 11.0%	132 14.0%	68 7.2%	52 5.5%	68 7.2%	50 5.3%	24 2.5%	42 4.5%
Empty place nearby home.	122 13.0%	212 22.5%	88 9.3%	72 7.6%	126 13.4%	92 9.8%	56 5.9%	68 7.2%	46 4.9%	60 6.4%
Are you informing your collection service provider?	44 4.7%	46 4.9%	62 6.6%	62 6.6%	136 14.4%	146 15.5%	106 11.3%	106 11.3%	90 9.6%	144 15.3%
How often do you use the collection service?	30 3.2%	32 3.4%	52 5.5%	52 5.5%	96 10.2%	122 13.0%	128 13.6%	132 14.0%	132 14.0%	166 17.6%
Separate and dispose of plastic-waste in carton box.	26 2.8%	12 1.3%	66 7.0%	48 5.1%	118 12.5%	138 14.6%	128 13.6%	130 13.8%	100 10.6%	176 18.7%
Reduce the usage of plastic products.	28 3.0%	8 0.8%	62 6.6%	68 7.2%	124 13.2%	150 15.9%	132 14.0%	152 16.1%	92 9.8%	126 13.4%
I am continuously using plastic-made products.	18 1.9%	28 3.0%	98 10.4%	144 15.3%	154 16.3%	186 19.7%	96 10.2%	92 9.8%	72 7.6%	54 5.7%
I advise others to reduce or avoid the plastic usage.	24 2.5%	18 1.9%	78 8.3%	62 6.6%	122 13.0%	176 18.7%	96 10.2%	92 9.8%	118 12.5%	156 16.6%
I like to be a responsible citizen in handling plastic-waste.	28 3.0%	18 1.9%	42 4.5%	34 3.6%	126 13.4%	124 13.2%	94 10.0%	116 12.3%	148 15.7%	212 22.5%
I didn't consider others opinion on handling on E-Waste.	52 5.5%	62 6.6%	52 5.5%	88 9.3%	148 15.7%	166 17.6%	112 11.9%	102 10.8%	74 7.9%	86 9.1%
I desire to contribute towards environmental protection by at least minimal.	20 2.1%	4 0.4%	30 3.2%	34 3.6%	96 10.2%	100 10.6%	126 13.4%	146 15.5%	166 17.6%	220 23.4%
I will follow the advice of others about E-Waste.	12 1.3%	8 0.8%	46 4.9%	30 3.2%	88 9.3%	100 10.6%	102 10.8%	130 13.8%	190 20.2%	236 25.1%
Donating to needy people	26 2.8%	22 2.3%	42 4.5%	38 4.0%	112 11.9%	96 10.2%	102 10.8%	134 14.2%	156 16.6%	214 22.7%

Table 10. The appropriate avenues for strategic policy improvements

Strategic Policy Improvements	Not at All Aware		Slightly Aware		Somewhat Aware		Moderately Aware		Extremely Aware	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Create awareness program among the public frequently.	36 3.8%	20 2.1%	72 7.6%	88 9.3%	140 14.9%	124 13.2%	126 13.4%	182 19.3%	64 6.8%	90 9.6%
Conducting some campaign, roadshow.	30 3.2%	12 1.3%	92 9.8%	84 8.9%	138 14.6%	138 14.6%	126 13.4%	194 20.6%	52 5.5%	76 8.1%
Strict ban on plastic products, polyethylene bags, and other plastic items.	40 4.2%	22 2.3%	70 7.4%	58 6.2%	116 12.3%	140 14.9%	124 13.2%	192 20.4%	88 9.3%	92 9.8%
Fine and action against the plastic products sellers and manufacturer.	14 1.5%	28 3.0%	60 6.4%	48 5.1%	112 11.9%	106 11.3%	132 14.0%	226 24.0%	120 12.7%	96 10.2%
Continuous monitoring and actions against the retail sales shops for issuing plastic carry bags to consumers.	44 4.7%	32 3.4%	58 6.2%	58 6.2%	110 11.7%	124 13.2%	124 13.2%	176 18.7%	102 10.8%	114 12.1%
Tie up with educational institutions and NGOs to implement.	14 1.5%	20 2.1%	38 4.0%	42 4.5%	118 12.5%	94 10.0%	112 11.9%	190 20.2%	156 16.6%	158 16.8%

Note: NGOs, non-governmental organizations.

According to Table 9, 18.5% of male respondents and 24.2% of female respondents were unaware that discarding plastic debris in open areas or on the road causes problems. 15.7% of male respondents said they were moderately aware and agreed that dumping plastic waste in a nearby trash can causes problems, while 15.3% of female respondents and 10.4% of male respondents said they were slightly aware and continued to use plastic-made products. Furthermore, 16.3% of male respondents and 19.7% of female respondents indicated they were aware that they were constantly consuming plastic-based products. 20.2% of male respondents and 25.1% of female respondents reported being extremely aware about e-waste and seeking guidance from others.

According to Table 10, 3.4% of female respondents and 4.7% of male respondents believe that the government's efforts against retail sales businesses for giving plastic carry bags for consumers will alleviate the situation. According to 9.8% of male respondents and 8.9% of female respondents, the government organizes road shows and campaigns. 14.9% of male respondents believed the government should launch an awareness campaign for the general public. A complete ban on plastic goods, PE bags, and other plastic items will assist to alleviate the plastic waste problem. 14.0% of male respondents and 24.0% of female students, raising awareness about fines and taking action against producers and dealers of plastic products will help to reduce environmental damage. 16.6% of male respondents and 16.8% of female respondent's report being extremely aware of the situation, and they engage with educational institutions and Non-governmental organization (NGOs) to implement solutions that would alleviate plastic waste-related issues.

5 Findings and Discussions

The study reveals the gaps among the health-related awareness and environmental concern. The study backed by the Planned Behavior theory and Environmental Awareness Theory which focuses on intention and selective focuses which shows the legible impacts among the selected respondents Social media outlets have the greatest reach for plastic waste awareness events and activities, with a weighted score of 3912 (rank 1). Campaigns for educational institutions come in second with a weighted score of 3792, followed by television networks with a weighted score of 3488. Government activities have had a bigger impact than others in raising awareness about plastic management. That is, waste awareness programs and events that educate society, government, and municipal authorities outperform public announcements, which rank second with a weighted score of 2796, and door-to-door efforts, which rank last with a weighted score of 3120 (rank 1). Social media can influence the waste management and we can utilise the same source to create the awareness for the larger set of population. The majority of student communities are unaware of the many forms of plastic materials and their effects. It was bad that so much plastic was being discarded. 63.7% of respondents stated they were very aware of the consequences of plastic waste on water, air, and land pollution, while just 20.6% claimed they were only slightly aware of the harmful effects of littering and plastic trash. Another 32.7% stated that they were only mildly aware of the damage plastic trash does to scenic beauty. Many health-related problems, including digestive problems, infertility, neurodevelopmental disorders such as autism and ADHD, reproductive problems, diabetes, obesity, breast or prostate cancer, growth retardation, and cognitive impairment, were have significant association between the plastic wastages on health system.

According to Table 9, 18.5% of male respondents and 24.2% of female respondents were unaware that discarding plastic debris in open areas or on the road causes problems. 15.7% of male respondents said they were moderately aware and agreed that dumping plastic waste in a nearby trash can causes problems, while 15.3% of female respondents and 10.4% of male respondents said they were slightly aware and continued to use plastic-made products. Furthermore, 16.3% of male respondents and 19.7% of female respondents indicated they were aware that they were constantly consuming plastic-based products. 20.2% of male respondents and 25.1% of female respondents reported being extremely aware about e-waste and seeking guidance from others.

6 Conclusion

The study reveals the awareness of plastic usage and impact on various parameters are comparative less. Study indicates the importance of realising the impact of plastic on the health issues. It is time to create the positive attitude towards the usage and disposal to protect the future of our decedents. Time to consider the social impacts of plastic usages and its hazards towards this planet makes the future exclamatory, we have to take firm decisions to protect society from the harmful plastics. Using the social-media to explore the awareness among the young minds to attract towards the new gen sustainable material practices for their usages. It is recommended to the policy makers to make a stringent policy and quality checks before approving the licence. The study also limelight to the policy makers to leveraging the educational institutions to mandate to conduct the sustainable drive practices among the growing iGeneration.

Author Contributions

Conceptualization, K.R.S. and R.R.; methodology, K.R.S.; software, K.J.; validation, K.R.S., A.V., and K.O.; formal analysis, K.J.; investigation, R.R.; resources, A.V.; data curation, K.O.; writing—original draft preparation,

R.R.; writing—review and editing, K.R.S. and A.V.; visualization, K.J.; supervision, K.R.S.; project administration, K.R.S. All authors have read and agreed to the published version of the manuscript.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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