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Plastic Usage of the selected Women with Cancer respondents; A cross sectional study

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Abstract: *Plastics are available in huge number and varieties across the world and it is estimated that around 500 billion plastics are used every year worldwide. In India nearly 4.5 million tons of plastic wastes are generated. Plastic and plastic materials are beneficial to mankind in a variety of ways. It has certain advantages in terms of lightness, strength, toughness, resistance to corrosion, durability, excellent thermal and electrical insulation properties. The use of plastics is comfortable, but it comes at a high cost in terms of health consequences and the environment. This study examines the habit of buying foods in plastic bags among the selected women with cancer respondents; to recognize the habit of drinking tea/coffee in plastic cups and its frequency among the selected women with cancer respondents; and to know the plastic plate usage and its frequency among the selected women with cancer respondents; The methodology adopted in this research paper is analytical and the primary data was collected through the interview schedule to evaluate the plastic usage of women with cancer respondents. Totally 1357 women with cancer respondents were selected as respondents for the study. Collected data were tabulated and interpreted. Hence the present study indicates that the usage of plastic bags, plastic plates and plastic cups significantly influence the cancer.*

Key Words: *Plastic materials, resistance, corrosion, electrical insulation, health consequence.*

1. INTRODUCTION :

The word plastic is derived from a Greek word “Plastikos”, which means “fit for moulding” and are materials of synthetic or semi-synthetic nature that are malleable. Plastics being long chain polymers contain inorganic materials such as styrene which contributes to their non-biodegradable property (National Environment Agency, 2010). Plastics are synthetic organic polymers that are commonly used in a variety of applications, including water bottles, clothes, food packaging, medical supplies, electronic products, and building materials (Proshad *et al.,* 2017). Some of the most popular or preferred forms of food packaging materials are paper and paperboards. They have gained popularity in the food packaging process because they are readily available, inexpensive, light-weight, and effectively serve as a moisture, oxygen, and microbial barrier. The disposable paper cup is one such popular food container. They are a common option for most people when they are drinking their favou rite beverage. In most coffee and tea shops around the world, disposable paper cups are used (Poortinga & Whitaker, 2018). Many chemical and hazardous substances are found in plastics, including Bisphenol A (BPA), thalates, antiminitroxide, brominated flame retardants, and polyfluorinated chemicals, among others, which pose a significant risk to human health and the environment. People use plastics without understanding the harmful effects of plastic on human health and the environment. Irritation of the eyes, vision loss, breathing difficulties, respiratory disorders, liver dysfunction, tumours, skin diseases, lungs problems, headache, dizziness, birth effect, reproductive, cardiovascular, genotoxic, and gastrointestinal problems are all linked to the use of toxic plastics (Proshad *et al.,* 2017). PVC (polyvinyl chloride) is one of the most widely used plastics in the world, with applications ranging from packaging to pipes, car parts, building materials, and furniture. PVC is made from the monomer vinyl chloride (VC), which is one of the most widely produced chemicals in the world, with an annual global demand of about 16 billion pounds and a growth rate of about 3% per year. In the processing of PVC, up to 98 percent

of VC is used (Toxicological Profile for Vinyl Chloride. Atlanta: US Department of Health and Human Services; 2006). Food and beverages contained in such containers, including the ubiquitous clear water bottles hanging from just about every hiker's backpack, have been found to contain a trace amount of Bisphenol A (BPA), which may interfere with the body's natural hormonal messaging system, according to studies. The primary sources of BPA toxicity in the human body are food and inhalation. (Wilson *et al.* 2007). Studies have indicated that food and drinks stored in such containers including those ubiquitous clear water bottles hanging from just about every hiker's backpack can contain a trace amount of Bisphenol A (BPA) that may interfere with the body's natural hormonal messaging system. Food and inhalation are considered the main source of exposure to BPA in the human body (Wilson *et al.*, 2007). Phthalates, also called 1, 2-benzenedicarboxylic acids, consist of diverse groups of diesters of phthalic acid which are produced in large volumes from the 1930s. In industrial applications, particularly in the manufacture of food packaging, raincoats, medical devices, toys, hoses, vinyl flooring and shower curtains, high molecular weight phthalates (e.g. di(2-ethylhexyl) phthalate (DEHP) are commonly used (Hauser, 2005). Plastic food containers contain toxic chemicals and when these come in contact of hot food or drinks, the toxic chemical present in these containers migrates to human body through food and causes various lethal diseases and disturbance in the human body like cancer (Husain *et al.*, 2015). Based on this background information the present paper was carried out with the following objectives. To identify the habit of buying foods in plastic bags among the selected women with cancer respondents; to recognize the habit of drinking tea/coffee in plastic cups and its frequency among the selected women with cancer respondents; and to know the plastic plate usage and its frequency among the selected women with cancer respondents;

2. MATERIALS AND METHODS :

Selection of Area

In Tamil Nadu there are two cancer registries one in Adyar Cancer Institute Chennai (Urban) and the second is Christian Fellowship Hospital (Rural), Dindigul. Christian Fellowship Hospital (Dindigul Ambilikkai Cancer Registry, DACR), Ottanchathiram, Dindigul District in Tamil Nadu was selected as a study area, since it comes under government health services and which caters the cancer treatment among rural population in and around the Dindigul district. Permission was obtained from the Dean, Christian Fellowship Hospital, Ottanchatram, Dindigul for conducting the study among women with cancer. Institutional Human Ethical Clearance was obtained from The Gandhigram Rural Institute (Deemed to be University), Gandhigram.

Selection of Respondents

Data collection is defined as the procedure of collecting, measuring and analyzing accurate insights for research using standard validated techniques. Data was collected from the respondents by self structured and pre tested interview schedule. Data was collected for three consecutive years, 2016, 2017 and 2018 from the Christian Fellowship Hospital, Amblikkai and Women with cancer at different sites of their body who were admitted as in respondents for treatment constituted the respondents. Totally 1357 women with cancer respondents were selected as respondents for this study the signature was obtained in the informed consent form given.

Data collection process

Data collection is defined as the procedure of collecting, measuring and analyzing accurate insights for research using standard validated techniques. Data was collected from the respondents by questionnaire and it contains the habit of buying foods in plastic bags and its frequency, drinking tea/coffee in plastic cups and its frequency, using of plastic plates to eat and its frequency.

3. RESULTS AND DISCUSSION:

TABLE 1
Respondents by the Habit of Buying Foods in Plastic Bags

Buying Foods in plastic bags	Frequency of Buying	No. of Respondents	Grand Total
Yes	Regularly	110 (22.3)	**493 (36.3)**
	Weekly Once	86 (17.4)	
	Monthly Once	47 (9.5)	
	Occasionally	250 (50.7)	

	Total	**493 (100.0)**	
No	--	--	**864 (63.7)**
Total			**1357 (100.0)**

The women-respondents' distribution based on their habit of buying foods in plastic bags and the frequency of buying is presented in Table 1. It shows that the total 36.3% of the respondents had the habit of buying foods in plastic bags of which half (50.7%) of them buy occasionally followed by the respondents buying regularly (22.3%), weekly once (17.4%), and monthly once (9.5%) whereas the remaining majority (63.7%) in the total did not prefer plastic bags to buy foods. Hence, it is clear from the present analysis that though a majority in the total did not prefer plastic bags to buy foods a significant proportion in the total have preferred the same.

sTABLE 2
Respondents by Cancer Site and the Habit of Buying Foods in Plastic Bags

Cancer Site	**Buying Foods in Plastic Bags**		**Total**
	Yes	**No**	
Cervical	80 (17.4)	381 (82.6)	**461 (34.0)**
Breast	125 (26.5)	347 (73.5)	**472 (34.8)**
Uterus	41 (43.6)	53 (56.4)	**94 (6.9)**
Esophagus	51 (78.5)	14 (21.5)	**65 (4.8)**
Head & Neck	94 (74.0)	33 (26.0)	**127 (9.4)**
Lung	16 (44.4)	20 (55.6)	**36 (2.7)**
Stomach	76 (97.4)	2 (2.6)	**78 (5.7)**
Liver	10 (41.7)	14 (58.3)	**24 (1.8)**
Total	**493 (36.3)**	**864 (63.7)**	**1357 (100.0)**
F	**336.559**		
Sig.	**.000**		
γ	**1.00**		

The association between the habit of buying foods in plastic bags and the women-respondents' cancer site is presented in Table 2. It depict that while majority in the total of respondents found with cancer in Stomach (97.4%), Esophagus (78.5%), and Head & Neck (74.0%) were with the habit of buying foods in plastic bags (82.6% in the total of Cervical, 73.5% of Breast, 58.3% of Liver, 56.4% of Uterus, and 55.6% of Lung cancer respondents were not with the habit of buying foods in plastic bags. Hence, it would be stated that the women-respondents' habit of buying foods in plastic bags has significantly influenced the cancer site in the respondents.

TABLE 3
Frequency of Buying Foods in Plastic Bags and Cancer Site

Cancer Site	**Frequency of Buying Foods in Plastic Bags**				**Total**
	Regularly	**Weekly Once**	**Monthly Once**	**Occasionally**	

Cervical	21 (26.2)	8 (10.0)	11 (13.8)	40 (50.0)	**80 (16.2)**
Breast	16 (12.8)	27 (21.6)	3 (2.4)	79 (63.2)	**125 (25.4)**
Uterus	20 (48.8)	2 (4.9)	-	19 (46.3)	**41 (8.3)**
Esophagus	12 (23.5)	10 (19.6)	3 (5.9)	26 (51.0)	**51 (10.3)**
Head & Neck	20 (21.3)	25 (26.6)	14 (14.9)	35 (37.2)	**94 (19.1)**
Lung	4 (25.0)	2 (12.5)	-	10 (62.5)	**16 (3.2)**
Stomach	14 (18.4)	11 (14.5)	16 (21.1)	35 (46.0)	**76 (15.4)**
Liver	3 (30.0)	1 (10.0)	-	6 (60.0)	**10 (2.0)**
Total	**110 (22.3)**	**86 (17.4)**	**47 (9.6)**	**250 (50.7)**	**493 (100.0)**
F	**87.949**				
Sig.	**.000****				

Table 3 presents the association between the frequency of buying foods in plastic bags and the women-respondents' cancer site. It depict that while 63.2% of Breast, 62.0% of Lung, 60.0% of Liver, 51.0% of Esophagus, 50.0% of Cervical, 46.0% of Stomach, and 37.2% of Head & Neck cancer respondents buy occasionally foods in plastic bags whereas about 49 percent of the Uterus cancer respondents who buy regularly foods in plastic bags. Hence, it would be stated that the frequency of buying foods in plastic bags has significant influence on the women-respondents' cancer site.

TABLE 4
Habit of Drinking Tea/Coffee in Plastic Cups and its Frequency

Drink Tea/Coffee in Plastic Cups	Frequency of Drinking in a Day	No. of Respondents	Grand Total
Yes	Once	127 (31.6)	**401 (29.6)**
	Twice	96 (23.9)	
	Thrice	81 (20.3)	
	Occasionally	97 (24.2)	
	Total	**401 (100.0)**	
No	--	--	**956 (70.4)**
Total			**1357 (100.0)**

The women-respondents' distribution according to their habit of drinking tea/coffee in plastic cups and its frequency is presented in Table 4. The distribution shows that of the total about 30 percent of them have stated that they have the habit of drinking tea/coffee in plastic cups and the pattern of drinking tea/coffee in plastic cups revealed as once (31.6%), twice (23.9%), and thrice (20.3%) in a day while occasionally by another 24.2% whereas the remaining

majority (70.4%) in the total women-respondents did not drink tea/coffee in plastic cups. Hence, it would be stated that a significant proportion in the total women-respondents were found with the habit of drinking tea/coffee in plastic cups.

TABLE 5
Habit of Drinking Tea/Coffee in Plastic Cups and Cancer Site

Cancer Site	Drink Tea/ Coffee in Plastic Cups		Total
	Yes	No	
Cervical	117 (25.4)	344 (74.6)	**461 (34.0)**
Breast	88 (18.6)	384 (81.4)	**472 (34.8)**
Uterus	14 (14.9)	80 (85.1)	**94 (6.9)**
Esophagus	56 (86.1)	9 (13.8)	**65 (4.8)**
Head & Neck	50 (39.3)	77 (60.6)	**127 (9.4)**
Lung	6 (16.7)	30 (83.3)	**36 (2.7)**
Stomach	57 (73.1)	21 (26.9)	**78 (5.7)**
Liver	13 (54.2)	11 (45.8)	**24 (1.8)**
Total	**401 (29.6)**	**956 (70.4)**	**1357 (100.0)**
Correlation: 1.00			

Table 5 shows the association between the habit of drinking tea/coffee in plastic cups and the women-respondents' cancer site. It depict that while majority of the respondents found with cancer in Esophagus, Stomach, and Liver were with the habit of drinking tea/coffee in plastic cups and their percentage in the respective total was 86.1, 73.1, and 54.2 the respondents found with cancer in Uterus, Lung, Breast, Cervical, and Head & Neck were not with the habit of drinking tea/coffee in plastic cups and they have constituted 85.1%, 83.3%, 81.4%, 74.6%, and 60.6% in the respective total. Therefore, it is obvious that the respondents' habit of drinking tea/coffee in plastic cups has significant influence on the cancer site in the women-respondents.

TABLE 6
Frequency of Drinking Tea/Coffee in Plastic Cups and Cancer Site

Cancer Site	Frequency/Day				Total
	Once	Twice	Thrice	Occasionally	
Cervical	38 (32.5)	29 (24.8)	22 (18.8)	28 (23.9)	**117 (29.2)**
Breast	23 (26.1)	34 (38.6)	13 (14.8)	18 (20.5)	**88 (21.9)**
Uterus	3 (22.4)	4 (28.6)	2 (14.3)	5 (35.1)	**14 (3.5)**
Esophagus	13 (23.2)	11 (19.6)	11 (19.6)	21 (37.6)	**56 (14.0)**
Head & Neck	26 (52.0)	11 (22.0)	7 (14.0)	6 (12.0)	**50 (12.5)**
Lung	4 (66.7)	-	2 (33.3)	-	**6 (1.5)**

Stomach	14 (24.6)	7 (12.3)	21 (36.8)	15 (26.3)	**57 (14.2)**
Liver	6 (46.2)	-	3 (23.1)	4 (30.7)	**13 (3.2)**
Total	**127 (31.7)**	**96 (23.9)**	**81 (20.3)**	**97 (24.2)**	**401 (100.0)**
F	**30.091**				
Sig.	**.000****				

** Significant level at 1%

The association between frequency of drinking tea/coffee in plastic cups and cancer site in women-respondents is shown in Table. 6. It reveals that significant correlation was found.

TABLE 7
Respondents by Using Plastic Plate to Eat and its Frequency

Using Plastic Plate	Frequency of Using Plastic Plate	No. of Respondents	Grand Total
Yes	Regularly	181 (51.4)	**352 (25.9)**
	Occasionally	171 (48.6)	
	Total	**352 (100.0)**	
No	--	--	**1005 (74.1)**
Total			**1357 (100.0)**

The women-respondents' distribution according to the practice of using plastic plates to eat and its frequency is presented in Table 7. It shows that of the total women-respondents one-fourth (25.9%) of them have stated that they use plastic plate to eat and of which 51.4% of them use plastic plate regularly and occasionally by the remaining 48.6% whereas the rest 74.1% of the total women respondents were not using plastic plate to eat. Hence, it is clear from the present analysis that one-fourth in the total women-respondents using plastic plate to eat.

TABLE 8
Respondents by the Use of Plastic Plate to Eat and Cancer Site

Cancer Site	Use Plastic Plate to Eat		Total
	Yes	No	
Cervical	81 (17.6)	380 (82.4)	**461 (34.0)**
Breast	69 (14.6)	403 (85.4)	**472 (34.8)**
Uterus	15 (15.9)	79 (84.1)	**94 (6.9)**
Esophagus	47 (72.3)	18 (27.7)	**65 (4.8)**
Head & Neck	85 (66.9)	42 (33.1)	**127 (9.4)**
Lung	15 (41.7)	21 (58.3)	**36 (2.7)**
Stomach	29 (37.2)	49 (62.8)	**78 (5.7)**

Liver	11 (45.8)	13 (54.2)	**24 (1.8)**
Total	**352 (25.9)**	**1005 (74.1)**	**1357 (100.0)**
Correlation: 1.00			

Table 8 presents the association between the use of plastic plate by women-respondents and cancer site in them. It shows that while majority of respondents found with cancer in Esophagus (72.3%), and Head & Neck (66.9%) agreed that they use plastic plate to eat majority in the total respondents found with cancer in Breast (85.4%), Uterus (84.1%), Cervical (82.4%), Stomach (62.8%), Lung (58.3%), and Liver (54.2%) denied it. Therefore, it would be concluded from the present analysis that the cancer site in the respondents varies in accordance with the use of plastic plate to eat.

TABLE 9
Frequency of Using Plastic Plate to Eat and Cancer Site

Cancer Site	Frequency of Use		Total
	Regularly	Occasionally	
Cervical	39 (48.1)	42 (51.9)	**81 (23.0)**
Breast	26 (37.7)	43 (62.3)	**69 (19.6)**
Uterus	10 (66.7)	5 (33.3)	**15 (4.3)**
Esophagus	16 (34.0)	31 (66.0)	**47 (13.4)**
Head & Neck	59 (69.4)	26 (30.6)	**85 (24.1)**
Lung	11 (73.3)	4 (26.7)	**15 (4.3)**
Stomach	14 (48.3)	15 (51.7)	**29 (8.2)**
Liver	6 (54.5)	5 (45.5)	**11 (3.1)**
Total	**181 (51.4)**	**171 (48.6)**	**352 (100.0)**
F	**72.410**		
Sig.	**.000****		
Correlation	**1.00**		

The association between the frequency of using plastic plate to eat and cancer site in the women-respondents is presented in Table 9. . It depict that majority of the respondents found with cancer in Lung (73.3%), Head & Neck (69.4%), Uterus (66.7%), and Liver (54.5%) were using plastic plat to eat regularly whereas the respondents use occasionally have constituted majority in the total of Esophagus (66.0%), Breast (62.3%), Cervical (51.9%), and Stomach (51.7%) cancer categories. Hence, it is evident from the present analysis that the frequency of using plastic plate to eat has significantly influenced cancer site in women-respondents.

4. CONCLUSION :

Plastics offer considerable benefits for the future, but it is evident that our current approaches to production, u se and disposal are not sustainable and present concerns for human health.
The current results also revealed that using plastic plates, cups, and purchasing foods in plastic bags can have a negati

ve impact on one's health. Despite the fact that the Indian government has banned the use of plastic, people continue to use it for a variety of purposes. As a result, both rural and urban residents must be made aware of the situation.

REFERENCES :

1. Hauser, R. (2005). Phthalates and Human Health. *Occupational and Environmental Medicine, 62(11), 806–818.* doi:10.1136/oem.2004.017590
2. Husain, Izhar & Alalyani, Mesheil & Hanga, Arif. (2015). Disposable Plastic Food Container and Its Impacts on Health. *The Journal of Energy and Environmental Science*. 4382-1729.
3. National Environment Agency. Waste Statistics and Recycling Rate for 2010. Available at: http://www.cpcb.nic.in. Accessed on 14 March 2021.
4. Poortinga, W., & Whitaker, L. (2018). Promoting the use of reusable coffee cups through environmental messaging, the provision of alternatives and financial incentives. Sustainability (Switzerland), 10(3). https://doi.org/10.3390/su10030873
5. Proshad, R., Kormoker, T., Islam, M. S., Haque, M. A., Rahman, M. M., & Mithu, M. M. R. (2017). Toxic effects of plastic on human health and environment : A consequences of health risk assessment in Bangladesh. *International Journal of Health,* 6(1), 1. doi:10.14419/ijh.v6i1.8655.
6. Ranjan, V. P., Joseph, A., & Goel, S. (2020). Microplastics and other Harmful substances released from Disposable paper cups into Hot water. *Journal of Hazardous Materials, 124118.* doi:10.1016/j.jhazmat.2020.124118.
7. Toxicological Profile for Vinyl Chloride. Atlanta: US Department of Health and Human Services; 2006. Agency for Toxic Substances and Disease Registry.
8. Wilson NK, Chuang JC, Morgan MK, Lordo RA & Sheldon LS (2007). An observational study of the potential exposures of preschool children to pentachlorophenol, bisphenol-A, and nonylphenol at home and daycare. *Environ. Res.* 103, 9–20. https://doi.org/10.1016/j.envres.2006.04.006.