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ASSESS THE KNOWLEDGE REGARDING EFFECT OF PLASTIC

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ABSTRACT

OBJECTIVE: This review aims to assess the knowledge on the effects of plastics.

METHODS: A search strategy was built to identify the impact of plastic pollution in environment and health in two databases- PubMed & Google Scholar. After applying inclusion exclusion criteria & critical reading, n=20 studies were selected for literature review.

RESULT: Majority of the respondents were having high level knowledge about plastic hazards and plastic usage.

CONCLUSION: Overall knowledge regarding effects of plastics is good and majority were in favour to strictly enforce the ban on usage of single use plastics. The study observed that plastic bags were frequently used among the single use plastics items as it cost free price.

Key words: Single use plastic, Pollution, Plastic ban

INTRODUCTION

As we all know that Plastic are widely used item now a day. After World War I, the mass production of plastic was started. The first created polymers were polystyrene and polyvinyl chloride. It became a part of modern civilization[1]. Without plastic our life could be different or diverse because all of us are totally depend on various items of plastics which are used daily and become a important part of or daily routine. We have already involved plastic made products. Earlier the items are made up of iron, mud, bronze, copper, silver etc. but with invention of plastic it brings a drastic change in our life[2]. As needle of clock move forward day-by-day with time people are becoming more dependent on plastics because of its some special characteristics like flexibility, inert and versatility and so on. Without plastic our modern society might looks different. Some of its advantages are medical uses, cost effective, requires

less energy for its production, light weight, easy to carry and biocompatible[2-3]. Due to these characteristic plastics are manufacturing at very wide range among the other products.

But like coin which has two sides just like that each thing have two faces one positive and one negative. If plastic have advantages it also having number of side effects also. Therefore, anything which become in excess need to be reduce to maintain a equilibrium. Now plastic pollution becoming a Global problem which needs a solution, that is why it is becoming a topic of concerned for various researchers, for which they are conducting various researches to conserve our ecosystem.

Our main concern of our study is regarding the toxic and adverse impact of plastic on our health. Although on one side Plastic is becoming a part of our modern society but on other side it is internally engulfing our life while putting impact on our health. Scientific studies showed us that whether invention of plastic brings evolution in our society but along with this invention of various plastic items we are not only putting impact on our life's but also put in danger the life of other organisms. Scientists shown in their studies that by using plastic bottles for longer period of time we themselves putting our health at risk because it is containing various chemicals which are directly putting a great impact on our health. These chemicals are Biphenyl A [BPA], thiolates, anti-mon-trioxide, brominates flame retardants and phthalates are found in bulk in medical devices, food packing, toys, computers[6]. Most of the industries and public waste which contain plastic are carelessly dumped into rivers and oceans, which is putting a great impact on marine life as plastic litter is ingested by marine animals. The less conspicuous small plastic pallets and small granules are great threat to marine biota. The plastic waste are largely found near ocean area. As plastic is lighter in weight its particles easily get dispersed of at a longer distance due to which they can put harm at wide range. There are number of chemicals which leach from plastic waste which are mainly responsible for accelerating and increasing the temperature [4]. People are generally come in exposure to these chemicals not only while manufacturing but also while using plastic pickings which are causing a serious health hazards like cancer, birth defect, impaired immunity, endocrine disruption, development and reproductive defects etc. BPA is used as a monomer for production of polycarbonate plastic and for PVC. BPA particles are also detected in dust of aquatic environment[5]. This shows us that plastic putting impact on each life cycle.

In India, our Government agencies as well as various agencies take the initiative and step forward to control the usage of plastic such as Pollution Control Board, Bureau of Indian Standard (BIS), Recycled Plastic Manufacture and Usage Rules 1999, Plastic Waste Management and Handling Rules, 2011. Tamil Nadu Pollution Control Board (TNPCB) has taken action to mitigate the non-reusable plastic waste by co-processing at cement kilns. Reliance Industries (RIL) in partnership with Gujarat Engineering Research Institute (GERI) constructed a 900-meter road stretch using 5% plastic waste[7].

RESEARCH STATEMENT

A Review to Assess the Knowledge on the effects of plastics

OBJECTIVES OF THE STUDY

This review aims to assess the knowledge on the effects of plastics.

MATERIALS AND METHOD

A search strategy was built to identify all publications exploring the knowledge on the effects of plastic. The following search terms were employed: plastic pollution, usage of plastic bags, plastic containers for food and drinks. MeSH terminology, truncations and Boolean Operators were used as applicable for PubMed & Google Scholar databases.

After systematic search strategy, studies were retrieved exploring the knowledge on the effects of plastic. The full text critical reading of entities was done and studies were excluded after mutual agreement on the basis of inclusion and exclusion criteria. Therefore, n=20 studies met the full eligibility criteria after thorough full text review.

RESULT:

The major findings from the studies reviewed (n=20) showed Questionnaire and self-structure interview methods on the knowledge of the effects of use of plastic.

Table 1. Result characteristics of included studies, n=20

SR. NO.	AUTHORS (YEAR)	SAMPLE SIZE	TOOL USED	RESULT FINDINGS
1.	Legesse Adane and Diriba Muleta (2011)	**Sample size:230** 167males and 63 females	Questionnaire method is used	The larger proportion of the respondents used plastic bags more frequently than any other plastic products regardless of their age, occupation, and economic and educational status. Low price and easy availability were the main reasons for the widespread utilization of these products.
2.	Rachada Kasemsup et al. J Med Assoc Thai. (2011)	**Sample size:** 100 parents and 100 health personnel from Queen Sirikit National Institute of Child Health	Questionnaire method is used	There are no differences in knowledge, attitudes and practices relating to plastic containers between parents and health personnel. Even though, 80 percent of participants usually use plastic containers for food and drinks, their knowledge about plastic is inadequate.

3.	Kalaiarasi, S (2014)	**Sample size:** 80 samples selected by simple random method	Structured Questionnaires method is used	The study findings revealed that there was a positive correlation between post-test level of knowledge and level of attitude(r=0.414) at P < 0.001. The study concludes that, the video assisted teaching programme could effectively increase the knowledge and attitude towards the hazards of plastic usage among selected higher secondary school students. This study clearly stated that, health education plays a vital role in improving knowledge and attitude towards the hazards of plastic usage among selected higher secondary school students.
4.	Henna Malik, Kusum Roy (2015)	**Sample size:60 adolescents**	Questionnaire method is used	Majority of the adolescents 37 [61.67%] had inadequate knowledge regarding plastic waste mismanagement and its environmental hazards followed by 23 [38.33%] adolescents who had moderate knowledge; while none of them had adequate knowledge regarding plastic waste management and attitude assessment was done by Likert rating scale, 45 [75%] adolescents had positive attitude towards plastic waste management, followed by 15[25%] adolescents who neutral attitude.
5.	Angelin Priya, Manju Toppo, Daneshwar Singh, Nisha Singh, Soumitra Sethia (2016)	**Sample size:300 school students of standard 7-9 and 11**	Questionnaire method is used	Out of 300 students, 56% used plastics in the form of tiffin and water bottle, 37.33% used in the form of Water Bottles only and 6.66% did not use Plastic in the form of anything. The knowledge of the respondents increased after the educational intervention
6.	Nitin Joseph, AswinKumar, Majgi,Ganesh, and Raghavendra Babu Yellapur	**Sample size:250** Majority of females i.e. 160, and out of 250 sample	Interview method is used	Out of these 216 participants, 177(81.9%) knew that plastics are non-biodegradable and 50(23.1%) knew that plastic contained carcinogenic substances. Awareness level about the hazards associated with usage of plastics was significantly more among females

	Prahalad,(2016),	187 are undergraduate		
7.	Rafia Afroz , Ataur Rahman , Muhammad Mehedi Masud , Rulia Akhtar (2017)	**Sample size:** 35 % of households	Questionnaire method is used	The results of the study also indicate that people who are more informed and more convinced of their knowledge have a more positive attitude toward recycling than their counterparts do. Furthermore, this study provides additional evidence of the level and classification of importance of motivating factors for plastic recycling, using the modified average and coefficient of variation of the models. From the analysis, the factor "helps reduce landfill use" is found as the most important factor and the factor of "raising money for charity" is found as the least important factor that motivates households to participate in recycling.
8.	Mat Issa, Z. and Ab Rahim, N. F. (2018)	**Sample size:131 food hawkers** who sold hot edible foods at three-night market areas in Kuala Selangor, Selangor, Malaysia	self-administered structured questionnaire is used	The study outcomes revealed that the food hawkers appeared to have good perceptions towards environmental hazard (3.52 ± 0.48) and regulation (3.51 ± 0.38), but poor perceptions on awareness (2.73 ± 0.66) and health hazard (2.55 ± 0.64)
9.	Tauseef Aman, Saima Abid, Saidul Abrar, Baber Awan, Ayesha Khan, Hamana	**Sample size: 410**	Questionnaire method is used	Respondents were mostly educated. Among the participants 82.2% knew that plastic release carcinogenic substances especially when hot food items are packed in it; 72.7% were in favour of using biodegradable plastic bags, while 94% were agreed to use cloth bags instead. 84% responded in favour of the legislation banning the use of single

	Tahir, Amna Ejaz, Sheraz Ahmad Khan (2018-2019)			use plastic bags but in practice 94.4% respondents were using plastic bags.
10.	JoshuaO'Brien,GladmanThondhlana (2018)	**Sample area: South Africa**	Questionnaire method is used	The results showed that the majority of respondents perceived there was a plastic bag use problem in the country but still highly used plastic bags because it was convenient to do so. Factors like, gender, age, education and environmental consciousness influenced people's willingness to pay for plastic bags but the relationships were generally weak. The paper outlines which interventions might be most effective in achieving pro-environmental actions.
11.	B. Geetha Praveena (2013)	**Sample size:100**	Questionnaire method is used	About 55% had inadequate knowledge, 45% had moderately adequate knowledge, and none of them had adequate knowledge.
12.	Sabrina Pereira (2019)	**Sample size:** 200 sample	Close ended questionnaire method is used	The results suggest that one's residency, or geographic distance from the coast, has no bearing on plastic and paper bag policy support and that most participants, 77%, classify plastic pollution as a serious threat to various types of wildlife, the marine environment, human health, and Rhode Island's economy. Approximately 77% of participants support the bag ban while 68% support, or are neutral towards, a statewide paper bag fee of 10 cents. Approximately 86% of participants were also found to be aware of, and 75% were found to be highly knowledgeable of, the severity of this global issue.
13.	NajninKhanam, VasantWagh, Abhay MGaidhane,	**Sample size: 100**	Semi structured questionnaire	The hazards of plastics could be reduced by their reduced usage (75.78%) and reuse at home (41.05%) followed by segregation and proper disposal (12%). Students (26.32%) told that plastics are not biodegradable. Students (37.89%) had

	SyyedZahiruddinQuazi (2019)			knowledge regarding plastic bags banned in Wardha city. Students (35.79%) knew about fine imposed for using plastic bags. Main source of information was school (83.15%) followed by television and radio (80%) and parents (24.21%). Students (65.26%) agreed for ban on plastic bag usage, whereas 69.48% of students agreed to campaign for harmful effect of plastics in daily use.
14.	Namrata Devulkar, Sanjeev Badli (2020)	**Sample size: 50 nurses in selected hostels at Belagavi Karnataka**	Questionnaire method is used	In the pre-test 31(62%) Average knowledge and in the post-test 62% had average knowledge. This indicates that the gain in knowledge score is statistically significant at < 0.05 level. Therefore, PTP on health hazards of plastic among staff nurses is effective to improve knowledge.
15.	Rani R. Usha (2019)	**Sample size: 30 housewives in Avalahalli rural community area, Bangalore**	Questionnaire method is used	In this study suggested that the teaching programme on knowledge regarding hazards of plastic usage was effective and statistically significant. The study reveals that there is significant association between selected demographic variables like religion and monthly income with post-test knowledge score of housewives at $p<0.05$. Data was analysed using descriptive and inferential statistics.

16.	Mrs Prasad D. Grace, Mr Oliver Jincilin, Mr Gopi Chandran (2020)	**Sample Size: 50 school children at Subash Memorial High School, Bangalore, Karnataka**	Questionnaire method is used	The study indicates highly significant improvement in the level of knowledge as two tailed probability is <0.05. There was statistically significant association with their geographical background and there was no significant association between, knowledge of hazards in plastic use with age, sex, class, family income, mother's education, mother's occupation and type of utensils to carry food. Therefore, structured teaching programme on health hazards of plastic use among school children is effective to improve knowledge
17.	Antony Aneeta, George Ashly, Jose Jeemol, Paul Leenet, Babu Mariya P, Sikha P S, Paul Lisha, Sr. Naveena CMC, Joseph Anju (2018)	**Sample Size: 30 adults of ward 16 of Keezhmadu Panchayath, Aluva, Kerala**	Questionnaire method is used	The result of the study showed that 13.34% had poor knowledge, 76.6% had average knowledge, and 10% had good knowledge in pre-test. In post-test 96.6% had good knowledge, 3.34%had average knowledge. There was significant difference in the pre-test and post-test knowledge scores. The comparison value of 't' is 14.74 is greater than the tabulated value 1.761. This shows that there is a significant difference in knowledge score before and after teaching program. The study concluded that majority of adults had an average knowledge regarding the ill effects of plastics.

18.	Bahattare V, Salunke S, Nagaonkar A (2020	**Sample size: 204 using simple random method on aged above 18 years in UHTC area Latur, Maharashtra**	Interview method is used	The study conclude that majority of residents have good knowledge about hazards of single use plastics and aware of Plastic ban. Most of them were in favour of plastic ban still majority of residents don't say no to carry bags. Therefore, there was significant difference between awareness about plastic hazards in young adults and elderly and low level of education and high level of education.
19.	Habeena Shaira, Imaad Mohammed Ismail, Nihal Ahmed, Noorul Zeena, Peer Arooj, Poojary Shreya, Reiham Shafir, Rahima Nazeer (2020)	**Sample Size: 300 estimated using sampling technique in Madani Nagar area Mangalore city, Karnataka.**	Interview method is used	The study results showed that more than 70% were aware that single-use-plastics cause's harmful effects on health but more than 95% were unaware that plastic causes global warming and climatic change in the environment. The attitude towards the single-use-plastic was satisfactory since 80% of them were of opinion that single-use-plastic should be banned and more than 60% were willing to replace the plastic bag with an alternative. Practice was found to be poor since 82.4% were using plastic bag on regularly basis. The overall knowledge regarding single-use-plastic was inadequate, attitude was favourable and practices were unsatisfactory. Awareness regarding single-use-plastics and its harm and strict enforcement of plastic ban is the need of the hour.

20.	Kanupriya Gupta and Rohini Somanathan	**Sample size:180** fruit and vegetable and grocery shops	Questionnaire method is used	Results showed a dilution in the efficacy of the ban within a year, with widespread lack of enforcement. About 94% of the consumers continue to use plastic bags in blatant violation of rules. After checking the effectiveness of the policies, the results indicate that cumulatively these interventions increase the proportion of consumers who bring their own bags from 4.6% in the baseline to 17.7% post treatment. The number of consumers who would only use plastic bags came down on average from 80.8% to 57.1%.

CONCLUSION

Maximum number of respondents were having knowledge about hazards of plastic use. Most of the respondents were in favour that single use plastic should be banned and most of them are willing to replace the single use plastics with the alternatives. The impact of plastic was found as threat to living organisms due to lack of unchallenged attempt on maintaining a good waste management. The study observed that plastic bags were frequently used among the single use plastics items as it cost free price. Therefore, to make things better most of the respondents suggested using reusable bags made of other fabrics instead of using plastic would help in reducing the health hazards and strictly enforce the ban on usage of single use plastics. Thus, community settings can incorporate with waste management practice to prevent plastic pollution and restoring the earth along the livings.

REFERENCES:

1. Richard C. Thompson , Charles J. Moore, and Shanna H. Swan. Plastic , the environment and human health: current consensus and future trends[Internet].2009 Jul 27; Vol.364(1526), Page no: 2153-2154
2. Izhar Husain, Mesheil Alalyani , Dr.Arif Habib Hanga. Disposal plastic food container and its impacts on health[Internet].2015 April 01[2015 April 05]; Vol no. 130, Page no: 618-623
3. Ram Proshad, Tapos Kormoker, Md. Saiful Islam, Mohammad Asadul Haque, Md. Mahfuzur Rahman, Md. Mahabubur Rahman Mithu. Toxic effect of plastic on human health and environment: A consequences of health risk assessment in Bangladesh [Internet]. [2018]; Vol. 6(1), Page no:1-2.
4. Prabhash Kumar. Impact of plastic on the environment[Internet].[2018 Jan-Feb]; Vol no.2(02), Page no:471-474; Available from: www.ijtsrd.com

5. Alka Grover , Akanksha Gupta, Shivani Chandra, Abha Kumari, and SM Paul Khurana.Polythene and environment[Internet]. 2015 May[2015 April]; Vol no.5(06), Page no: 1091-1098.
6. Okunola A Alabi, Kehinde I Ologbonjaye, Oluwaseun Awosolu and Olufiropo E Alalade. Public and environmental health effects of plastic wastes disposal: A review[Internet].
7. RRN Sailaja Bhattacharya , Kaushik Chandrasekhar ,MV Deepthi, Pratik Roy, and Ameen khan.Plastic waste management in India: Challenges and opportunities[Internet]. 2018 May 30[2016];Vol no. 221, Page no. 1-17.