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"Effectiveness of Structured Teaching Programme on Knowledge about Plastic Utilization and its Environmental and Health Effect among the 1st Year B.BSC Nursing Students"

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Abstract:

Background: Plastic material is prepared by polyvinyl chloride commonly in India. Plastic used to prepare slippers, school stationary, as well as buildings and offices. Systemic disorders, hormonal imbalance and cancers is caused by plastic use so it is important to know the hazards of plastic utilization and its environmental and health effect.

Objectives: Study investigated the effectiveness of structured teaching programme on knowledge about plastic utilization and its environmental and health effect among the 1st year B.BSC nursing students.

Methods: A 101 nursing students, selected by convenient sampling technique. Structured questionnaire was used to assess the knowledge regarding plastic utilization and its environmental and health effect among 1st year B. B.Sc. nursing students in Nursing colleges of western Maharashtra. Evaluative approach and one group pre-test, post-test design was used.

Article History
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Introduction:

In the last 60 years, plastic has become a useful and versatile material with a broad applications.[1]

India generates 5.6 million metric tons of plastic waste[2] annually. India is the fourth highest Asian importer of plastic waste behind Hong Kong, Philippines, Indonesia.[3] Average Indian uses one kilogram (kg) of plastics per year.[2]

The materials composed of various elements such as hydrogen, carbon, nitrogen, oxygen, sulphur and chlorine include in the term "plastics".[3]

Plastic is a group of different chemical substance having a molecular weight high called polymers, that changes from the thin consistency of plastic into solid at the final state. Many smaller units called monomer are repetitively linked to form polymers [4].

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Polyvinyl chloride (p v c) is a most popular plastic polymer. When any material like food or blood is kept in the plastic containers it gets dissolved in that chemical. The same chemical cause cancer later, as well as skin diseases and other health hazards[5].

Plastic has become very important in all age groups of human living in the form of catheters, masks, sheets etc. till the grave with its multiple facts of application. It is been used for packaging, carrying, storing and wearing, that which made the life riskier to its expose. It is health as well as environmental hazard[6].

Disposal of the plastic bags is done haphazardly by ignoring of its effects on the environment and health of humans and animals[7]. The practice of throwing plastic bags results in them being found in to the drainage, the blockage created is a nuisance, creates unsanitary environment which results in hazards to health and spread of water-borne diseases.[8]

The hazards due to this plastic can be reduced by only human being, the control in using of this plastic will reduce the problems due to plastic. The use of plastic can control by recycling, reusing and refuse, can also replace the substance which are made up of plastic with easily decomposable materials which is not harmful to the environment and human health[9].

In India plastic use is increased too much. The devastating consequences of plastic no one can ignore.[10]

One research done on seventy-one poly vinyl chloride made toys including five from India shows that a high level of phthalates causes susceptible effects in adults, especially pregnant woman will result in immature babies' defects and depressed harm[11].

Hazards of plastic are blockage of water drains, harm to the street cows and zoo animals. Plastic is a powerful adversary for anybody who cares about the future of our environment, as it causes chemical toxins to the subsoil of our landfills and if burnt, it causes atmospheric pollution.[12]

Separation is the key to this waste management. One million years takes to degenerate plastic bags[13].

The literature evidences say health and environment has bad effects of plastic. The self-observation of the investigator regarding the plastics use motivated to investigate and teach students on hazards of plastic use.

Methodology: A 101 nursing students, selected by non-probability convenient sampling technique. An evaluative research approach and one group pre-test post-test design was used. Samples were selected according to inclusion criteria that is students studying in 1st Year B.B.sc (N), willing to participate in the study and who can understand English, the absent students at the time of data collection were not included in the study. Structured questionnaire was used to assess the knowledge regarding plastic utilization and its environmental and health effects among 1st year B. B.Sc. nursing students in Nursing colleges of western Maharashtra.

Result:

Table No 1: Distribution of frequency and percentage of 1st year B.B. Sc nursing students according to demographic variables.

N=101

Sl. No	Socio demographic variables	Category	Respondent	
			Frequency	Percentage
1.	Age	17-18 years	35	34.65%
		19-20 years	62	61.38%
		20 and above	4	3.9%
		Male	13	12.87%

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2.	Sex	Female	88	87.12%
3.	Religion	Hindu	63	62.37%
		Christian	32	31.68%
		Muslim	5	4.95%
		Other	1	0.99%
4.	Type of family	Nuclear family	80	79.20%
		Joint family	21	20.79%
		Extended family	0	0%
5.	Area of residence	Urban	52	51.48%
		Rural	35	34.65%
		Suburban	14	13.86%
6.	Income of family	Rs. 5001 and above	45	44.55%
		Rs. 4001- 5000	28	27.72%
		Rs. 3001 – 4000	17	16.83%
		Rs.3000 and below	11	10.89%
7.	Education of father	Formal education	89	88.11%
		Non-formal education	12	11.88%
8.	Education of mother	Formal education	92	91.08%
		Non-formal education	9	8.91%
9.	Occupation of father	Farmer	40	39.60%
		Services	28	27.72%
		Businessman	7	6.93%
		Other	26	25.74%
10.	Occupation of mother	Housewife	84	83.16%
		Services	10	9.96%
		Other	7	6.93%

The data presented in the table 1 reveals that maximum 62 (62.38%) students belongs from 19- 20 years age group, majority of students 88 (87.12%) were female, majority 63 (62.37%) students were Hindu, maximum 80 (79.20%) students were from nuclear family, majority 52 (51.48%) students were from urban area, maximum 45 (44.85%) students family income was Rs. 5001 and above, maximum 89 (88.11%) student's fathers have taken formal education, maximum 92 (91.08%) student's mothers having formal education, maximum 40 (39.60%) student's fathers were farmer, maximum 84 (83.16%) students' mothers were housewife.

FIGURE 1: shows percentage of pretest knowledge of 1st year nursing students regarding plastic utilization and its environmental and health effects. N=101

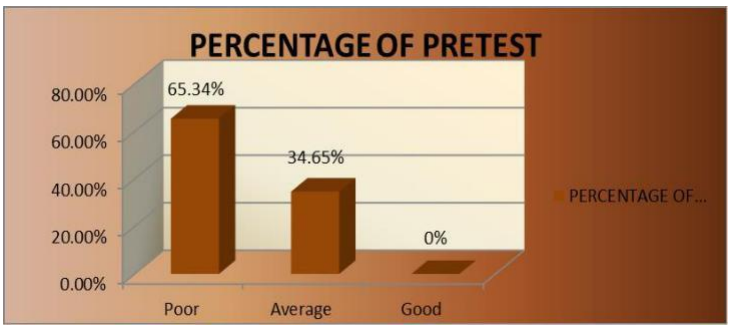

Figure 1 shows that 65.34% students have poor knowledge, 34.65% students have average knowledge.

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FIGURE 2: Representing percentage of posttest knowledge of 1st year nursing students regarding plastic utilization and its environmental and health effects. N=101

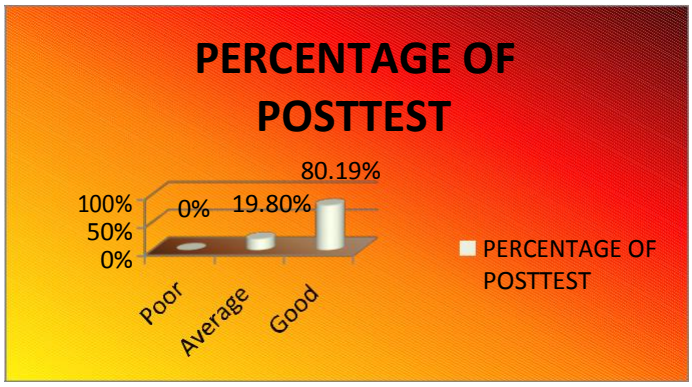

Figure 2 shows that majority 80.19% of the students have good knowledge 19.80% have average knowledge.

FIGURE 3: Mean, median and standard deviation of knowledge score of students

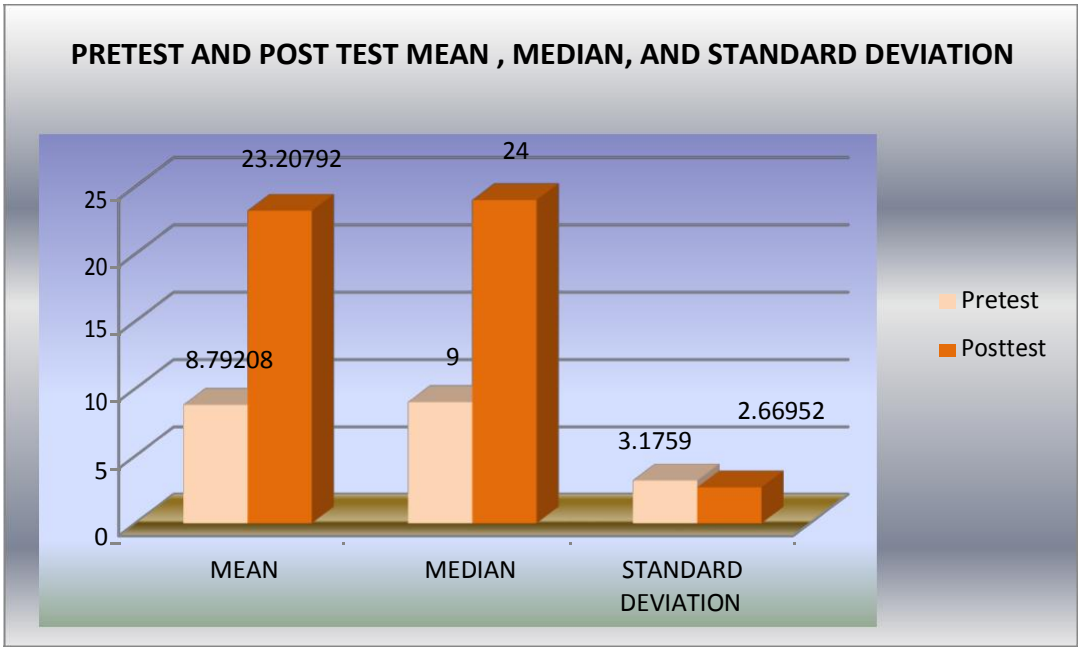

Figure 3 shows pre-test mean of 8.792 and post-test mean is 23.207. The pre-test standard deviation 3.175 and post-test was 2.669. The computed 't' test was 31.947, since the 'p' value was less than 0.05 the null hypothesis is rejected at the 95% confidence level. It shows that the teaching program is effective method for improving the knowledge level of 1st year students regarding plastic utilization and its environmental and health effects.

TABLE 2: Association between demographic variables and pretest knowledge level of 1st year student regarding plastic utilization and its environmental and health effects KINS, Karad. N=101

Sl. no	Socio demographic variables	Frequency	%	Pre-test				Chi square	P value	Significance
				Poor		Average				
				No	%	No	%			
1	Age									

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	17-18 years	35	34.65	17	48.57	18	51.42	6.656	0.0099	**
	19 and above	66	65.34	49	74.24	17	25.75			
2	Sex									
	Male	13	12.87	5	38.46	8	61.53	5.192	0.0227	**
	Female	88	87.12	62	70.45	26	29.54			
3	Type of family									
	Nuclear family	80	79.20	70	87.5	10	12.5	0.1407	0.7076	NS
	Joint family	21	20.79	19	90.47	2	9.52			
4	Religion									
	Hindu	63	62.37	54	85.71	9	14.28	0.9247	0.3362	NS
	Others (Christian, Muslim)	38	37.62	35	92.1	3	7.89			
5	Area of residence									
	Urban	66	65.34	58	87.87	8	12.12	3.019	0.0823	NS
	Rural	35	34.65	26	74.28	9	25.71			
6	Income of family									
	Rs.5001 and above	45	44.55	25	55.55	20	44.44			
	Rs.5000 and below	56	55.44	46	82.14	10	17.85	8.447	0.0037	**
7	Education of father									
	Formal	89	88.11	54	60.67	35	39.32	2.339	0.1262	NS
	Non-formal	12	11.88	10	83.33	2	16.66			
8	Education of mother									
	Formal	92	91.08	59	64.13	33	35.86	0.6743	0.4116	NS
	Non-formal	9	8.91	7	77.77	2	22.22			
9	Occupation of father									
	Farmer	40	39.60	22	55	18	45			
	Services	28	27.72	19	67.85	9	32.14	11.277	0.0036	**
	Other (businessman, daily wages)	33	32.67	30	90.90	3	9.09			
10.	Occupation of mother									
	Housewife	84	83.16	52	61.90	33	39.28			
	Other (services, daily wages)	17	16.83	15	88.23	2	11.76	4.602	0.0319	**

**: Highly significant NS: Not Significant.

Table 2, shows that there was significant association between the knowledge of 1st year students regarding plastic utilization and its environmental and health effects with age, sex, income of family, occupation of father, occupation of mother as P-value is < 0.001 and there was no significant association between type of family, religion, areas of residency, education of father, education of mother as P-value is more than 0.05.

DISCUSSION

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The findings of the study discussed under following parts.

SECTION 1: Description of socio-demographic variables of 1st year students, shows that maximum 62 (62.38%) students belongs from 19- 20 years age group, majority of students 88 (87.12%) were female, majority 63 (62.37%) students were Hindu, maximum 80 (79.20%) students were from nuclear family, majority 52 (51.48%) students were from urban area, maximum 45 (44.85%) students family income was Rs. 5001 and above, maximum 89 (88.11%) student's fathers have taken formal education, maximum 92 (91.08%) student's mothers having formal education, maximum 40 (39.60%) student's fathers were farmer, maximum 84 (83.16%) students' mothers were housewife.

SECTION 2: Findings related to pre-test and posttest knowledge score on utilization of plastic and its health effects among the students:

Pre-test shows that 65.34% students have poor knowledge, 34.65% students have average knowledge.

Posttest shows that majority 80.19% of the students have good knowledge 19.80% have average knowledge.

SECTION 3:

1. Mean, median and standard deviation of pre-test and posttest knowledge score of 1st year students regarding plastic utilization and its environmental and health effects among the students shows that pre-test mean of 8.792 and post-test mean was 23.207. The pre-test standard deviation 3.175 and post-test standard deviation was 2.669. The computed 't' test was 31.947, since the 'p' value was less than 0.05 the null hypothesis is rejected at the 95% confidence level. It shows that the teaching program was effective method for improving the knowledge level of 1st year B.BSC nursing students.

   These results were supported by Dr. S. Ani Grace Kalamati, Dr. S. Vijayalakshmi, R Jayalakshmi[14].
2. Association between pre-test and selected demographic variables-

   It shows that there was significant association between the knowledge of 1st year students regarding plastic utilization and its environmental and health effects with age of (6.656), sex (5.192), income of family (8.447 mother), occupation of father (11.277), occupation of mother (4.602) and there was no significant association between type of family(0.1407), religion (0.9247), areas of residency (3.019), education of father (2.339), education of (0.6743).

   These results were supported by Mr. Jojo Jose[15].

Result:

The computed 't' test was 31.947, 'p' value was <0.0001 so the practice teaching was effective method for improving the knowledge level of students regarding plastic utilization and its environmental and health effect. There was significant association between the knowledge of students regarding plastic utilization and its environmental and health effects with age of (6.657), sex (5.192), religion (9.408), income of the family (10.299), and occupation of father (12.908).

CONCLUSION

'P' value was significant so it indicates practice teaching was effective method for improving knowledge regarding the utilization of plastic and its environmental and health effects among 1st year B.B.sc nursing students

Structure teaching program was effective method for improving the knowledge level of 1st year students.

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REFERENCES

1. Callan, Scott & Thomas. Environmental Economics and Management. Environmental Health Journal. 2006; 4(2):59
2. Plastic Waste: -European Commission. Available at URL: thh ttp://ec.europa
3. Elias, Hans-Georg. An Introduction toPlastics, 4th ed.: Wiley & Weinheim Publishers; 2003. p121
4. Misra S G, Prasad D, Environmental pollution solid waste,1st ed Delhi venus publishers.
5. Susan norwood.environmental health hazards and children.ht(cited 1996 FEB 5).
6. Karmaus w, Rie bow jf.storage of serum in plastic and glass containers may alter the serum concentration of polychlorinated biphenyls. Environment health prospect.
7. Hopewell J, Dvorak R, Kosiov E. Plastics recycling: Challenge and opportunities. Philos Trans R Soc Lond B Biol Sci. 2009; 364:2115-26.
8. Deepak k. Nair. A study to assess the effectiveness of structured teaching programme on hazards of plastic waste and its safe disposal among a selected rural community area at Banglore, 2010. 5
9. Henry Parker, Burning of plastic waste causes health hazards Nov 2007.
10. Prathiba S.The effectiveness of a structured teaching programme on knowledge about cancer prevention and early detection among Teacher trainees in a selected college of education.
11. Daniel J, Effectiveness of planned Teaching programme on postnatal care for antenatal and postnatal mothers attending a selected hospital in kerala.
12. Vapnek, janathanM,Maynard, Frederick M,Kim,jiensup. Apospective randomized trial of the Lofric Hydrophilic coated catheter versus conventional plastic catheter for clean intermittent catheterization. journal of urology2003 March;169(3);994-998
13. Adane L, MuletaDiriba. Survey on the usage of plastic bags, their disposal and adverse impacts on environment: A case study in Jimma City, South western Ethiopia. available from URL: http://www.academicjournals.org/JTEHS.
14. Dr. S. Ani Grace Kalamati, DR. S. Vijayalakshmi, R Jayalakshmi conducted a study on effectiveness of structured teaching programme regarding hazardous of plastic waste and its safe disposal.
15. Jose, G B Derraik. The Pollution of the Marine environment by Plastic Debris. Marine Pollution Bulletin. 2002 Sept; 44(9): 842-852

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