

Effectiveness of a Structured Teaching Programme to the Pre University Students on Hazards of Plastic use in a selected Pre University Colleges at Bangalore

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Abstract: Back Ground of the Study: Science and technology is developing very rapidly in the world. These developments cause positive and negative effects on people. A significant negative effect is increasing incidents of illness like cancers, birth defects and many more. **Objectives of the Study:** 1.To assess the pre-intervention knowledge of the Pre university College Students regarding hazards of plastic use.2.To assess the post-intervention knowledge of the Pre university College Students regarding hazards of plastic use.3.To assess the effectiveness of structured teaching programme regarding, hazards of plastic use among the Pre university College Students.4.To associate the pre interventional knowledge of Pre university College Students regarding health hazards of plastic use with selected demographic variables. **Methodology:** A pre-experimental and evaluative the research approach was used with one group pre-test post-test design to evaluate the effectiveness of STP. 60 pre university college students were selected by the Non probability convenient sampling in Mother Theresa Pre University College, Bangalore. The 32-research questionnaires were prepared. Results the pretest knowledge score in Mean $\pm$ S.D. 9.3 ± 2.9 , ranged between 4-16 whereas the post- test knowledge score in Mean $\pm$ S.D. 20.56 ± 2.29 , ranged between 16-26 respectively. The mean difference 11.26 between pre-test and post-test knowledge scores & paired “t” test 31.82 in $df=59$ ($p<0.05$). This showed that the structured teaching programme was highly effective in improving the knowledge of Pre University College Students regarding hazards of plastic use. The chi-square value of the pre-test level of knowledge significant at $P<0.05$ level showed that there was significant association between gender, residence area, education level and family history of use of plastic use & other demographical variables like age, religion, type of family and source of information regarding hazards of plastic use were non-significant. **Conclusion:** The conclude the topic the structured teaching Programme was very effective to enchained the knowledge regarding hazards of plastic.

Keywords: Assess, Effectiveness, Pre- University College Students, Health Hazards of Plastic Use, Structured Teaching Programme.

Research Paper

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INTRODUCTION

“The birth right of all living things is health. This law is true for the soil, for plants, for animals and for man. Any weakness or defect in the health of any previous link in the chain is carried on to the next and succeeding links until it reaches man”.

Revive Our Dying Planet

As a result of increased production and use of chemicals, a myriad of chemical hazards are present at homes, schools, colleges, play grounds and communities. Chemical pollutants are released in to the environment by unregulated industries or are emitted from heavy traffic or toxic waste cites. About 50,000

children aged 0-14 years old die every year as a result of unintentional poisoning.

One among the most hazardous manufacture is the plastic. Plastic is a group of different chemical substances, which consists of a substance having a high molecular weight called polymers, that changes from the thin consistency of plastic into solid at the final state.

Plasticizers are the chemicals used to make plastic malleable and flexible to give different shapes and forms. They are Diethyl Hexyl Phthalate (DEHP), Polychlorinated Biphenyls (PCBs), Biphenyl-A, lead, Cadmium, Tinuvin, Vinylacetate, low density poly Ethylene, Chromium etc. plasticizers leach in to the

content stored in it that further causes health hazard when it is consumed by human body.

Plastic has become a part of every aspect of human living. It is made important from birth by its use in the form of catheters, masks, sheets etc till the grave with its multiple facets of application. It is been used for packaging, carrying, storing and wearing, that which made the life more risky to its exposure. It has become the health and environmental hazard.

Need for the Study: "Plastics Give A Helpful Hand, But They Are Polluting Our Land"

Anonymous

In India plastic consumption trebles every decade. The impacts of plastic can be felt across every stage of life, from fetus to adulthood. No one can ignore the devastating consequences of plastic. In India polyvinyl chloride is commonly used to prepare plastic materials. From slippers to the stationary used in schools, buildings and officers are plastic. The dangers of PVC are pervasive phthalate, one of the plasticizers bond loosely with polymer chains and can easily leach out, leading to severe consequences such as hormonal imbalance, systemic disorders, decline in sperm count in men and also causes cancers.

In present day times, the usage of plastics amongst college going children in India had increased remarkably in the form of plastic P U College bags, water bottles, cans, plastic food containers etc and is exposed to many dangers. Therefore the research investigator strongly felt that this study will go a long way in exposing the hazards of plastic use by children and help them to overcome them.

Plastic causes serious damage to environment. To reduce the hazards of plastic pollution is to reduce the use of plastic & there by force a reduction in its production or using the chemical substances emitted during recycling of plastics. Children products like food packaging can be safely packed with materials bearing ultraviolet / evidence based cured coating. Each manufacturer must perform its own analysis to determine whether its packaging is safe for food use. The art and creative materials are chosen carefully by the P U College students under established guidelines for labeling of non toxic art products (D-4236) look for these labels on arts & craft products including crayons, markers, etc.' and select products made from plastics are useful and only a few types are suspected to release potentially harmful chemicals. Plastics with a recycling code of 3, 6, or 7 should be avoided.

The waste materials collected are of all types including plastic materials, such as plastic bags, plastic cups, plastic bottles etc. Instead of carrying these wastes away, they are burnt on the road side polluting the area

with thick smoke which produce toxic gases (because of burning of plastic material) posing a health hazard. Inhaling of such gases causes lung diseases and even cancer. They resort to burning of waste material with the main intention of reducing the number of trips a lorry has to take. Burning of waste material in public is a serious offence and violation of Corporation by laws.

Review of Literature

"Literature reviews can serve number of important functions in the research process and they also play a critical role for nurses seeking to develop and evidence base practice."

A randomized prospective study on plastic or metal stents used for malignant stricture of common bile duct repair was compared in terms of cost and efficiency in the treatment. The sample consisted of 118 patients (mean age 75 years) with malignant strictures of the common bile duct. Those were randomized with placement of a plastic or metal stent. Study showed longer time to first obstruction to patients in the metal stent group (metal stent, median not reached vs. plastic stent, 5 months, $p=0.007$). The number of additional days of hospitalization, days of antibiotic therapy and the numbers of ERCPs and trans abdominal Us procedures were significantly higher in the plastic stent group.

A study to find extraction of Di Ethyl Hexyl Phthalate (DEHP) from Total Protein Nutrient (TPN) Solution– Polyvinyl chloride bags showed a range 0-39/ml (depending on lipid concentration and storage condition) of DEHP (content of plastic) leaching from TPN is smaller than DEHP, leaching from PVC tubing during hemo dialysis. DEHP toxicity in humans reaches from blood transfusion and leads to pulmonary insufficiency and pulmonary edema.

Polychlorinated Biphenyls (PCBs) are known to decrease thyroid function, sperm count and fertility and increases the risk of testicular cancer. The study conducted on albino rats to know the efficiency of PCBs. The results showed no change in serum testosterone, but estradiol levels increased in 30 days treated animals, T3 and T4 levels decreased and TSH levels increased in both 15 and 30 days treated animals. Body weight, epididymal weight, sialic acid, glycerol phosphoryl chlorine (GPC) and sperm count were decreased only in 30 days Aroclor treated group. The result suggested that Aroclor 1254 treatment for 15 and 30 days induced hypothyroidism in rats, but epididymal functions were altered at 30 days treatment. The study also suggested that the adverse effect of Aroclor PCB on epididymus could be due to an indirect action through hormonal regulation.

METHODOLOGY

Research methodology provides a structured framework for conducting a study, ensuring that the

research process is systematic, valid, and replicable. In this study, a pre-experimental research approach was used. This approach was considered appropriate because it allowed for the systematic collection and comparison of numerical data to assess the effectiveness of the structured teaching programme.

In this study, one group pre-test post-test design was adopted. 60 pre university college students were selected by the non-probability convenient sampling technique from Mother Theresa PU college, Bangalore. All The Participating student are voluntary, willing to participate & follow the instruction of the researcher. Before the data collecting, the tools & STP (Structured Teaching Program-me) was validity by the 5 experts. A structured multiple-choice question was prepared in English & kannada language & participants weren't given any financial offer. The tools divided in two categories. Category A: Socio demo graphical Variables -It consist of 10 items & Category B: It consist the 32 tools consisted of a structured knowledge questionnaire designed to assess students' knowledge regarding hazards of plastic use. Category B include 32 tools consist in Knowledge on general aspects of hazards of plastic use, Knowledge on etiology of hazards of plastic use, Knowledge on signs and symptoms of hazards of plastic use, Knowledge on type of hazards of plastic use and Knowledge on management of hazards of plastic use. The 07 questions include general information, 06 questions in etiology, 03 questions in sign-symptoms, 07 questions in type & 09 questions in management of plastic use. The Reliability of the 32 Structured Knowledge Questionnaire was determined using the Test-Retest Method, applying Karl Pearson's Correlation Coefficient formula & Calculated 0.89. The data was collected in 08/12/2016 to 15/12/2016. The participants given time to 30—35 minutes. The correct response given to 1 marks & incorrect questions given to 0 marks. The data analyzed to descriptive statistics &

inferential statistics by SPSS Software in IBM Version 22.

Result Analysis: Obtained Score/maximum Score*100

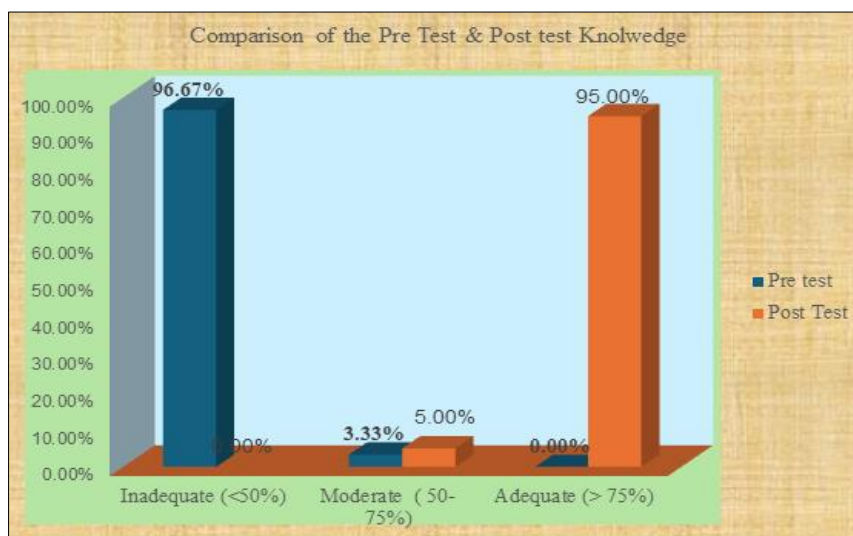
Poor Knowledge: <50%

Average Knowledge: 50.1-75%

Good Knowledge: >75.1%

RESULT & DISCUSSION

Majority of the pre university students belongs to the age group between 15-16 years 38 (63.33%), 16-17 years of age pre university students 14 (23.33%), 6(10%) of pre university students are of 17 -18 years of age and the least 2 (3.33%) of pre university student belongs to 18 years of age and above. Majority of the pre university students were females 34 (56.67%) & 26 (43.33%) males. Highest no. of Pre university students were belongs to the religion Hindu 35(58.33%), Muslims and Christians 8 (13.33%) and 17 (28.33%) respectively. Majority participants were belong to rural area 28(46.67%), urban area 25 (41.67%) and semi-urban area 7(11.67%). Highest no. of the pre university students belong to joint family 38 (63.33%), rest of them belong to nuclear family 16(26.67%) and broken family 6 (10%). Majority pre university students 40(66.67%) were of education level 10th or below, 10 (10.00%) had completed PUC, 8(13.33%) were degree holders and 2(3.33%) were post graduate or above. Majority of them were vegetarian 50 (83%) and least were non vegetarian 10 (17%). majority Pre university students were not attended any educational programme 46 (76.7%) and 14(23.3%) had attended some awareness programme. Pre university students 21(35%), 15(25%), 14(23.33%), and 10(16.67%) were accessed health related information respectively through health personnel, TV or Radio, newspaper and Neighbors or friends in hazards of plastic use. Majority pre university students 34(57%) had the history of hazards of plastic use and 16(26%), were not having any family history of hazards of plastic use.



Graph 1: Comparison of the Pre & Post Test knowledge Score regarding the hazards of plastic use

Table 1: Comparison of the Pre test & Post test knowledge regarding hazards of plastic use of the pre -university college students. N=60

Aspects of knowledge	Pre test knowledge		Post test knowledge	
	F	%	F	%
Inadequate (<50%)	58	96.67%	00	00.00%
Moderate (50-75%)	02	3.33%	03	05.00%
Adequate (> 75%)	00	00.00%	57	95.00%
Overall	60	100%	60	100%

Graph 1 & Table 1 shows that the Comparison between pre and post test knowledge of pre university students regarding hazards of plastic use. In pre-test majority of the pre university students 58 (96.67%) had inadequate level of knowledge, 2(3.33%) of pre university student had moderate level of knowledge and none of them had adequate level of knowledge. In post-test all pre university students have showed improvement

in their knowledge, 57 (95%) of pre university students possessed adequate level of knowledge and rest of them 3(5%) possessed moderate level of knowledge. This showed that the structured teaching programme was highly effective in improving the knowledge of pre university students on management of hazards of plastic use.

Table 2: Comparisons of the area wise in Pre Test & Post test knowledge score regarding hazards in plastic use among the pre university students

Area of knowledge	Max. Score	Pre test Knowledge			Post Test knowledge		
		Inadequate (<50%)	Moderate (50-75%)	Adequate (> 75%)	Inadequate (<50%)	Moderate (50-75%)	Adequate (> 75%)
Area -a	07	81.67%	18.33%	0.00%	1.67%	48.33%	50.00%
Area -b	06	70.00%	30.00%	0.00%	1.67%	5.00%	93.33%
Area -c	03	65.00%	35.00%	0.00%	0.00%	8.33%	91.67%
Area -d	07	83.33%	13.33%	3.33%	0.00%	36.61%	63.33%
Area -e	09	100.00%	0.00%	0.00%	3.33%	15.00%	81.61%
Total	32	100%			100%		

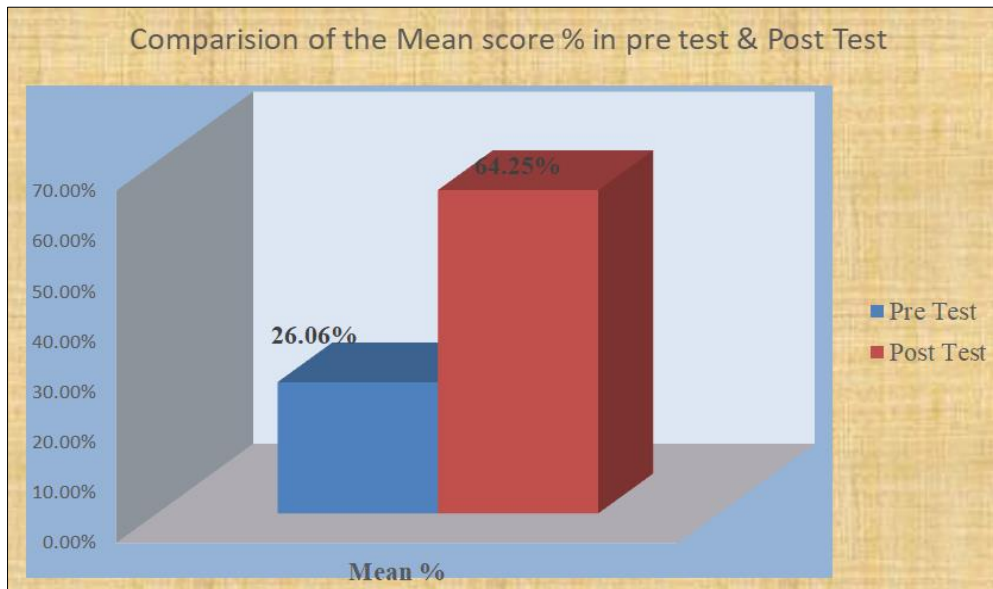
Notes: Area -a: General aspects of hazards of plastic use, Area -b: Knowledge on etiology of hazards of plastic use, Area -c: Knowledge on signs and symptoms of hazards of plastic use, Area -d: Knowledge on type of hazards of plastic use and Area -e: Knowledge on management of hazards of plastic use

Table No.2 Result of Pre test majority of the pre university students 49 (81.67%) are having inadequate level of knowledge regarding general aspects of hazards of plastic use rest of them, 11(18.3 %) are having moderate level of knowledge. 42(70%) of pre university students are having inadequate level of knowledge and 18(30.00 %) are having moderate level of knowledge regarding etiology of hazards of plastic use. Out of 60 samples 39 (65%) have inadequate knowledge regarding signs and symptoms of hazards of plastic use and 21(35%) and of pre university students having moderate level of knowledge. Majority of pre university students, 50(83.33%) are possessed inadequate level of knowledge regarding type of hazards of plastic use, 8(13.33%) having moderate level of knowledge and 2(3.33%) possessed adequate level of knowledge. The knowledge regarding management among 60(100%) of pre university students are inadequate level of knowledge they are unaware of proper management of hazards of plastic use. but the post test shows that majority of the pre university student 30(50%) possessed adequate level

of knowledge of knowledge regarding general aspects of hazards of plastic use 29(48.33%) possessed moderate level of knowledge, rest of them , 1(1.67%) are having inadequate level of knowledge. 56(93.33%) of pre university students are having adequate level of knowledge regarding etiology of hazards of plastic use , 3(5%) of pre university students are having moderate level of knowledge and 1(1.67%) of pre university students having inadequate level of knowledge. Majority of pre university students 55(91.67%) are possessed adequate level of knowledge regarding signs and symptoms of hazards of plastic use, 5(8.33%) Of them are having moderate level of knowledge. 38(63.33%) of pre university students have possessed adequate level of knowledge and , 22(36.67%) have moderate level of knowledge after STP regarding type of hazards of plastic use. Regarding management 49(81.67%) of pre university students are having adequate level of knowledge, 9(15%) of pre university students possessed moderate level of knowledge and rest of them 2(3.35%) still had inadequate level of knowledge.

Table 3: Comparisons of the effectiveness of Mean, S.D., Mean score % in pre test & Post test knowledge score. N=60

Domain	Mean±S.D.,	Mean%	paired 't' test
Pre test	9.3±2.9	26.06	31.82*** Df=59
Post test	20.56±2.29	64.25	
NS= not significant. S= Significant, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level.			

**Graph 2: comparison of the Mean score % in Pre & Post test knowledge score**

The Table 3 & graph 2 Showing that obtained post-test mean value 20.56 was higher than the pre-test value 9.3. The SD between pre-test and post-test 2.9 and 2.29 respectively. The obtained paired 't' value is 31.82 which was highly significant at 0.001 level in df=59.

It is inferred that pre university student had significantly improved knowledge after administration of STP on hazards of plastic use. So it is proved that the structured teaching programme was highly effective in improving knowledge.

Table 4: Area wise improvement of Mean±S.D., mean score % in pre test & Post test knowledge score. N=60

Aspects of knowledge	Max.Score	Pre test			Post test			Paired 't' test	df
		Mean	SD	Mean%	Mean	SD	Mean%		
Knowledge on general Aspects	07	1.8	0.85	36	3.46	0.53	69.2	14.41	59
Knowledge on etiology	06	1.23	0.56	41.11	2.03	0.25	67.67	10.24	
Knowledge on signs and symptoms	03	1.33	0.5	44.44	2.08	0.27	69.33	10.17	
Knowledge on type	07	1.96	0.75	39.33	3.36	0.48	67.2	16.21	
Knowledge on management	09	3.03	1.48	18.95	9.61	1.79	60.06	26.13	
Overall	32	9.3	2.9	26.06	20.56	2.29	64.25	31.82	

Table 4. revealed that improvement means score of knowledge variables between pre and post test. In relation to general aspects of hazards of plastic use the obtained mean and SD of pre-test and post-test were 1.8, 0.85 and 3.46, 0.53 and paired 't' value was 14.41. The etiology of hazards of plastic use obtained mean and SD of pre-test and post-test were 1.23, 0.56 and 2.03, 0.25 and paired 't' value was 10.24. In regard to signs and symptoms of hazards of plastic use, the obtained mean and SD of pre-test and post-test were 1.33, 0.5 and 2.08, 0.27 and paired 't' value was 10.17. In the aspect of type of hazards of plastic use, the obtained mean and SD of pre-test and post-test were 1.96, 0.75 and 3.36, 0.48 and paired 't' value was 16.21. In relation to management of hazards of plastic use, the obtained mean and SD of pre-

test and post-test were 3.03, 1.48 and 9.61, 1.79 and paired 't' value was 26.13.

The association of the pre test knowledge score with selected demographical variables such as Gender, Education Level, Residence area & Family history of use in plastic are significant but remaining sociodemographic variables age (Year's), Religion, Types of Family, Nutritional dietary pattern, previous education & Source of information regarding use of plastic hazards in non significant at the level of $P > 0.05$.

My study to supported to other study Goulden V and Stables GI (2008) conducted a study to assess effective of training programme for reducing hazards of plastic use. Among pre university student in secondary

schools at Cameroon. A randomized field trial two conducted over 585 pre university student students aged between 15-18 years. This study result indicate that draining educate programme for the pre university student play an important role in reducing hazards of plastic use in pre university student who attended training programme.

Summery

The obtained post-test mean value 20.56 was higher than the pre-test value 9.3. The SD between pre-test and post-test 2.9 and 2.24 respectively. The obtained paired 't' value is 31.82 which was highly significant at 0.001 level. It is inferred that pre university student had significantly improved knowledge after administration of STP on hazards of plastic use. So it is proved that the structured teaching programme was highly effective in improving knowledge.

CONCLUSION

Hazards of plastic use is the most common problem in India. Hazards of plastic use involves anatomic, physiologic, biochemical, genetic, immunologic & psychological factors. A useful study of the incidence showed that almost 95-100% of pre university student boys and 83-95% of pre university student girls an aware of the problems of plastic use. In world wide statistics when we take every year many people die due to hazards of plastic use.

Implications of the Study

Nursing Education

- To enhance the knowledge level on management of hazards of plastic use among pre university student is an important aspect.
- Nursing curriculum should in co-operate activities like preparation STP and should give importance to health education.

Nursing Administration

- Nursing administers should implement out patient programme and seminars to make public awareness about hazards of plastic use.
- It also helps the nursing administrators to plan for man power, money, materials, methods and time to conduct successful health education regarding hazards of plastic use.

Nursing Research

- Research should be continued on newer practices and method of teaching focusing on effective interventions. The study will serve as a valuable reference material for future investigations. Further research studies can be conducted on the basis of this study.

Nursing Practice

- The patient teaching is one of the important aspects in the health delivery system. Health education improves the pre university students knowledge regarding hazards of plastic use STP once developed and evaluated for its effectiveness, can be further modified to teach others. The result of the study is useful in planning the health care actions in different settings.

Limitations of the Study

- This study is limited to the pre university students in selected PU college, Bangalore.
- This study is limited to the pre university students who are willing to participate in the study.

Recommendations

- The similar study can be conducted in larger samples.
- A similar study can be undertaken by utilizing other domains like attitude and practice.
- A similar study can be conducted by using different teaching methods.
- Similar study can be conducted for parents and teachers to identify their knowledge, attitudes and practices of ergonomics.

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