DOI Number: 10.37506/v20/i1/2020/mlu/194309

Effectiveness of Information Booklet on Knowledge, Practices and Willingness Regarding Recycling of Solid Household Waste Management among Residents

Seeta Devi[1], Roya Nemati[2], Petronella Natah[2], Rehu Rajan[2], Sumit Rane[2]

[1]Asst. Professor, Symbiosis College of Nursing, Symbiosis International Deemed University, Pune,
[2]4th Year BSc Nursing, Symbiosis College of Nursing, Symbiosis International Deemed University, Pune

Abstract

Background: Pune is the 8th largest city in India and the 2nd largest in the state of Maharashtra. Population is about 4 million and the households are nearly 1 million.

Objective: To assess the effectiveness of information booklet on knowledge, practice and willingness of residents regarding recycling of household waste management.

Methodology: The research design was quasi experimental: pre-test post-test research design with the sample size 100 and used systematic random sampling technique. The structured questionnaire was administered. In order to establish the reliability of the tool inter rater method was used. The scores were calculated and reliability was established by Kappa method which was 0.80. The phases of data collection were informed consent was taken followed by the pretest and distribution of information booklet on recycling of solid household waste management to the residents and posttest was administered after 15 to 20 days of pretest and processed the data for analysis.

Results: t-test was used to check the effectiveness of the informational booklet on knowledge regarding recycling of solid household waste management among residents. t-value for this test was 27.4 with 99 degrees of freedom, corresponding p-value was of the order of 0.000, which is small (less than 0.05), the null hypothesis is rejected.

Conclusion: It was concluded that, the intervention which was provided to the residents was very effective in improving their knowledge, attitude and willingness towards the good practices of waste management at home.

Keywords: *information booklet, knowledge, practices, willingness, recycling, solid household waste management*

Introduction

The importance of cleanliness in our lives cannot be denied. A bad environment is solely responsible for spoiling the health of the people in the community around. Commonly used techniques of waste management are dumping, sanitary landfill, incineration, recycling, and composting etc.

Recycling is a process serves to transform the wastes into products of their own genre through industrial processing. Paper glass, aluminum, and plastics are commonly recycled. It is environmentally friendly to reuse the wastes instead of adding them to nature.

Waste is any substance that is considered not useful in the environment and can be harmful to human health .We have two types of waste which are solid and liquid waste, the solid waste consist of used plastic bags, damage home appliance, etc. whiles liquid waste consist of used water from bath, washing, decompose fecal matter and oil [1]

Pune is the 8th largest city in India and the 2nd largest in the state of Maharashtra with population about 4 million and the households are nearly 1 million. The area of Pune city is 250 sq. kms. There are 4 zones, 15 administrative ward offices and 76 Prabhags. Pune

generates about 1600 tons of solid waste per day. 160 trucks collect the waste door-to-door, collecting an average of 198 tons per day.847 containers and 116 compactor buckets dispersed around the Pune. [2]

Solid waste management plans by Authorities are Expansion of door step collection and sources segregation to entire city and for different waste streams, strengthen transport system (feeder, community, bin pick),create visible improvement in street cleanliness levels, ensure timely commissioning of waste processing and recovery capacity, stock holder participation and communication and establish robust complaint tracking and resolution system.[3]

Working Nature of PMC Swachmodel a follows,

- A pair services door-to-door waste collections for 300-400 households.
- Segregated wastes expected but not always received from generators.
- Waste pickers further segregate waste and sell recyclables.
- Non-recyclables waste delivered to feeder point.
- Also provide compost services. [4]

Besides the excellent services and efforts made by the PMC , many residents of our setting do not have adequate knowledge and practices of recycling of waste at the home. For instance, the PMC has given two dust bins to collect the dry and wet waste , but they are not used for waste collection by many residents, they are using them to keep provisions in the kitchen and residents were given muck to convert the household waste in manure for plants but there was no proper demonstration . It was surveyed in our previous descriptive studies. Now the investigators decided to educate the residents of our setting of the study in regard to recycling and waste management at home. [5]

Title of the study

Effectiveness of information booklet on knowledge, practices and willingness regarding recycling of solid household waste management among residents

Objectives of the study

- To assess the knowledge, practice and willingness of residents regarding recycling of household waste management
- To assess the effectiveness of information booklet on knowledge, practice and willingness of residents regarding recycling of household waste management

Methodology

In the present study, quantitative and evaluative approach was used. Research design was quasi experimental: pre-test post-test research design. Study was conducted in urban areas of Pune district. The sample size was 100 and systematic random sampling technique was used. The data was collected form the participants who were willing to participate in the study, and who were able to understand the English and Marathi. The structured questionnaire was administered. Questionnaire had four sections ; Section I had demographic data of the residents with 5 items, Section II had assessment of knowledge regarding solid household waste management with 10 items, Section III had assessment of practice on solid household waste management with 19 items and section IV had, assessment of willingness of residents regarding solid household waste management with 10 items. . In order to establish the reliability of the tool inter rater method was used. The score were then calculated and reliability was established by Kappa method which was 0.80 . 11 experts in the field of specialty did validation of the tool. The data was collected in two months duration. The phases of data collection were, informed consent was taken from participants followed by the pretest and distribution of information booklet on solid waste management to the residents and posttest was administered after 15 to 20 days pre test and processed the data for analysis.

Results

Distribution participants based on demographic variables:

23% of the citizens had age 21-30 years, 41% of them had age 31-40 years, 21% of them had age 41-50 years and 15% of them had age 51-60 years. 54% of them were females and 46% of them were males. 46% of them were illiterate, 36% of them had primary education, 5% of them were graduates and 13% of them were post-graduates. 37% of them were employed, 33% of them were not employed, 13% of them were student and 17% of them were retired. 22% of them had income

less than Rs. 5000, 28% of them had income Rs. 5001-10000, 30% of them had income Rs. 10001-15000 and 20% of them had income more than Rs. 15000.

Table No 1: Effectiveness of the informational booklet on knowledge regarding recycling of solid household waste management

N=100

Knowledge	Pretest		Posttest	
	Freq	%	Freq	%
Poor (score 0-3)	53	53%	0	0%
Average (score 4-6)	34	34%	0	0%
Good (score 7-10)	13	13%	100	100%

In pretest, 53% of the citizens had poor knowledge (score 0-3), 34% of them had average knowledge (score 4-6) and 13% of them had good knowledge (score 7-10) regarding recycling of solid household waste management. In posttest, all of them had good knowledge (score 7-10) regarding recycling of solid household waste management. This indicates that the knowledge of the citizens regarding recycling of solid household waste management improved remarkably after information booklet.

Table No 2: Paired t-test for the effectiveness of the informational booklet on knowledge regarding recycling of solid household waste management among residents N=100

	Mean	SD	t	Df	p-value
Pretest	3.8	1.9	27.4	99	0.000
Posttest	9.0	0.2			

Researcher applied paired t-test for the effectiveness of the informational booklet on knowledge regarding recycling of solid household waste management among residents. Average pretest knowledge score was 3.8 which increased to 9 in posttest. T-value for this test was 27.4 with 99 degrees of freedom, corresponding p-value was of the order of 0.000, which is small (less than 0.05), the null hypothesis is rejected. Knowledge of the citizens regarding recycling of solid household waste management improved significantly after information booklet.

Table No 3 : Effectiveness of the informational booklet on practices regarding recycling of solid household waste management among residents n=100

Practice item			Pretest	Posttest
	Do you compost	Yes	41	35
		No	59	65
	How many bags do you compost at home on your land with no cost to municipality	None	29	5
		1 bag per week	30	26
		2 bags per week	25	21
		3 bags or more per week	16	43
	How do you manage dry waste? (Paper, plastic, etc.)	Burning	26	7
		Open ground	15	10
		Scraping	19	16
		Burn	40	19
	How do you manage wet waste? (Food waste)	Drainage	21	4
		Dust bin	42	19
		Feed Animals	12	13
		Burn	25	42
	How do you dispose sanitary waste	Burning	26	19
		Dustbin	74	81

Cont... **Table No 3 : Effectiveness of the informational booklet on practices regarding recycling of solid household waste management among residents n=100**

	How do you dispose Electronic waste or E- waste	Dustbin	26	4
		Re-use	31	19
		Scarp	12	15
		Open	31	59
	Which method do you use to segregate your waste	Dustbin	38	21
		Plastic bags	62	79
	How often do you wash your dustbins	Daily	38	53
		Twice a week	34	20
		Thrice a week	21	10
		Weekly	7	17
	Do you use recycling service	Yes	45	32
		No	55	68
	If yes, how often do you use the services of recycling	Never	27	61
		Weekly	20	14
		Once a month	34	14
		Twice a month	19	11

Discussion

In the 2016, the researchers have conducted a similar study and it was discovered that due to lack of knowledge regarding house hold waste management, about 95.3% household waste was not collected systematically and reused it, which has developed to cause the insects and household infections, such as cholera ,pest bite infection, diarrhea, etc . It is also evident that some of this waste was dumped on the streets, gutters, holes and in nearby bushes causing environmental pollution.[6]

Even in our study, it was noticed that 53% of residents had poor knowledge regarding household waste management and after the intervention, their knowledge levels had been increased to an extent. It was also noticed that, the collection of the waste at home reduced about 45 % , which has proved that , the intervention which was provided to the residents was very effective in improving their knowledge, attitude and willingness towards the good practices of waste management at home.

Conclusion

Waste management activity is crucial to keep the environment clean and people healthy. As per the study results, it is provethe residents of urban community rated PMC's waste collection and disposal services as good. The waste management technique adapted by PMC is commendable. It was noted that in urban community, waste lifters insisted on waste separation. The descriptive analysis also pointed out that the residents of urban community were satisfied with services of PMC. However, with the application of sustainable environmental education greater success ratio can be achieved.

Ethical Clearance: This study was approved from ethical committee of Symbiosis College of Nursing, Pune

Conflict of interest: Nil

Source of Funding: Self

References

1. Municipal Corporation of Delhi. Feasibility Study and Master Plan for Optimal Waste Treatment and Disposal for the Entire State of Delhi Based on Public Private Partnership Solutions. Volume 6: Municipal Solid Waste Characterisation Report; Municipal Corporation of Delhi: Delhi, India, 2004.
2. Muncipal corporation of Pune. Solid waste management – smart gabage collection system.

2015

3. East Delhi Muncipal Corporation Solid Waste Transportation Management System. Available online: http://mcdonline.gov.in/tri/edmc_mcdportal/dems/ (accessed on 3 June 2016).
4. Seeta Devi. Nupoor Perry. Attitude and concern regarding household solid. International Journal of Recent Scientific Research.2017; 8 (7): 18569-18572.
5. Seeta Devi. A Study to Assess The Awareness And Practices Regarding Household Solid Waste Management Among The Residents.. Int J Recent Sci Res. 2017;8(7): 18565-18568. DOI: http://dx.doi.org/10.24327/ijrsr.2017.0807.0531
6. Indhira K, Senthil J, Vadivel S. Awareness and attitudes of people perception towards to household solid waste disposal: Kumbakonam.. Arch. Appl. Sci. Res. 2015; 7: 6–12.