

Eco-friendly Packaging of Selected Consumer Goods and Environmental Concern of Homemakers

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ABSTRACT Personal consumption of goods has important environmental implication; hence its role in the degradation vis-à-vis protection of environment and sustainable development is of growing concern. With the changing lifestyle of Indian urban consumers due to globalization, the increasing malls are filled with packed goods so that consumers can pick-up the required goods on their own. The goods are available in various packaging materials, which, on one hand provide convenience to the consumers, on the other hand causes waste disposal problems in case they are not reusable/ recyclable /biodegradable. The packaging material varies in their environmental impacts. Those consumers who select the goods packed in the least harmful packaging material to the environment out of the available options, exhibit “eco-friendly buying behaviour”. With the view to know the extent of eco-friendly buying behaviour of consumers of 21st century, in relation to selected consumer goods, when much is talked about environment, a study was under on 75 purposively selected female consumers from Vadodara city. The questionnaire contained a scale having list of selected consumer goods available in the market in various packaging materials ranging from least to most eco-friendliness. The respondents were asked to indicate generally which of the given option they selected and why. It was found that majority of the respondents had a moderate extent of eco- friendly buying behaviour and the reasons behind the purchase of selected goods in different packaging were economy and convenience. Very few percentage of respondents reflected environmental concern at the time of buying those goods as reflected through the reasons. The study reveals a need for making consumer more environmentally concerned at the stage of buying as well as understanding their “environmental foot-print”, so as to contribute for sustainable development and environmental protection.

INTRODUCTION

“Packaging includes the activities of designing and producing a container for a product” (Kotler 2000). According to Kuvykaite (2009), package attracts consumer’s attention to particular brand, enhances its image, and influences consumer’s perceptions about product. Package imparts unique value to products (Underwood et al. 2001; Silayoi and Speece 2004), works as a tool for differentiation, that is, helps consumers to choose the product from wide range of similar products, stimulates consumers buying behaviour (Wells et al. 2007). Thus packaging performs an important role in marketing communications and could be treated as one of the most important factors influencing consumer’s buying decisions.

Packaging protects the commodity from losses, damages and deterioration in quality due to exposure and it keeps the content pure and clean, as, the goods may be packed mechanically and untouched by unclean hands. Packaging also reduces the chances of breakage and pilferage in transit and adulteration. Pre-packed goods

ensure correct weight, quality and price as these are indicated on the package. Packaging helps in widening of the market due to necessary protection, ease in handling and convenience to all. It also helps in branding, advertising and point of purchase display (Sherlekar 2006).

Packaging materials can be broadly classified as food and non-food packaging materials. Food packaging materials comprises of glass, ceramic, earthenware, plastics, metalized plastics, laminated paper, multilayer packaging and metals like some alloys, stainless steel and aluminum cans, foils. These packaging materials have high volume but may have low weights making up only 15-20 % of all packaging. On the other hand non-food packaging materials are mostly cardboards, blister plastic, thermocol, paper, wood, cellophane and other clear transparent and opaque plastics, multilayer containers and strappings. The non-food packaging make up almost 80-90% of all packaging by weight (Ministry of Environment and Forests 2010).

Packaging waste can have number of impacts on the environment. Most of the packaging

waste is dumped in landfills or burnt which results in pollution in number of ways (Ministry of Environment and forests 2010). Packaging materials like fused aluminium and plastics are completely non-biodegradable and emit toxic fumes on burning. It also causes infertility of soil.

According to Indian Institute of Packaging (2009), total packaging waste constitutes 32 million metric tonnes every year of which paper and board waste constitute 120000 metric tonnes. On the other hand, glass, metal and other waste constitute 4000 metric tonnes each while plastic waste is 5000 metric tonnes and film laminates constitutes 3000 metric tonnes. If there were few people in the world, the earth's environment would be very forgiving and capable of absorbing most that human throws at it, cleansing itself automatically. The days of low population on the earth have passed, the total number of people on the planet and particularly the density of people in some parts of the planet magnify the size of environmental insult, overloading the capacity of the earth for self-cleansing.

Andrews and Withey (1976) say that "a concern is an expression of the effective side of a value. Concerns are what life-in the view of people living it-is "all about". These are the aspects of each person's existence about which he or she has feelings." Mayer (2001) states that "environmental concern is a way of thinking and making value judgements about the earth's environment and the kind of world we want to live in and pass on to our children and grandchildren." The family is generally viewed as a semi-open system. Inputs from the environment enter into the family and help to shape its decision outcomes. In turn, families help shape environments by the decisions they make (Paolucci et al. 1977; Martlow and Silver 1991; Kinnear and Taylor 1973). Family decisions do affect environments, and the environment can influence the quality of resources coming in the family. Families which accept a responsible consumer role make the decisions about products very carefully. They are aware of the interdependence of family and environment. For instance, they would consider what kinds of wastes will the family release into the environment? Can these wastes be recycled? The choices which consumers make are never ending series of votes 'for' or 'against' the environment (Kinnear et al. 1974; Makower 1993). These reflect their environmental concern.

Concern about environment is worldwide phenomenon. The result of a poll conducted by Dunlap (1993) has shown that most people in both industrialized and developing nations have at least some concern about environmental problems.

According to Kolstad (2000), "concern with the environment is not a passing fad but a deep-seated concern, brought on in large part by the coincidence of high incomes and high population density.

A survey to assess environmental behaviour, attitudes, and knowledge and the personality dimensions was conducted by Arbuthnot (1977) on two diverse samples, 85 users of a recycling centre and 60 conservative church members. The two samples differed systematically as predicted on behaviour, attitude, knowledge and personality characteristics. The education, knowledge and environmentally related attitudes best predicted recycling behaviour, while exposure to information through books, personality and attitudes best predicted environmental knowledge. Another study conducted in Germany by Holzer and Schahn (1990) revealed that the knowledge and gender moderate the relationship between attitude and behaviour. Women were more environmentally concerned in those areas of household behaviour, whereas men knew more about environmental problems. Shamdasani et al. (1993) in their study observed that the green movement had started to make its impact on the consumption decisions and behaviours of Singaporean consumers. Their exploratory study had examined the differences among ecologically concerned and non ecologically concerned consumers with respect to their personal and social characteristics and their perception of marketing of eco-friendly products. Significant differences in terms of attitude and personality traits among the green and non green consumers were reported. A state-wide survey of Pennsylvanians conducted in 1990 provided data on residents' opinion about ideas contained in the new environmental paradigm (NEP) and behaviours engaged in that are environmentally protective. Although Pennsylvanians expressed support for the NEP, they were not likely to engage in activities that contributed to environmental protection (Scott and Willits 1994).

Minton and Rose (1997) investigated the main effect of environmentally concerned attitude and norms on product choice, search for

information, recycling and the various behavioural intentions. His research supports the work of Schwartz (1977) and Hopper and Nielsen (1991) by showing that the personal norm has the primary influence on environment friendly behaviour. His findings, that the attitude toward the environment had strongest effect of the three predictors on the behavioural intentions in very important contribution to the literature. However, the personal norm had the strongest effect of the three predictors on the product choice, information search and recycling. Thus, while attitude is a good predictor of intentions to act in environmentally concerned ways, a sense of personal moral obligation is more likely to lead to action in the form of environmentally friendly product choices search and recycling. A study conducted on "values and relationship to environmental concern and pro-environment behaviour-A gender analysis" highlighted that male and female were reported to be connected with nature at moderate level and males were connected with nature at high level as compared to female. The male gave more importance to egoistic concern while females gave more importance to biospheric concern in relation to environmental problems. It also revealed that there existed a relationship between pro-environment behaviour of male respondents with their biospheric concern and pro-environment behaviour of the female respondents with their egoistic and altruistic concern (Jaiswal and Patel 2009).

Rationale for the Study

As the general concern about environmental quality has been increasing, a totally new problem area in consumption and welfare research has emerged: the impact of private consumption on the quality of physical environment. The behaviour of consumers, both with respect to the environmental compatibility of consumption processes and to consumers' interest in environmental quality has yet to gain due attention in the researches.

It is highly important that present day consumer is aware of various issues related with the impact of packaging on the environment. Knowledge can be enhanced if needed. This is all the more essential in India because up till now Indian consumers have not found any product bearing "Eco-mark" (an earthen pot). In other coun-

tries several products are available which have been given eco-mark to ensure that the product is least harmful to the environment. Such a mark is given after doing 'cradle-to-grave' analysis of the product. But the Indian consumers have to select and make a "good green choice" among various alternatives available in the market. By selecting the alternative which is the least harmful to the environment, they exhibit their eco-friendly behaviour. However, Manufacturers are responding to pressures to reduce packaging or make a product more "environmentally-friendly,"

Moreover, buying behaviour in relation to consumer goods has been studied but environmental concern in buying goods is relatively uninvestigated in India. With a view to find out the extent to which consumers of today have eco-friendly buying behaviour in relation to packaging of selected goods a study was conducted with the following objectives:

Objectives of the Study

1. To ascertain background characteristics of the homemakers.
2. To find out extent of eco friendly buying behaviour of homemakers in relation to selected consumer goods.
3. To study the environmental concern of homemakers in relation to eco-friendly packaging of selected goods.

METHODOLOGY

The present investigation was a descriptive research conducted on homemakers selected purposively from two areas of Vadodara city. The research design of present investigation was descriptive. Multistage purposive sampling procedure was followed. Two housing colonies having predominantly middle and high income group were selected as per the researchers' convenience. From the houses of the selected colonies, only those homemakers were selected who purchased the goods personally by themselves. Thus, 75 respondents were finally selected as sample. The tool to collect data was a questionnaire which contained a summated rating scale to find out extent of eco friendly behaviour of homemakers while purchasing selected household goods. After a market survey, thirteen products were identified which were available in three

distinct packaging materials but serving the same purpose. The packaging materials were tin containers, plastic bottles, glass bottles, refill packs, tetra packs, squeeze tube, click lock cardboard box, cardboard carton and loose (in thin polythene bag). The three distinct alternatives had varying degree of Eco-friendliness ranging from the least to the most. The goods were cooking oil, coffee powder, hair oil, cold drink, pickles, nutritional supplements (such as Bournvita, Horlicks etc.), jam, ghee, detergent, tea leaves, beauty creams, tomato ketchup, and oat meal. The homemakers were asked to indicate that in which packaging material they purchased the listed goods and give reasons for their choice of packaging material.

The responses on the scale were subjected to scores. A score of 3 was given to the response related to packaging of household goods which was most eco friendly, the score of 2 was given to the packaging of household goods which was moderately eco friendly and the score of 1 was given to packaging of household goods which was least eco friendly. The possible range of scores for the extent of eco friendliness was 13-39. This was divided into three categories having equal intervals of scores to assess the extent of eco friendly buying behaviour of homemakers for selected consumer goods.

The reasons for purchasing goods in selected packaging materials constituted five categories such as "convenience", "choice", "hygiene", "economic" and "environment friendly". Out of which only environment friendly reasons for selecting particular packaging material reflected environmental concern of the homemakers at the time of purchase of selected goods. In the present research the environmental concern of the respondent was reflected through reasons for the purchasing the products in the particular package.

The scale was subjected to establishment of content validity. The reliability coefficient derived was 0.78 through test-retest reliability. It was hypothesized that the extent of eco-friendly buying behaviour of homemakers would vary with their age, education, employment, income and exposure to sources of information.

RESULTS AND DISCUSSION

The findings of the study obtained through the analysis of the data and their interpretations supported with discussion are presented here.

Background Information

The mean age of the homemakers was 41.1 years. A little more than half of them were in the age group of 37 to 50 years. About half of the respondents were graduates. About half of the respondents were employed. Their mean monthly family income was found to be Rs. 27,586/- (Fig. 1).

Extent of Exposure to Different Sources of Information

Various sources of information were listed and the respondents were asked to state which sources they referred to gather information about various materials and their packaging material. The sources were newspaper, magazine/leaflet, books, television, radio talks, cinema, and display in shop, posters/hoardings on the road, friends, relatives, neighbours and salesman. The responses were in terms of to "least extent", "some extent" and "high extent". The scores of 1 through 3 were ascribed respectively to the responses. They were summated to get overall view of the extent to which the respondents were exposed to the sources of information about packaging of various products. The possible range of scores was divided into categories on the basis of equal interval. On arranging the sources in the descending order according to their rank, it was found that television was the most used media followed by the newspaper and display in shops respectively. It was found that majority of the respondents had moderate and none had high extent of exposure to the sources of information (Fig. 2).

Eco-friendly Buying Behaviour and Environmental Concern of the Respondents in Relation to Selected Goods

After analyzing the findings regarding each product in details, it was observed that nearly two third of the respondents purchased cooking oil in most environment friendly packaging (tin containers) but a little more than one third of the respondents showed environmental concern while purchasing it. Shukul (1995) in a similar study found that though 56 percent respondents exhibited most environment friendly buying behaviour, only about 4 percent respondents exhibited environmental concern while buying

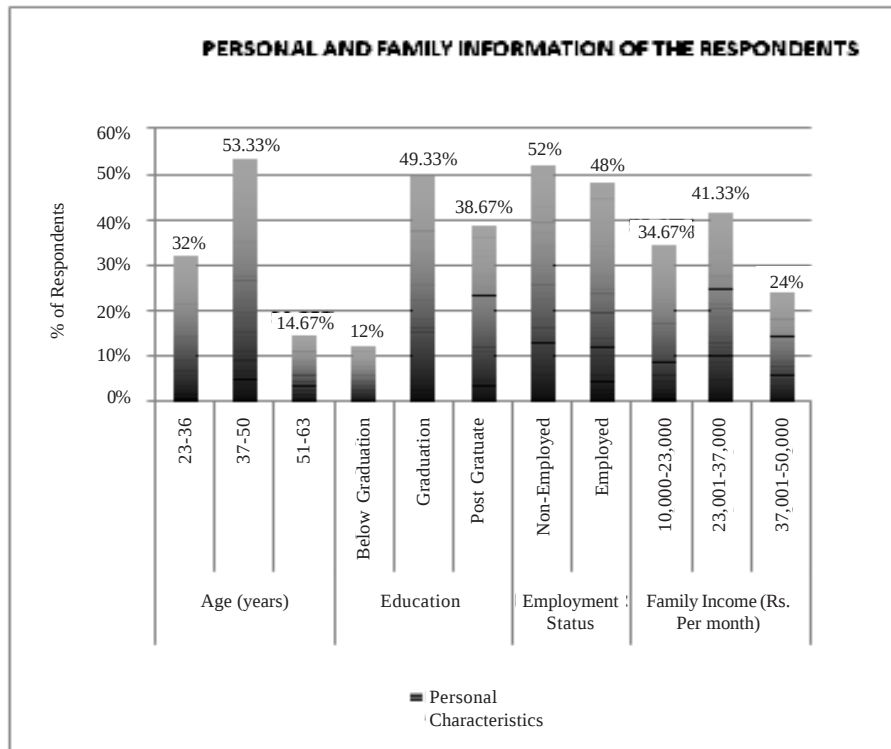


Fig. 1. Figure showing distribution of respondents by extent of their exposure to different sources of Information

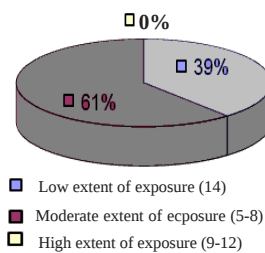


Fig. 2. Distribution of respondents by extent of their exposure to different sources of information

cooking oil. More than one half of the respondents' purchased coffee powder in most environment friendly packaging which was glass bottles and they also reflected environmental concern while purchasing it. Majority of the respondents purchased hair oil in least environment friendly packaging available that is, plastic bottles but more than one third of the respondents reflected environmental concern in purchasing as the plastic bottles can be reused and

are sold to scrap dealers. Nearly two- third of the respondents selected moderate eco friendly packaging while purchasing cold drinks that is, plastic bottles and less than one half of the respondents showed environmental concern in purchasing it. Shukul (1995) found that majority of respondent showed most environment friendly buying behaviour while purchasing cold drink. Less than one- half of the respondents selected glass bottles for purchasing pickles which was most environment friendly packaging and a little less than one half of the respondents showed environmental concern in purchasing it. More than one half of the respondents purchased nutritional supplements in glass bottles which is most environment friendly packaging and less than one half the respondents reflected environment friendly concern in purchasing it. Nearly two- third of the respondents purchased jam in most environment friendly packaging of glass bottles while less than one- half of the respondents showed environmental concern in purchas-

Table 1: Distribution of the respondents as per their environment friendly behaviour and environment concern

S. Product No.	Selection of packaging materials							
	Most eco-friendly		Moderate eco-friendly		Least eco-friendly		Total respondents (n=75)	
	f	%	f	%	f	%	f	%
1. <i>Cooking Oil</i>	<i>Tin Container</i>		<i>Plastic Bottles</i>		<i>Refill Packs</i>			
Selection of packaging materials	49	65.33	15	20	11	14	75	100
Environment concern	28	37.33	13	17.33	1	1.33	42	56.0
2. <i>Coffee Powder</i>	<i>Glass Bottles</i>		<i>Refill Packs Loose</i>		<i>(In Thin Polythene Bag)</i>			
Selection of packaging materials	39	52	12	16	24	32	75	100
Environment concern	38	50.66	0	0.00	2	2.66	40	53.33
3. <i>Hair Oil</i>	<i>Tin Container</i>		<i>Glass Bottles</i>		<i>Plastic Bottles</i>			
Selection of packaging materials	7	9.33	6	8	62	82.66	75	100
Environment concern	7	9.33	6	8	29	38.66	42	56.0
4. <i>Cold Drinks</i>	<i>Glass Bottles</i>		<i>Plastic Bottles</i>		<i>Tetra Pack</i>			
Selection of packaging materials	7	9.33	6	8	62	82.66	75	100
Environment concern	20	26.66	47	62.66	8	10.66	75	100
5. <i>Pickles</i>	<i>Glass Bottles</i>		<i>Plastic Bottles</i>		<i>Refill Packs</i>			
Selection of packaging materials	15	20	33	44	2	2.66	50	66.66
Environment concern	44	58.66	21	28	10	13.33	75	100
6. <i>Nutritional Supplements</i>	<i>Glass Bottle</i>		<i>Plastic Bottles</i>		<i>Refill Packs</i>			
Selection of packaging materials	37	49.33	17	22.66	1	1.33	55	73.33
Environment concern	44	58.66	17	22.66	14	18.66	75	100
7. <i>Jam</i>	<i>Glass Bottles</i>		<i>Plastic Container</i>		<i>Squeeze Tube</i>			
Selection of packaging materials	34	45.33	9	12	4	5.33	47	62.66
Environment concern	48	64	17	22.66	10	13.33	75	100
8. <i>Ghee</i>	<i>Tin Container</i>		<i>Refill Packs</i>		<i>Tetra Pack</i>			
Selection of packaging materials	34	45.33	10	13.33	00	0.00	44	58.66
Environment concern	41	54.66	26	34.66	8	10.66	75	100
9. <i>Detergents</i>	<i>Click Lock-Cardboard Box</i>		<i>Plastic Box</i>		<i>Refill Packs</i>			
Selection of packaging materials	25	33.33	8	10.66	3	4	36	48.0
Environment concern	8	10.66	14	18.66	53	70.66	75	100
10. <i>Tea Leaves</i>	<i>Cardboard Carton</i>		<i>Plastic Container</i>		<i>Refill Packs</i>			
Selection of packaging materials	6	8	6	8	6	8	18	24.0
Environment concern	11	14.66	28	37.33	36	48	75	100
11. <i>Beauty Creams</i>	<i>Tin Container</i>		<i>Glass Container</i>		<i>Squeeze Tube</i>			
Selection of packaging materials	7	9.33	15	20	5	6.66	27	36.0
Environment concern	3	4	12	16	60	80	75	100
12. <i>Tomato Ketchup</i>	<i>Glass Bottles</i>		<i>Plastic Bottles</i>		<i>Squeeze Tube</i>			
Selection of packaging materials	00	0.00	7	9.33	4	5.33	11	14.66
Environment concern	48	64	18	24	9	12	75	100
13. <i>Oat Meal</i>	<i>Cardboard Carton</i>		<i>Tin Container</i>		<i>Plastic Jar</i>			
Selection of packaging materials	40	53.33	13	17.33	00	0.00	53	70.66
Environment concern	20	26.66	24	32	31	41.33	75	100
Environment concern	6	8	20	26.66	22	29.33	48	64.0

ing it. More than one- half of the respondents selected most environment friendly packaging in purchasing ghee in tin container and one-third of the respondents reflected environmental concern in purchasing it. Majority of the respondents purchased detergents in refill packs which is least eco friendly packaging. Less than one half of the respondents purchased tea leaves in refill packs which is least eco friendly. Majority of the respondents purchased beauty cream in least eco- friendly packaging that were squeeze tube and only 9.33 per cent of the respondents reflected environmental concern in purchasing it in glass containers were considered as moderate eco- friendly. Nearly two- third of the respondents purchased tomato ketchup in most environment friendly packaging that was glass bottles and more than one half of the respondents showed environmental concern in purchasing it. Less than one half of the respondents purchased oat meal in plastic jar which is least eco friendly packaging while a little less than one-third of the respondents reflected environmental concern for purchasing it as the plastic jars could be reused (Table 1).

On comparing findings of present study with that of Shukul's study, it was observed that environmental concern was exhibited by more respondents in the present study. Probably they have become more aware of environmental conditions. However there is still a need to create more awareness about environmental concern at the stage of buying any product.

Extent of Eco-friendly Buying Behaviour in Relation to Selected Goods

Majority of them were found to be having moderate extent of eco friendly buying behaviour. A very few (thirteen per cent) of the respondents were found having a high extent of eco friendly buying behaviour and a negligible percentage of respondents were found having low extent of eco friendly buying behaviour (Fig. 3).

III Testing of Hypotheses

Based on the scores ascribed to the packaging materials of selected goods for their eco-friendliness, the scores obtained by the respondents were summated which reflected their extent of eco-friendly buying behaviour. A number of hypotheses were formulated on the basis

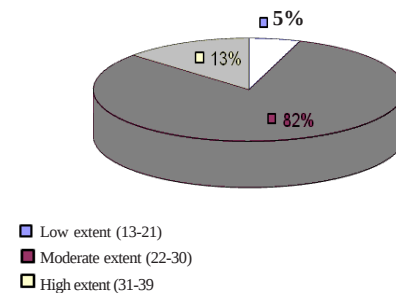


Fig. 3. Extent of eco-friendly buying behaviour in relation to selected goods

of objectives of the study. For the purpose of statistical analysis, the hypotheses were formulated in the null form. The results are presented here.

Ho1: There is no relationship between the extent of eco- friendly buying behaviour of the respondents with age, income and sources of information.

Coefficient of correlation was computed to ascertain relationship between the age, income and sources of information of the respondents and their extent of eco friendly buying behaviour. The results indicated no significant relationship between them (Table 2). Hence, the null hypothesis was accepted.

Table 2: Coefficient of correlation to ascertain relationship between the age, income and sources of information of the respondents and their extent of eco-friendly buying behavior

Selected variables	n	r-value	Level of significance
Age	75	0.0184	N.S.
Income	75	0.164	N.S.
Sources of information	75	0.073	N.S.

N.S.=Not Significant

Ho 2: There is no difference in the extent of eco friendly buying behaviour of homemakers by the employment status.

To find out the difference in the extent of eco friendly buying behaviour due to the employment status of the respondents' 't'-test was computed. The results (Table 3) showed that there was no significant difference in the extent of eco friendly purchase behaviour of employed and

Table 3: 't'-test Values showing difference in buying behavior of the respondents due to their employment status

Employment status	n	Mean value	df	t-value	Level of significance
Non-employed	39	0.52	73	0.108	N.S.
Employed	36	0.48			

N.S.=Not Significant

Table 4: Analysis of Variance showing variation in extent of ecofriendly buying behavior of the respondents and their level of education

	df	Sum of squares	Mean squares	F-ratio	Level of significance
Education				0.4	N.S.
Between groups	2	0.4481	0.2241		
Within groups	72	417.07	5.7926		
Total		417.52	.		

N.S.=Not Significant

non-employed homemakers. Hence, the null hypothesis was accepted.

Ho 3: The extent of eco friendly buying behaviour does not vary with the level of education of the respondents.

To find out the variation in the extent of eco friendly buying behaviour with the level of education of the respondents Analysis of Variance was computed. The 'F'- ratio was found to be not significant (Table 4). Hence, the null hypothesis was accepted. Thus no variation was found in eco friendly buying behaviour with education of the respondents.

CONCLUSION

From the findings it could be concluded that the mean age of the respondents (homemakers) was 41.10 years. Majority of the respondents were graduate and non-employed. The mean family income of the respondents was Rs. 27,586.67. A higher percentage of the respondents were having moderate exposure to the sources of information. It was found that majority of the respondents were having a moderate extent of eco friendly buying behaviour. Though the respondents reflected most eco friendly buying behaviour while purchasing cooking oil, coffee powder, pickles, nutritional supplements, jam, ghee and tomato ketchup, however, the respondents ranging from 47 to 66 percent did not exhibited environmental concern while buying these se-

lected consumer goods. The selected variables such as age, income, sources of information, employment status and education of the respondents were not found to be significant with the buying behaviour of the respondents, hence there may be some extraneous variable than those considered under the present study which may be influencing the buying behaviour of the respondents. Hence, there arises a need to create awareness among the consumers about environmental concern at the stage of buying goods. The awareness can be brought about regarding refusing, reducing, reusing and recycling of packaging of consumer goods.

IMPLICATIONS OF THE STUDY

The finding of the study brought out a number of implications. The findings of the study will help the government to take important decision to ban the sale of packaging that is harmful for environment. The consumers should be made aware and encouraged for purchasing good in eco-friendly packaging. This can be done with the help of educational programme. The field of Family and Community Resource management can play a significant role in preparing and promoting such educational programmes. The findings of the study is of great importance for homemakers as it will make them aware and awaken about their purchase of good in eco-friendly packaging and thus reflecting their environmental concern.

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