Recycling Practices of Clothing and Textiles: A Case Study of Women of Chandigarh

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ABSTRACT

The three R's -Reduce, Reuse and Recycle are considered as best strategies for waste administration. The aim of the present research is to compare the Post-consumer apparel waste used for recycling by rural and urban people of Chandigarh. A survey was undertaken on a sample of 60 women: 30 rural and 30 urban from Chandigarh. The findings indicate that mostly the urban respondents tend to recycle and create something new from their old clothing or modify these for decoration or for personal usage. Rural respondents also created different products but majority of them had their inclination towards donating their old or unused clothing and textiles. The research also highlights different utility products created by the respondents using different techniques from the old clothing and textiles.

Key Words : Recycling, Textiles, Clothing, Post-Consumer Waste, Urban, Rural

INTRODUCTION

Technological advancements and the urge to create new have given an ascent to better living conditions, better correspondence, better wellbeing administrations. These developments though lead to progress but at the same it creates waste putting a negative impact on the earth in all situations. One of the ventures creating enormous amount of waste is the Apparel Industry which has always tried to present new patterns, new choices, new products to the customer. Creation is always connected with some type of contamination - purchase: an ever-increasing number of attires, and thus ending up in accumulating a great deal of undesirable and unused garments which is known as Post-consumer waste. Post- consumer waste can be a family unit article or a piece of clothing that an individual does not require any more and has chosen to dispose off.

The three R's -Reduce, Reuse and Recycle are considered as best strategies for waste administration. Reducing: the first R means lessening the utilization or purchasing fewer articles. As opposed to discarding the undesirable things, one should locate another utilization for these items- this is the second R: Reusing, in this way lessening the utilization of new assets. Recycling is the third way towards changing waste materials into new materials and items. Recycling extracts valuable materials from items that might otherwise be considered trash and turns them into new products. Recycling or Refashioning of the current articles of clothing kills the need to purchase new ones, and at the same time makes something unmistakably progressively exceptional and many a times more appealing than standard design.

This concept of three R's had been in practice in India since ancient times (Gupta and Khare, 2012). Traditional Indian societies had in-built models of sustainability, through reuse and recycling. But globalization and a race to be different has resulted in quick buying and quick disposing practices. The fate of clothing at the end of its lifecycle has become increasingly burdensome and complicated with the growth of mass production and multinational retail firms enabling the rapid

delivery of fashionable items on a global scale to a trend-driven industry (Lewis, 2015). Voncina (2000) in a research on recycling of textile materials emphasized that the utilization and recycling of waste has become very important in the present times due to the scarcity of unprocessed virgin materials and concern over the non-sustainable use of natural resources. Waste should be avoided both in the production process and when disposing products. Material substance should, at the end of product life, be suitable to be returned into the material cycle (recycling) (Agrawal *et al.*, 2013).

Many eco-fashion products can be prepared out of the wonderful Indian Textiles. This is what Kaur and Kaur (2014) did when they developed accessories from left over waste of zari/brocade fabrics in Ludhiana city. Most preferred decorative material and technique used for the development of eco-fashion accessories included Patchwork, applique, bead and mirror work. Use of three colours in a combination was most preferred in accessories. Norris (2008) in her study observed that second-hand saris are traded across North India, and are re-made into new style of clothing for the western market by local tailors. These are transformed either into copies of their own clothing or into hybrid forms favoured by backpackers travelling across Asia. Consumer awareness and knowledge regarding recycled apparel products should be developed to ensure a market and manufactures should be encouraged to recycle in order to ensure that resources would not be exhausted unnecessarily and the environment will be preserved optimally (Larney and Aardt, 2010). Upcycled fashion can address more than one social cause at the same time; saving natural resources and ethical treatment of animals, global labour issues and environmental pollutants (Myers, 2014).

Looking at the importance of recycling of textiles, present study was undertaken with the following objectives:

1. To identify the Post-consumer apparel waste used for recycling by the people living in rural and urban parts of Chandigarh.

2. To find out the views of rural and urban people of Chandigarh about recycling of clothing and textiles.

3. To determine the practices and products developed through recycling by rural and urban people of Chandigarh.

METHODOLOGY

The present research involved a survey of 60 housewives- 30 each from rural and urban area of Chandigarh. Chandigarh is divided into various sectors (1-56 except sector 13) which falls into the urban area of Chandigarh. It also has many villages that are included in rural part of Chandigarh. These villages are either sectoral villages (situated within a sector) or non-sectoral villages (which are not within a sector and lie on the periphery of Chandigarh). For rural population random sample size of 30 respondents was selected from Villages Khuda Ali Sher, Behlana, and Sarangpur and for Urban population, sample size of 30 respondents was randomly selected from sectors 30, 31, 37, 43, 45, 47.

A structured questionnaire of 28 items was developed in order to understand and compare the recycling behaviour of clothing and textiles by the rural and urban population of Chandigarh. Data was tabulated and analyzed in the form of percentages. Chi-square and Pearson value was applied to see whether there exists a significant difference between the opinion of rural and urban housewives regarding recycling of clothing and textiles. Level of significance was analyzed on the basis of consideration of p-value.

RESULTS AND DISCUSSION

The first inquiry was meaning of recycling for the urban and rural women of Chandigarh. The survey revealed that maximum of the urban respondents feel that creating new items from the old is recycling. Respondents from the villages of the Chandigarh said that even donating old clothes for someone else use is
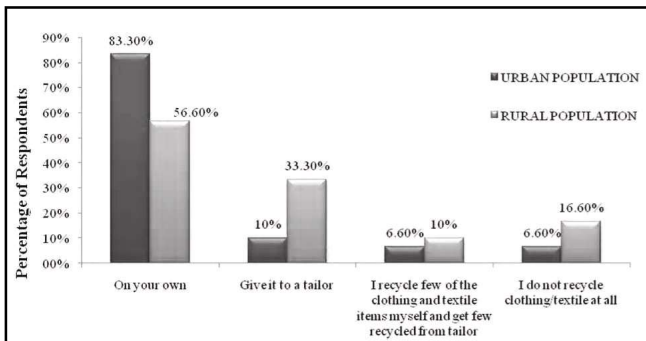
| Table 1: Recycling clothing and textiles				
Sr. No.	Options	Urban (N=30)	Rural (N=30)	Chi-Square /P value
(A)	On your own	25	17	6.648/.010
(B)	Give it to a tailor	3	10	13.416/.000
(C)	I recycle few of the clothing and textile items myself and get few recycled from tailor	2	3	
(D)	I do not recycle clothing/textile at all	2	5	.480/.488

*Multiple response

also bringing the product into the cycle of usage and hence is recycling. There were many respondents from villages said that they also recycle their clothing by donating in Gurudwaras (Sikh shrine). As compared to urban respondents, there were less rural respondents who said that creating something new is recycling.

According to the Bar Graph 1 and Table 1, the urban population (83.30%) and rural population (56.60%) recycle clothing and textile themselves to prepare another product. 33.30% of rural respondents and 10% of the urban respondents give old clothing and textiles to a tailor for recycling. The above data reflect that there is a significant difference between urban and rural population with regards to the recycling of clothing and textiles by taking services of a tailor.

Graph 1 : Recycling clothing and textiles

According to the Bar Graph 2 and Table 2, 86.60% of the urban population recycle their apparels while 63.30% rural population recycle their accessories. The above data reflect that there is a significant difference between urban and rural population with regards to recycling of apparel.
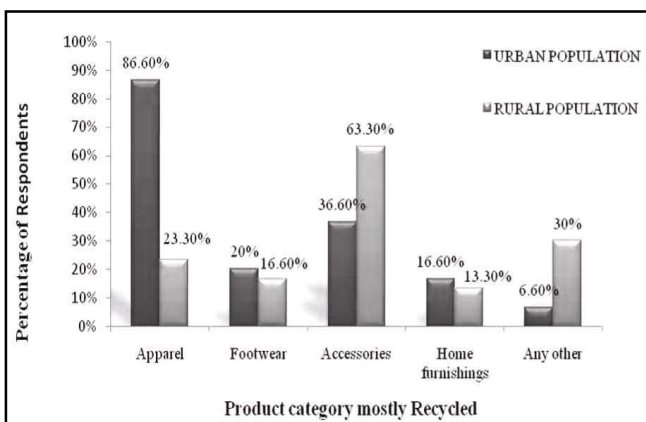
Graph 2 : Product category used for recycling

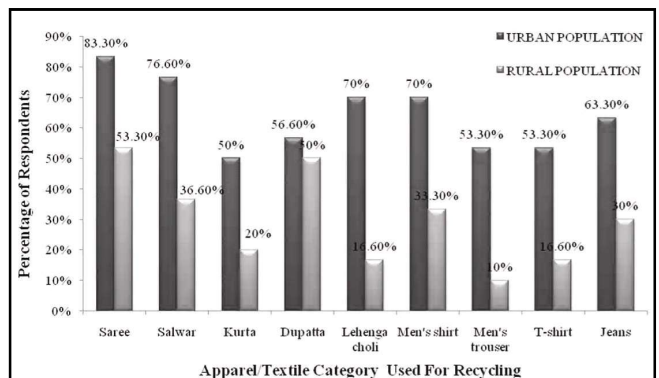| Table 2 : Product category used for recycling			
Sr. No.	Options	Urban (N=30)	Rural (N=30)	Chi-Square /P value
(A)	Apparel	26	7	21.696/.000
(B)	Footwear	6	5	.111/.739
(C)	Accessories	11	19	5.406/.020
(D)	Home furnishings	5	4	.480/.488
(E)	Any other	2	9	5.455/.020

*Multiple response

According to the Bar Graph 3 and Table 3, saree is mostly used by the urban population (83.30%) as well as by the rural population (53.3%) for recycling.

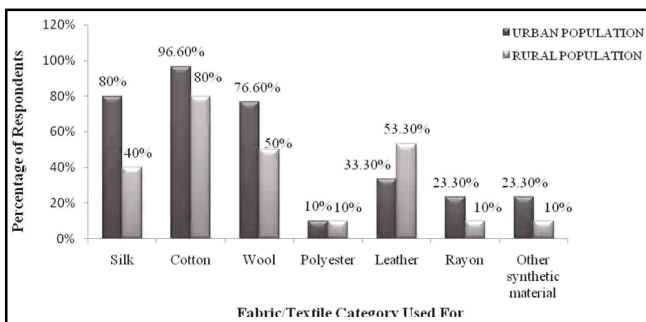| Table 3 : Type of clothing used for recycling			
Sr. No.	Option	Urban (N=30)	Rural (N=30)	Chi-Square/P Value
(A)	Saree	25	16	6.239/.012
(B)	Salwar	23	11	9.774/.002
(C)	Kurta	15	6	4.800/.028
(D)	Dupatta	17	15	1.086/.297
(E)	Lehenga choli	21	5	13.611/.000
(F)	Men's shirt	21	10	4.286/.038
(G)	Men trouser	16	3	13.017/.000
(H)	T-shirt	16	5	6.239/.012
(I)	Jeans	19	9	6.696/.010

*Multiple response

Graph 3 : Type of clothing used for recycling

The above data reflect that there is a significant difference between urban and rural population with regards to the usage of apparel/textile category used for recycling especially saree, salwar, kurta, lehenga choli, men's shirt, men's trouser, t-shirt and jeans.

According to the Bar Graph 4 and Table 4, 96.60% of the urban population and 80% of the rural population use cotton fabric as a preferred textile material for

Table 4: Type of fabric used for recycling

| Sr. No.	Options	Urban (N=30)	Rural (N=30)	Chi-Square/ P Value
(A)	Silk	24	12	8.297/.004
(B)	Cotton	29	24	6.667/.010
(C)	Wool	23	15	5.934/.015
(D)	Polyester	3	3	.218/.640
(E)	Leather	10	16	2.443/.118
(F)	Rayon	7	3	2.783/.095
(G)	Other synthetic material	7	3	3.750/.053

*Multiple response

Graph 4 : Type of fabric used for recycling

recycling. This is followed by silk and wool.

The Graph 5 and Table 5 indicates that maximum urban respondents (73.30%) use their unwanted clothing for recycling when the color of the product fades away and 50% go for recycling when the unwanted clothing goes out of fashion. 40% of rural population recycle when their clothing doesn't fit and also when the color of clothing fades away. The above data reflect that there is a significant difference between urban and rural population with regards to the condition of clothing for which it is recycled *i.e.* when its color fades away and when it get out of fashion/trend.

Table 5 : Condition of clothing and textiles for which it is recycled

| Sr. No.	Option	Urban (N=30)	Rural (N=30)	Chi-Square/ P Value
(A)	When it gets torn	3	3	.000/1.000
(B)	When its color fade away	22	12	5.455/.020
(C)	When it gets out of fashion/trend	15	3	11.429/.001
(D)	When it doesn't fit	12	12	.000/1.000
(E)	Any Other	1	5	1.456/.228

*Multiple response
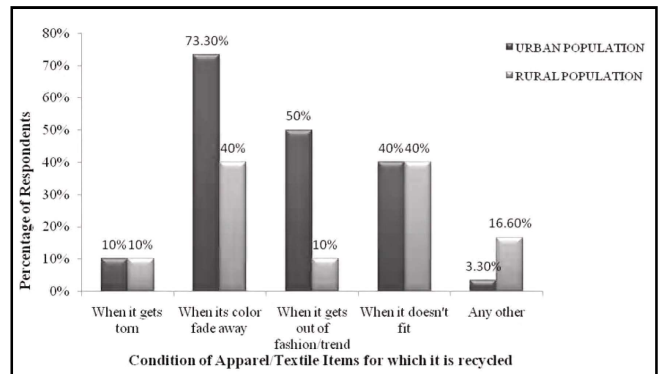
Graph 5 : Condition of clothing and textiles for which it is recycled

The Graph 6 and Table 6 indicates that 70% of urban population recycle to increase life of existing clothing and textile while 50% of rural population recycle in order to help others by donating.

Table 6 : Reasons for recycling

Sr. No.	Option	Urban (N=30)	Rural (N=30)	Chi-Square/ P Value
(A)	To help others by donating	16	15	.067/.796
(B)	To increase the life of existing clothing and textiles	21	9	8.076/.004
(C)	To increase value for money	19	3	13.017/.000
(D)	To protect environment	8	4	1.667/.197
(E)	Any other	1	2	.218/.640

*Multiple response
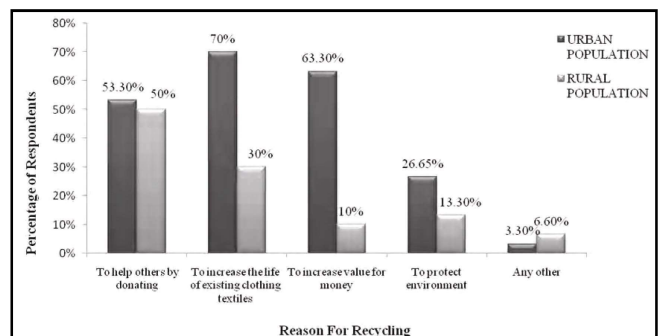
Graph 6 : Reasons for recycling

According to Graph 7 and Table 7, quilting (67%) and patchwork (56.60%) techniques are mostly used by urban population while patchwork (37%) and mirror work (33%) are mostly used by rural population for recycling.

The above data reflect that there is a significant difference between urban and rural population with regards to the using quilting technique for recycling.

| Table 7: Techniques used for recycling				
Sr. No.	Option	Urban (N=30)	Rural (N=30)	Chi-Square/ P Value
(A)	Patchwork	17	11	1.684/.194
(B)	Quilting	20	7	9.774/.002
(C)	Mirror work	6	10	.000/1.000
(D)	Creative stitches	12	7	.089/.766
(E)	Tie and dye	2	3	.577/.448
(F)	Any other	3	10	2.222/.136

*Multiple response
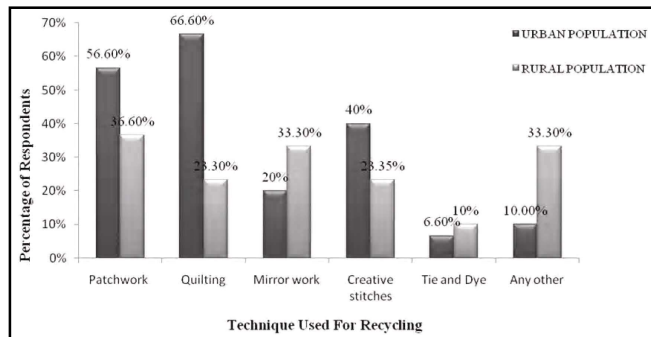
Graph 7 : Techniques used for recycling

The Graph 8 and Table 8 indicates that 63.30% and 60% of urban population develop bags and purses and bedsheets, respectively. 33.30% and 26.6% of rural population prepare bags and purses and children clothing by recycling textiles and clothing. Other than these, recycled products prepared by the respondents included cushion filling and cushion covers, foot mats, rugs (durries) and clothing articles for women and men.

Another interesting reply by the rural respondents was that they cut out one-inch wide strip of fabric from old garments and textiles, collect these in large quantity and convert these into yarn by twisting the same and then weave their beds and small stools called pidhis with this yarn. The above data reflect that there is a significant difference between urban and rural population for developing bedsheets and woven durries as a recycled product. Following page shows images of the products prepared by respondents.
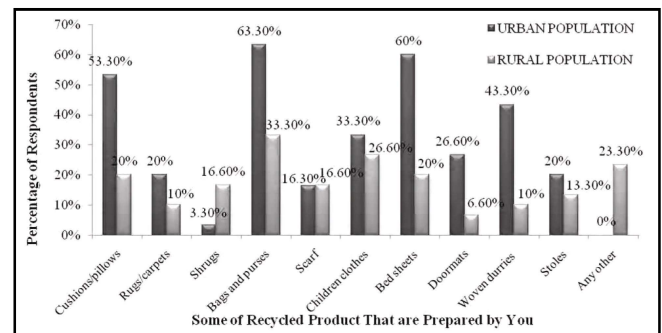
Graph 8 : Recycled products created by rural and urban respondents

Both urban and rural population feels that recycling is an easy process but it is a time taking process. 46.6% of urban population takes 2-3 hours to prepare a recycled product and 50% of rural population takes 3-4 hours. Maximum urban respondents (76.60%) gift their recycled products while maximum rural respondents (63.30%) prefer to donate the recycled products. Both urban and rural people feel that recycling has positive impact on planet earth and is beneficial for society as it improves quality of life so people need to be educated about

Table 8 : Recycled products created by rural and urban respondents				
Sr. No.	Option	Urban (N=30)	Rural (N=30)	Chi-Square /P Value
(A)	Cushions/pillows	16	6	2.052/.152
(B)	Rugs/carpets	6	3	.577/.448
(C)	Shrugs	1	5	.131/.748
(D)	Bags and purses	19	10	1.714/.190
(E)	Scarf	5	5	.111/.739
(F)	Children cloths	10	8	.000/1.000
(G)	Bed sheets	18	6	5.934/.015
(H)	Doormats	8	2	1.456/.228
(I)	Woven durries	13	3	7.200/.007
(J)	Stoles	6	4	2.455/.117
(K)	Any other	0	7	7.925/.005

* Multiple response

Fig. 1 : Different types of recycled cushions prepared by respondents

Fig. 2 : Recycled foot mats

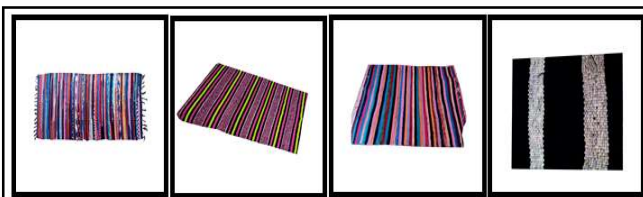**Fig. 3 :** Recycled bags and purse

Fig. 4 : Different types of durries

Fig. 5 : Different types of recycled garments

Fig. 6 : Weaving with recycled yarn prepared from old garments

recycling. Both urban and rural people agrees to the fact that selling recycled products would bring profit and government should make new rules and laws for recycling to make a better living.

Conclusion:

The study shows that people residing in villages of Chandigarh prefer to donate their old clothes and many of them also like to recycle their old clothes to create new product. The urban population tend to recycle their old clothing for their own use or modify these for variety of usages. They seek to create something new. Flat textile- saree was most preferred for recycling as it was easy to cut and take out desired shapes out of it. Variety of recycled products prepared with different creative techniques were demonstrated by the respondents which showed their positive contribution in sustaining the environment of the planet earth.

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