IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Sustainable Clothing Market Research On The City Of Pune

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Abstract:

The motive of this have a look at is to apprehend the shopping for conduct toward sustainable and eco clothing. This paper provides the facts, figures and standard recognition approximately eco style and eco apparel. It additionally elaborates the environmental affects approximately the uncooked fabric and production method used for apparel and shows Sustainable Raw Material be favored for sustainable apparel`s in India, The motive of this paper is likewise to have a look at the connection among eco style and their willingness to pay a top rate for eco-apparel`s with the focal point on gender and age group. This paper classifies the patron into 7 sorts with recognize to particular mindset to sustainable and eco-apparel in the pattern of 119 in Pune region. The findings will assist rapid style retailers, marketers, environmental activists, ecological researchers, charity establishments and public coverage makers.

Keywords: Eco-Clothing; Consumer Behavior; Eco-Fashion; Sustainable; Eco Friendly Fabrics; Environmental Impact.

1. Introduction

The origin of sustainable fashion movement is intertwined with the modern environmental movement, following the publication in 1962 of the book Silent Spring by American biologist Rachel Carson. Carson's book exposed the serious and widespread pollution associated with the use of agricultural chemicals, a theme debated around the environmental and social impact of fashion today. The decades which followed saw the impact of human actions on the environment to be more systematically investigated, including the effects of industrial activity, and new concepts for mitigating these effects, notably sustainable development, a term coined in 1987 by the Brundtland Report.

Sustainable fashion deals with considering fashion from the perspective of a variety of stakeholders ranging from contemporary producers and consumers of clothes, to future producers and consumers.[3]

In 2020, it was found that an approach of voluntarily self-directed reform of textile manufacturing supply chains to substantially reduce the environmental impact of fashion by large companies themselves has failed.[4][5] Measures to reform fashion towards sustainability beyond marketing campaigns of

greenwashing may need to involve policies for the creation and enforcement of standardized certificates along with related import control and subsidy-[6] and eco-tariffs-like interventions.

In a country like netherland for the Clothing Care four functions have been formulated

• Eternally yours, limited wardrobes of high quality unique made to measure clothes; maintenance and laundry is serviced;

• Clothing Pool, shared stocks and shared maintenance of children's clothing at e.g. neighborhood level; • Outsourcing, clothing is leased, borrowed or rented from various service providers who also do the laundry and maintenance, see also the example DOS below, and

• Chains of Users, clothing is bought new or second hand via e-commerce; the laundry's done at home.

In Indian Context for future of sustainable fashion the change in Designer's Perspective to promote Ethical Fashion among Textile Entrepreneurs, organizations such as National Association of Sustainable Fashion Designers provide designers tools for Sustainability through various Training and Development activities. To address the triple bottom line of Eco-Friendly fashion designers have to consider

• Sustainability and Renew-ability of the fibre,

• The environmentally conscious index of the process of turning raw fibre into textile,

• The working condition of the Human resources and

• The Carbon Footprint of the material in its Whole Life cycle

2. Environmental Impacts of Different Materials used for Clothing

Different fabrics have different impacts, depending on what they're made of:

Nylon and polyester

Made from petrochemicals, these synthetics are non-biodegradable as well, so they are inherently unsustainable on two counts. Nylon manufacture creates nitrous oxide, a greenhouse gas 310 times more potent than carbon dioxide. Making polyester uses large amounts of water for cooling, along with lubricants which can become a source of contamination. Both processes are also very energy-hungry.

Rayon (viscose)

This is another artificial fibre, made from wood pulp, which on the face of it seems more sustainable. However, old growth forest is often cleared and/or subsistence farmers are displaced to make way for pulpwood plantations. Often the tree planted is eucalyptus, which draws up phenomenal amounts of water, causing problems in sensitive regions. To make rayon, the wood pulp is treated with hazardous chemicals such as caustic soda and sulphuric acid.

Cotton

Natural fibres have their problems, too. Cotton is the most pesticide intensive crop in the world: these pesticides injure and kill many people every year. It also takes up a large proportion of agricultural land, much of which is needed by local people to grow their own food. Herbicides, and also the chemical defoliants which are sometimes used to aid mechanical cotton harvesting, add to the toll on both the environment and human health. These chemicals typically remain in the fabric after finishing, and are

released during the lifetime of the garments. The development of genetically modified cotton adds environmental problems at another level. Organic cotton is quite another matter.

Wool

Both agricultural and craft workers in the UK suffer from exposure to organophosphate sheep dip.

Manufacturing processes

Getting from fibre to cloth – bleaching, dyeing, and finishing – uses yet more energy and water, and causes yet more pollution.

Dyeing alone can account for most of the water used in producing a garment; unfixed dye then often washes out of garments, and can end up colouring the rivers, as treatment plants fail to remove them from the water. Dye fixatives – often heavy metals – also end up in sewers and then rivers.

Cloth is often bleached using dioxin-producing chlorine compounds.

And virtually all polycotton (especially bedlinen), plus all 'easy care', 'crease resistant', 'permanent press' cotton, are treated with toxic formaldehyde (also used for flameproofing nylon).

Other materials

Other materials used in clothing and shoes include:

Leather (with polluting tanning and dyeing processes, as well as intensive farming impacts and animal rights issues).

PVC – a notoriously toxic material.

Harmful solvents – used e.g. in glues and to stick plastic coatings to some waterproof fabrics.

3. Research Gap

There is little information about consumer preferences and sustainability perceptions.

Indian clothing with cheaper alternatives. It's also clear that there are some Factors that consumers consider when deciding to buy clothing clothing. To fill this information gap, this study found that common clothing selection criteria (fashion, comfort, quality, wearability, price, etc.) were based on consumers and their buying habits, as well as environmental and social clothing. The selection criteria of the item have determined how it will be applied. On the other hand, it affects their behavior towards sustainable textiles and clothing. It also reveals how important the latter criteria are to the various consumer groups formed in the course of the survey, and the relationship between individuals in one of the prominent groups and behavior in the sustainable eco-clothing market. Must be. .. The direct or indirect causes of many environmental and social concerns that plague the apparel industry are associated with increased consumption and associated fast fashion (Sluiter, 2009; Koszewska, 2011b).

4. Demographic Details From a sample of approximately 180, 119 best and complete response were selected which comprises 65.5 % of male and 34.5 % were female. The maximum samples population has age group between 21 to 30 and have maximum of student comprising 63 % of total sample whereas around 20% of sample is within the age group of 41-50 which gives a good mix of age group.

Approximately 89 % of sample is graduate and post graduate. 50% of the samples have income greater than 30000.

Gender

		Frequency	%	Valid %	Cumulative %
Valid	Male	78	65.5	65.5	65.5
	Female	41	34.5	34.5	100
	Total	119	100	100	

Highest Qualification		Frequency	%	Valid %	Cumulative %
Valid	Graduate	47	39.5	39.5	39.5
	Post Graduate	56	47.1	47.1	46.6
	PHD	10	8.4	8.4	95
	Others	6	5	5	100
	Total	119	100	100	

Age

Valid	> 21	8	6.7	6.7	6.7
	21- 30	75	63	63	69.7
	31-40	11	9.2	9.2	79
	41-50	22	18.5	18.5	97.5
	<50	3	2.5	2.5	100
	Total	119	100	100	

Income/Month

Valid	> 30000	60	50.4	50.4	50.4
	31000-50000	25	21	21	71.4
	51000-70000	22	18.5	18.5	89.9
	70000-1 lac	2	1.7	1.7	91.6
	Above 1 Lac	10	8.4	8.4	100
	Total	119	100	100	

5. Research Hypothesis

Hypothesis 1: The consumer groups themselves based on attitude and buying behavior with reference to sustainable and eco clothing. There are different segments which can be classified based on their attitude and buying pattern. This classification tend to give the inputs about the consumer types and the common attributes necessary for distinguishing one from other.

Hypothesis2:

The awareness level about sustainable and eco clothing differs among male and female. Null hypothesis is H0: The awareness level about sustainable and eco clothing is independent of Gender. Alternate Hypothesis H1: There is a significant relationship between gender and the awareness level.

Hypothesis 3: Willingness to pay extra for sustainable and eco clothing differs among male and female. Null hypothesis is H0: Willingness to pay extra for sustainable and eco clothing is independent of gender.

Alternate Hypothesis H1: There is a significant relationship between gender and Willingness to pay extra for sustainable and eco clothing.

Hypothesis 4: Willingness to pay extra for sustainable and eco clothing depends on the age group. Null hypothesis is H0: Willingness to pay extra for sustainable and eco clothing is independent of age group. Alternate Hypothesis H1: There is a significant relationship between age group and Willingness to pay extra for sustainable and eco clothing.

6. Research Analysis

Based on factor analysis varimax rotation it is found that seven factors have been extracted which accounts for about 68.8 % of total variation having Eigen Value more than 1.

Factor 1: They are Socio-Ecological consumer generally check producers country while buying clothes and buy clothes made by natural products, buy clothes which has eco labels, eco-friendly tags before buying, they consider the rights of the workers at workplace, they redesign old clothes and they check whether the product involves child labor, they also check raw material composition before buying clothes. Socio-Ecological consumer represented 17.74 % of the surveyed population of consumers.

Factor 2: They are Fashion Trendy consumer frequently buy new clothes for self and member of family they are influenced by fashion and new trends and care about the brand while buying clothes they like original, unique & designer clothes they like to buy clothes of global brands. They do not believe in recycling of clothes. Fashion Trendy consumer represented 12.59 % of the surveyed population of consumers.

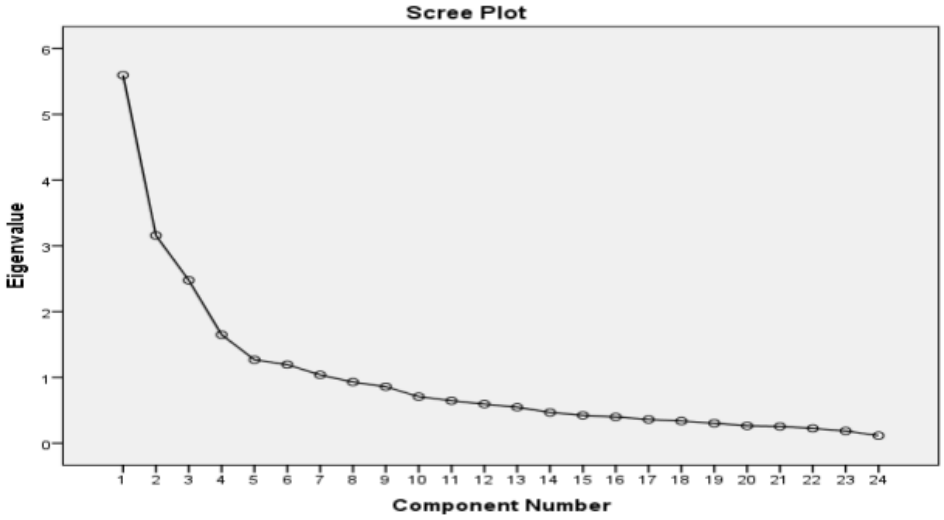
Factor 3: They are Conservative consumer kind of people who gives old clothes in charity they believe in recycling of clothes and buy clothes to wear them for several months they redesign old clothes and give old clothes to my friends or family members. They don't like original, unique & designer clothes. Conservative consumer represented 8.58% of the surveyed population of consumers.

Factor 4: They are Ecological consumer and always buy clothes which are durable and tough and believe clothing industry create adverse effect on the environment, always value classical, subdued (light colors/not harsh) products, the price of the clothes are important to them and would buy one up market products than several less expensive products of inferior quality they never check producers country while buying clothes they I never buy new clothes for themselves or member of family. Ecological consumer represented 8.38% of the surveyed population of consumers.

Factor 5: They are Utilitarian consumer they frequently buy clothes at local markets they give old clothes to friends or family members they always check whether the product involves child labor they redesign old clothes. They would never buy one up market products than several less expensive products of inferior quality Utilitarian consumer represented 7.74% of the surveyed population of consumers.

Factor 6: They are Price Conscious consumer and always buy clothes at the sale (Discount) they believe the price of the clothes are important they buy clothes to wear them for several months they frequently buy clothes at local markets. They may never consider the rights of the workers were maintained and never check whether the product involves child labor Price Conscious consumer represented 7.64 % of the surveyed population of consumers.

Factor 7: They are Slow Fashionistas, they feel they will not wear what they have bought they believe clothing industry create adverse effect on the environment they always check whether the product involves child labor and frequently buy new clothes for themselves or member of family and only buy clothes made by natural products .They will never check raw material composition before buying clothes they never value classical, subdued (light colors/not harsh) products they never like to buy clothes of global brands Slow Fashionistas consumer represented 5.56% of the surveyed population of consumers.



Rotated Component Matrixa

	Component						
	Socio Ecological	**Fashion trender**	**Conservative**	**Ecological**	**Utilita rian**	**Price Conscious**	**Slow Fashionistas**
I care about the brand while buying clothes	.206	**.733**	-.023	.011	-.253	.248	-.131
I like original, unique & designer clothes	.133	**.637**	-.128	.265	-.183	.052	-.056
I like to buy clothes of global brands	.359	**.610**	.052	.002	-.390	.254	-.191
I'd buy one up market products than several less expensive products of inferior quality	.203	.349	.099	.370	-.499	.168	-.178
I feel I will not wear what I have bought	.456	-.133	.129	.083	-.078	.120	**.719**
I will always check raw material composition before buying clothes	.504	.078	.141	.238	-.139	.052	-.558

I alwaysvalue classical, subdued(light colors/not harsh)products	.183	.338	.072	**.566**	.075	.018	-.342
I alwayscheck producers country while buyingclothes	.812	.148	.083	-.033	-.057	.246	-.034
I alwayscheck theclothes has eco labels,eco-friendly tags beforebuying	.793	.222	-.049	-.020	.036	.019	-.056
I alwayscheck whether the product involves child labour	.587	.202	.206	.098	**.305**	-.197	.285
I always consider the rightsof the workers were maintained	.753	.060	-.009	.142	.130	-.442	.027
I only buy clothes made by natural products	.794	.007	-.046	.225	.013	.195	.092
I alwaysbuy	.253	.081	.261	.026	.200	**.726**	.077
clothes at the sale(Disco unt)							
I frequently buy clothes at local markets	.081	-.006	.077	.144	.725	**.344**	-.020
The price of the clothes are important to me	-.124	.157	-.062	.501	.028	**.653**	.000
I always buy clothes which are durable and tough	.023	.040	.171	.817	-.080	**.021**	-.063
I believe clothing industry create adverse effect on the environment	.185	.035	.062	.590	.167	**.157**	.303
I believe in recycling of clothes	.163	-.193	.708	.140	.160	**.193**	-.075
I redesign my old clothes	.630	.017	.430	.051	.275	**-.055**	.084
I give my old clothes to my friends or family members	.293	-.052	.299	-.009	.669	**-.012**	-.036
I give my old clothes in charity	.114	.191	.754	.056	.085	**-.132**	.070

Hypothesis2: The awareness level about sustainable and eco clothing differs among male and female.

Null hypothesis is H0: The awareness level about sustainable and eco clothing is independent of Gender.

Alternate Hypothesis H1: There is a significant relationship between gender and the awarenesslevel.

Chi-Square Tests			
	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	3.134[a]	6	.792
Likelihood Ratio	3.223	6	.780
Linear-by-Linear Association	.516	1	.472
N of Valid Cases	119		

a. 4 cells (28.6%) have expected count less than 5. The minimum expected count is .69.

At 0.5 % significance level it is evident using chi square at p value of 0.792 it is significant that the awareness level does not differ in male and female.

Hypothesis 3: Willingness to pay extra for sustainable and eco clothing differs among male and female.

Null hypothesis is H0: Willingness to pay extra for sustainable and eco clothing is independent of gender.

Alternate Hypothesis H1: There is a significant relationship between gender and Willingness to pay extra for sustainable and eco clothing.

Gender * How much will you pay more for clothes labeled as "sustainable" or"environmentally-friendly" than a "higher quality" clothes. Cross tabulation

			How much will you pay more for clothes labeled as "sustainable" or "environmentally-friendly"than a "higher quality" clothes.					Total
			10-20%	20-30%	30-40%	40-50%	more than50%	
Gender	male	Count	50	13	9	3	3	78
		Expected Count	51.1	13.8	7.9	2.6	2.6	78.0
	female	Count	28	8	3	1	1	41
		Expected Count	26.9	7.2	4.1	1.4	1.4	41.0
Total		Count	78	21	12	4	4	119
		Expected Count	78.0	21.0	12.0	4.0	4.0	119.0

Chi-Square Tests			
	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	.987[a]	4	.912
Likelihood Ratio	1.027	4	.906

Linear-by-Linear Association	.609	1	.435
N of Valid Cases	119		
a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 1.38.			

At 0.5 % significance level it is evident using chi square at p value of 0.912that willingness to pay extra does not vary according to gender. The male and female are equally likely to pay premium prices for sustainable and eco clothing.

Hypothesis 4: Willingness to pay extra for sustainable and eco clothing depends on the age group. Null hypothesis is H0: Willingness to pay extra for sustainable and eco clothing is independent ofage group. Alternate Hypothesis H1: There is a significant relationship between age group and Willingness to pay extra for sustainable and eco clothing.

Age * How much will you pay more for clothes labeled as "sustainable" or"environmentally-friendly" than a "higher quality" clothes. Crosstabulation

			How much will you pay more for clothes labeled as "sustainable" or "environmentally-friendly" than a "higher quality" clothes.					Total
			10-20%	20-30%	30-40%	40-50%	more than 50%	
Age	less than21	Count	5	1	1	1	0	8
		Expected Count	5.2	1.4	.8	.3	.3	8.0
	21 to 30	Count	48	12	11	2	2	75
		Expected Count	49.2	13.2	7.6	2.5	2.5	75.0
	31 to 40	Count	5	5	0	1	0	11
		Expected Count	7.2	1.9	1.1	.4	.4	11.0
	41 to 50	Count	17	3	0	0	2	22
		Expected Count	14.4	3.9	2.2	.7	.7	22.0
	above 50	Count	3	0	0	0	0	3
		Expected Count	2.0	.5	.3	.1	.1	3.0
Total		Count	78	21	12	4	4	119
		Expected Count	78.0	21.0	12.0	4.0	4.0	119.0

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.750[a]	16	.232
Likelihood Ratio	21.991	16	.143
Linear-by-Linear Association	.946	1	.331
N of Valid Cases	119		

At 0.5 % significance level using chi square it may be concluded that at p value of 0.232 we must accept null hypothesis i.e willingness to pay extra for sustainable and eco clothing is independentof age group.

Conclusion

The consumers can be broadly classified based on their buying behavior and attitude in seven categories for the purpose of eco clothing. S**ocio-Ecological** consumers have share of 17.74 % where as **Fashion Trendy consumer have a share of** 12.59 %. It is significantly proved that the gender and age does not make any difference while selecting the eco clothing. It is also evident that willingness to spend more on eco clothing does not depend on the gender and age group. Since maximum sample are from the age group of 21-30 and mainly students so income level is not taken into consideration for cause and effect and other statistical test. In addition to the previous studies where six factors were extracted this study has categorized the consumer with seven distinct factors. Some of the material listed creates impacts on the environment and some alternative werealso suggested for sustainable clothing's.

Scope for Further Research

Since this research is carried in very closed geographical region with limited samples due to time constrains especially around wakad and Tathwade, Pune it can be further extended to other region or different states of India altogether with more samples to get the exact knowledge about the attitude and buying preference. It can also be tested and compared with other Asian and South Asian countries where clothing and apparel were available at the lowest cost due to low cost of raw material and cheap labor.

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