

Consumer Buying Behavior Using Exploratory Factor Analysis: A Study on Reusable Hygiene Products Segment

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Abstract

Innovative solutions are at the base of any social and environmental problems and become the pull for people to pursue ethical consumerism. This capability is even more critical in times of global crises, such as the one caused by COVID-19. The purpose of the study is to identify the proposed personal traits and factors that affect female consumers' ethical fashion adoption towards reusable handloom Hygiene pads and to provide managerial implications in the future. A quantitative approach to the study was employed. A self-administered structured questionnaire was used to collect primary data from Kerala, which yielded 302 responses from the southern states of India. Factor analysis and correlation were employed to test the proposed hypothesis. This study successfully classified twenty-five items covering various personal traits like product awareness, product attributes, price sensitivity, past sustainable behavior, perceived obsolescence and consumer innovativeness into four factors using exploratory factor analysis. These four factors were Environmental consciousness, Price consciousness, Novelty-Style Consciousness, and Consumer innovativeness. These factors also show a robust positive relationship towards ethical fashion adaptation. The result of the study is expected to be valuable for handloom pad manufacturers and producers that are alert about sustainable revenue generation to establish better sustainable innovations and niche service strategies. Also, it is hoped that this paper will add more inputs to the existing literature review on females' ethical fashion adoption intention, especially in handloom fashion-adoption.

Keywords: Ethical product adoption, Handloom Reusable Hygiene Pads, Mindful Consumption & Ethical consumerism

Introduction

Disposable sanitary pads and tampons may appear necessary today, yet they have only been around for less than a century. Women bled into their garments until the turn of the century or folded pieces of cloth or other adsorbents like barking or haying into a pad if they could afford it. Fortunately, in the last decade, policymaking in India has increasingly focused on menstrual health and hygiene. The National Health Mission established the Menstruation Hygiene Scheme in 2011 to promote menstrual hygiene among 15 million adolescent girls between 10 and 19 in 152 districts across 20 states. In June 2010, the Government of India proposed a new scheme towards menstrual hygiene by providing subsidized sanitary napkins to rural adolescent girls.

Apart from central awareness schemes like Rashtriya Kishor SwasthyaKaryakram(RKSK) (2014) to boost the awareness and accessibility among rural adolescent girls. US based market research firm Expert Market Research says, “The value of the Indian Sanitary napkin market in 2020 means More young Indians are adopting safer menstrual practices, but polluting materials pose an environmental hazard that remains unaddressed. According to the study by Water Aid India and Menstrual Hygiene Alliance India, “Disposable sanitary pads may take over 500 years to decompose due to the plastic revolution. Several social entrepreneurs are already offering alternatives to sanitary pads as concerns about their environmental impact grow. Reusable absorbent underwear, menstrual cups, and reusable cloth pads — a modern and better-designed version of the conventional pad – are just a few examples. Also, several non-governmental organizations (NGOs) have been producing such products through women's self-help groups (SHGs), but it is not to scale. According to a 2020 study, 63 per cent of Indian women recognize that sanitary pads are environmentally damaging, and 80 per cent are happy to adapt to eco-friendly alternatives. This study is a step towards ethical consumerism by better understanding consumer behaviour to adopt new innovative products like handloom reusable menstrual pads. It is a challenge to position such products in the minds of consumers and promote acceptability and adoption. Different factors influence the consumer’s adoption of reusable handloom Hygiene pads, like product awareness, product attributes (product features and hygiene), consumer innovativeness, social values, past sustainable behaviour and perceived obsolescence. To get results and findings, the above factors must be investigated.

Ethical Product Adoption

The idea of ethical consumption and/or ethical consumerism is understood as the general consumer behavior of purchasing goods created following a set of moral and ethical standards. Moreover, according to previous studies, ethical consumerism mainly covers all stages of the consumption cycle, from purchase to use to disposal (Gummerus, Liljander and Sihlman, 2017). Lim (2017) explained sustainable consumption issues from responsible consumption, anti-consumption and mindful consumption perspectives. It is practised through ‘positive buying’, where ethical products are preferred, and ‘moral boycott’, which is negative and brand-based purchasing. Further investigation by Yoon(2019) revealed that every purchase decision contains a moral choice. This makes it clear that ethical consumption involves selecting the right products and services and the right companies to deliver them. Ethics rating of a company or product is determined by categories like environmental reporting, animal testing, people, and politics Zollo et al. (2018). In consumer behavior, adoption requires sound attention to how they can be more influenced to adopt new trends (Wiederhold et.al., 1993).

Further, Kamenidou, et al (2019) claimed that consideration towards ethical consumption is higher in developed countries than in developing countries. Numerous public and commercial entities have formed since the late 1990s to confirm and identify products made ethically through product labeling. Since people inspect the ingredients and manufacturing processes listed on the products they want to buy, it has been assumed that product labeling

tends to affect consumers' purchasing decisions. The appropriate labeling of goods sold in the market enables customers to shop with ethical knowledge (Zollo 2020).

Also noteworthy is that traditional items are made in risky ways, which is the primary driver of people's shift to ethical consumption. As an illustration, chemical substances bad for your health are frequently found in inorganic cuisine. Because of this, people are compelled to engage in ethical consumption to maintain their health. Along with this, the idea of humanity motivates people to make ethical purchasing decisions because so many people reject the ideas of animal testing, hunting, child labour, environmental damage, etc. Besides this, the idea of humanity also pushes people to practise ethical consumption since many people reject the ideas of animal research, hunting, child labour, environmental damage, etc. They are thus encouraged to embrace ethical consumerism to ensure that the products they buy are not tested on animals and that the producing business is not involved in labour and/or natural resource exploitation. Reusable menstrual pads made of handloom can be considered a consumer's practice of mindful consumption because they favour quality above quantity, which would otherwise wind up in landfills. However, years of conditioning and strong marketing have led us to believe differently. Reusable menstrual pads are popular and the healthier choice. According to a study conducted among Indian women, Mukthy (2022) found that consumer innovativeness has a negative impact on ethical consumerism towards reusable pad adoption. The study's suggested characteristics, as well as the product's features, hygiene, and other characteristics, all play a significant role in how widely this product is adopted.

The objectives of the study:

The main aim of this research is to comprehend the idea of ethical consumerism while evaluating consumers' attitudes towards these phenomena. The objective of the study is to identify the influence of proposed traits on female adoption intention behavior of reusable handloom hygiene pads.

Hypothesis of the Study,

Ho: There is no significant relationship between proposed factors and female adoption intention towards reusable pad

Proposed Theoretical Framework of the Study

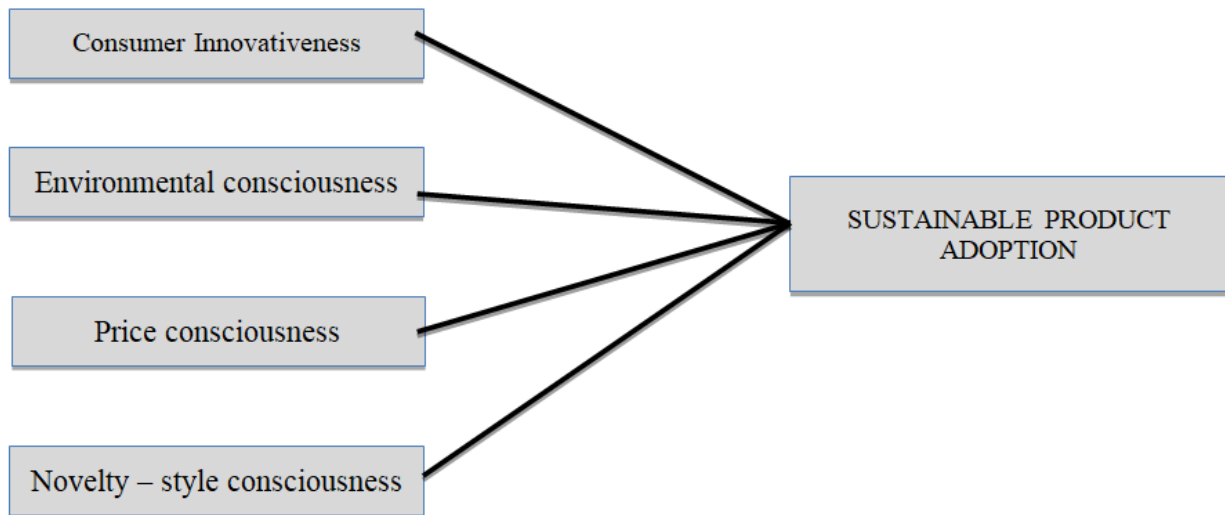


Figure 1: Study model

Research methodology

The population of the study consists of females of the age group 14 to 40 years belonging to the three zones of Kerala, that is, south, central and North. Only those customers who tried cloth pads were considered. Data were gathered via a survey (n=302), administered via a web link distributed via e-mail and posted on female-oriented message boards. To guard against irrelevant or invalid results, a pre-test of 100 participants was conducted after the questionnaire was constructed. The required changes to the questionnaire were made in response to the respondents' questions. The respondent's expertise expressed desire and informed consent was used to collect information. For data interpretation, bivariate statistical tools Factor analysis and correlation were used in this study.

INDEPENDENT VARIABLE SOURCE	AUTHOR(YEAR)	ITEM SCALE(LIKERT -5 POINT)
CONSUMER INNOVATIVENESS (6 scale)	Park et al. (2007)	In general, I am the first in my circle of friends to know the names of the latest products
		In general, I am among the first in my circle of friends to buy a new product when it appears
		Compared to my friends, I own very few new products
		I know about innovations before most other people in my circle do.
		I like to take a chance in buying new products
		I will buy a new product even if I have not seen it before
PRICE SENSITIVITY (5)	Mujamdir (2015)	In general the price or cost of buying reusable products is important to me

scale)		I know that a new kind of reusable product is likely to be more expensive than older ones, but that does not matter to me
		I don't mind paying more to try out a new reusable product
		A really good reusable product is worth paying a lot of money
		I don't mind spending a lot of money to buy a reusable product
PERCEIVED OBSOLESCENCE (3 Scale)	Culture of consumption, (2011)	It is important for me to update my products from time to time
		I don't like same products to different occasions
		I usually dispose the products which are out of fashion
PAST SUSTAINABLE BEHAVIOR (4 scale)	Lang, (2018)	I use the product in rational way to increase its life time usage
		I think before throw out waste ^[1] _{SEP}
		I use my thing wisely to avoid wastage ^[1] _{SEP}
		I recycle old clothes that still in good condition ^[1] _{SEP}
PRODUCT ATTRIBUTES (3 scale)	Ottman, 1998	I Use biodegradable products.
		I Read labels to see if contents are environmentally safe.
		I Buy products made or packaged in recycled materials
PRODUCT AWARENESS (3 scale)	Park (2021)	I am aware of the environmental impact caused from cultivation of raw materials of textile products
		I know about the environmental impact caused from synthesis, dyeing and processing of a material for production of textile products
		I am aware of the environmental impact from disposal of textile wastes and their scale.
REUSABLE HYGIENE PAD ADOPTION (3 scale)	Fishbein and Ajzen (1977)	I choose to purchase reusable pads rather than purchasing disposable pads ^[1] _{SEP}
		I try to replace the purchase of disposable pads with the reusable ones.

		In the future, I will prefer Reusable pads rather than purchasing disposable.
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Source: Secondary data

Table 1: Measurement instrument and questionnaire design

The questionnaire every likert item will be graded on a 5-point scale, with “1” indicating strong disagreement and “5” indicating strong agreement. Initially above listed variable were selected and finally minimised in to four factors which influences ethical consumerism.

Result

Reliability test

Out of 302 samples, data obtained from 301(that is, 99.66%) were used for factor analysis. Table 2 presents the reliability statistics of the scale, Cronbach’s alpha, the coefficient of reliability, used as a measure of internal consistency, was .882 for this 25 Item likert scale. This score indicates that the scale is a reliable one.

<i>Cronbach's Alpha</i>	<i>N of items</i>
0.882	25

Table 2: Reliability statistics

Factor analysis

Also to ensure the feasibility of factor analysis on the data collected for this study, two tests were performed namely Kaiser-Meyer- Olkin (KMO) and Bartlett’s Test of Sphericity measure of sampling adequacy. Table 3 explains result of these tests used to determine the sustainability of data to factor analysis.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.851
Bartlett's Test of Sphericity	Approx. Chi-Square	2457.523
	df	351
	Sig.	.000

Table 3: KMO and Bartlett’s Test

Figure 1 illustrates, the scree plot for determining the number of factors. In this case, the scree is seen to begin at 4 and hence it was decided to extract four factors based on the criteria discussed

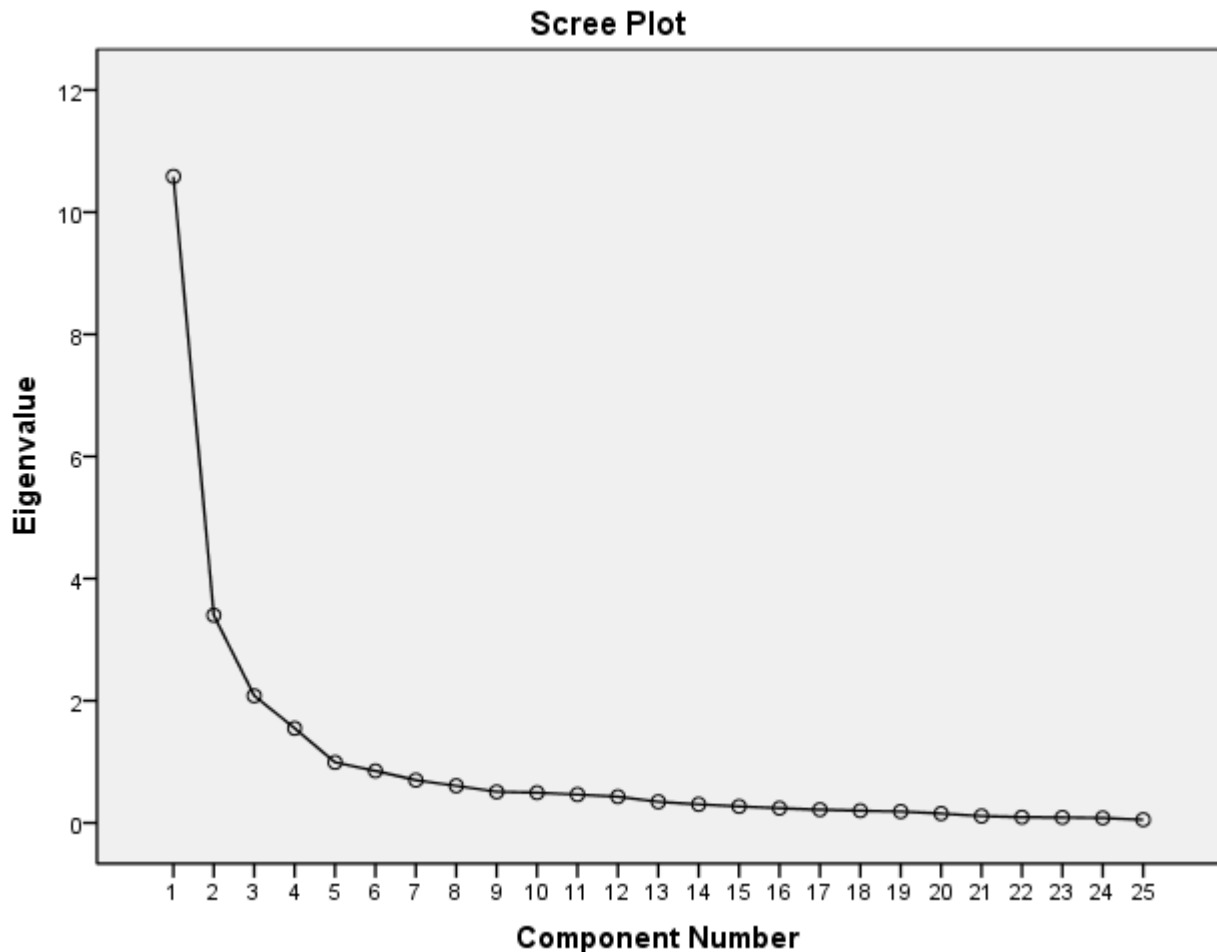


Fig: 2 Scree plot for determining the number of factors

The principle components method, which is the most commonly used method, is applied here. The result of the factor extraction is provided in the Table 4. The Eigen values represent the total variance explained by each factor. The 1st factor has Eigen value of 10.585. Since this is greater than 1.0, it explains more variance than a single variable. Similar in case of 2nd, 3rd and 4th factors. Factors 5 to 25 have Eigen values less than 1, and therefore explain less variance than a single variable. This initial solution suggests that in the final solution, not more than 4 factors should be extracted.

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.585	42.339	42.339	6.397	25.587	25.587
2	3.400	13.601	55.940	4.389	17.557	43.143
3	2.081	8.325	64.265	4.147	16.586	59.729
4	1.549	6.196	70.461	2.683	10.731	70.461
5	.992	3.967	74.428			

6	.851	3.405	77.833		
7	.700	2.799	80.632		
8	.607	2.428	83.060		
9	.508	2.034	85.094		
10	.494	1.975	87.069		
11	.464	1.855	88.924		
12	.429	1.718	90.642		
13	.346	1.383	92.024		
14	.304	1.218	93.242		
15	.270	1.079	94.321		
16	.240	.960	95.281		
17	.217	.868	96.149		
18	.199	.797	96.946		
19	.185	.740	97.686		
20	.153	.612	98.298		
21	.112	.446	98.744		
22	.094	.375	99.120		
23	.089	.356	99.476		
24	.080	.319	99.795		
25	.051	.205	100.000		

Extraction Method: Principal Component Analysis.

Table 4: Total variance explained by the factor solution

Table : 5 shows the results of rotated component matrix, in order to reduce the number of factors on which the variables under investigation have high loading .From the table, it can be found that the variables

Rotated Component Matrix^a

	Component			
	1	2	3	4
V18: I use my thing wisely to avoid wastage	.872			
V11: I am aware of the environmental impact caused from cultivation of raw materials of textile products	.865			
V12: I Buy products made or packaged in recycled materials	.856			
V13: I Read labels to see if contents are environmentally safe	.848			
V19: I think before throw out waste	.800			
V17: I recycle old clothes that still in good condition	.763			
V20: I use the product in rational way to increase its life time usage	.635			
V15: In the future, I will prefer Reusable pads rather than purchasing disposable.	.583			

V8 :I know that a new kind of reusable product is likely to be more expensive than older ones, but that does not matter to me		.780		
V10: A really good reusable product is worth paying a lot of money		.762		
V9: I don't mind paying more to try out a new reusable product		.745		
V24: I don't mind spending a lot of money to buy a reusable product		.700		
V7: In general the price or cost of buying reusable products is important to me		.691		
V5: I like to take a chance in buying new products		.613		
V6: I will buy a new product even if I have not seen it before		.528		
V25: I know about the environmental impact caused from synthesis, dyeing and processing of a material for production of textile products		.496		
V21: I usually dispose the products which are out of fashion			.857	
V22: I don't like same Products to different occasions			.752	
V16: I try to replace the purchase of disposable pads with the reusable ones.			.705	
V23: It is important for me to update my products from time to time			.667	
V14: I Use biodegradable products			.615	
V4:I know about innovations before most other people in my circle do			.472	
gVI: In general, I am the last in my circle of friends to know the mes of the latest products				.936
V2: In general, I am among The last in my circle of friends to know about the Products when it Appears				.933
V3:Compared to My Friends, I own very few new products				.739

Source: Primary Data

Table 5: Rotated component matrix

The final part of the output is the component transformation matrix as depicted in Table 6. This matrix provides information about the degree to which the factors were rotated to obtain a solution. Hence, from factor analysis, it is obvious that the variables can be grouped into four factors, which are more or less independent of each other.

Component Transformation Matrix

Componen t	1	2	3	4
1	.675	.546	.488	-.090
2	.589	-.224	-.445	.636
3	-.421	.304	.383	.764

4	.145	-.748	.646	.054
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Table 6: Component transformation matrix

Correlation matrix

As shown in the table 6, there is high degree of correlation between Independent ie factors adoption intension and female reusable handloom pad adoption intension. Environmental Consciousness is showing a strong positive relationship the customers slow fashion adaption intension followed by consumer innovativeness, price consciousness and style consciousness. Since P value <.05, Null hypothesis is rejected.

REUSABLE HYGIENE PRODUCT ADOPTION INTENSION		Price consciousness	Environmental consciousness	Consumer innovativeness	Novelty- Style Consciousness
	Pearson Correlation	.650**	.800**	.701**	.663**
	Sig. (2 - tailed)	<. 001	<. 001	<. 001	<. 001
	N	301	301	301	301

**. Correlation is significant at the 0.01 level (2- tailed). Source: primary data

Table 7: Correlation of Variables

Findings & Recommendation

Results showed that reliability for 25-factor scale items at 0.882 indicates high reliability. Of these 25 items, the KMO value of this study, at 0.851, indicates samples taken to process factor analysis to be statistically significant. In this study, 25 adoption intention factors were taken for factor analysis. Using a fixed number of factors, items were subjected to principal components Factor analysis, which yielded Environmental consciousness, Price consciousness, Novelty-Style Consciousness, and Consumer innovativeness From the Correlation matrix table, using the four factors showed a high positive relationship with adoption intention. The result found that all factors are essential to hygiene pad adoption intention among female consumers. Reusable handloom pad manufacturers looking for a better consumer segment should understand the personal factors influencing ethical consumerism so that there are enough opportunities to recognise the possibilities to make this market segment.

Conclusion

Although reusable pad adoption has created a lot of interest, its acceptance is still in its infancy and popularity. The current study has confirmed a positive effect of perceived obsolescence and a negative influence of consumer innovativeness on the reusable pad adoption intention of female consumers. The results also highlight the positive effect of past sustainable behavior and product awareness on reusable pad adoption. This study has punctuated how personal factors like Environmental consciousness, Price consciousness, Novelty-Style Consciousness, and Consumer innovativeness can affect the reusable pad adoption intention. Profiling consumers based on personal factors would help marketers and retailers to customize marketing strategies to encourage greater adoption of reusable cloth pads. This study has a few limitations. Firstly, women living in India were chosen, which may limit the generalizability of the study. Future studies may examine broader samples. Also, other than personal factors, future studies can include variables pertaining to social and ethical factors of reusable product adoption.

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