Survey on Consumer Preference of Sustainable Textiles and Fashion

Sonal Chaudhary[1], Shalini Juneja[2]
[1]*Research Scholar, Department of Design, Banasthali Vidyapith*
[2]*Associate Professor, Department of Home Science, Banasthali Vidyapith*

Abstract: Environmental concerns drive the demand for sustainable textiles, emphasizing the need to reduce pollution, conserve resources, and minimize waste in textile production. Sustainable textiles use eco-friendly materials and processes, promoting a circular economy and reducing the industry's environmental footprint. Consumer awareness and adoption of practices like recycling, reusing, and thrifting play a pivotal role in fostering sustainability. In this study, investigated the consumer knowledge and preference related to sustainable textile and fashion products. A questionnaire survey was used to collect the data from 250 random consumers in Banasthali Vidyapith. The consumer was reached personally and online for complete the questionnaire. Finding reveals that consumer concerns to the environment, the majority of the respondent known about the sustainable textiles. The result indicates that the consumer ready to promote the sustainable textiles. And majority of respondent were ready to purchase the new and sustainable textiles.
Key Words: Sustainable, Textiles, Consumer preference, Eco-friendly

I. INTRODUCTION

Using ancient natural fibres like cotton, wool, silk, and linen, the civilisation taught us how to make clothes. Since fibre was first used to make clothing, its historical evolution has been viewed as an unusual process of trial and error (Konwar *et al*., 2018). We must find and develop more ethical alternatives if we are to lessen the effects of the fashion and textile industries dependence on synthetic materials sourced from virgin fossil fuels. This adjustment will be required if we are to all work together to reduce greenhouse gas emissions associated with the production of fibre and raw materials by 45% by 2030. Textile Exchange set this target as part of its "Climate" strategy (Exchange, 2024).

The garment and textile product industry are one of the biggest in the world, with approximately 100 million metric tonnes of textile products produced annually. The primary environmental impact of textile products occurs during the production stages. From the cultivation of raw materials to the disposal of completed goods, the textile and apparel industries cause environmental harm at every stage of production. Some of the main environmental effects of the textile industries include the release of large amounts of chemicals, high water and energy consumption during the fabric manufacturing process, air emissions, solid waste, and the formation of odours. According to the study, the textile industry should utilise more environmentally friendly materials (Gbolarumi *et al*., 2021).

The COVID-19 pandemic has worsened this issue: the handling of newly discovered wastes, commonly referred to as "COVID wastes," such as cloth facemasks, is raising concerns because of the release of microplastics into the environment. Using natural and biodegradable polymers, like wood-based polymers, in the production of cloth facemasks could help lessen their negative environmental effects (Shirvanimoghaddam, *et al*., 2022). The cycle between water usage and waste management is getting shorter these days because to rising water consumption and pollution from synthetic textile displays that introduce plastic or microplastic buildup on human bodies and the environment. Around the world, cotton farms utilise 20,000 L of water, 24% insecticides, and 11% pesticides to produce one kilogramme of cotton, which is equivalent to one t-shirt and one pair of trousers. Global fibre output increased from 95.6 million tonnes in 2015 to 109 million tonnes in 2020, and it continues to expand annually (Plakantonaki, *et al*., 2023).

The extraction of raw materials, processing, manufacture, and end-of-life are all phases that apparel goods go through. Because different production and consumption methods are used at different stages of the garment lifecycle, the environmental effects vary. The production of fibre and yarn, the manufacturing of textiles and clothing, packaging, distribution and transportation, consumer use, and end-of-life or disposal are the substages of the garment lifecycle (Gonzalez, *et al*., 2023).

From an entrepreneurial perspective, environmental sustainability refers to a marketing strategy that takes into account the environment or natural resources while utilising processes that do not negatively impact them throughout their life cycle- such as harvesting, producing, consuming, enduring, producing energy, and disposing of them (Islam, *et al*., 2022).

The textile and clothing industries place a lot of importance on environmental sustainability. In emerging nations, this sector is crucial to social and economic advancement. For example, the manufacture of cotton textiles has employed 7% of the labour force in developing nations. Textile manufacture is a resource-intensive activity that can have serious negative effects on the environment (Luo, *et al*., 2021). The sustainable materials that are transforming textiles and apparel are at the centre of this discourse. A variety of environmentally friendly materials have surfaced, ranging from hemp and organic cotton to recycled fibres and cutting-edge biodegradable textiles. The direction of the fashion business is greatly influenced by consumer behaviour. The demand for sustainable products has surged due to the emergence of conscious consumerism. This change in perspective highlights how crucial it is to inform customers on the social and environmental effects of their purchases, which in turn promotes more conscientious buying practices (Sawant, *et al*., 2024). About 80% of the total flow in the textile industry is comprised up of finished goods that are shipped from developing to industrialised nations. Manufacturers favour developing nations as production sites due to their low labour costs, as well as their relaxed environmental and labour laws compared to industrialised ones (Harsanto, *et al*., 2023).

Conventional cotton and other resource-intensive methods and materials are frequently used in traditional textiles, requiring significant amounts of water and chemicals. Nonetheless, the business is progressively adopting substitutes including hemp, bamboo, organic cotton, and recycled fibres. By consuming less resources, using fewer chemicals, and producing less waste, these materials provide smaller environmental footprints (Sawant, *et al*., 2024). One of the main causes of adverse environmental effects is the fashion and textiles sector. In an attempt to meet the increasing demand for quick fashion, companies have begun incorporating environmentally damaging techniques into their manufacturing cycle. The worldwide market has made it simple for companies to sell apparel at low prices by utilising cheap labour in Asian nations like Bangladesh, China, Vietnam, and India (Berwal, 2024).

Producing a significant amount of garbage from garments. In fact, 75% of textile waste is dumped in landfills worldwide, 25% of textile waste is recycled or repurposed, and fewer than 1% of all textiles are recycled back into clothing. The fashion sector is the world's second-largest consumer of water. Furthermore, the release of coloured effluents and microplastics into the environment, which mostly happens during the garment production and disposal process, has a negative impact on the natural ecosystem (Abbate, *et al*., 2024) The textile and fashion sectors have come to recognise the potential market for sustainable products. For example, one of the largest fast fashion companies, H&M, strives to use only RCFs that come from forests certified by the Forest Stewardship Council (FSC), or alternate sources, including agricultural leftovers, or are recycled (Kim, *et al*., 2022).

In light of this, numerous researchers have investigated the potential of fibres derived from diverse natural sources to enhance the standard of living globally. They include, but are not limited to, aloe vera, bananas, sisal, hemp, jute, bamboo, milk fibre, corn, soy, groundnut shell, areca nut, coffee bean waste, lyocell, and eucalyptus. In the meantime, one of the most significant and difficult professions in the world is garbage utilisation. As a significant step towards sustainable development, the textile industry has derived a large number of fibres from bioresource waste. Pina fibre, for instance, is a small amount of fibre made from leftover pineapple leaves (Devi, 2020). The future trajectory of the fashion industry is greatly influenced by consumer behaviour. The demand for sustainable products has surged due to the emergence of conscious consumerism. This change in perspective highlights how crucial it is to inform customers about the social and environmental effects of their buying decisions, which in turn promotes conscious buying.

A. Objective

The aim of the study was to better understand various factors that influence the attitudes and behaviour of Customer on purchase the Sustainable textile and fashion.

II. LITERATURE REVIEW

Zver*, et al*., (2021) studied that to explores Slovenian consumers perceptions, attitudes, and purchasing behavior toward eco-friendly textile products. Using a survey-based methodology, the research investigates knowledge, attitudes, perceptions, and future purchasing intentions regarding such products. Findings indicate that Slovenian consumers hold positive attitudes toward eco-friendly textiles, associating them with certification, eco-friendly production, sustainability, and higher costs. The label "certified product" significantly influences their purchasing decisions. Respondents express a willingness to buy eco-friendly textiles in the future. The study concludes that positive consumer attitudes can be leveraged through targeted advertising and marketing strategies to further develop the eco-friendly textile market.

Krishnaraj *et al.*, (2022) did a study on growing demand for textile products has led to overproduction, resource overuse, and environmental degradation. This study explores how consumer knowledge of textiles, environmental concerns, and product preferences influence sustainable waste management practices, including reuse and recycling, within the circular economy framework. Data was collected via an online survey of 328 Indian consumers and analysed using Structural Equation Modelling (SEM). The findings reveal that environmental concerns significantly drive sustainable waste management when mediated by product preferences. The SEM model developed provides a framework for enhancing consumer awareness and promoting sustainable behaviour. These insights can guide policymakers, manufacturers, and marketers to improve consumer practices, encouraging a shift toward sustainability in the textile industry. Tryphena *et al.*, (2023) studied to explores urban Indian consumers' perceptions and behaviors toward sustainable clothing, focusing on green purchase decisions. A survey of 460 participants from Chennai and Bengaluru utilized the Theory of Planned Behaviour to examine how perceptions influence purchasing behavior. The study analyzed data using probit regression, considering product attributes as intervening variables. Key findings indicate that environmental knowledge, attitudes, and perceived consumer effectiveness significantly influence purchase intentions for sustainable clothing. Practical implications highlight the need for awareness campaigns and strategic branding to promote eco-friendly fashion. The research provides valuable insights for advancing sustainable consumerism in urban India.

Riberiro *et al.*, (2023) examines the shift toward sustainable textile consumption by exploring consumer habits, attitudes, and perceptions, emphasizing the role of stakeholders like governments, industries, and consumers. Using surveys and qualitative insights, the research identifies key drivers of sustainable practices, including consumer demand for transparency, eco-certifications, and socially responsible production. Findings reveal growing consumer awareness but highlight challenges in accessing clear sustainability information and sustainable product options. Social marketing campaigns can address misinformation and encourage alternative practices like second-hand clothing and item sharing. The study underscores the need for brands to enhance transparency, educate consumers, and bridge knowledge gaps to foster sustainable consumption. Guria *et al.*, (2024) did a study on fashion industry significantly impacts the environment through greenhouse gas emissions, pollution, and waste, while consumer demand for sustainable options grows. This research investigates the factors influencing consumer buying behavior and intentions toward sustainable fashion using a mixed-methods approach, combining a literature review, surveys with 625 Bangalore respondents, and focus groups. Findings reveal that while environmental concern motivates sustainable fashion purchases, practical factors such as product quality, price, brand reputation, and style preferences hold greater sway. Consumers desire sustainability without compromising key attributes. The study emphasizes opportunities for brands to strengthen sustainability credibility and develop targeted marketing strategies. It provides actionable insights for retailers and policymakers to promote sustainable fashion and transition toward a circular fashion system.

III. METHODOLOGY

1) Locale of the study- The present study was carried out in Banasthali Vidyapith, Rajasthan.
2) Selection of respondents- A sample consisted of 200 college students and 50 faculty members.
3) Tools and Procedure for data collection- The Primary and Secondary sources was used for data collection. In Primary sources, a self-structured questionnaire was developed consisting of close-ended and open-ended questions. The information about the consumer knowledge, preference, behaviour and willing to pay for sustainable textiles and fashion. In Secondary sources, the book, journal and magazine were used for data collection.
4) Sampling method -For the quantitative component involving a broad consumer survey, a stratified random sampling approach will be utilized to ensure proper demographic representation is captured in the sample.
5) Analysis of Data- Data was gathered and analyzed on the basis of the response given by the respondents. Frequency and Percentage of response was calculated.

IV. RESULT AND DISCUSSION

A. *Demographic profile of respondents*
1) *Gender*

Table 1

Gender	Percentage
Male	41.6%
Female	58.4%

The above table revealed that 41.6 percent of respondents was male and 58.4% female respondents

2) Age Group

Table 2

Age	Percentage
18 to 28 years	42.4%
28 to 35 years	34.4%
35 years above	23.2%

The above table depicts that 42.4 percent of the respondents were the age of 18 to 28 years and 34.4% respondents were among the age of 34.4 percent and 23.2% respondents were in 35 and above years.

3) Education Level

Table 3

Educational Level	Percentage
Under Graduate	33.2%
Post Graduate	47.3%
Professional	19.5%

On educational qualification, it is found that 33.2 % of the respondents are under graduate. Also, 47.3 percent of customers have postgraduate education, and 19.5% have professional education.

4) Occupation

Table 4

Occupation	Percentage
Student	46.4%
Home maker	11.3%
Employee	24.1%
Business mam	8.2%

In the above table shows that highest percentage (46.4%) of respondents were students and the lowest were home maker (11.3%).

5) Income

Table 5

Income	Percentage
Below 20,000	44.1%
20000-40000	22.4%
40000-60000	13.3%
60000 and above	10.2%

In the above data shows that majority of respondent income were below 20,000 and only 10.2 % of respondent were 60000 and above salary.

B. General Awareness

1) Are you familiar with the concept of Sustainable textiles?

Table 6

Known the concept of Sustainable textiles	Percentage of Respondents
Yes	74.7%
No	25.3%

The above table depicts that 71.5 percent of respondents were aware the concept of Sustainable textiles and 23.3 percent respondents were among those, who were not familiar.

2) *Where did you first hear about sustainable textiles?*

Table 7

Hear about sustainable textiles	Percentage
Social media	44%
News or articles	13%
Friends or family	4%
Retail stores	14%

The table revealed that nearly 44 percent of respondents hear about sustainable textile by social media, 13 percent of respondents by news and articles ,14 percent with the help of retail stores and only 4 percent know by friends and family.

3) *Are you familiar with different types of textile fibres?*

Table 8

Known about the type of textile fibre	Percentage %
Yes	80.4%
No	9.6%

The above data reveals that majority of respondents (77.4%) familiar with textile fibre and rest of respondents (9.6%) were not aware of textile fibre.

4) *Which types of fibers are you familiar with?*

Table 9

Fibre	Percentage
Natural fibres	50.3%
Synthetic fibres	28.4%
Regenerated fibres	21.3%

The above data reveals that majority of respondents familiar with natural fibres and 28 .4% were aware of synthetic fibres and only type of fibres and 21.3 % with regenerated fibres.

5) *How would you rate your knowledge of textile natural fibers?*

Table 10

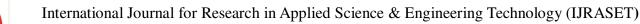| Natual fibres	Percentage
Excellent	66.1%
Good	22.2%
Average	8.5%
Poor	3.2%

The above data shows that the 66.1% respondents were higher knowledge and Only 3% respondents were poor knowledge.

6) *Have you heard of eco-friendly or sustainable fibers?*

Table 11

Heard about Sustainable fibre	Percentage
Yes	70.3%
No	29.7%

Majority of people were heard about the sustainable textiles - Almost 70.3% of the targeted respondents were known about the sustainable textiles. 30% were not aware of it.

C.   Preferences and Behaviours

1)   What are your main considerations when buying textiles or clothing?

Table 12

Consideration during buying textile and Clothing	Percentage
Price	38.1%
Quality	21.3%
Brand	16.2%
Sustainability	4.1%
Style and trend	8.2%
Comfort	12.1%

The above data reveals that the majority of respondents (38.1%) considered the price and 21.3 % of quality and least consider the sustainablity (4.1%).

2)   How often do you look for sustainable options when purchasing textiles or clothing?

Table 13

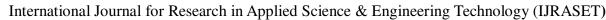| Look for Sustainable options	Percentage
Always	8.4%
Often	16.8%
Sometimes	22.1%
Rarely	16.5%
Never	36.2%

The above table depicts that the respondents sometime (22%) they preferred the sustainable options and only 8.4% respondents always look for sustainable options.

3)   Which types of fibres do you prefer when purchasing clothing or home textiles?

Table 14

Prefer the fibre	Percentage
Cotton	33.8%
Polyester	20.6%
Wool	18.2%
Silk	14.7%
Rayon	8.8%
Blends	3.9%

The above data shows that majority of respondents (33.8%) prefer the cotton fibre and (3.9%) least prefer the blends.

4) If a product is labelled as "sustainable," what features do you expect?

Table 15

Labelled of Product	Percentage
Eco-friendly materials	23.3%
Ethical labour practices	17.4%
Recyclable or biodegradable	36.7%
Low water usage	11.8%
Carbon- neutral production	10.8%

During the study it was found that 36.7% respondent expect the recycle or biodegradable and the 23.3% of eco -friendly materials. The only 10.8% respondents expect the carbon-neutral production.

5) Do you check fiber content labels when buying textiles?

Table 16

Check the Fibre Content	Percentage
Always	15.7%
Sometimes	38.6%
Rarely	24.9%
Never	20.8%

The above data reveals that the majority of respondents check the label sometimes (38.6%) and only 15.7% respondents always check the content label while buying.

6) What is your primary reason for choosing a specific fiber type?

Table 17

Primary reason	Percentage
Comfort	29.7%
Price	32.3%
Durability	21.3%
Eco-friendliness	4.4%
Aesthetic qualities	12.3%

It was seen that the respondent primary reason for choose fibre were price (32.3%) and the 29.7% prefer the comfort. The 21.3% respondent consider the durability, 12.3% for aesthetic qualities and only 4.4.5 % respondents prefer eco-friendly.

D. Knowledge about Natural and Synthetic Fibers
1) Do you know the difference between natural and synthetic fibres?

Table 18

Known the difference	Percentage
Yes	93.4%
No	6.6%

The above data reveals that majority of respondents (93.4%) know the difference between the fibre and only 6.6% respondent were not aware the difference between the fibre.

2) What advantages do you associate with natural fibres?

Table 19

Advantages of Natural fibre	Percentage %
Biodegradability	52.7%
Comfort	8.4%
Durability	2.4%
Eco-friendliness	27.3%
Breathability	9.2%

The above data shows that the 52.7% respondents were natural fibre associate with biodegradability. 27 % associated with eco-friendliness, the 9.2 % with breathability and 8.4% of comfort. Only 2.4 % related with durability.

3) What advantages do you associate with synthetic fibres?

Table 20

Advantages of synthetic fibre	Percentage%
Durability	18.1%
Affordability	33.4%
Easy maintenance	48.7%

The above table depicts that the 48% of respondents related the synthetic fibre with easy maintenance, 33.4% with affordability and only 18.1% respondents relate the durability.

E. Willingness to Pay

1) Are you willing to pay more for sustainably produced textiles?

Table 21

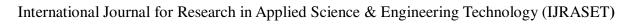| Willing to pay	Percentage%
Yes	94.6%
No	6.4%

The above table shows that majority of respondents (94.6%) were ready to pay more for sustainable textile and only 6.4% were not willing to pay.

2) If yes, how much more would you be willing to pay for sustainable products?

Table 22

How much more to pay	Percentage %
Up to 10% more	23.5%
10-20 % more	18.9%
20-50 % more	41.3%
Over 50% more	16.3%

The above table reveals that majority of respondents 41.3% were ready to pay 20-50% more for sustainable product, 16.3% respondent were ready for 50% more for the sustainable product.

F. Barriers and Motivation

1) What challenges prevent you from purchasing sustainable textiles?

Table 23

Challenges	Percentage%
High cost	30.4%
Limited availability	7.2%
Lack of information	23.8%
Difficulty identifying fibre	33.1%
Other	5.5%

In the above data depicts that the 33.1% respondents face challenges in identifying the quality, 30.4% of respondents for high cost and 23.8 % of lack of information of textile fibre.

2) What would encourage you to try or switch to new or sustainable fibers?

Table 24

Switch to new or sustainable fibre	Percentage %
Better affordability	55.1%
More information or education	15.2%
Wider availability	23.6%
Improved design or quality options	6.1%

In the above table shows the 55.1% majority of respondents switch to sustainable textiles when they are affordable. 23.6% suggest for wider availability and 15.2% say about the more information and education.

G. Future Outlook/ Future Preferences

1) Do you think sustainable textiles will become more important in your purchasing decisions in the future?

Table 25

Purchasing decisions	Percentage %
Yes	89.7%
No	10.3%

The above table depicts that 89.7% of respondents agree with the importance of sustainable textile for future and only 10.3% respondents were among those, who say no to importance decision for future.

2) What role do you think companies should play in promoting sustainable textiles?

Table 26

Promoting Sustainable Textiles	Percentage %
Lowering prices	53.3 %
Increasing transparency	10.5%
Innovating eco-friendly fabrics	14.7%
Marketing and education campaigns	22.5%

The above data reveals that for promoting the sustainable textile, 53.3% respondents were suggested with lower in price and only 10.5% were say about the increasing the transparency.

3) *Are you interested in learning more about sustainable textiles and their benefits?*

Table 27

Interested in Sustainable Textiles	Percentage %
Yes	95.8%
No	4.2%

The above table depicts that majority of respondents were interested to learn more about sustainable textiles and only 4.2% were not interested in sustainable textiles

4) *Do you believe textile fibre types will play a more significant role in your future purchasing decisions?*

Table 28

Future Purchase decision	Percentage%
Yes	77.8%
No	14.5%
Not sure	7.7%

The above table shows that majority of respondents were say that the textile fibre plays important role in future purchasing, 14.5% were not agree and 7.7% respondent were not sure about the future decisions.

5) *If textile products made from innovative or sustainable fibres were available, would you consider purchasing them?*

Table 29

Innovative Fibre	Percentage %
Yes	94.6%
No	5.4%

In the above data reveals that majority of respondents were ready to purchase the sustainable fibre and only 5.4 % of respondents were not ready to purchase the sustainable fibre.

V. CONCLUSION

The study indicates that the survey conducted on consumer awareness and acceptance of Sustainable textiles, the respondents concern about the environment and know about the Sustainable textiles. The respondents were considering the sustainable while purchasing. The primary aspect is comfort for the majority of respondents. The difficulty during the selection of textile is identify the fibre. The respondents demonstrated awareness of their environmental impact, expressing willingness to adopt sustainable textile. And also, majority of considered the new and sustainable fibre. The paper provides the sustainable textiles help industries align with eco-conscious market demands, driving innovation and global competitiveness. For countries, these studies aid in shaping policies to reduce environmental impact and promote sustainable economic growth. Additionally, they support awareness campaigns to foster responsible consumption and cultural preservation.

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