



Contents lists available at ScienceDirect

Journal of Open Innovation: Technology, Market, and Complexity

journal homepage: www.sciencedirect.com/journal/journal-of-open-innovation-technology-market-and-complexity

Environmentally sustainable apparel merchandising of recycled cotton-polyester blended garments: Analysis of consumer preferences and purchasing behaviors

Arnob Dhar Pranta^{a,b}, Md. Tareque Rahaman^a, Md. Reazuddin Repon^{c,d,*},
Abdullah Al Rakib Shikder^a

^a Department of Textile Engineering, Mawlana Bhashani Science and Technology University, Santosh, Tangail 1902, Bangladesh

^b ZR Research Institute for Advanced Materials, Sherpur 2100, Bangladesh

^c Department of Textile Engineering, Daffodil International University, Dhaka 1216, Bangladesh

^d Department of Production Engineering, Faculty of Mechanical Engineering and Design, Kaunas University of Technology, Studentų 56, Kaunas LT-51424, Lithuania

ARTICLE INFO

Keywords:

Recycled apparel
Sustainable fashion
Green merchandising
Eco-friendly clothing
Consumer behavior
Apparel merchandising
Circular fashion

ABSTRACT

This research work examines how consumer behavior and purchasing pattern are affected by recycled cotton-polyester blended clothing, with a particular emphasis on sustainable apparel merchandising. The use of recycled materials has drawn a lot of attention as environmental sustainability in the fashion business is growing attention. In order to investigate customer behavior, perceptions, preferences and purchasing decisions regarding recycled cotton-polyester blended clothing. This research employed a mixed-methods design that included both qualitative and quantitative methods. For a deeper understanding of the customer attitudes, opinions and motives towards sustainable fashion recycled materials in particular, this phase qualitatively involves a one-on-one interview and focus group discussions based on age, gender social class as well as the level of education. In addition, the study considers aspects such as longevity in use, wear resistance, quality, ease of use and clothing comfort that influence buying decisions. Using data from the qualitative phase as a foundation, the quantitative phase uses surveys given to a broad consumer sample to measure consumer preferences and purchasing pattern for recycled cotton-polyester clothing. This research aims at identifying the key factors that impact the preference of customers and buying behavior for recycled cotton and polyester blends based apparel. Additionally, it aims to assess how well sustainable clothing merchandising techniques work to promote these goods. This study indicates that individuals aged 25–45 from higher social strata and with higher educational attainment exhibit greater awareness and preference for recycled apparel with more than 60 % demonstrating a marked inclination towards these products.

1. Introduction

A growing emphasis on sustainability has been seen in the fashion industry in recent years, mostly due to consumer awareness of the social and environmental effects of the garment production process (Kozłowski et al., 2012; Rathinamoorthy, 2019; Gonçalves and Silva, 2021). As a result, there has been a noticeable change towards environmentally friendly methods, such as using recycled materials while manufacturing clothes (Senthilkannan Muthu., 2017; Hole and Hole, 2019). Because recycled items have the potential to decrease waste and resource

consumption (Ma et al., 2019), recycled cotton-polyester blends have become one of these materials most promising solutions. Increased awareness among consumers of the social and environmental problems related to the manufacturing of apparel is driving a significant revolution in the fashion industry. As discarding polyester fabric/garments contributes to environmental pollution, with polyester comprising 60 % of global fiber production (Fletcher, 2012; Shah et al., 2024). It can take up to 200 years to decompose in landfills, releasing microplastics into ecosystems (Su et al., 2019; Shen et al., 2022). Annually, 8 million tons of plastic waste, including polyester, enter the oceans, harming marine

* Corresponding author at: Department of Textile Engineering, Daffodil International University, Dhaka 1216, Bangladesh.

E-mail address: reazmbstu.te@gmail.com (Md. Reazuddin Repon).

¹ ORCID: 0000-0002-9984-7732

<https://doi.org/10.1016/j.joitmc.2024.100357>

Available online 5 August 2024

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life (Singh et al., 2019; Akter et al., 2024). Demand for sustainable alternatives that put an emphasis on ethical sourcing (Blowfield, 1999; Zayedul et al., 2021a; Patel, 2023), decreased resource use and a small environmental influence have increased as the negative effects of rapid fashion become increasingly apparent. Consumer sustainability consciousness was influenced by terminal and instrumental values with instrumental values having a greater impact. This consciousness affected behavioral intentions supporting sustainable development goals (SDGs) and it partially mediated the relationship between these values and intentions (Kautish et al., 2020a,2020b). Moreover, Environmental concerns are effectively translated into purchasing behavior for eco-innovative products by individualistic norms and perceived marketplace influence (Sharma et al., 2022a). As a result, Businesses ought to take advantage of the rural market opportunity. It validates that to identify the behavioral aspects of consumer decision making, the marketing mix needs to be customized for rural markets (Kautish and Dash, 2017). Retailers are being forced to investigate new ways of adapting to the changing requirements and preferences of environmentally concerned customers as a result of the growing popularity of sustainable merchandising as a response to this changing consumer mood (Wood et al., 2010; González-Rodríguez et al., 2020; Roggeveen et al., 2021). Using recycled materials to make garments is one exciting development in marketing (Murphy, 2005; Zayedul Hasan et al., 2021b). Particularly, recycled cotton-polyester blends have shown to be a practical answer to the sustainability issues facing the sector. These blends provide a way to lessen landfill trash, lessen the environmental effect of garment production, and lessen dependency on virgin materials by recycling post-consumer textile waste.

Addressing as a research gap, this research work suggests that there is still a significant research vacuum concerning the optimization and assessment of recycled cotton-polyester blended apparel, even with the growing interest in a sustainable fashion. Previous research has predominantly concentrated on more general topics, like environmentally friendly production techniques, sustainable sourcing, and consumer views of sustainability in fashion (Schneider and Wallenburg, 2012; Zhou et al., 2019b; Tareque Rahaman et al., 2021). The process of developing a new product is a dynamic and time-consuming endeavor that encompasses concept generation to product launch. Manufactures and fashion brands must assess the feasibility of a new product at each phase of its development with new traits that offers characteristics like self cleaning, antimicrobial properties and all for the growing demand (Ozer, 2004; Mia et al., 2023; Hosen et al., 2024; Khan et al., 2024). Even though these studies offer insightful information on the general opportunities and problems facing the industry, they frequently ignore the particular factors pertaining to the creation and promotion of recycled textile mixes.

The goal of this research work is to provide areas of concern about the creation, functionality, and marketability of these environmentally friendly apparels. Through examining multiple facets such as fabric composition, manufacturing procedures, consumer perspectives, and purchase patterns, this research endeavors to offer discernments and suggestions that support sustainable merchandising tactics and encourage the integration of recycled materials within the fashion sector. The development of recycled cotton-polyester blends that satisfy customer preferences and sustainability standards is the focus of this research's optimization phase. Preserving the integrity of the fabric, attaining desired aesthetic qualities, and making sure it is compatible with current production methods are important factors to take into account.

Furthermore, successful marketing and merchandising tactics is a must with a view to understanding of consumer preferences and purchasing pattern regarding recycled cotton-polyester blended apparel. Retailers may better align their branding, message, and product choices with customer preferences by determining the factors influencing consumer purchasing decisions. This promotes a sustainable culture in the fashion business in addition to increasing client satisfaction and brand

loyalty (Cuesta-Valiño et al., 2022; Rahaman et al., 2024). Retailers who use sustainable merchandising techniques stand to benefit from a competitive edge in the market as consumers prioritize ethical and ecologically friendly items more and more (Wu et al., 2022).

2. Literature review

In response to growing worries about environmental degradation and social responsibility (Kasum, 2010), the fashion industry is coming to understand the necessity of sustainability (Thomas, 2020). Because of this, there has been a noticeable movement in favor of adopting eco-friendly methods (Paparoidamis and Tran, 2019), such as using recycled materials to make clothing. Recycled cotton-polyester blends are one of these materials that has shown promise because of its ability to eliminate waste (Loo et al., 2023), lower resource consumption, and lessen environmental effect. However, many factors affect the psychology of buying recycled clothes especially in Asian cultures where it is rare. The cultural perception of used or recycled goods matters in Asian countries. Asian societies like new things because they represent status, wealth and success. Wearing used clothes may indicate poverty or low status (Oh et al., 2020; Sahin and Nasir, 2022). A deep appreciation for tradition and cultural norms can lead to a preference for new clothes, especially during important life events and festivals. Asian economies are growing rapidly creating a middle class with more disposable income and encouraging conspicuous consumption and luxury goods (Zhang, 2020). However, younger generations are preferring greener products. Environmental education and the global fashion industry's eco-friendliness may improve recycled garment acceptance. Social media and influencers normalize sustainable fashion (Kautish and Khare, 2022). Thus, while cultural and psychological barriers remain, education, awareness campaigns and modern, eco-conscious values can help Asian cultures adopt recycled clothing. According to a study, environmental consciousness is strongly influenced by terminal and instrumental values, and behavioral intentions are strongly influenced by environmental consciousness (Kautish and Sharma, 2018). Also, Green attitude is strongly influenced by the terminal and instrumental values, and green attitude in turn has a strong influence on intentions for green conduct. Compared to the terminal value, the instrumental value has a stronger influence on both green attitude and green behavioral intentions (Kautish and Sharma 2019a). in order to fully reap the rewards of recycled cotton-polyester mixes, sustainable apparel introducing and analyzing consumer preference for these eco-friendly clothes are crucial (Rahaman and Islam, 2021; Wang et al., 2022). The objective of this literature review is to present a thorough summary of the body of research on consumer choice evaluation and optimization for recycled cotton-polyester blended clothing, emphasizing significant discoveries, areas for further research, and implications for sustainable merchandising.

2.1. Optimizing the fabric

The textile industry is undergoing a dramatic transformation towards sustainability as a result of policies and rising environmental consciousness (Pranta and Rahaman, 2024). Ensuring the quality, performance, and sustainability of the final clothes requires optimizing the composition and manufacturing procedures of recycled cotton-polyester blends (Wang and Salmon, 2022). Numerous research has looked into the qualities of fibers, production processes, recycling strategies, blend ratios, and other aspects that affect fabric optimization. For example, research carried out to assess the mechanical characteristics of recycled cotton-polyester blended fabrics made with varying blend ratios showed that adding more recycled polyester to the fabric increased its strength and durability, indicating that the blend ratio is an important factor in fabric performance (Zhou et al., 2019a). In a similar vein, another investigation delineated how spinning methods and fiber length affected the quality of recycled cotton-polyester yarns (Kim et al., 2021).

Observations suggest that ring spinning and longer fibers produced yarns with greater strength and consistency, underscoring the significance of manufacturing techniques in obtaining desired fabric properties (Erdumlu et al., 2009). Even though these studies offer insightful information about consumer preference regarding sustainable apparels, further research work is still needed to fully understand the trade-offs between sustainability issues in a fast fashion cycle and the impacts of consumer's purchasing patterns (Rahaman et al., 2021; Das et al., 2024). Recycled cotton-polyester blends overall environmental impact can be assessed by using life cycle assessment (LCA) approaches, which consider energy use, water usage, greenhouse gas emissions, and trash generation throughout the course of the product life cycle (Subramanian et al., 2020; Pranta et al., 2023). Researchers can find ways to enhance the environmental performance of sustainable textile production processes and guide decision-making toward more sustainable practices by carrying out life cycle assessments (LCAs).

2.2. Purchasing pattern analysis

The influence of perceived consumer effectiveness (PCE) and willingness to be environmentally friendly on green purchase behavior (GPB) is strongly moderated by environmental consciousness and recycling intents (Kautish et al., 2019). However, Environmental concerns do not directly influence choice behavior but perceived consumer effectiveness directly affects choice behavior. In comparison, perceived consumer effectiveness has the strongest effect on connectedness to nature and love for nature (Kautish et al., 2021). Effective sustainable marketing strategies require an understanding of consumer preferences and purchasing pattern regarding recycled cotton-polyester blended products (Thakur and Aurora, 2015; Dolšák et al., 2020). Although there is a growing corpus of research on how consumers feel about sustainability in fashion (Crommentuijn-Marsh et al.), few studies have explicitly looked at how consumers feel about recycled materials and how it affects their decision to buy (Martinho et al., 2015; Yu and Lee, 2019; Bigliardi et al., 2020; Pretner et al., 2021). Researchers explored what factors influenced consumers' intentions to buy sustainable garments, and they discovered that price sensitivity, perceived product quality, and environmental concerns were important factors (Pookulangara and Shephard, 2013). In a similar vein, societal factors, brand image, and ethical considerations as significant motivators of sustainable fashion consumption (Bongiorni and Zucchelli, 2019). This research expressly addresses recycled cotton-polyester blends, indicating a vacuum in consumer preference and purchasing behavior of sustainable apparel. Researchers can fill this vacuum by investigating customer perceptions of recycled materials and their readiness to buy clothing made from recycled cotton-polyester mixes through consumer surveys, focus groups, and experimental investigations. Researchers can obtain an understanding of the precise features and messaging that appeal to consumers and influence their purchase decisions by looking at elements like perceived value, aesthetic appeal, comfort, and durability and others. Furthermore, examining the disparities in demographics and the impact of culture on consumer inclinations can enhance comprehension of sustainable fashion purchase patterns.

2.3. Raw materials life cycle analysis (LCA)

When it comes to sustainable fashion, it's important to compare the environmental impacts of polyester yarn and polyester-cotton blends in recycled clothing through a lifecycle analysis. Polymerization, spinning, and weaving or knitting are all steps in the complicated production process that turns petroleum-based polyester yarn into fabric. Although polyester has many uses and is long-lasting, the conventional method of making it uses a lot of energy, releases greenhouse gases, and uses a lot of resources that can't be replenished (Sahoo and Dash, 2023).

Conversely, by keeping plastic out of landfills and waterways, recycled polyester yarn drastically lessens human impact on the

environment. Mechanical recycling can cut energy consumption in half compared to making virgin polyester by shredding, melting, and extruding used textiles or plastic bottles into new fibres (Valerio et al., 2020). Chemical recycling, involves dismantling polymers into their component parts in order to make new polyester, but this process is more complicated and expensive (Payne and Jones, 2021). A hybrid approach is presented by polyester-cotton blends, which combine recycled polyester with natural cotton fibres. The cultivation of cotton results in the significant use of water and pesticides, which in turn exacerbate environmental degradation (Koudahe et al., 2021; Douny et al., 2021). While recycled cotton helps lessen some of these effects by reusing fibres, it still has its share of problems with things like color purity and fiber degradation.

Comparative lifecycle analyses (LCAs) show subtle variations. There are still issues with microfiber shedding and dyeing processes, even though recycled polyester decreases energy use and carbon emissions (Belzagui and Gutiérrez-Bouzán, 2022). To lessen the impact on the environment, polyester-cotton blends have challenges such as chemical inputs and disposal at the end of life. From the standpoint of consumers, making sustainable purchasing decisions is informed by understanding these complexities. Garments made from recycled polyester tend to have smaller water and energy footprints than their conventional counterparts, which is in line with the increasing demand for environmentally conscious products among consumers (Abrishami et al., 2024). Achieving real sustainability, however, necessitates taking a lifecycle approach that balances environmental impact, durability, and recyclability at every stage, from the extraction of raw materials to their disposal at the end of their useful life.

2.4. Ecofriendly merchandising strategies

In order to promote recycled cotton-polyester blended apparel and encourage sustainable consumption patterns, effective merchandising tactics are essential. Although there is a large amount of research on sustainable merchandising in general, the marketing and promotion of recycled materials in the fashion industry has received very little attention. In an ongoing and never-ending quest for the adaption of eco-friendly materials, particularly from nature, research communities and commercial producers are working to eliminate chemicals and materials that are harmful to the environment (Motaleb et al., 2024). The impact of eco-labeling on consumer perceptions of sustainable garments was studied which discovered that purchase intentions for eco-friendly products were positively influenced by environmental concerns, product quality and eco-labeling (Hwang et al., 2016). In a similar vein, the efficiency of cause-related marketing in advancing sustainable fashion brands discovered that supporting social or environmental causes improved brand recognition and customer loyalty (Chae et al., 2020). Research on sustainable merchandising techniques for recycled cotton-polyester blended clothing is still necessary, nevertheless. Scholars have the opportunity to investigate novel strategies for product placement, brand communication, and consumer involvement programs that emphasize the ecological advantages and distinctive qualities of repurposed materials. Examining how retailers, influencers, and other stakeholders contribute to the promotion of sustainable fashion can also yield insightful information about successful cooperation and partnership tactics.

Many apparel brands across the globe are incorporating recycling into their functioning to improve sustainability. Leading brands such as Patagonia and Eileen Fisher are incentivizing this behavior by offering garment recycling programs where customers send their used clothing back to the brand for repurposing or upcycling. By doing this, it reduces landfill waste and encourages a closed-loop circular economy where materials are not just disposed of. Brands such as H&M have also introduced deposit boxes in stores to rid of old garments that are then either recycled into new textiles or upcycled into other products, often fabric-based insulation or carpet. While these efforts appeal to the eco-

consciousness of consumers, they also help in decreasing fashion’s negative impact on natural resources and benefiting a more sustainable tomorrow. According to a study, companies are also using social media sites like "X," which was formerly known as Twitter, to advertise their distinctive recycled products. The results are displayed in Table 1.

In summary, a crucial topic of research in sustainable merchandising is the optimization and assessment of consumer choice on recycled cotton-polyester blended clothing. Although previous studies have yielded significant understandings of consumer purchasing pattern, fabric optimization, and merchandising tactics in the context of sustainable fashion (Ashworth et al., 2006; Dangelico et al., 2022; Riaz and Saraeian, 2023), more concentrated research on recycled materials is still needed. Through the establishment of connections between technological innovation, consumer insights, and marketing strategies, researchers can facilitate the adoption of recycled cotton-polyester blends in the garment production process and improve sustainable practices.

3. Research methodology

This research examines consumer preferences and purchasing patterns while buying recycled items. Personal characteristics like age (over 15, under 15, 25–25, 35–45, and 45 years or above), gender (male, female), social status (lower class, working class, lower middle class, upper middle class and upper class), and educational background (informal, undergraduate, graduate, post graduate, and doctorate) are all taken into account in this research work. In order to improve people’s purchasing habits and phycology toward recycled items, it was hoped that consumer surveys would provide information about respondents’ opinions about the use and purchase of recycled cotton-polyester blended denim clothing. Quantitative theoretical and experimental views are the focus of this research work. In this research work, partial least squares structural equation modeling (PLS-SEM) was chosen for its ability to handle complex models and small sample sizes (Kautish et al., 2020b). PLS-SEM is preferred over modeling systems i.e. norm activation model (NAM) and theory of perceived marketplace influence (TPMI) due to its flexibility and prediction-oriented focus (Kautish and Sharma 2019b; Sharma et al., 2022b). The creation of recycled cotton-polyester mixed clothing from cotton waste and polyester chips is the focus of the experimental viewpoint. The quantitative part of the research work uses a questionnaire-based consumer survey to gather data and analyze viewpoints. The survey questions are structured such that respondents are given a list of pre-approved answers from which they can choose. The frequencies are transformed into % because it makes the analysis easier to do.

3.1. Study population

Faculty, students, staff, and employees of Mawlana Bhashani Science and Technology University, Bangladesh participated in the data survey program.

3.2. Sample framing

The observation was done on 60 people, with the same proportion of male and female. Survey reports are gathered from 12 participants in

each variance of age, social status, and educational attainment.

4. Result and discussions

4.1. Influence of age, gender, social status and educational background on consumer expectation

Demographic variables including gender, age, socioeconomic status and educational background have a significant impact on consumer expectations (Antony et al., 2018; Kosiba et al., 2020). Various age groups typically place different values on product features and shopping experiences which means that age is a major factor in determining consumer expectations (Veale and Qvester, 2009; Baruk and Iwanicka, 2016; Armantier et al., 2017). For example, while older customers may place a premium on dependability, durability, and individualized attention. Younger customers are more likely to prioritize convenience, digital integration, and innovation (Nicholls, 2015; Frackiewicz, 2021). According to studies, men and women have different tastes and expectations when it comes to consider purchasing pattern (Foschi, 1996; Robin et al., 2003). This is just one more way in which gender influences consumer expectations. Perceptions of exclusivity, prestige, and quality are further shaped by social status which in turn affects consumer expectations (Grier and Deshpande; Golob et al., 2008). Premium experiences, high-end brands, and individualized attention may be priorities for those in higher social classes (Na et al., 2016; Shavitt et al., 2016), whereas affordability and practicality may take precedence for those in lower social classes (Trujillo et al., 2010; Theesfeld and Pirscher, 2011; Lee and Coughlin, 2015). An individual’s level of education is a significant predictor of their expectations for product quality, service performance, and ethical standards, among other things (Ionciă et al. 2012). More informed buyers are more likely to ask for specifics, demand honesty from companies, and look for eco-friendly options (Adkins and Ozanne, 2005). Consumers are better able to evaluate and compare options when they have the critical thinking skills that education provides. In sum, the expectations that customers have about goods and services are influenced by the complex interplay of these demographic factors (Richa, 2012). To successfully meet the demands and preferences of their target markets, businesses need to comprehend and adjust to these varied expectations. Marketing, product development, and consumer experiences can be fine-tuned to better appeal to certain demographics by taking into account demographic factors such as age, gender, socioeconomic status, and level of education (Kumar, 2014; Asiah Omar et al., 2016).

4.1.1. Influence of age on product acceptability, quality approval, aesthetics and ease of using

Fig. 3 data suggests that individuals in the 35–45 age range might be more accepting of clothing made from recycled materials with a staggering 83.33 % which exhibited the highest level of acceptability towards the product, surpassing all other age groups. People with this age range are more environmentally conscious and open to purchasing ecofriendly apparel of new styles. It was discovered in a study that young consumers have a tendency to be influenced by extrinsic product information such as the price, the brand or manufacturer and the packaging of the product (Bae et al., 2016). the relationship between product involvement and perceived marketplace influence over packaging-related choice behavior as well as the direct effects of instrumental and terminal values on product involvement. To increase product participation for plastic packaging, it is relevant to concentrate on both instrumental and terminal implications of human values (Kautish et al., 2022). Findings regarding the average age of a Western consumer are consistent with this trend. There is a noticeable increase in environmental consciousness among Generations Y (those born between 1977 and 1994) and Z (those born after 1995) (Kusa, 2018).According to the bar diagram in Fig. 4, older individuals (45 years <) may be more interested in recycled clothes as they showed a remarkable embracing

Table 1
Tweets endorsing recycled apparels (Lascity and Cairns, 2020).

Brand name	Total tweets	Post mentioning recycle or reuse	Percentage (%)
American Eagle	3234	6	.002
H&M	3239	28	.008
Madewell	3250	55	.107
The North Face	3217	14	.004

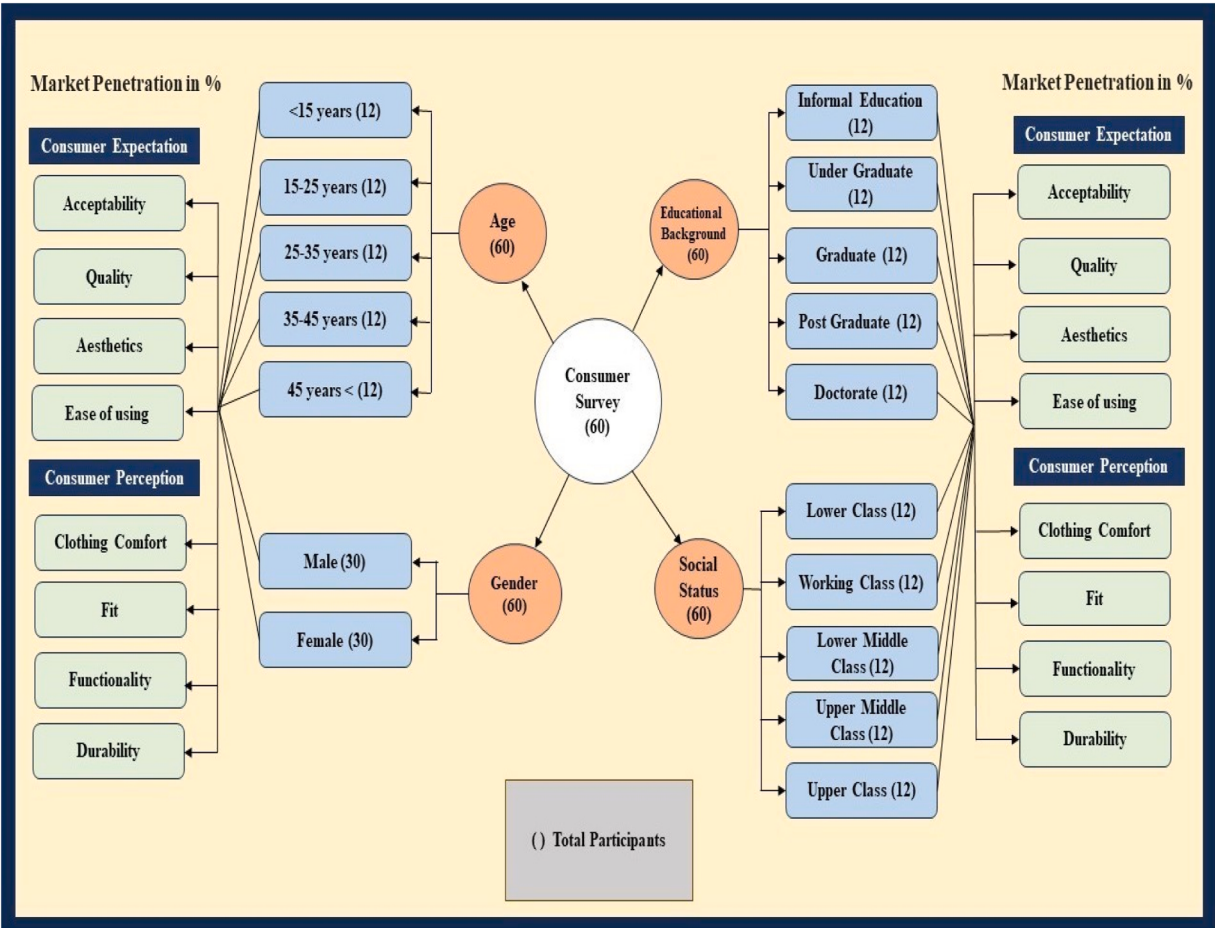


Fig. 1. Research methodology.

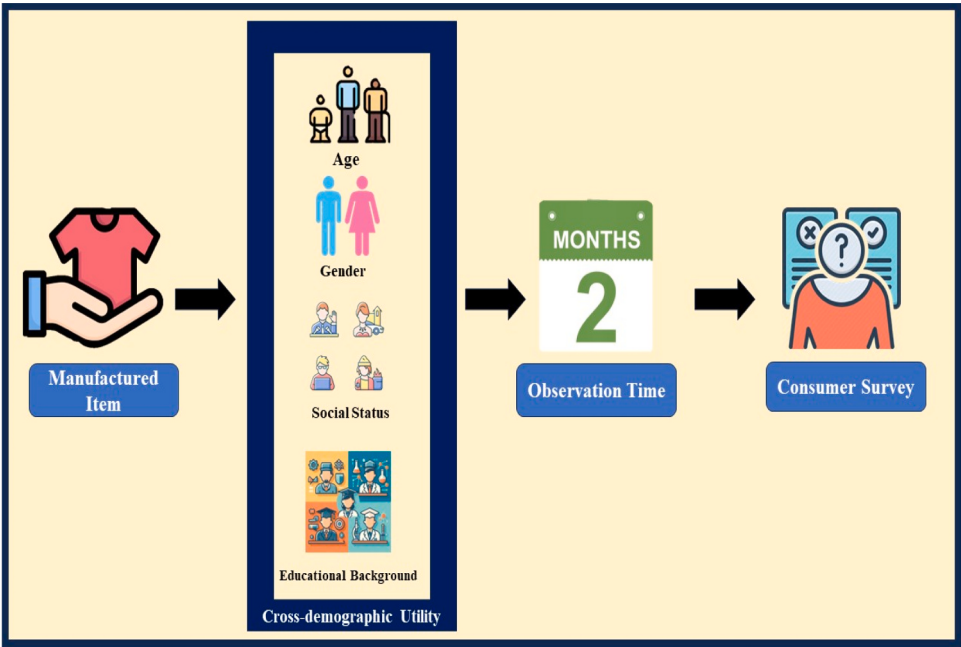


Fig. 2. Experimental layout.

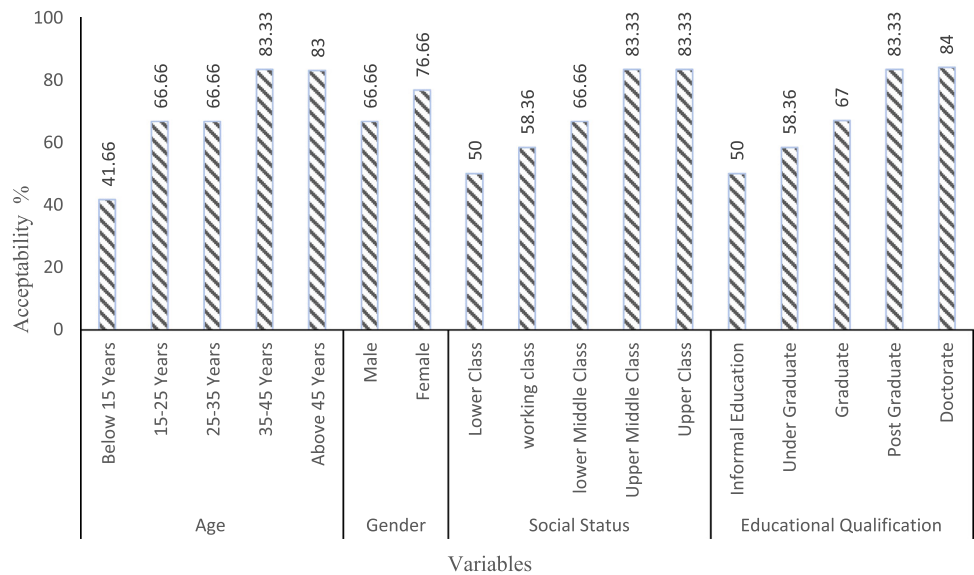


Fig. 3. Cross-demographic impacts on product acceptability.

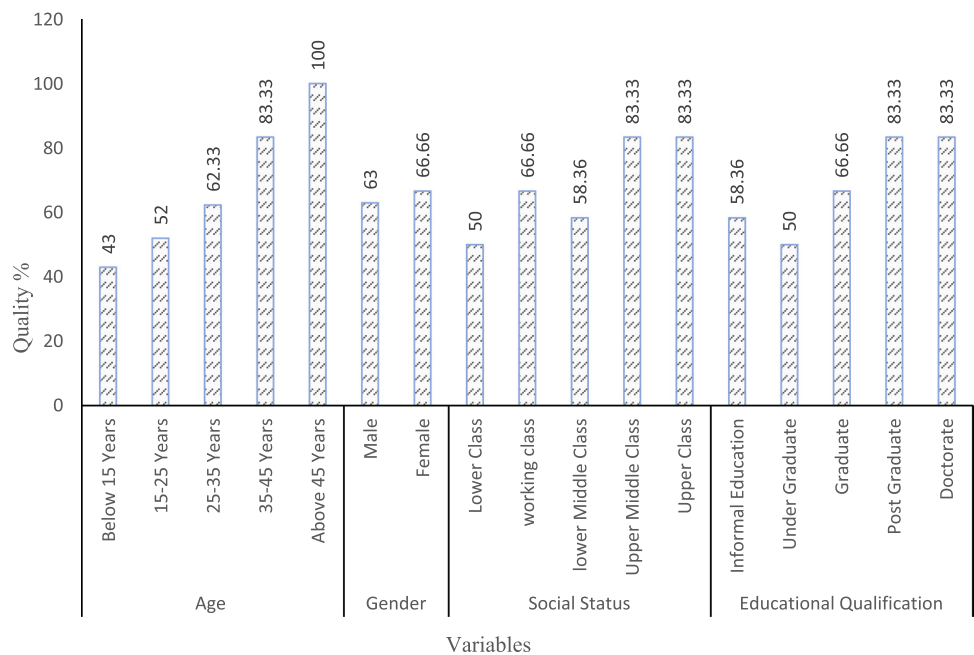


Fig. 4. Cross-demographic impacts on quality characteristics.

rate of 100 % due to quality characteristics. As a result, the perceived quality of the clothing may have an impact on their decision to approve or disapprove while making purchasing decision. The observations presented in Fig. 5 suggest that people of different ages may have different preferences when it comes to aesthetics. The older generations, on the other hand, have a strong preference (100 %) for classic looks. Younger individuals tend to opt for more modern patterns and colors. Fig. 6 indicates that younger individuals experienced a relatively lower level of satisfaction regarding the ease of use of the product in a comparison to older individuals.

4.1.2. Influence of gender on product acceptability, quality approval, aesthetics and ease of using

According to the findings of a study, gender play a significant role in determining purchasing behavior (Nieves-Rodriguez et al., 2017). Observations indicate from Fig. 3 hint at the influence of gender on the

acceptability of recycled clothing, showcasing a discrepancy where women exhibit a 76.66 % acceptance rate while men show slightly lower rate at 66.66 %, implying gender-spefcific inclinations toward certain styles or designs. End-user-specific factors like men’s inclination towards quality at 63 % where women’s emphasis on quality at 66.66 %. However, women are more inclined to do what’s right for the environment and are friendlier to wildlife than males in Europe (Liobikienė et al. 2017). There are differences between men and women when it comes to aesthetic preferences. Due to differences in taste in colors, patterns, and styles, Fig. 5 suggests that men have a 66.66 % approval rate and women a 76.66 % rate when it comes to fashion. There aren’t a ton of gender differences when it comes to how easy something is to use.

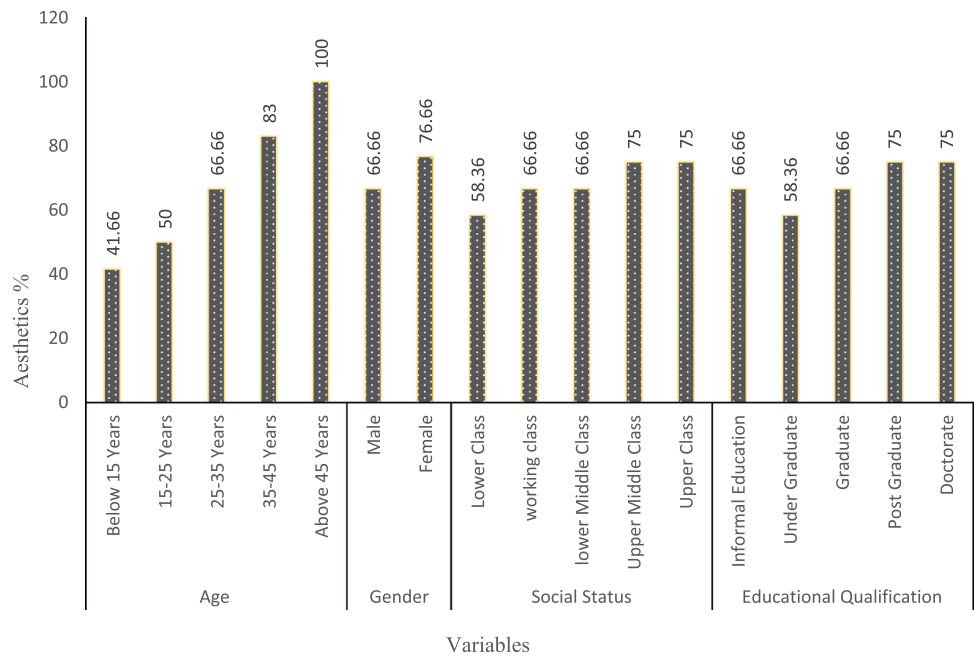


Fig. 5. Cross-demographic impacts on aesthetics.

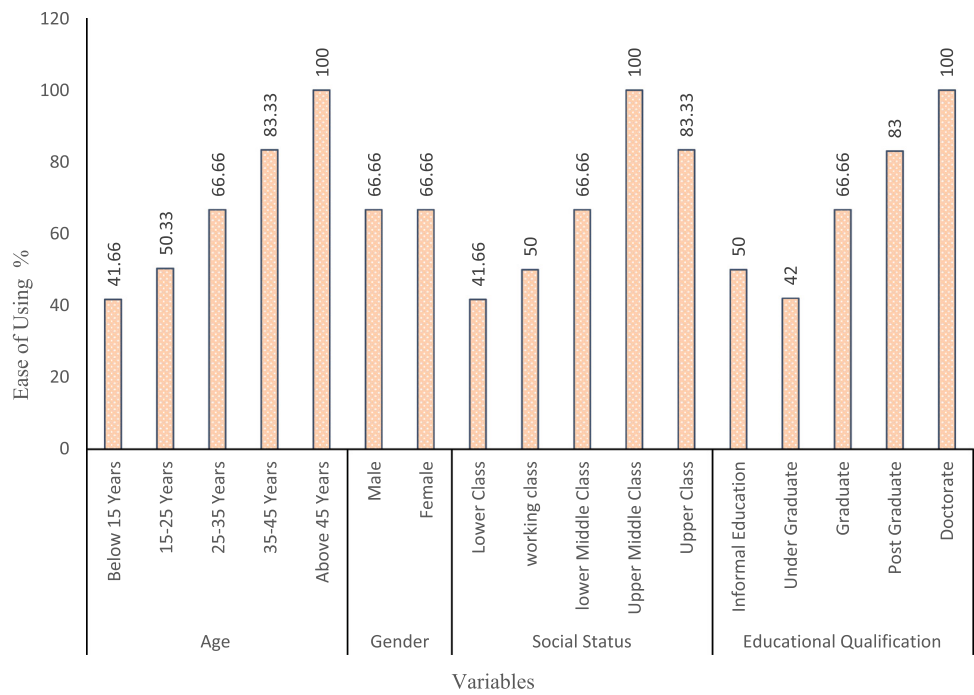


Fig. 6. Cross-demographic impacts on ease of using.

4.1.3. Influence of social status on product acceptability, quality approval, aesthetics and ease of using

High or low rejecter status affects how people rate ordinary products. Those rejected by a low status source had higher purchase intentions for oobservations indicate that gender influences comfort preferencesrdinary products than those rejected by a high status source due to threatened self-concept (Yi et al., 2017). With a favorable reaction percentage of 83.33 %, the results showed in Fig. 3 suggest that people with higher social status warmly accepted recycled clothing items at the very beginning due to the affordability and sustainability concerns. It was found in a study that individuals with higher social status have a 70 % likelihood of purchasing recycled apparel, compared to 50 % for

those with medium social status and 30 % for those with lower social status. This suggests that social status significantly influences the likelihood of buying eco-friendly products (Noppers et al., 2014). People’s opinions of quality can be influenced by their social standing (Zhao et al., 2018), since those from higher socioeconomic strata tend to demand better materials and craftsmanship with the same mentioned earlier value which is depicted in Fig. 4. A person’s aesthetic choices can be influenced by their social class; those in higher social classes may have a desire for luxury goods where those in lower social classes could value economical apparel.

4.1.4. Influence of educational background on product acceptability, quality approval, aesthetics and ease of using

As shown in Fig. 3, there is a growing trend of accepting recycled clothing items among individuals with higher educational qualifications ranging from informal to doctorate levels. This can be attributed to a better understanding of environmental concerns and sustainable techniques. Educated people might have greater standards for the functionality and quality of clothing with a pinnacle approval rate of 83.33 % pointed out in Fig. 4. A person's aesthetic choices can be influenced by their educational background. Those with higher educational qualification may value novel designs and concepts more than others (Radianti et al., 2020). Education may also influence choices for ease of use; those with higher levels of education may go for clothing with cutting-edge features or technology that improve usability (Ju and Lee, 2021).

4.2. Influence of age, gender, social status and educational background on consumer perception

A consumer's perspective can be significantly impacted by their age, gender, socioeconomic standing, and level of education, among other demographics (Thakor et al., 2008; Rajput et al., 2012; Walley et al., 2013; Yoon and Occena, 2015). Consumer tastes and views are significantly impacted by age (Draskovic et al., 2014). Contrasting with the traditional values of stability and durability held by older consumers (Price et al., 2000), the priorities of younger consumers tend to be novelty, innovation, and technical progress (Prieto-Sandoval et al., 2022). Research shows that when it comes to making a purchase, men and women typically have different priorities and interests (Gilbert et al., 2003; Fan and Miao, 2012; Badowska and Delińska, 2019). Another factor that affects how people see a product is their social standing (Rucker, 2020). People from more privileged backgrounds tend to value exclusivity, prestige, and wealth more than affordability, practicality, and value for money (Brenngman and Willems, 2009; Rucker, 2020). The extent to which a person's education has prepared them to recognize and comprehend various brands and products is another important factor in how those consumers view those brands and items (Krystallis and Arvanitoyannis, 2006; Garrett and Toumanoff, 2010). Consumers who prioritize quality and authenticity, have a higher level of knowledge, and may be more committed to their brands (Happell et al., 2014).

They may also do more research. Advertising, peer recommendations, and price promotions are examples of external cues that people with lower levels of education may be more exposed to (Budnitz, 2008). Consumer perception is heavily influenced by age, gender, socioeconomic level, and educational background. It is crucial to understand these demographic aspects in order to create successful marketing strategies and meet the different demands and preferences of consumers.

4.2.1. Influence of age on clothing comfort, fitting, functionality and durability

Fig. 7 presents the data, which indicates that 33 % of younger demographics are satisfied with the clothing comfort of recycled products made from polyester chip and recycled raw cotton, compared to 83.33 % of 25–35 years age groups who are satisfied with the same. Fig. 8 shows that fitting preferences vary significantly across age groups with older individuals reporting better fitting experiences and younger people reporting worse ones. The recycled clothing item exhibits a discernible functional difference, as indicated in Fig. 9. Fig. 10 illustrates that older individual value durability at a startling 100 %.

4.2.2. Influence of gender on clothing comfort, fitting, functionality and durability

Figs. 7–10 observations indicate that gender influences comfort preferences. Women show a strong desire for comfort (63.33 % among 30 respondents), while men place a higher value on clothing comfort (73.33 % among 30 respondents). Expectations for the perfect fit in clothing demonstrate gender differences in fitting preferences, with men and women reporting different preferences at rates of 73.33 % and 77 %, respectively. It was found that expectations for durability varied by gender. Presumably, 80–85 % of respondents in general usually place a high value on clothing items' durability, which is indicative of their inclination to participate in physically demanding activities. Findings from another study support the idea that eco-conscious recycled sporting apparel is more popular among female consumers when environmental motivator factors are considered (Channa et al., 2022).

4.2.3. Influence of social status on clothing comfort, fitting, functionality and durability

Consumers' sentiments about handmade/artisan fashion products manufactured from recycled clothing blended with traditional cloth are

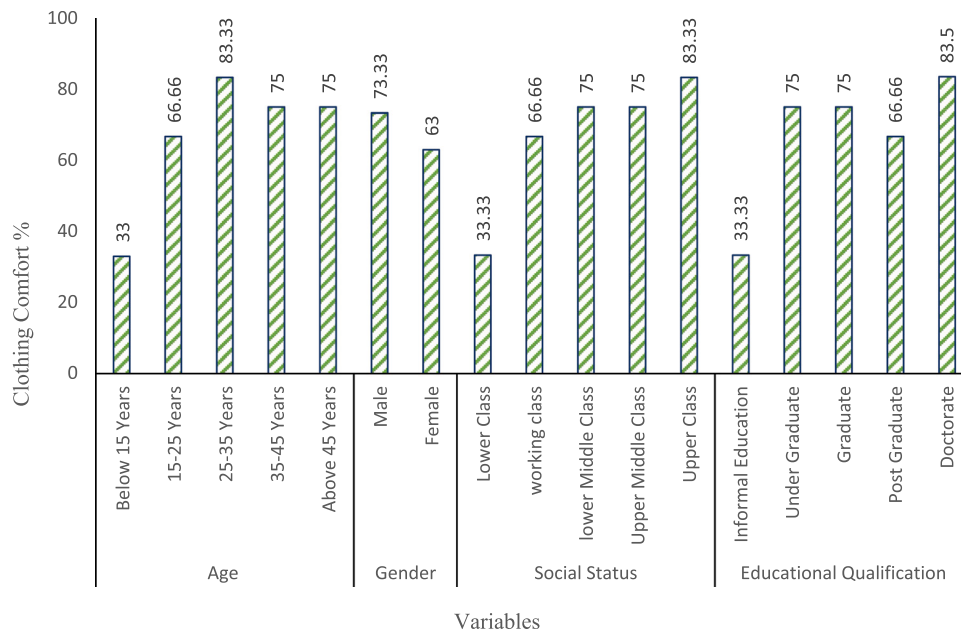


Fig. 7. Cross-demographic impacts on clothing comfort.

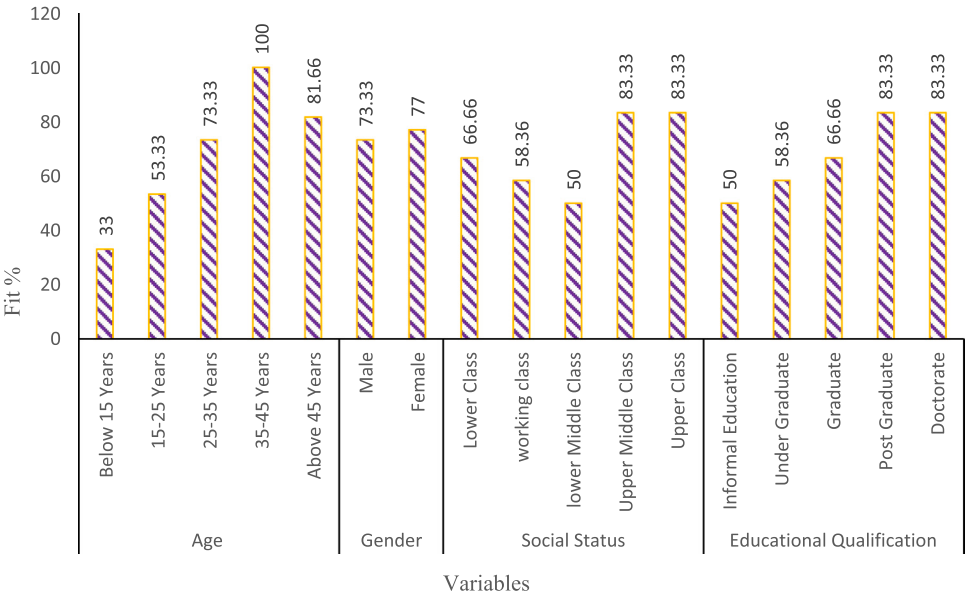


Fig. 8. Cross-demographic impacts on fit.

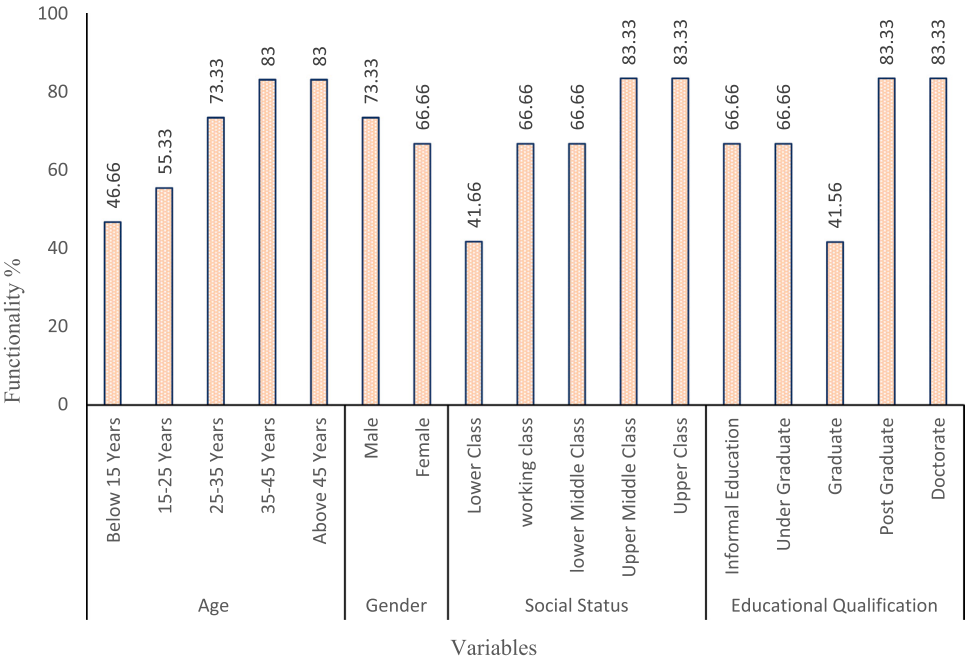


Fig. 9. Cross-demographic impacts on functionality.

influenced by their socioeconomic position, according to research done in Portugal. Additionally, this influence affects their intention to purchase these things for personal use or as gifts (Pedrosa and Barbosa, 2021). Similarly, Figs. 7 to 10 observations show that, compared to those from lower socioeconomic classes, a significant majority of persons (83.33 %) from higher socioeconomic classes favor clothing comfort. Fitting choices are significantly shaped by social position. As demonstrated in Fig. 9, people in higher socioeconomic groups could choose apparel with cutting-edge features or technology for optimal functionality and fit (Patnaik and Bhowmick, 2019). Because of the current extremely rapid cycle of fashion, people from higher socioeconomic classes typically have lesser expectations when it comes to durability than others. This is because they demand increased quality and esteem as indicators (Shah et al., 2024).

4.2.4. Influence of educational background on clothing comfort, fitting, functionality and durability

Graduate-level respondents (83.5 %) are likely to have a more critical eye for comfort in apparel. This discrepancy may lead to overly high expectations for comfort, as Fig. 7 shows. Fig. 8 demonstrates that those who are post-graduate, more likely to be choosy about the fit of their clothing. This implies that fitting choices are strongly influenced by education level. More than 85 % of highly educated individuals (post graduate and doctorate) search for clothes that fulfills their most basic requirements of fitting. On the hand, the results show that American customers are generally supportive of sustainable fashion, but many are unaware of the industry’s social and environmental policies. The respondents clearly care about environmental and social labeling, but they have no idea which brands sell these clothes or whether they are valid (Byrd and Su, 2020). When making a purchase decision, those with at

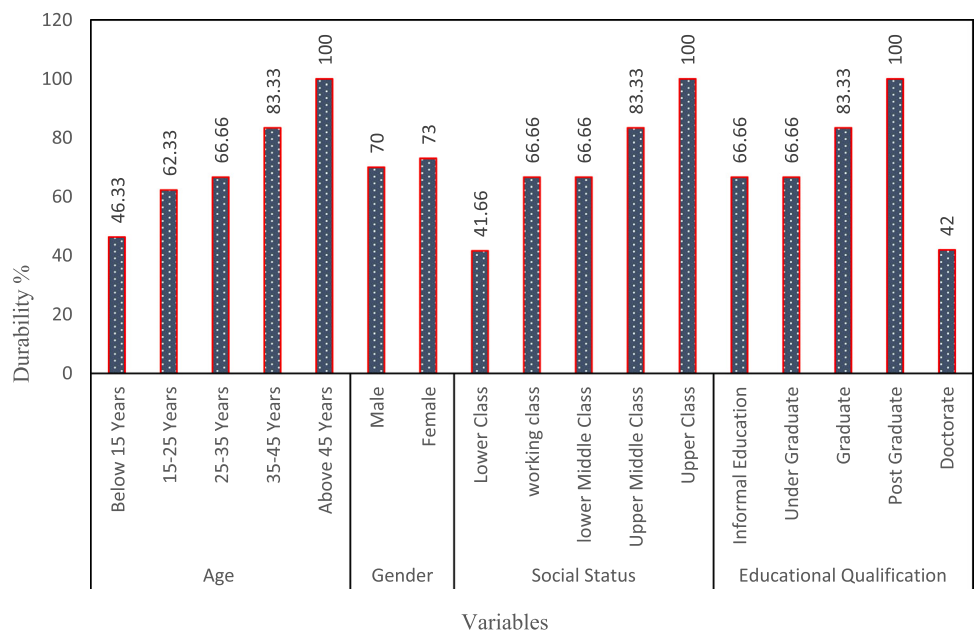


Fig. 10. Cross-demographic impacts on durability.

least some informal education may have higher expectations for the clothing’s durability and resistance to normal wear and tear in a comparison to others (Fletcher, 2012).

5. Conclusion

Studying the effects of recycled cotton-polyester blends on customer tastes and buying habits, this study proposes a new approach to sustainable clothing merchandising. With a thorough investigation of consumer attitudes, inclinations, and deciding elements, the research offers insightful information about how recycled materials might influence how fashion is consumed in the future. The results show that although consumers aged 25–45 from higher social strata and with higher educational background are becoming more conscious of and interested in sustainability then children aged below 15 and old individual’s ager over 45 years comparatively. there are still several obstacles preventing the mainstream use of recycled cotton-polyester blended clothing. These obstacles include doubts over the efficacy of retailing tactics, clothing comfort, product durability, availability, and product quality. In a nutshell the research emphasizes how crucial it is for the fashion industry to work together in order to effectively promote significant change toward more environmentally friendly methods. Cooperation between participants can create a more sustainable and ethical fashion ecosystem by matching consumer tastes with environmental goals. This research contributes to the fashion industry’s sustainability conversation and helps companies adapt to this changing environment. Future research could explore strategies to enhance consumer engagement across different age groups, specifically targeting younger and older demographics. Additionally, investigating innovative solutions to improve the retailing effectiveness, comfort, durability, and overall quality of recycled cotton-polyester garments could address current adoption barriers.

Funding acknowledgment

The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

The authors gratefully acknowledge the technical support provided by the Department of Textile Engineering, Mawlana Bhashani Science and Technology University, Tangail.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

Ethical statement

Not applicable.

CRediT authorship contribution statement

Arnob Dhar Pranta: Conceptualization, Methodology, Visualization, Software, Resources, Data collection, Writing – original draft preparation. **Md. Tareque Rahaman:** Conceptualization, Data curation, Methodology, Writing – original draft preparation, Supervision. **Md. Reazuddin Repon:** Conceptualization, Methodology, Supervision, Formal analysis, Resources, Writing – original draft preparation, Visualization. **Abdullah Al Rakib Shikder:** Resources, Visualization, Review, Editing.

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