Understanding Gen Z consumers' perceptions of sustainable fashion clothing: A PLS-SEM and fsQCA approach

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Abstract

Fast fashion production and consumption have undeniably contributed to environmental challenges, including climate change. At the same time, research on sustainable consumption consistently shows a gap between consumers' pro-environmental intentions and their actual purchasing behavior. Drawing on consumer behavior theory and innovation resistance theory (IRT), this study examines the psychological barriers and functional barriers that shape the intention–behavior gap. We integrate environmental concern and sustainability knowledge with IRT to explore the impact of these drivers and barriers on Gen Z consumers. We analyse data from 684 respondents in the United States, India, and Malaysia using PLS-SEM and fsQCA. The results show that environmental concern and sustainability knowledge positively influence the intention to adopt sustainable fashion clothing (SFC), while image barriers reduce the likelihood of adoption. Although examined within the apparel sector, the study highlights mechanisms of resistance and consumer psychology that are relevant to broader sustainable consumption contexts.

Keywords: Sustainable consumption; Consumer Behavior; Gen Z; Innovation Resistance Theory; PLS-SEM; fsQCA

1. Introduction

The rapid surge in consumer demand for goods and services has significantly contributed to environmental problems such as climate change, global warming, and air pollution. The fashion sector exemplifies this challenge, as clothing production has risen sharply in the past decade while recycling rates remain as low as 14 percent, leaving most products to become waste (Abbate et al., 2024; Peter John and Mishra, 2023). These consequences illustrate a broader sustainability challenge in which consumers increasingly express concern for the environment, yet their everyday purchasing decisions often reinforce unsustainable patterns. Research indicates that climate-related issues, such as extreme weather events, rising sea levels, and biodiversity loss, will intensify in the coming decades (Hickman et al., 2021). Generation Z (Gen Z), born between 1997 and 2012, is expected to bear the brunt of these impacts because their longer life expectancy exposes them more directly to the accumulating nature of climate risks, which will affect their living conditions and future opportunities. UNICEF (2021) highlights that young people are disproportionately vulnerable to such risks, including food insecurity and health problems, yet their perspectives remain underrepresented in policymaking (Jones and Podpadec, 2023). Nonetheless, Gen Z is emerging as a key advocate for sustainability and environmentally friendly products (Gomes et al., 2023). However, despite their high level of environmental awareness and pro-sustainability attitudes, Gen Z consumers frequently struggle to translate these values into consistent purchasing behavior. This intention–behavior gap represents both a critical challenge and a strategic opportunity, as understanding the factors that hinder

environmentally conscious young consumers from adopting sustainable fashion alternatives is essential for accelerating the fashion industry's transition toward sustainability.

A central challenge in this area is the well-documented intention–behavior gap. Gen Z and other consumers often signal strong pro-environmental attitudes but struggle to translate them into consistent purchasing behavior (D'Acunto et al., 2025). This gap has been observed across various sustainable consumption domains, including eco-friendly packaging, renewable energy, and green food, highlighting the need for theory-driven explanations of consumer resistance. Innovation Resistance Theory (IRT) provides a valuable framework for this purpose. IRT explains consumer resistance to innovations caused by disruptions of the status quo or conflicts with personal beliefs (Ram and Sheth, 1989) and distinguishes between functional and psychological barriers (Laukkanen, 2016). Although widely applied in technology and service contexts, its application to sustainable consumption remains limited, particularly among younger consumers, which motivates the extension of this theoretical perspective.

To address this gap, the present study applies IRT in the context of Gen Z's sustainable fashion clothing (hereafter SFC) consumption. The fashion sector is environmentally intensive and also represents a domain where Gen Z plays an outsized role as frequent purchasers and cultural trendsetters (Mason et al., 2022; Joung, 2014). Although affordability and trend pressures, amplified by social media platforms such as Instagram and TikTok, drive high turnover of clothing (Amed et al., 2021; Brydges et al., 2020), prior studies indicate growing openness to sustainability within this cohort (Mason et al., 2022; Gomes et al., 2023). By positioning fashion as an illustrative case, this study captures a high-impact context while generating insights into the broader mechanisms of consumer resistance and SFC adoption. These mechanisms, particularly image barriers,

environmental concern, and consumer knowledge, are examined here in the apparel context but are also likely to be relevant across other SFC consumption domains. We extend IRT by integrating environmental concern and sustainability knowledge and test these dynamics in a cross-cultural setting (United States, India, Malaysia), thereby responding to calls for context-sensitive applications of behavioral theories in sustainability research (Huang et al., 2021). By doing so, this study offers actionable insights for fashion brands seeking to convert Gen Z's environmental awareness into purchasing behavior, while simultaneously advancing theoretical understanding of how innovation resistance operates in sustainability contexts. The findings have direct relevance for marketers developing targeted communication strategies, brand managers repositioning sustainable product lines, and policymakers designing interventions to accelerate sustainable consumption.

2. Background

2.1 Sustainable Fashion Clothing for Climate Change

The fashion industry is a significant contributor to climate change and environmental degradation. Despite increasing awareness of its social and environmental harms, concerns about its impact on climate change continue to intensify (Rashidi-Sabet and Madhavaram, 2022). Overproduction and unnecessary clothing manufacturing are major drivers of both climate change and plastic pollution (Abelvik-Lawson, 2023). According to the United Nations, the fashion sector consumes vast natural resources and generates 8–10% of global greenhouse gas emissions, surpassing the combined emissions from aviation and shipping (Cho, 2021; Stallard, 2022). The environmental impact extends to raw material production: cotton cultivation occupies around 2.5% of global farmland, while the production of synthetic fibers, such as polyester, consumes approximately 342 million barrels of oil annually (Stallard, 2022). Moreover, dyeing processes employ nearly 43 million tons of chemicals yearly (Simon, 2024).

Consumer preferences are shifting, with a McKinsey report revealing that 62% of shoppers actively seek SFC products, indicating a rising level of eco-consciousness. However, studies on climate change communication suggest that merely providing information about environmental consequences is insufficient to drive behavioral change (Odou and Schill, 2020). The leading clothing manufacturers must reevaluate business models to integrate sustainability, such as incorporating organic materials, using waste-derived fabrics, adopting alternative dyeing techniques, and enhancing biodegradability (Geneva Environment Network, 2025; Feria, 2023; Ro, 2020; Terry, 2019).

Most existing research is centered on Western populations (Sinha et al., 2023; Mukendi et al., 2020), with calls for expanding the demographic and cultural scope of consumer behavior studies in SFC. Our study focuses on Gen Z in the United States, India, and Malaysia, who are actively pursuing climate policies. India's National Action Plan on Climate Change (2008, updated 2021) and Malaysia's National Policy on Climate Change (2009, updated 2024) demonstrate firm commitments.

In Malaysia, awareness of SFC among Gen Z is steadily growing, particularly in urban areas where environmental education, digital platforms, and youth-led activism play a significant role in increasing exposure. According to a national survey by Amanda (2023), approximately 49% of Malaysian respondents aged 16 and above consider purchasing environmentally friendly products to be at least somewhat important, reflecting a broader shift in consumer values toward sustainability. Additionally, recent consumer data suggest that this trend extends beyond awareness. A YouGov survey reported that 67% of Malaysian consumers prefer sustainable brands (Robinson, 2022), indicating widespread demand for environmentally responsible products. InvestKL (2023) further documented that consumption of organic products in Greater Kuala Lumpur increased by more than 30% between 2019 and 2022. This pattern reflects a broader societal shift toward sustainable lifestyles and provides relevant context for the growing accessibility of SFC in Malaysia.

A recent study by Zaimmudin Mohd Zain et al. (2023) found that Malaysian youth exhibit a mixed but developing understanding of SFC practices, such as recycling, upcycling, and slow fashion, with many respondents driven by ethical and environmental motivations. Similarly, Haron et al. (2022) demonstrate that the intentions of young Malaysian consumers to purchase SFC are influenced by factors such as ecological concern, fashion consciousness, and product availability, particularly in metropolitan regions. Local sustainable brands, Biji Biji Ethical Fashion, Earth Heir, Ozero Swimwear, and The Modest Brand, play pivotal roles in raising awareness and accessibility through online platforms and activism-aligned marketing (The Beat Asia, 2023).

2.2 Consumer Engagement in Sustainable Fashion Clothing

As sustainability has gained prominence, consumers have become increasingly engaged in addressing sustainability-related issues and now expect fashion companies to adopt ethical and environmentally responsible practices (Hageman et al., 2024). At the same time, consumers are becoming more discerning, often balancing sustainability concerns against affordability and convenience (Lou and Xu, 2024). Environmental awareness continues to be a primary driver of sustainable consumption (Lee and Lee, 2024), while consumer knowledge regarding SFC significantly influences purchase behaviour (Blazquez et al., 2020).

A range of factors contribute to consumers' engagement in SFC, including sustainability-related knowledge (e.g., Liu et al., 2021), ethical concerns (e.g., De Klerk et al., 2019), communication strategies such as message framing (e.g., Grappi et al., 2024), and broader environmental concerns (e.g., Pérez et al., 2022). Although research on SFC is still evolving, understanding consumer motivations remains essential for encouraging environmentally responsible behaviours (Dangelico et al., 2024; Brandão and Costa, 2021). Consumer participation in sustainability initiatives encompasses

a variety of actions, ranging from recycling to green purchasing decisions (Kilbourne and Pickett, 2008).

While prior research has examined sustainable consumption across diverse consumer groups, generational differences remain underexplored. In this context, Generation Z represents a particularly salient cohort warranting focused investigation. Grounded in generational cohort theory (Mannheim, 1952), which posits that individuals born within the same historical period share formative experiences shaping their values and behaviours, Gen Z is widely characterised as the first generation to grow up fully immersed in a digital environment, exhibiting high levels of technological fluency and connectivity (Priporas et al., 2017). Existing research highlights Gen Z's pronounced climate anxiety, with 75% reporting that the future feels frightening due to climate change (Hickman et al., 2021).

Despite their heightened environmental awareness, Gen Z's commitment to sustainable consumption appears context dependent. While a substantial proportion of Gen Z consumers value sustainability, many continue to prioritise affordability and convenience over environmentally friendly alternatives, reflecting a well-documented attitude–behaviour gap (Laws, 2022). Nevertheless, Confetto et al. (2023) describe Gen Z as pragmatic yet environmentally conscious, demonstrating strong intentions toward sustainable behaviours.

As the growing interest in this cohort increased, research specifically examining Gen Z's engagement with SFC consumption remains limited (Li and Leonas, 2022). Existing studies have largely focused on motivations for purchasing recycled or second-hand clothing (e.g., Williams and Hodges, 2022), while relatively few have explored barriers to sustainable fashion engagement, with notable exceptions such as Harris et al. (2016). As understanding these barriers is as critical as identifying

motivational drivers, this study aims to examine both the drivers and obstacles influencing Gen Z consumers' SFC purchase intentions. By doing so, the study seeks to contribute to a more nuanced understanding of SFC consumption and to support the development of strategies that encourage sustainable behavioural change within this critical consumer segment.

2.3 Sustainable Fashion Clothing and Resistance

Innovation resistance, as defined by Ram and Sheth (1989), refers to the resistance users may exhibit towards changes imposed by innovations. It is a key factor behind new product failures (Tang and Chen, 2022). According to IRT, consumer resistance can manifest in two distinct forms: active and passive. Active resistance is driven by the inherent characteristics of an innovation, leading to functional and risk-related barriers (Gupta et al., 2024). In contrast, passive resistance arises when innovations conflict with consumers' existing beliefs, resulting in psychological barriers such as image and tradition (Gupta et al., 2024). Although primarily applied to technological innovations, IRT has been successfully adapted to non-technological contexts, including recycling and sustainability (Bhutto and Rūtelionė, 2024; Sajid and Zakkariya, 2023; Tang and Chen, 2022; Wiedmann et al., 2011). This demonstrates IRT's utility in understanding consumer resistance toward sustainable practices.

Despite growing awareness of the environmental and social costs associated with fast fashion, many consumers, particularly women and younger individuals, continue to be drawn to low-priced fast fashion garments (Ronda, 2024). Perceptions of SFC as costly and less fashionable deter wider adoption (Lee et al., 2020). Although consumers increasingly express eco-conscious attitudes, inconsistent behavior and unwillingness to pay premiums for sustainable products persist (Han et al., 2017). This discrepancy demonstrates that those who intend to purchase sustainable products but fail

to do so may face several obstacles in embracing SFC. Understanding these barriers is crucial to bridging the gap between intention and action in sustainable clothing consumption.

Addressing these barriers is critical for fostering sustainable consumption norms (Brandão and Costa, 2021). While various barriers have been theorised, few have undergone empirical validation. Harris et al. (2016) identified key obstacles and proposed strategies to overcome them, encouraging sustainable practices as social norms. In response to Khan et al.'s (2022) calls for deeper research into green marketing and consumer innovation resistance, this study integrates innovation resistance factors to examine influences on SFC purchase intentions.

3. Research Model and Hypotheses

This study examines the drivers and barriers that influence Gen Z consumers' intention to purchase SFC. Drawing on IRT, we propose a conceptual model (Fig. 1) that integrates both resistance factors and enabling drivers, providing a comprehensive understanding of Gen Z's consumer behavior. The model includes functional barriers (usage, value, and social risk) and psychological barriers (tradition and image). In contrast, it incorporates two key drivers, environmental concern and sustainable fashion knowledge, which are hypothesised to influence Gen Z's purchase intentions positively. In line with IRT, all barrier constructs are retained in the model to allow a comprehensive test of both functional and psychological resistance, even though prior research suggests that some of these effects may be context-dependent or weaker in linear models.

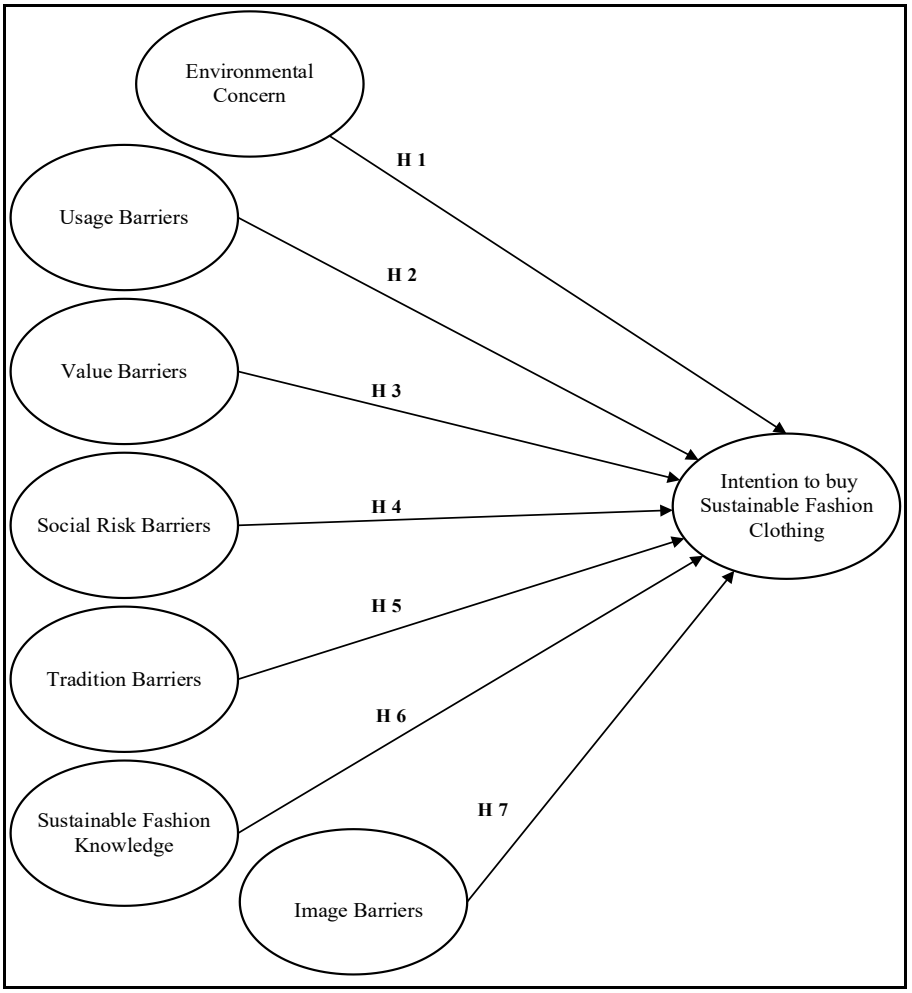

Figure 1. Conceptual model of drivers and barriers to sustainable fashion clothing adoption

3.1 The Effect of Environmental Concern (EC)

Environmental concern is a major personal value that influences sustainable consumption behavior (De Klerk et al., 2019). It refers to the extent to which individuals are aware of environmental issues, their willingness to contribute to solving these problems, and their willingness to contribute to mitigating them (Dunlap and Jones, 2002). In the context of SFC, several studies have found a positive relationship between environmental concern and purchase intention.

For instance, Lee (2011) showed that individuals with higher levels of environmental concern are significantly more likely to buy green apparel. Similarly, De Klerk et al. (2019), found that environmentally conscious consumers are more inclined to make eco-friendly purchasing decisions.

Similarly, Pérez et al. (2022) and Razzaq et al. (2018) also noted that consumers perceive sustainable products as aligned with their values, which strengthens their intention to purchase.

Research also shows that the influence of environmental concern can vary by region and culture. For example, Stringer et al. (2020) demonstrated that consumers with strong environmental values tend to prioritise sustainability even when other product attributes, like affordability or convenience, are less favorable. This suggests that environmental concern not only influences the initial intention to adopt sustainable behaviors but also strengthens resilience against barriers like cost or availability. In Western markets, Wiederhold and Martinez (2018) found that high environmental awareness often translates directly into SFC purchases. However, in emerging markets, the effect is less direct. Bhaduri and Ha-Brookshire (2017) found that environmental concern must be combined with visible benefits and clear product information to influence purchasing decisions.

In addition, growing social and political movements, such as climate strikes and sustainability policies, are increasing public awareness of environmental issues. These trends are pushing more consumers to reflect on their environmental impact and make more sustainable choices (Heo and Muralidharan, 2019). Based on the discussion above, we hypothesise that:

H1: *Environmental concern is positively related to the intention to buy sustainable fashion clothing.*

3.*2 The Effect of Usage Barriers (UB)*

Usage barriers refer to the perceived effort required to adopt or use a new product or innovation (Mani and Chouk, 2018). Ram and Sheth (1989) identified them as one of the most common reasons for consumer resistance to innovation. In the context of SFC, consumers often feel that adopting eco-friendly clothing requires significant changes to their shopping habits (Carey and Cervellon, 2014; McNeill and Moore, 2015).

Young consumers, especially in emerging markets, are likely more sensitive to usage barriers due to limited market infrastructure, reduced availability, and the additional effort required to locate sustainable options (Diddi et al., 2019; Park and Lin, 2020). According to IRT (Ram and Sheth, 1989), these practical inconveniences strongly discourage consumers, particularly younger segments accustomed to convenience and immediacy, from adopting new products. Thus, we propose:

H2: *Usage barriers are negatively related to the intention to buy sustainable fashion clothing.*

3.3 The Effect of Value Barriers (VB)

Value barriers reflect the perceived trade-off between the performance and cost of an innovative product compared to existing alternatives (Kushwah et al., 2019). Consumers often perceive SFC as overpriced and may lack the expected quality (Brandão and Costa, 2021; Puspita and Chae, 2021). High production costs often lead to higher retail prices, which discourage price-sensitive shoppers (Carey and Cervellon, 2014).

In addition to cost, consumers express concerns about product durability and performance, questioning whether SFC justifies its premium price (Riesgo et al., 2022). These value-based doubts reduce willingness to adopt SFC, even when consumers acknowledge its environmental benefits. Given that our study context specifically targets young, price-sensitive consumers in emerging markets, value barriers, particularly concerns related to pricing, performance, and durability, are expected to significantly influence their adoption decisions. Based on IRT (Ram and Sheth, 1989), perceived inferior cost-benefit trade-offs are a critical driver of resistance, especially within demographics where price sensitivity and product performance expectations are high. Thus, young consumers in emerging markets are likely to experience particularly pronounced value barriers when considering SFC adoption. Thus, we hypothesise:

H3*:* *Value barriers are negatively related to the intention to buy sustainable fashion clothing.*

3.4 The Effect of Social Risk Barriers (SRB)

Social risk refers to consumers' concern about whether their social environment will accept and support their adoption of an innovation (Kleijnen et al., 2009). This barrier has been shown to influence the adoption of sustainable innovation negatively (Kaur et al., 2020). This barrier is especially relevant for Gen Z in emerging markets such as India and Malaysia, where peer approval, family expectations, and visible social norms significantly affect purchasing behavior (Vishwakarma et al., 2024; Riesgo et al. (2022). This issue becomes even more significant in emerging markets, which are characterised by strong collective values and considerable reliance on peer and family approval. IRT explicitly recognizes social acceptance concerns as powerful psychological barriers, especially pronounced in socially oriented, collectivist cultures, strongly influencing consumers' adoption behaviors (Ram and Sheth, 1989). Hence, we propose:

H4*: Social risk barriers are negatively related to intention to buy sustainable fashion clothing.*

3.5 The Effect of Tradition Barriers (TB)

Tradition barriers arise when consumers perceive that adopting an innovation will disrupt their habits, preferences, or lifestyles. These barriers are particularly prevalent when innovations challenge deeply rooted cultural norms and behaviors (Ram and Sheth, 1989; Mani and Chouk, 2018). In SFC, these barriers are often linked to consumers' strong attachment to fast fashion, which dominates modern shopping culture due to its affordability, convenience, and trend-driven appeal (Brandão and Costa, 2021).

Fast fashion promotes frequent, low-cost purchases, making SFC appear incompatible with consumers' existing habits. Research shows that many consumers see SFC as lacking style, variety, and vibrancy when compared to fast fashion (Chen et al., 2018; Diddi et al., 2019). These perceptions discourage shoppers from changing their routines (Chen et al., 2018; Sadiq et al., 2021).

Recent studies further emphasize the significance of tradition barriers in SFC adoption. For instance, Riesgo et al. (2022) highlighted that consumers often view SFC as "functional" but not "fashionable". Similarly, Vishwakarma et al. (2024) found that many Indian consumers are hesitant to adopt sustainable apparel because they perceive it as incompatible with their fast-paced, trend-driven lifestyles, even when they recognize its environmental benefits. These findings emphasize that traditional barriers are particularly salient in emerging markets, where young consumers strongly identify with prevailing fashion trends and lifestyles. IRT supports this view by noting that innovations conflicting with established cultural or habitual norms encounter significant resistance, especially among younger demographic groups deeply embedded in contemporary consumer cultures (Ram and Sheth, 1989). Thus, we posit:

H5*:* *Tradition barriers are negatively related to the intention to buy sustainable fashion clothing*.

3.6 The Effect of Sustainable Fashion Knowledge (SFK)

Consumer knowledge plays a vital role in shaping attitudes, intentions, and values related to behavior (Ajzen, 1991). Consumer knowledge about SFC forms the foundation of their attitude towards engaging with these products (Pérez et al., 2022). As consumers gain awareness of fast fashion's environmental impact, their attitudes toward sustainable alternatives tend to improve (Dhir et al., 2021)**.**

Studies have consistently found that increased knowledge leads to greater willingness to buy SFC (James and Montgomery, 2017; Khare et al., 2020; Kong et al., 2016; Ronda, 2024). For example, Ronda (2024) noted that the lack of awareness about fast fashion's harms hinders consumer transition to sustainable options. Similarly, Khare et al. (2020) showed that knowledge about organic clothing increases consumers' engagement with sustainable products. Based on this, we post:

H6*:* *Sustainable fashion knowledge is positively related to the intention to buy sustainable fashion clothing.*

3.7 The Effect of Image Barriers (IB)

The image barrier refers to the extent to which an innovation is perceived as having an unfavorable image (Laukkanen, 2016; Mani and Chouk, 2018). According to Ram and Sheth (1989), a product's perceived identity, shaped by its origin, industry, or associations, can influence adoption. The image of an innovation serves as an extrinsic cue for consumers' decisions to adopt or reject it (Laukkanen, 2016). If consumers associate innovation with negative traits, such as deception or superficial branding, they are less likely to trust or adopt it (Ram and Sheth, 1989).

In the case of SFC, greenwashing concerns pose a serious challenge, especially for Gen Z, who are highly aware of sustainability issues (Eifler, 2014; Jacobs et al., 2018; Singh et al., 2022; Wang et al., 2020). For instance, Wang et al. (2020) found that perceived greenwashing in the sustainability industry negatively affects consumers' intentions to purchase green products. This skepticism regarding the authenticity of sustainable claims contributes to an image barrier for sustainable fashion. Furthermore, Gen Z consumers do not trust brands' environmental, social, and governance (ESG) claims, indicating a high level of skepticism towards sustainability assertions (Segel and Hatami, 2021). Thus, consumers may view SFC as part of a broader greenwashing trend, undermining their trust and willingness to engage with these products. Based on this argument, we posit:

H7*:* *Image barrier is negatively related to the intention to buy sustainable fashion clothing.*

4. Method

4.1 Measures

The application of IRT has been extensively documented in prior research. In order to construct the survey and measure the proposed variables, we have carefully adapted and refined the measurement items from previous studies. Specifically, four measurement items for assessing environmental concern were adapted from Gam (2011), and three for assessing usage barriers were adapted from Sadiq et al. (2021). Four measurement items for assessing value barriers were adapted from Kushwah et al. (2019), Lian and Yen (2013), and Torres-Ruiz et al. (2018), and three items measuring social risk barriers were adapted from Joachim et al. (2018). Additionally, three items measuring traditional barriers were adapted from Hew et al. (2017) and Gam (2011). Image barriers were measured using three items adapted from Sadiq et al. (2021) and Kushwah et al. (2019), and items for measuring sustainable fashion knowledge were adapted from Kong et al. (2016). Lastly, three items were adapted from Kaur et al. (2020) and Sadiq et al. (2021) to measure consumers' intention to buy SFC.

To ensure the quality and validity of the measurement items, we conducted a validation process with an expert panel comprising two Information Systems professors, two postdoctoral fellows, and two independent researchers. Based on their feedback, the survey was revised accordingly. The final version of the survey employed a seven-point Likert scale (ranging from 1 – strongly disagree to 7 – strongly agree) to assess all variables. A pilot test was then conducted with a sample of 55 fashion consumers further to confirm the validity and reliability of the survey items. Following the pilot test, the survey was refined and updated. Appendix 1contains all the measurement items.

4.2 Participants and Research Context

The data for this study were collected from young fashion consumers from three countries: the United States, India, and Malaysia. These countries were selected to capture distinct economic and cultural

contexts relevant to SFC consumption. The United States, as a high-income economy, boasts robust retail infrastructure, higher consumer purchasing power, and substantial exposure to sustainability messaging (World Bank, 2022; IMF, 2023). In contrast, India's lower GDP per capita exemplifies an emerging market where economic constraints often limit the feasibility of sustainable purchases, shaping consumer priorities and price sensitivity. With an intermediate level of economic development, Malaysia offers a middle-income perspective, enabling comparisons across a spectrum of financial and infrastructural conditions. Moreover, cultural norms vary substantially: the United States aligns closely with individualistic values, whereas India and Malaysia lean toward collectivist traditions (Hofstede, 2001). These differences in cultural orientations and divergent levels of sustainability awareness and motivations allow for a broad examination of how economic and cultural factors jointly influence Gen Z's attitudes and resistance towards SFC.

4.3 Sampling and Data Collection

We employed non-probability, purposive sampling (Crisafulli et al., 2025) to collect the data from three countries: the United States, India, and Malaysia. A web-based survey was administered via Qualtrics and distributed through Amazon Mechanical Turk (MTurk), a crowdsourcing platform that facilitates fast and reliable data collection for researchers (Matherly, 2019; Sadiq et al., 2021). Only participants with an approval rating above 95% from previous survey tasks were included to ensure high-quality responses. Additional criteria were applied on MTurk: participants were required to be 18 years or older, categorized under "clothing and shoes", and located in the USA, India, or Malaysia. Respondents were compensated with $ 0.70 for each completed survey, reflecting the time required to complete it. To detect inattentive or patterned responding, a reverse-coded item (VB2) was included following the reverse-item method commonly used in survey research (Swain et al., 2008; Meade and Craig, 2012). This served as an attention check to identify careless responses. In total, 700 responses

were collected from Gen Z consumers aged 18 to 25. After data cleaning, removing incomplete, suspicious, or extreme responses (n = 7), as well as those failing the reverse-coded attention check (n = 9), a total of 684 valid responses were retained for analysis. The final sample comprised 294 respondents from the United States, 143 from India, and 247 from Malaysia. Table 1 presents the demographic characteristics of the respondents.

Table 1. Respondents Profile

Profile of respondents	United States (*n*=294)	India (*n=143*)	Malaysia (n=247)
Gender			
Male	178 (60.5%)	79 (56%)	107 (43.3%)
Female	116 (39.4%)	62 (44%)	139 (56.28%)
Prefer not to say	0%	0%	1 (0.4%)
Education level			
High school	9 (3%)	0%	78 (31.6%)
Bachelor	234 (80%)	114 (80%)	137 (55.5%)
Postgraduate Degree	42 (14%)	129 (20%)	22 (8.9%)
PhD	8 (2.7%)	0%	1 (0.4%)
Other	1 (0.3%)	0%	9 (3.6%)
Buying fashion clothing			
Several times a month	110 (37.4%)	76 (54%)	135 (54.6%)
Several times a week	97 (32.9%)	22 (15%)	38 (15.3%)
Once every few weeks	62 (21%)	44 (30.3%)	59 (23.8%)
Almost every day	25 (8.5%)	1 (0.7%)	15 (6 %)

4.4 Data analysis

For data analysis, both Structural Equation Modeling (PLS-SEM) and the fuzzy set Qualitative Comparative Analysis (fsQCA) techniques were employed to test the research model. PLS-SEM was conducted using SmartPLS v4 to evaluate the measurements in the model and test the proposed hypotheses. PLS-SEM is a suitable technique for prediction and explanation purposes and has been

widely utilized in information systems and business research (e.g., Filieri et al., 2023; Vaithilingam et al., 2024). Additionally, fsQCA was used to supplement the analysis, providing a deeper understanding of the non-linear effects among antecedent variables that contribute to high consumer engagement in SFC buying (Drăgan et al., 2023).

5. Results

5.1 Common Method Bias

Common method bias (CMB) is a critical concern in survey-based research, particularly when a single factor accounts for more than 50% of the observed variance (Podsakoff et al., 2003). We conducted Harman's one-factor test to evaluate the potential presence of CMB in our data. The results revealed that the largest variance explained by a single factor was 38%, well below the 50% threshold. This indicates that CMB is not a significant concern in this study. To further ensure the robustness of our analysis, we followed the approach recommended by Kock (2015) and performed a full collinearity variance inflation factor (VIF) test. This method evaluates both multicollinearity and the potential presence of CMB by calculating the VIF values for all latent variables in the model. The results showed that VIF values ranged from 1.250 to 3.284 for the inner model and from 1.381 to 2.349 for the outer model. As all values are below the recommended threshold of 3.3, these findings confirm that the model is unlikely to be influenced by CMB. Therefore, both CMB and multicollinearity concerns were effectively ruled out, ensuring the robustness of the measurement model.

5.2 Measurement Model Assessment

Table 2 presents the results for the reliability and validity of the measurement items (Benitez et al., 2020). The internal consistency reliability of all items was confirmed, as indicated by outer loadings and Cronbach’s Alpha values exceeding 0.7, as well as composite reliability values above 0.7 (Hair et al., 2022). Furthermore, convergent validity of the variables was established, with average variance

extracted (AVE) values surpassing the 0.5 threshold (Hair et al., 2022). Additionally, we assessed discriminant validity using Fornell and Larcker's criteria and the Heterotrait-Monotrait Ratio of Correlations (HTMT). As shown in Tables 3 and 4, the square root of each variable's AVE exceeds its correlations with other variables in the model, indicating adequate discriminant validity (Henseler et al., 2015). Appendix 2 shows the outer loadings results of the measurement items.

Although some inter-construct correlations and HTMT values were relatively high, ranging up to 1.00 for specific construct pairs, discriminant validity was confirmed following the inference-based approach of Henseler et al. (2015). According to this method, discriminant validity is supported when the 95% bias-corrected bootstrap confidence intervals for HTMT values do not include 1.00. In this study, none of the confidence intervals encompassed 1.00, indicating that all constructs are statistically distinct. Therefore, despite some high pairwise correlations, both discriminant validity and collinearity diagnostics suggest that the constructs in this model are adequately distinct and that the results are robust.

Table 2. Validity and Reliability of Constructs

Construct	***Items***	***Loading***	**Cronbach's Alpha**	**Composite Reliability**	**AVE**
Environmental concern	EC1	0.85	0.84	0.90	0.75
	EC2	0.89			
	EC3	0.86			
Usage barriers	UB1	0.80	0.74	0.85	0.66
	UB2	0.84			
	UB3	0.79			
Value barriers	VB1	0.70	0.77	0.81	0.53
	VB2	0.89			
	VB3	0.67			
	VB4	0.63			
	SRB1	0.89	0.85	0.91	

Social risk barriers	SRB2	0.86			0.77
	SRB3	0.88			
Tradition barriers	TB1	0.88	0.82	0.89	0.73
	TB2	0.86			
	TB3	0.82			
Image barriers	IB1	0.83	0.80	0.88	0.72
	IB2	0.85			
	IB3	0.85			
Sustainable fashion knowledge	SFK1	0.81	0.79	0.88	0.71
	SFK2	0.88			
	SFK3	0.83			
Intention to buy SFC	INT1	0.89	0.87	0.91	0.79
	INT2	0.87			
	INT3	0.87			

Table 3. Fornell–Larcker's Criterion Results

	EC	**IB**	**INT**	**SKF**	**SRB**	**TB**	**UB**	**VB**
EC	**0.87**							
IB	0.13	**0.85**						
INT	0.82	0.12	**0.89**					
SFK	0.37	0.48	0.39	**0.84**				
SRB	0.15	0.74	0.17	0.47	**0.88**			
TB	0.18	0.73	0.18	0.53	0.69	**0.86**		
UB	0.33	0.59	0.32	0.42	0.53	0.54	**0.81**	
VB	0.39	0.67	0.36	0.43	0.65	0.63	0.64	**0.73**

Note: EC= Environmental concern, IB= Image barriers, INT= Intention to buy sustainable fashion clothing, SFK= Sustainable fashion knowledge; SRB = Social risk barriers; TB= Tradition barriers; UB= Usage barriers; VB = Value barriers

Table 4. HTMT Results

	EC	IB	INT	SKF	SRB	TB	UB	VB
EC								
IB	**0.16**							
INT	0.97	**0.15**						
SFK	0.18	0.89	**0.20**					
SRB	0.50	0.60	0.47	**0.57**				
TB	0.21	0.91	0.20	0.83	**0.65**			
UB	0.41	0.78	0.39	0.68	0.55	**0.70**		
VB	0.38	0.96	0.34	0.89	0.61	0.91	**0.93**	

5.3 Structural Model Assessment

To assess the structural model, we employed a bootstrapping technique with bias-corrected and accelerated (BCa) bootstrap settings, 10,000 sub-samples, and a two-tailed test (Hair et al., 2022). The results indicate that the model explains 69% of the variance in the intention to buy SFC (R^2 = 0.69), demonstrating a substantial level of explanatory power (Hair et al., 2022). The hypothesis testing results are presented in Table 5. The findings indicate that environmental concern positively affects consumers' intention to buy SFC (β= 0.76, t=23.33), supporting H1. However, usage barriers (β = 0.04, t = 1.11), value barriers (β = 0.04, t = 0.801), social risk barriers (β = 0.42, t = 1.03), and tradition barriers (β = -0.05, t = 1.10) do not significantly affect consumers' intention to buy SFC, thus H2, H3, H4, and H5 are not supported. Moreover, sustainable fashion knowledge has a positive impact on consumers' intention to buy SFC (β = 0.12, t = 3.15), supporting H6. Finally, H7 is supported as the image barrier has a significant negative effect on the intention to buy SFC. Appendix 3 shows the structural model results.

Table 5. Hypothesis Testing Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	5.0%- 95.0%	P values	Decision
Environmental concerns -> Intention to buy SFC	0.76	0.76	0.03	23.34	0.70- 0.81	0.00	Accepted
Usage barriers -> Intention to buy SFC	0.04	0.05	0.04	1.12	-0.02-0.11	0.13	Rejected
Value barriers -> Intention to buy SFC	0.04	0.04	0.05	0.80	-0.05- 0.12	0.21	Rejected
Social risk barriers -> Intention to buy SFC	0.04	0.04	0.04	1.03	-0.00- 0.12	0.15	Rejected
Traditional barriers -> Intention to buy SFC	-0.05	-0.05	0.04	1.10	-0.12- 0.03	0.30	Rejected
Sustainable fashion knowledge -> Intention to buy SFC	0.12	0.12	0.04	3.15	0.06-0.18	0.00	Accepted
Image barriers -> Intention to buy SFC	-0.08	-0.07	0.05	1.67	-0.17 – -0.01	0.05	Accepted

Note SFC = Sustainable Fashion Clothing. PLS results of the research model (* denotes $p < .10$, **$p < .05$, and ***$p < .01$, two-tailed).

5.4 Fuzzy Set Qualitative Comparative Analysis (fsQCA)

To gain a deeper understanding of the causal complexity of the study variables, fsQCA analysis was applied in this study, following the approach (e.g., Acikgoz et al., 2023; Elshaer et al., 2024). Before starting the fsQCA analysis, the antecedents (functional and psychological barriers, environmental concern and sustainable fashion knowledge) and the outcome (intention to buy SFC) were calibrated using fuzzy set scores (Ragin, 2009). The calibration process (Ragin, 2009) established three qualitative anchors – "full membership" (1), "crossover point" (0.5), and "full non-membership" (0) - to reflect the fuzzily defined thresholds (see Table 6). To transform the original Likert ratings into fuzzy set scores, the following values were used 1 ("strongly disagree"), 4 ("neutral") and 7 ("strongly

agree") to indicate "non-membership", the "crossover point" and "full membership" respectively (Queiroz et al., 2024).

Table 6. Data Calibration Thresholds

Variables	Full Membership (0.95)	Crossover Point (0.5)	Full-non-Membership (0.05)
Usage barrier	7	5.33	1
Value barrier	7	4.75	2
Social risk barrier	7	5.00	1
Tradition barrier	7	5.33	1
Image barrier	7	5.00	1
Environmental concern barrier	7	5.50	1
Sustainable fashion knowledge	7	5.66	1
Intention to buy SFC	7	5.33	0.66

Note: *SFC = Sustainable Fashion Clothing.*

5.4.1 Necessity Analysis

The necessity analysis was carried out to check whether a specific causal condition (e.g., barriers and sustainable fashion knowledge) was necessary for the intention to buy SFC. According to the threshold suggested by Ragin (2009), if the consistency threshold exceeds 0.90, a condition variable is necessary for the outcome variable. To check this, two cases were examined in the analysis: the presence and the absence of the proposed condition. As shown in Table 7, all the conditions tested showed a level of consistency lower than the recommended threshold (<0.9). On the basis of the results, it can be concluded that none of the factors examined are important in predicting the intention to buy SFC.

Table 7. Necessity Analysis

Consistency & Coverage	Consistency	Coverage
Usage barrier	0.793898	0.832177
~usage barrier	0.638814	0.723644
Value barrier	0.707879	0.794981
~value barrier	0.728543	0.769852

Social risk barrier	0.742666	0.786306
~social risk barrier	0.643245	0.720904
Tradition barrier	0.811785	0.808783
~tradition barrier	0.618097	0.741956
Image barrier	0.800653	0.778676
~image barrier	0.608219	0.752230
Environmental concern barrier	**0.896656**	0.842090
~environmental concern barrier	0.542089	0.702207
Sustainable fashion knowledge	**0.831380**	0.837934
~sustainable fashion knowledge	0.609314	0.721426

Note: ~ indicates the absence of a condition. Consistency represents the strength of association between a condition and the outcome, and coverage suggests the extent to which that condition explains the outcome.

5.4.2 Sufficiency Analysis

The truth in Table 8 below was generated for all model conditions to test the sufficiency of the conditions. To do so, the truth table was modified by removing rows that did not meet the frequency threshold of three when analysing more than 150 samples as per Fiss (2011) and Ragin (2009). According to Elshaer et al. (2024), the recommended raw consistency value should exceed 0.75, while the PRI consistency value should exceed 0.50. All configurations that did not meet the consistency measures were removed from the analysis. Configurations were only included in further analysis if they met the consistency threshold.

Table 8. Truth Table

sfkfuz	ecfuz	ibfuz	tbfuz	srbfuz	vfuz	ufuz	Frequency	intSF Cfuz	raw consist.	PRI consist.	SYM consist
1	1	1	1	1	0	1	7	1	**0.969192**	**0.873104**	0.873104
1	1	1	1	1	1	1	96	1	**0.909275**	**0.752512**	0.771230
1	1	0	0	0	0	0	20	1	**0.949588**	**0.725943**	0.731651
1	1	0	0	0	1	0	3	1	**0.960899**	**0.685243**	0.685245
0	1	0	0	0	0	1	4	1	**0.954872**	**0.624188**	0.628601
1	1	1	1	1	1	0	5	1	**0.934872**	**0.615248**	0.615246
0	1	0	0	0	1	1	5	1	**0.956344**	**0.575369**	0.575369
0	1	0	0	0	0	0	22	1	**0.923603**	**0.542703**	0.545617
1	0	0	0	0	0	0	6	1	**0.941029**	**0.496047**	0.497451
1	0	1	1	1	1	1	16	1	0.883175	0.402673	0.402671
0	0	0	0	0	0	1	7	1	0.937513	0.379354	0.380886
0	0	0	1	0	1	0	3	1	0.940259	0.355609	0.355607
0	0	0	0	0	1	0	7	1	0.924548	0.317844	0.317844
0	0	0	0	1	1	0	3	1	0.937026	0.287774	0.287775

0	0	0	0	0	0	0	95	1	0.803547	0.200610	0.204671

Note: sfkfuz: sustainable fashion knowledge, ecfuz: environmental concern, ibfuz: image barrier, tbfuz: traditional barrier, srbfuz: social barrier risk, vfuz: value barrier, ufuz: usage barrier, intSFCfuz: intention to buy sustainable fashion clothing.
Note: Raw Consistency indicates how strongly a configuration leads to the outcome. PRI Consistency (Proportional Reduction in Inconsistency) shows how exclusively a configuration is associated with the outcome rather than with its absence. SYM Consistency denotes the symmetric measure of consistency between the outcome and its negation.

The fsQCA data yielded three possible solutions: parsimonious, intermediate, and complex. The final solution sets were determined by using the proposed intermediate solutions (Ragin, 2009) to interpret the fsQCA results (e.g., Mandal et al., 2023) to compare and select the most reliable casual configurations for intention to buy SFC. Total coverage assesses how well the configurations can clarify the desired outcome and provides R-squared values comparable to those reported in regression-based methods (Pappas and Woodside, 2021). With a comprehensive solution coverage of 0.787, it can be concluded that the seven solutions played a significant role in the results. Pappas and Woodside (2021) suggest that solution consistency should exceed 0.80. In our case, the overall consistency value is 0.89, meaning that we have exceeded the recommended value. All coverage values exceed the recommended threshold (>0.20) (Rasoolimanesh et al., 2021).

The fsQCA results revealed seven distinct configurations illustrating how various barriers and drivers influence consumers' intentions toward SFC. In the first scenario, consumers with high knowledge about sustainable fashion encounter minimal perceived barriers related to image, tradition, social risk, value, and usage. From an IRT perspective (Ram and Sheth, 1989), this combination implies that comprehensive product knowledge significantly reduces uncertainties and skepticism, thereby enhancing innovation resistance and increasing consumers' willingness to adopt SFC. Similarly, the second configuration highlights that when high environmental concerns coexist with substantial knowledge of sustainable fashion, consumers experience fewer psychological and functional barriers—such as image, tradition, social risk, and usage concerns—making it easier for them to adopt SFC. In contrast, the third configuration describes consumers who remain strongly motivated by environmental concerns despite encountering notable usage barriers and lacking comprehensive

product-specific knowledge. Drawing on IRT, which emphasizes how usage barriers typically deter innovation adoption, it can be argued that strong emotional or ethical motivations, such as environmental concern, may help consumers cope with or offset these barriers, thereby reducing overall resistance and facilitating adoption. The fourth configuration presents a particularly interesting scenario where consumers perceive significant barriers (image, tradition, social risk, and value) but simultaneously possess extensive knowledge of sustainable fashion and high environmental concern. This pathway represents "price-conscious but motivated" consumers who question sustainable fashion's cost-benefit trade-off but overcome this concern through their strong environmental commitment and product knowledge. In line with IRT, consumers who have high knowledge about SFC and strong environmental motivation are likely better equipped to manage or rationalize existing functional (e.g., usage, value) and psychological barriers (e.g., image, tradition), thus lowering their resistance and facilitating stronger adoption intentions. In contrast, the fifth configuration indicates that even when consumers confront numerous barriers including image, tradition, social risk, and usage —but notably not value barriers— strong environmental motivation coupled with high sustainable fashion knowledge allows them to minimize or justify these barriers cognitively, facilitating adoption. This pathway represents “convenience-challenged but motivated” consumers who accept sustainable fashion's price-performance ratio but struggle with practical accessibility issues such as limited availability or the effort required to find sustainable options.

The sixth configuration represents a scenario in which consumers holding strong environmental values encounter minimal psychological and functional barriers. From the perspective of IRT, such minimal barriers significantly lower innovation resistance, thereby allowing consumers’ sustainability concerns to more readily translate into positive purchase intentions and facilitating adoption. Finally, the seventh configuration indicates that consumers with limited knowledge of sustainable fashion can

still exhibit strong adoption intentions when their environmental concerns are high and they face minimal psychological and functional barriers. Based on IRT, such minimal barriers considerably reduce innovation resistance, facilitating consumers' adoption of SFC despite limited product-specific knowledge. Table 9 visually summarizes the seven configurations as distinct causal pathways. Importantly, this visual presentation demonstrates fsQCA's unique ability to uncover multiple configurational patterns, or "hidden routes", that traditional linear analytical approaches, such as SEM, might overlook due to their focus on average effects and linear assumptions.

Table 9. Configurations of fsQCA intermediate solution

Intermediate Solution									
Paths for high intention to SFC	sfk	ec	ib	tb	srb	vb	ub	Raw Coverage	Consistency
sfkfuz*~ibfuz*~tbfuz*~srbfuz*~vfuz*~ufuz	●		○	○	○	○	○	0.434633	0.938112
sfkfuz*ecfuz*~ibfuz*~tbfuz*~srbfuz*~ufuz	●	●	○	○	○		○	0.432123	0.946439
~sfkfuz*ecfuz*~ibfuz*~tbfuz*~srbfuz*ufuz	○	●	○	○	○		●	0.400887	0.950380
sfkfuz*ecfuz*ibfuz*tbfuz*srbfuz*vfuz	●	●	●	●	●	●		0.567906	0.904269
sfkfuz*ecfuz*ibfuz*tbfuz*srbfuz*ufuz	●	●	●	●	●		●	0.611716	0.915678
ecfuz*~ibfuz*~tbfuz*~srbfuz*~vfuz*~ufuz		●	○	○	○	○	○	0.456978	0.924444
~sfkfuz*ecfuz*~ibfuz*~tbfuz*~srbfuz*~vfuz	○	●	○	○	○	○		0.431909	0.921928
Overall solution coverage: 0.78733									
Overall solution consistency: 0.890213									
Solution consistency: 0.909275									

Note: *SFC = Sustainable Fashion Clothing. ~ indicates the negation of a condition; ● = presence of condition (membership > 0.5); ○ = absence of condition (membership < 0.5); blank = condition not relevant to the configuration. Calibration thresholds (full membership = 0.95, crossover = 0.5, full non-membership = 0.05) are detailed in Table 6. The raw coverage and consistency values provided for each configuration offer precise indicators of explanatory power and reliability, complementing the symbolic representation*

6. Discussion, Conclusion, and Future Research

Based on innovation resistance theory and sustainable consumption literature, we developed a research model to explain how innovation barriers, along with other drivers including environmental concern and sustainable fashion knowledge, impact consumers' intentions to purchase SFC. Using a hybrid analysis method that combines PLS-SEM and fsQCA, our results demonstrate that both environmental concerns and sustainable fashion knowledge have a positive influence on the intention

to buy SFC. Additionally, our findings confirm that image barriers negatively affect this intention. Furthermore, seven configurations were identified to complement the insights derived from PLS-SEM, thereby providing a more comprehensive understanding of the factors that drive or hinder SFC consumption.

Consistent with previous research on the role of environmental concern in SFC purchasing behavior (e.g., Pérez et al., 2022), our findings confirm that higher levels of environmental concern significantly influence consumers' intentions to buy SFC. This supports the hypothesis that consumers with a strong awareness of environmental issues are more likely to align their purchasing decisions with their personal values. Our results align with earlier studies, such as Lee (2011) and De Klerk et al. (2019), which demonstrate that environmentally conscious individuals tend to prioritise sustainable products. The positive relationship between environmental concern and the adoption of SFC may reflect broader societal shifts. Recent public discourse around climate change and sustainable consumption has heightened awareness among consumers about their environmental impact. As noted by Wiederhold and Martinez (2018), consumers increasingly view purchasing SFC as a way to contribute to environmental preservation. This shift is further reinforced by the role of media and social movements, which have amplified messages about sustainability and the urgency of addressing environmental challenges (Heo and Muralidharan, 2019).

Our findings further indicate that environmental concern functions not only as a motivational driver but also as a resilience factor that mitigates the impact of common barriers to sustainable consumption, such as perceived higher costs or limited product variety. This finding is consistent with Stringer et al. (2020), who demonstrated that individuals with high levels of environmental concern are more likely to overlook such barriers, as they place greater emphasis on the long-term benefits associated with sustainable choices. Moreover, the results suggest that Gen Z consumers tend to perceive SFC

consumption not only as a moral responsibility but also as a form of social expression, thereby strengthening their intention to engage in sustainable consumption practices (Manley et al., 2023; Palomo-Domínguez et al., 2023; Heo and Muralidharan, 2019). This generational orientation may help explain why environmental concern remains a robust predictor of sustainable consumption intentions, even as the influence of other factors, such as tradition or perceived social risks, appears comparatively weaker. Interpreted through the lens of generational cohort theory (Mannheim, 1952), these findings suggest that Gen Z's formative experiences, shaped by growing up amid heightened climate crisis discourse and within a digitally mediated environment (Priporas et al., 2017), have strengthened the relationship between environmental concern and sustainable consumption intentions. Furthermore, their well-documented climate anxiety (Hickman et al., 2021) may intensify the motivational salience of environmental concern, while their digital fluency likely facilitates greater exposure to and engagement with sustainability-related information.

The value barrier, which concerns the trade-off between costs and benefits, may also be less significant. This may be attributed to a shift in consumer attitudes toward SFC consumption. Increasingly, consumers are recognising the intrinsic value of sustainable products, such as their ethical production processes, use of high-quality materials, and positive environmental impact (Puspita and Chae, 2021). As consumers become more environmentally aware and knowledgeable, their willingness to pay a premium for sustainable products increases, thereby diminishing the relevance of perceived cost-related barriers. For example, Zhang et al, (2023) found that younger generations, particularly Millennials and Gen Z, are more likely to prioritise sustainability over cost, viewing sustainable purchases as an investment in long-term environmental well-being. This growing environmental consciousness reduces the perceived trade-off between price and benefits, particularly in developed or rapidly developing markets, where environmental awareness campaigns and

education have raised awareness. The value barriers may be less significant among these consumer segments, which explains the lack of a significant relationship in our study.

Similarly, the absence of a significant relationship between social risk barriers and the intention to purchase SFC may reflect the changing social norms around sustainability. While earlier research emphasized the fear of negative social perceptions and concerns about greenwashing as significant barriers (e.g., Zhang et al., 2018), recent evidence suggests that SFC is increasingly seen as socially desirable behavior. In some circles, sustainable purchases have evolved into a status symbol, signaling consumers' environmental consciousness and social responsibility (Berger, 2019; Riesgo et al., 2022). Furthermore, sustainability-oriented social norms have been normalized among younger demographics, reducing the perceived risk associated with SFC purchases (Banytė et al., 2023). As a result, the traditional influence of social pressures, such as family or peer group approval, may be less effective in driving or deterring sustainable purchasing behavior (Riesgo et al., 2022). Additionally, the increased visibility of eco-friendly practices on social media platforms has further legitimized and popularized sustainable consumption, shifting it from niche behavior to a mainstream trend (Confetto et al, 2023).

The tradition barrier, which posits that innovative products may disrupt consumers' habits and lifestyles, was also found to have no significant relationship with SFC purchasing intentions. This finding suggests that SFC products may positively influence consumers by fostering new habits that align with environmental and ethical values. While previous literature (e.g., Sadiq et al., 2021; Mani and Chouk, 2018) emphasized the resistance caused by entrenched habits, our findings align with studies indicating that sustainable innovations can act as catalysts for behavioral change. For instance, Hur and Cassidy (2019) noted that sustainable fashion innovations often appeal to consumers who are actively seeking ways to adopt more environmentally conscious lifestyles, thereby mitigating the

impact of traditional barriers. Research has also found that aligning sustainable products with contemporary design trends and consumer values diminishes perceived incompatibility with established traditions (Rahman et al., 2023). This suggests that when sustainable products are marketed effectively, highlighting both their ethical benefits and alignment with consumers' modern preferences, tradition barriers become less significant. Another contributing factor may be consumers' growing exposure to sustainability education and campaigns that actively challenge traditional consumption patterns. For example, Laukkanen (2016) demonstrated that exposure to sustainability campaigns positively influences consumers' perceptions, reducing resistance caused by traditional habits.

A notable finding that sheds light on the rejected hypotheses in our study is the positive relationship between sustainable fashion knowledge and the intention to buy SFC. This aligns with the idea that increased consumer awareness of the environmental consequences of fast fashion can positively influence their attitudes toward the environment and their fashion consumption habits (Jimenez-Fernandez et al., 2023). Furthermore, our study indicates that image barriers are negatively associated with the purchase of SFC, which is consistent with expectations. This negative impact on consumers' intentions to purchase environmentally friendly products may stem from perceived greenwashing practices within the sustainability industry and brand behavior (Wang et al., 2020; Zhang et al., 2018). Therefore, establishing a strong brand image and reputation could be a viable long-term solution for mitigating this image barrier.

Beyond the linear findings of PLS-SEM, the fsQCA analysis uncovered seven distinct configurations of factors. The divergence between the two approaches demonstrates their complementary strengths. Whereas PLS-SEM captures average effects and shows that some barriers were not significant on their own, fsQCA reveals that these same constructs gain importance when they operate in

combination with other conditions. Far from being post-hoc rationalizations, these pathways align with the premise of innovation resistance theory, which posits that functional and psychological barriers interact with drivers such as environmental concern and knowledge. Taken together, the results indicate that resistance to sustainable consumption is not uniform but highly context-dependent, shaped by the interplay of multiple influences. In this way, fsQCA provides insights that a purely linear approach cannot deliver, thereby extending innovation resistance theory into the domain of sustainable consumption.

This finding highlights the importance of using both methods to gain a comprehensive understanding of consumer behavior. While PLS-SEM identifies general trends and direct relationships, fsQCA provides deeper insights into context-specific pathways, showing that different combinations of factors can lead to the same outcome. Together, these methods provide a richer and more comprehensive view of the drivers and barriers influencing SFC consumption.

Overall, the results highlight the significance of innovation barriers as key conditions influencing the purchase of SFC, even though a direct significant relationship between these barriers and SFC consumption was not found. More specifically, the second configuration, characterized by high levels of sustainable fashion knowledge and environmental concern alongside low levels of image, traditional, social risk, and usage barriers, is conducive to the intention to buy SFC. Similarly, the sixth configuration, marked by high environmental concern and low levels of image, traditional, social risk, value, and usage barriers, also leads to the intention to buy SFC. Additionally, the seventh configuration, characterized by high environmental concern and low levels of sustainable fashion knowledge, image, traditional, social risk, and value barriers, aligns with the intention to buy SFC, supporting hypotheses H1 and H6, as corroborated by the PLS-SEM results. While the fourth configuration indicates that the usage barrier was not a significant consideration, thus supporting our

rejected hypothesis H2, the fifth configuration suggests that the value barrier was similarly not a significant factor, supporting our rejected hypothesis H3. In summary, the fsQCA findings complement those of PLS-SEM by identifying essential conditions for fostering high-level purchasing intentions in SFC.

6.1 Theoretical Implications

This study makes a significant contribution to the existing literature on consumer behavior and sustainable consumption. First, the findings demonstrate the applicability of IRT to the sustainable consumption domain. As discussed earlier, models such as TPB and BRT, follow linear and individualistic assumptions based on pathways from attitudes to behavior, often understating a wide range of factors including socio-cultural norms and identity-based motivations which can disrupt these pathways. Likewise, traditional innovation adoption models assume that awareness and knowledge suffice for acceptance. In this study, we sought to challenge existing linear Attitude-Behavior- Choice (ABC) models by employing and extending IRT to incorporate enabling factors like environmental concern and sustainable fashion knowledge alongside functional and psychological barriers. The model's ability to explain 69% of the variance in innovation barriers, along with environmental concern and sustainable knowledge, highlights the theoretical relevance of IRT in understanding consumer resistance to SFC products. As climate change intensifies and attracts increasing attention, research in sustainable consumption has increasingly focused on innovative and sustainable solutions in the clothing sector (Ronda, 2024; Sehnem et al., 2024), making it critical to extend IRT beyond its conventional contexts. The extension of IRT proposed and demonstrated in this study reveals the interplay between functional and psychological barriers and consumers' intentions to buy SFC, thus challenging adoption-centric models that overlook the role of resistance in shaping consumer decisions. Notably, this shift from an adoption-centric view to an innovation resistance perspective fills a gap in SFC studies and not only answers calls by Huang et al. (2021) to

account for contextual and demographic influences in IRT research but also responds to Shove's (2010) critique of simplistic, linear ABC models.

Second, the study extends the ongoing discussion by responding to recent calls to examine the barriers underlying the attitude–behavior gap in sustainable consumption among Gen Z consumers (Yadav et al., 2024). It advances understanding of the factors that differentiate sustainability-oriented intentions from actual purchasing behaviors, thereby shedding light on mechanisms through which the gap between positive attitudes toward SFC and realized consumption practices may be addressed. By grounding this investigation in generational cohort theory (Mannheim, 1952), the study provides a strong theoretical rationale for conceptualizing Gen Z as a distinct cohort whose formative experiences—including digital nativity (Priporas et al., 2017) and heightened climate anxiety (Hickman et al., 2021)—shape context-specific resistance and adoption mechanisms that differ from those observed in older generations.

Building on this generational perspective, the study further contributes methodologically by adopting a cross-national research design that draws on data from three culturally and economically distinct contexts: the United States, India, and Malaysia. Rather than treating Gen Z as a homogeneous global cohort, this approach captures how SFC consumption behaviors and resistance mechanisms manifest across diverse socio-economic and cultural environments. Examining sustainable consumption through a cross-cultural lens is particularly important, as it reveals how culturally embedded norms, values, and structural conditions shape Gen Z consumers' responses to sustainability initiatives. By uncovering context-specific barriers to sustainable consumption, the findings provide insights that would likely remain obscured in single-country studies.

6.2 Managerial Implications

The findings of this study provide practical guidance for sustainable product marketers, brand managers, and policymakers aiming to promote SFC adoption among Gen Z consumers. First, the positive influence of environmental concern and sustainable fashion knowledge shows that brands should weave sustainability into their core messaging and educational efforts. Storytelling can highlight environmental impact reduction, carbon footprint transparency, and ethical sourcing, delivered through visually engaging content on platforms popular with Gen Z such as Instagram, TikTok, and YouTube Shorts. Campaigns should avoid generic green claims and instead provide specific, evidence-based messages that build credibility and trust. The fsQCA findings also suggest that managers cannot rely on a single approach. For example, when environmental concern is high, but knowledge is limited, targeted educational campaigns are most effective. By contrast, when both knowledge and concern are high, addressing image barriers becomes more critical, which emphasizes the importance of credible eco-labels and transparent ESG communication (Delmas and Burbano, 2011; Testa et al., 2015). To address greenwashing perceptions specifically, brands should adopt third-party certifications (e.g., GOTS, Fair Trade, B Corp) and provide supply chain traceability through QR codes or digital product passports that allow consumers to verify sustainability claims. Patagonia's "Footprint Chronicles" and Reformation's "RefScale" serve as successful examples of transparency-driven communication that resonates with skeptical Gen Z consumers.

The fsQCA findings further reveal that not all motivated consumers face the same barriers. Configuration 4 represents “price-conscious but motivated” consumers who require value-focused strategies such as price incentives, tiered pricing, or quality-durability messaging. Configuration 5 represents “convenience-challenged but motivated” consumers who need accessibility improvements including expanded distribution channels, user-friendly online platforms, and simplified purchasing

processes. Recognizing this distinction enables marketers to tailor interventions to specific consumer profiles rather than adopting a one-size-fits-all approach.

Second, the significant role of image and value barriers calls for repositioning SFC as stylish, high-quality, and competitively priced. Although these barriers did not show direct linear significance in SEM, the fsQCA results indicate that they still matter in certain consumer configurations. Brands can challenge the “dull and expensive” perception by adopting inclusive pricing strategies, such as tiered pricing, student discounts, and limited-edition capsule collections, and by showcasing trend-driven designs in collaboration with well-known designers or fashion-forward influencers. Influencer partnerships should focus on micro- and nano-influencers with sustainability credibility, as Gen Z tends to value authenticity overreach. These partnerships can increase peer acceptance and reduce perceived social risk, especially when influencers model sustainable behaviors and provide practical styling tips (Casaló et al., 2020). In terms of content formats, "get ready with me" (GRWM) videos, thrift hauls, capsule wardrobe challenges, and before-after upcycling tutorials tend to generate higher engagement among Gen Z audiences (Backslash, 2025). Notably, recent industry research indicates that 65% of Gen Z consumers now rely less on traditional fashion influencers, preferring instead quirky, offbeat personalities and less-polished aesthetics (Backslash, 2025). Brands with limited budgets should therefore prioritize micro-influencers (10K–100K followers) who typically offer higher engagement rates and stronger authenticity perceptions compared to celebrity endorsements.

Third, given the importance of social media in Gen Z’s purchasing decisions, platform targeting must be intentional. Brands should prioritise platforms where Gen Z is highly active (e.g., TikTok, Instagram Reels) and use native formats (e.g., short-form videos, challenges, behind-the-scenes content) to promote transparency, user-generated content, and interactive sustainability education. Live shopping events and eco-themed content series can also drive engagement while normalising

SFC choices. To measure campaign effectiveness, brands should track metrics beyond sales conversion, including engagement rates, sentiment analysis, brand perception shifts, and sustainability-related search queries. A/B testing of different message frames (e.g., environmental impact vs. personal health benefits) can help identify which appeals resonate most strongly with target segments.

Finally, policy implications must complement market strategies. The findings indicate the need for multi-stakeholder collaboration to address systemic barriers. Given the substantial differences in economic development and institutional capacity across the three countries studied, policy recommendations should be context sensitive. In high-income economies like the United States, policymakers may focus on strengthening regulatory frameworks such as standardized eco-labeling requirements, digital product passports, and ESG disclosure mandates. In emerging markets like India, where price sensitivity is higher, policies could prioritize awareness campaigns, sustainability education in schools, and incentives for small-scale producers. In middle-income contexts like Malaysia, urban pilot programs, support for local sustainable brands, and youth-targeted digital campaigns may prove most effective. Moreover, partnerships between government agencies, NGOs, and brands could establish platforms for public education and consumer outreach, enhancing sustainable consumption literacy across demographic groups.

In conclusion, by integrating PLS-SEM and fsQCA, this study provides a multidimensional understanding of SFC adoption. From a theoretical perspective, the findings extend IRT by demonstrating how drivers and barriers interact in complex configurations rather than in isolation. The combination of linear and configurational methods enhances theoretical depth and methodological robustness in studying sustainability-related consumer behavior. From a managerial perspective, the results suggest that marketers and policymakers should recognize the diverse

pathways leading to sustainable consumption. Emphasizing environmental education, transparency in sustainability practices, and authentic brand positioning can help overcome psychological barriers such as scepticism and image concerns, thereby promoting more inclusive and effective sustainability strategies.

6.3 Limitations and Future Research

Firstly, the data for this study were collected from three countries, the United States, India, and Malaysia. Future studies should consider including other regions such as China, Japan, and Brazil to enhance the generalizability of the findings. Expanding the geographical scope would allow researchers to capture a broader spectrum of consumer behaviors and resistance patterns in SFC. Secondly, this study employed the IRT to identify the main barriers, focusing primarily on functional and psychological obstacles. While this approach yielded valuable insights, future research could build on this framework by incorporating additional barriers, such as socio-cultural influences, economic constraints, and technological limitations, to provide a more comprehensive understanding of the impediments to SFC adoption.

Beyond environmental concern and consumer knowledge, further research could explore other drivers shaping consumer perceptions and behaviors. For instance, ethical considerations, social influence, and brand reputation may offer more profound insights into what motivates consumers to choose SFC products. In this context, social influence emerges as a promising avenue, primarily through digital influencers communicating perceived expertise via vlogs highlighting sustainable fashion's benefits (Filieri et al., 2023). Examining their impact on Gen Z could reveal how social media dynamics influence sustainable consumption choices, thereby offering a valuable extension of the IRT to include socially mediated factors.

Thirdly, future research could employ alternative methodologies to gain more insights into consumers' perspectives on SFC. Semi-structured or in-depth interviews, for example, could reveal more detailed

and personal consumer attitudes and behaviors that are not easily captured through surveys. Qualitative methods can uncover underlying motivations, beliefs, and barriers that quantitative approaches might miss. Employing longitudinal data could provide a more comprehensive understanding of innovation barriers. Longitudinal studies would allow researchers to track changes in consumer attitudes and behaviors over time, offering insights into how perceptions of sustainable fashion evolve and what factors contribute to long-term adoption or resistance.

Finally, as the primary objective of this study is to examine Gen Z consumers as a unified group, potential differences between the samples from the three countries were not investigated, and measurement invariance was not formally tested prior to pooling the data. This represents an important limitation, as the three countries differ substantially in ways that may influence SFC consumption. Culturally, the United States reflects individualistic values, whereas India and Malaysia lean toward collectivist orientations where social norms and peer approval may exert stronger influence on purchasing decisions (Hofstede, 2001). Economically, the United States offers greater purchasing power and more established sustainable fashion infrastructure, while India and Malaysia, as emerging markets, may present greater price sensitivity and limited accessibility to sustainable options. These cultural and economic differences could affect how specific barriers, particularly social risk, value, and usage barriers, operate across contexts. Future research should conduct multi-group analysis to test for measurement invariance and explore how these contextual factors differentially shape the drivers and barriers identified in this study.

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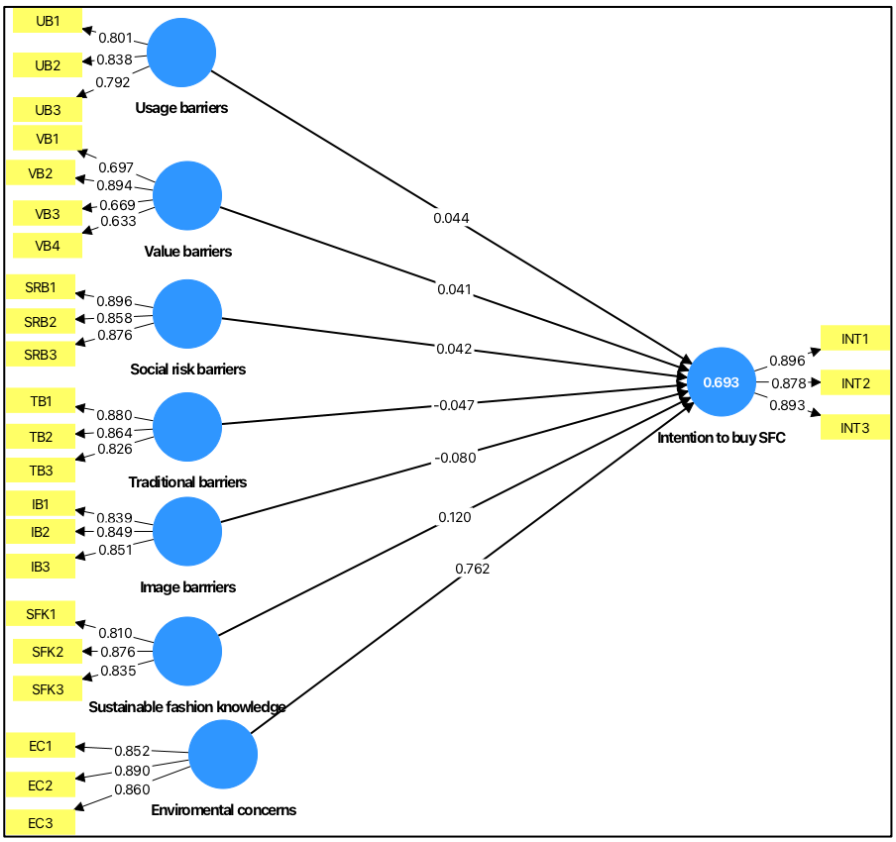
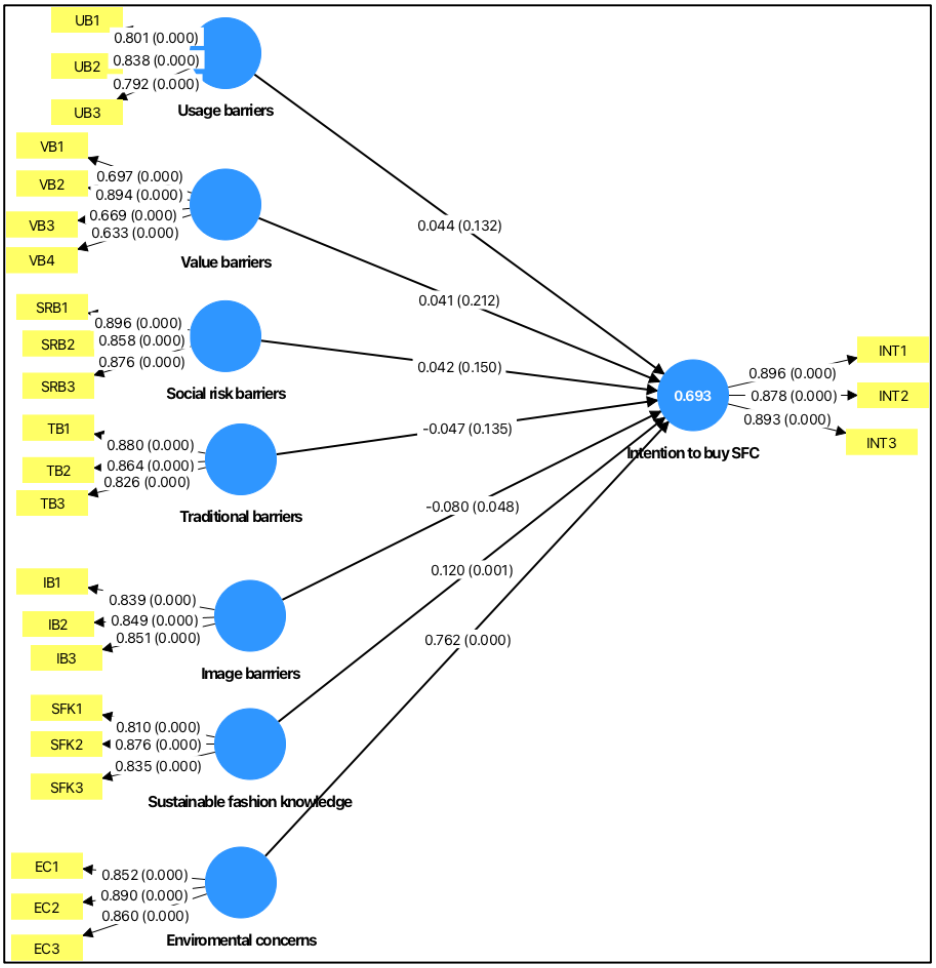
Appendix 1. Survey items

Usage Barriers (adapted from Sadiq et al., 2021**)**
[UB1] There is little availability in choice for sustainable fashion clothing consumption.
[UB2] The reason I'm not purchasing sustainable fashion clothing because it's unavailable in the store.
[UB3] The variety or range of sustainable fashion clothing is poor.
Value Barriers (adapted from Kushwah et al., 2019; Lian & Yen, 2013; Torres-Ruiz et al., 2018)
[VB1] Buying sustainable fashion clothing does not offer any advantage to me.
[VB2] Buying sustainable fashion apparel is economical **(R)**
[VB3] The price difference between sustainable and non-sustainable clothing is high.
[VB4] I fear that I am paying more money for sustainable fashion clothing.
Social Risk Barriers (adapted from Joachim et al., 2018**)**
[SRB1] It is likely that many of my friends might advise me not to buy sustainable fashion clothing.
[SRB2] There is a chance that my friends might respond negatively if I purchase sustainable fashion clothing.
[SRB3] Having bought sustainable fashion clothing, my social network might react negatively towards it.
Tradition Barriers (adapted from Hew et al., 2017; Gam, 2011**)**
[TB1] Fast fashion apparel is enough for me.
[TB2] I prefer buying "on trend" styling clothing.
[TB3] I am used to buying fast fashion clothing and I find it difficult to switch to buying sustainable fashion clothing.
Image Barriers (adapted from Sadiq et al., 2021; Kushwah et al., 2019**)**
[IB1] I have doubts towards the sustainable fashion clothing labelling.
[IB2] I believe that sustainable fashion clothing currently sold in the market are not really sustainable.
[IB3] My image of sustainable fashion clothing is that they are basic and not fashionable.
Environmental Concern (adapted from Gam, 2011)
[EC1] I am concerned about the impact of fast fashion production on the environment.
[EC2] More retailers need to sell environmentally friendly clothing.
[EC3] The dye and chemicals used in apparel production can be harmful to the environment
Intention to Buy Sustainable Fashion (adapted from Kaur et al., 2020; Sadiq et al., 2021**)**
[INT1] I intend to buy sustainable fashion clothing in the future.
[INT2] I plan to buy sustainable fashion clothing frequently.
[INT3] I intend to buy sustainable fashion clothing because they are more environmentally friendly.
Sustainable fashion knowledge (adapted from Kong et al., 2016)
[SFK1] I believe that I am informed about environmental issues in the fashion apparel manufacturing business
[SFK2] I am knowledgeable about what sustainable fashion is
[SFK3] I am knowledgeable about retailers that sell sustainable fashion clothing

Appendix 2. Measurement model results



Appendix 3. Structural model results



Note: Standardized path coefficients are reported, with p-values shown in parentheses. The R^2 value for intention to buy sustainable fashion clothing (SFC) is 0.693, indicating that the model explains 69.3% of the variance in purchase intention.