



What motivates the purchasing of green apparel products? A systematic review and future research agenda

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Abstract

The contemporary business landscape is witnessing an ever-increasing concern for environmental sustainability, which has also surfaced in the apparel industry through the introduction of green apparel. Whether the adoption of green apparel is as a result of growing external pressures on firms to adopt green practices or due to deliberate strategies to incorporate sustainable orientation in the making of products, it remains a topical subject—making a comprehensive account of the existing academic literature indispensable. Furthermore, while academic research on green apparel is undoubtedly at an all-time high, the literature is largely disjointed, necessitating a robust synthesis of the exiting literature to illuminate the existing shortcomings and to provide direction to the future research efforts. A systematic literature review (SLR) was conducted to gauge the existing literary work in this field and to identify research gaps. After the critical review of 90 selected studies, four major themes were extracted: consumer apparel purchase, circular economy, consumer awareness, and barriers. After we identified theme-based critical knowledge gaps in the existing literature, we posed corresponding research questions that provide avenues for future research. The study also constructed a framework with significant practical and theoretical implications. Researchers can obtain a comprehensive understanding of the broader contours of this academic field and, with our meticulously tabulated gaps and potential research questions, explore new dimensions and broaden the horizons of this field.

KEYWORDS

circular economy, green apparel, green products, sustainability, systematic literature review

1 | INTRODUCTION

With the advent of fast fashion practices, the apparel industry has witnessed tremendous growth over the past few years, with an estimated 6.2% growth rate in 2020 (Smith, 2022). This growth is, however,

plagued by significant levels of apparel waste, the latter amounting to an estimated 18.2 million tons that end up in landfills every year (Fibre2Fashion, 2020). Furthermore, the fashion industry consumes ~93 billion cubic meters of water annually, making it the second largest polluting industry in the world (UNCTAD, 2019). Due to a rise in carbon emission levels as well as the disposal of hazardous chemicals and fashion waste into water bodies (Diddi & Yan, 2019), the overconsumption

Abbreviations: C2C, cradle-to-cradle; SLR, systematic literature review; TPB, theory of planned behavior; WoS, Web of Science.

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of apparel has also had a detrimental effect on the environment and our planet's natural resources. However, with increased media coverage (L. S. McNeill et al., 2020), consumers are becoming more aware of these fast fashion-based negative effects on our environment and, therefore, increasingly demand green apparel (Dhir et al., 2021).

Green apparel involves garments that have considerably less negative impacts on the environment, are manufactured with eco-friendly technologies, can utilize partly or fully recycled materials, and require minimal packaging (Chen & Chang, 2013). An increasing number of consumers have expressed their intentions to adopt green apparel in future purchases (Moore, 2019), and apparel-related firms are under immense pressure to “go green” (Gedam et al., 2021; Lopes de Sousa Jabbour et al., 2020). In 2014, Copenhagen hosted a massive summit to underscore the importance of finding and implementing solutions for sustainable apparel manufacturing practices. Moreover, big brands like Giorgio Armani and H&M have already started offering green apparels (Winge, 2008). Thus, in addition to increased pressure from customers, firms are experiencing increased legitimacy and regulatory pressures to adopt green practices.

While researchers have explored and significantly contributed to the literature on green apparel-related aspects over the past decade, they often used different terms for green apparel in their studies—making it difficult to fully understand this complex topic. Moreover, green apparel-based literature has been published in a wide range of journals, suggesting a mutually exclusive readership. While screening the existing literature, we came across three recent systematic literature review (SLR) studies. Of these, Fung et al. (2021) examined green apparel literature from a “supply chain” perspective (reviewing 40 studies) while Busalim et al. (2022) took a “consumer behavior” perspective. Unfortunately, the latter did not fully explore all available literature and the former's approach was too narrow to grasp all the important aspects of green apparel. While the third SLR study was quite detailed, the authors did not provide a comprehensive list of the studies included in their review (Mukendi et al., 2020). Moreover, they did not limit their review to green apparel but rather considered sustainable fashion as a whole (i.e., including items beyond apparel). Therefore, a gap exists to assess the literature on green apparel—exploring the current state of green apparel and proposing future directions for researchers. As such, the present study has four research objectives: exploring the research profile of green apparel literature (RO1), highlighting the thematic foci of prior studies (RO2), identifying gaps in the green apparel literature, and proposing future research questions (RO3), and providing a concrete framework for managers and policymakers to understand different aspects of green apparels (RO4). Following earlier SLR studies (Dhir et al., 2020; Khan et al., 2021; Talwar et al., 2020), RO1 was achieved by graphically presenting the citation scores, data collection techniques, geographical scope, methods selected, respondent profiles, yearly and journal-based distribution of articles, and theories utilized. RO2 was achieved by extracting four themes (viz., behavioral tendencies, circular economy, consumer awareness, and barriers). RO3 was achieved by presenting various gaps in green apparel literature along with potential research questions in a tabular form. RO4 was achieved by presenting a framework that explains the various aspects of green apparel.

This study contributes to our understanding of different issues and challenges that firms encounter while switching toward green apparel production. As researchers previously used different definitions and terms for “green apparel” and published in journals with different scopes, a comprehensive understanding was lacking—something that the current SLR study tried to address. The current study, therefore, appeals not only to academicians but also to managers and policymakers. From its content, researchers can familiarize themselves with the current state of green apparel literature and try to address potential research questions. Managers can get a bird's-eye view of the green apparel business model and potential issues that their firm might encounter while going green. Finally, policymakers can use this study as a basis to enact policy decisions that might help encourage firms to adopt green practices.

2 | SCOPE OF THE STUDY

Niinimäki (2010) defined green apparel as “clothing that is designed for long lifetime use; it is produced in an ethical production system, perhaps even locally; it causes little or no environmental impact and it makes use of eco-labeled or recycled materials.” The fundamental belief of this definition pertains to the genesis of a manufacturing process that significantly reduces harmful impacts of the conventional manufacturing paradigm. The concept of “fast fashion” has overridden the logic of traditional manufacturing organizations and is now the single largest fashion-industry contributor of social and environmental issues (Moon et al., 2015; Park et al., 2017). Yet, the heightened emergence of ethical consumerism is starting to force organizations to adopt environmentally friendly protocols as an alternative to the fast fashion paradigm (Sung & Woo, 2019). Green apparel falls under the aegis of this manufacturing logic, which is dominated by “slow fashion.” The latter can be characterized by its awareness of environmental impacts due to its manufacturing processes, as well as implementing conscious planning and executing procedures that are socially and environmentally rewarding (Busalim et al., 2022). Noteworthy, green apparel is often mistakenly considered as being interchangeable with sustainable fashion. However, sustainable fashion is a much broader notion that includes stakeholders and processes beyond the concept of green apparel. Being specific to the clothing industry, green apparel represents a subcategory of sustainable fashion.

Sustainable fashion encompasses the broader dimensions of sustainability (e.g., major stakeholders, business processes, and conscious monitoring of environmental impacts) (Hethorn & Ulasewicz, 2015). It also aims to address the “people, profit and planet” framework (i.e., garment workers, professionals, and consumers; production processes; and the impact of the apparel industry on the broader environment) (Khare & Sadachar, 2017). Being a subcategory of sustainable fashion, green apparel specifically focuses on the last dimension—aiming to capture the environmental repercussions of the clothing industry. To curate a comprehensive list of studies that exclusively focus on green apparel, we included

various commonly interchangeable terms (i.e., eco-fashion, green apparel, green fashion, organic apparel, organic clothing, organic cotton, sustainable apparel, sustainable clothing, sustainable fashion, and sustainable textile). Importantly, only papers with an explicit focus on the apparel industry (whether via eco-fashion, green fashion, or sustainable fashion) were selected, ensuring the development of an exhaustive list of papers that addressed this niche within sustainable fashion.

3 | RESEARCH METHOD

As it supports the inclusion of a maximum number of studies in a systematic manner, we utilized the SLR methodology in the current study. Furthermore, when authors report and demarcate their search strings as well as inclusion, exclusion, and assessment criteria, this method supports the replication of similar results in future studies. In line with previous studies (Dhir et al., 2020; Khan et al., 2021; Talwar et al., 2020), we followed a four-step process: (I) planning the search criteria; (II) setting the inclusion/exclusion criteria; (III) extracting relevant data; and (IV) presenting the research profile.

3.1 | Planning the review

To ensure a robust selection process, two researchers as well as two senior professors with significant experience in green research were engaged to review our search terms and filtration criteria. Initially, we utilized the Google Scholar platform to search for “green apparels” and examined the first 100 search results. Thereafter, we searched for journals that specifically focus on fashion, environment, and sustainability issues for “green apparel.” Throughout this screening process, we noticed that different terms (i.e., eco-fashion, green apparel, green fashion, organic apparel, organic clothing, organic cotton, sustainable apparel, sustainable clothing, sustainable fashion, and sustainable textile) had been used to measure and discuss green apparel. Using these terms (finalized by our panel), we subsequently searched two academic databases, namely, Web of Science (WoS) and Scopus. Due to their comprehensive coverage of journals in the management discipline, these two databases are the most widely used platforms in this field (Seth et al., 2020).

3.2 | Screening criteria

To systematically select or reject articles returned from our search string, a set of criteria was specified. For inclusion, the articles needed to be (I) peer-reviewed; (II) published in the English language; and (III) primarily focused on green apparel. Exclusion criteria included (I) studies being unrelated to green apparel; (II) articles appearing twice; or (III) non-journal articles (e.g., books, book chapters, conference articles, conceptual studies, and editorials).

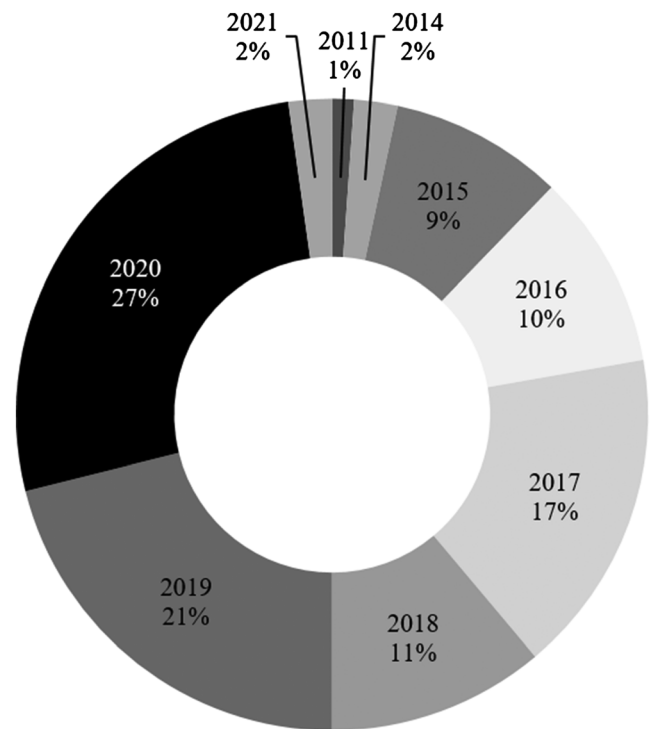


FIGURE 1 The number of green apparel articles published annually

3.3 | Data extraction

We used “*,” “OR,” and “AND” connectors to convert our search terms into a search string and specified “eco-fashion*,” “green apparel*,” “green fashion*,” “organic apparel*,” “organic cloth*,” “organic cotton*,” “sustainable apparel*,” “sustainable cloth*,” “sustainable fashion*,” and “sustainable textile*” on March 18, 2022. Our search extracted 668 articles (174 articles from WoS and 494 from Scopus). Based on the exclusion criteria, 127 duplicate articles and 19 review study articles were subsequently removed from the list. At this stage, two scholars separately reviewed the remaining 522 titles and abstracts. Based on their recommendations, a further 281 articles were excluded from the list. After reading all the remaining articles ($n = 241$), 60 were selected for inclusion in the current study. Lastly, another 30 unique articles were added to the list after the review panel ran a backward and forward search to look for any articles not initially included in our search results.

3.4 | Research profiling

We graphically depicted different statistics (i.e., yearly and journal-wise distribution of articles, geographical scope, theories utilized, methods selected, data collection techniques, respondent profile, and citations per journal) based on the selected green apparel literature. It was revealed that the green apparel research field received increased attention from researchers in recent years (Figure 1) and that studies



Note: Other journals that published one study each include Journal of Strategy and Management, Benchmarking, Social Responsibility Journal, International Review of Retail Distribution and Consumer Research, Journal of Risk and Financial Management, Critical Studies in Fashion & Beauty, Management Decision, Journal of Consumer Policy, Fashion Theory, Asia Pacific Journal of Marketing and Logistics, International Journal of Sustainability in Higher Education, and Journal of International Consumer Marketing.

FIGURE 2 Journal-wise division of green apparel articles

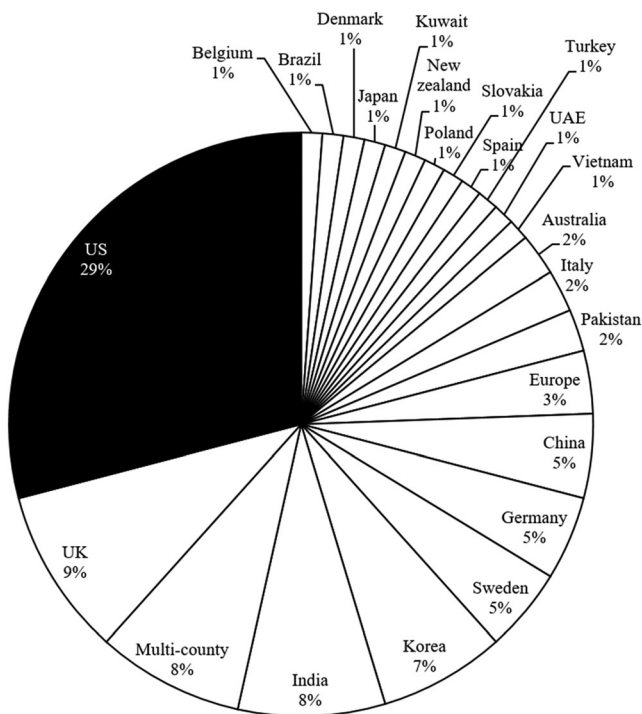


FIGURE 3 Geographical coverage of green apparel studies

on green apparel have been published in a range of journals (although mostly in environment-orientated and consumer-specific journals) (Figure 2). Researchers mainly focused on the United States and the United Kingdom for studies in developed countries (ignoring Australia, New Zealand, and Singapore), while India and Korea received the most focus for studies in developing countries (ignoring Bangladesh, Ethiopia, etc.) (Figure 3). Similarly, green apparel literature rarely explored theories of learning, institutional perspective, or networking

and mainly focused on exploring behavioral theories (Figure 4). While a diverse set of methodologies have been used (Figure 5), there is scope for more mixed-method studies that incorporate cross-lagged and other contemporary techniques. Online and offline surveys were the dominant choice among a wide range of data collection techniques (Figure 6), and most studies utilized consumer and student samples while paying less attention to managers and policymakers (Figure 7). The most cited journals of green apparel studies had been the *International Journal of Consumer Studies*, *Journal of Fashion Marketing Management*, and *Journal of Consumer Behaviour* (Figure 8).

4 | THEMATIC FOCI

The green apparel studies reviewed in this study ($n = 90$) were critically examined for aggregate themes. To overcome the personal bias of coders, we used a three-step approach based on the procedures of recently published SLR studies (Dhir et al., 2020; Khan et al., 2021; Kraus et al., 2020). Specifically, the selected articles were subjected to open coding (Step 1) and axial coding (Step 2) by two researchers after which two professors with experience in sustainability research reviewed the codes (Step 3). After Step 1, the two researchers were allowed to discuss and resolve any differences in their open coding (i.e., matching their open codes) before starting with the axial coding. After Step 2, the coded sheets were reviewed and the suggestions and feedback of the two professors were incorporated—resulting in four major themes: consumer apparel purchase, circular economy, consumer awareness, and barriers (Table 1).

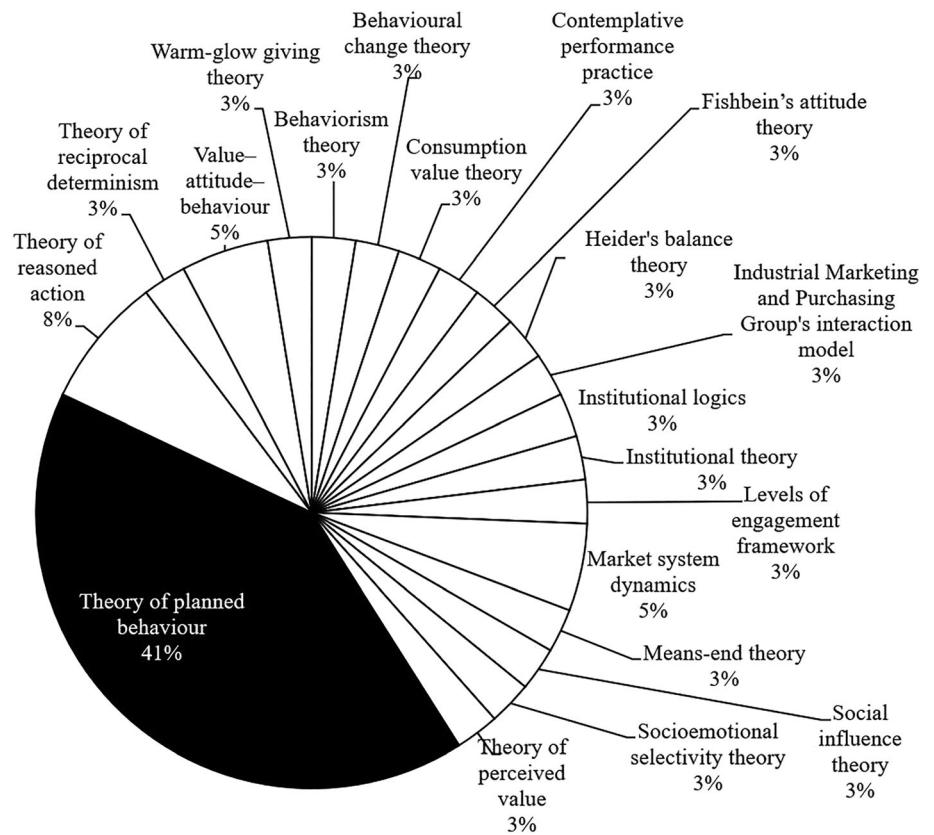
4.1 | Consumer apparel purchase

The selected literature on green apparel focused on different factors that may influence the behavioral tendencies of consumers. In the current study, we grouped these factors into three groups, namely, pre-purchase, purchase, and post-purchase factors.

4.1.1 | Pre-purchase

A significant number of studies have explored the role of different human values in shaping the purchase intentions of consumers. Values not only set goals for societal members but also provide direction to mend clothing consumption behavior (Varshneya et al., 2017; Wei & Jung, 2017). Utilizing Schwartz's theory of basic human values, Jacobs et al. (2018) studied the roles of self-enhancement (i.e., an individual's interests) and self-transcendence (i.e., a collective societal interest) on consumer attitudes. They found that self-enhancement values negatively affected consumer attitudes toward sustainable clothing, whereas self-transcendence values positively affected consumer attitudes and supported actual purchasing of green clothing. Similarly, in their study on US and Chinese consumers, Su et al. (2019) found that certain values (e.g., conservation, self-enhancement, self-

FIGURE 4 Theories applied in green apparel studies



transcendence, and openness to change) significantly affected consumer attitudes toward purchasing sustainable clothing. For example, US customers were more inclined toward individualism while ranking lower in power distance and long-term orientation. Contrastingly, Chinese consumers were less inclined toward individualism while ranking higher in power distance and long-term orientation (Su et al., 2019). Razzaq et al. (2018) took a slightly different angle and explored the roles of utilitarian (i.e., based on functionality, price, and other performance-specific characteristics) and hedonic (i.e., based on pleasure and enjoyment) values in sustainable fashion consumption. They argued that interpersonal religiosity positively moderated the effect of hedonistic values on consumption of sustainable fashion while intrapersonal religiosity enhanced the positive association between utilitarian values on consumption of sustainable fashion. Nguyen et al. (2019) explored the role of material values on consumer attitudes toward purchasing green apparel. They posit that success value may lead the young consumers to express themselves and lead them to purchase green apparels while on the other hand people with high centrality dimensions of materialistic values are less likely to purchase green apparels.

A variety of other factors may also affect consumer attitudes toward green apparel. For instance, although it is widely accepted that a consumer with a positive attitude toward a particular aspect of a product would be more likely to purchase that product (Chang & Watchravesringkan, 2018; J. Han et al., 2017; S. Song & Ko, 2017),

different factors (e.g., knowledge about apparel and sustainable fashion) may influence the green apparel attitudes of consumers (Alboushy & Hiller Connell, 2019; Blazquez et al., 2020; Bong Ko & Jin, 2017; Oh & Abraham, 2016). Kong et al. (2016) found that “effectiveness knowledge” and “social knowledge” positively affected consumer attitudes toward sustainable fashion products. Effectiveness knowledge is rooted in the cost-benefit analysis of a purchase while social knowledge is related to social norms and shared expectations (Kong et al., 2016). Consumers with more knowledge of a brand's sustainability may show a stronger bond between perceived brand value and trust and, in turn, be more inclined to purchase the brand's products (Park & Kim, 2016a, 2016b). Other studies revealed that the social influence of peers positively affected consumer attitudes toward green apparel (Zhao et al., 2019) while an individual's fashion innovativeness influenced their attitude toward purchasing green apparel (Matthews & Rothenberg, 2017). Those with a “high” fashion sense exhibited lower positive attitudes toward green apparel than those with a “low” fashion sense, thus also exhibiting lower green apparel purchase behavior. Kumagai and Nagasawa (2020) also found that brand luxury and brand experience may diminish consumer attitudes toward green apparel.

Many researchers utilized the theory of planned behavior (TPB) to explore the role of various factors (e.g., beliefs, norms, perceived behavioral control, and willingness to pay) on green apparel consumption intentions (Blazquez et al., 2020; Bong Ko & Jin, 2017; Cowan &

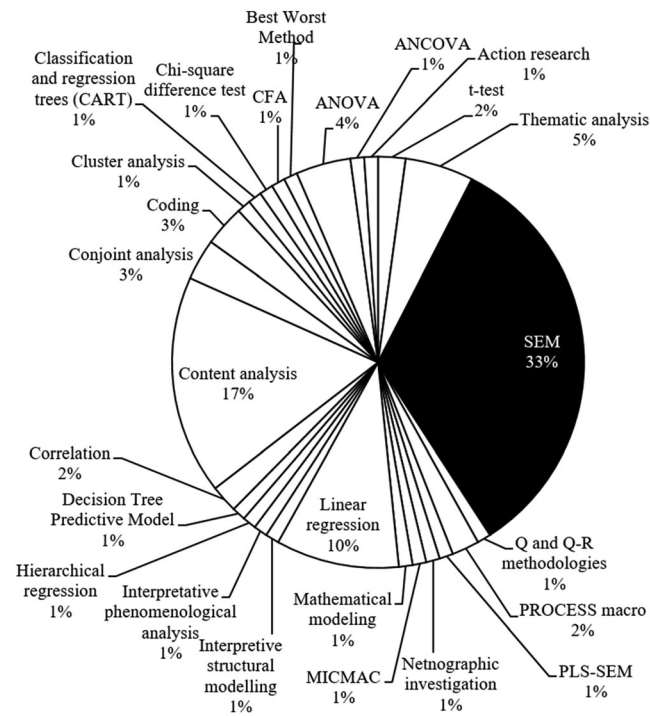


FIGURE 5 Analytical methods utilized by researchers of green apparel studies

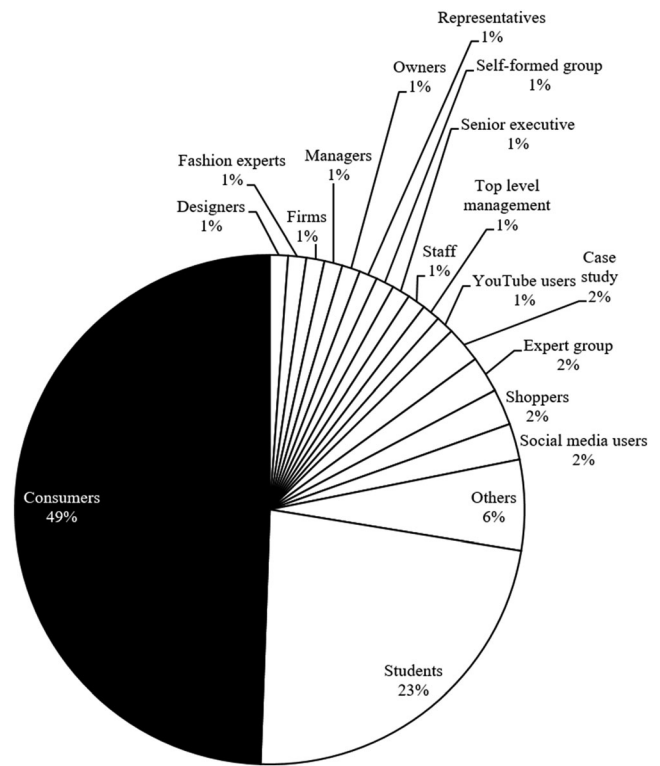


FIGURE 7 Profile of respondents utilized by researchers of green apparel studies

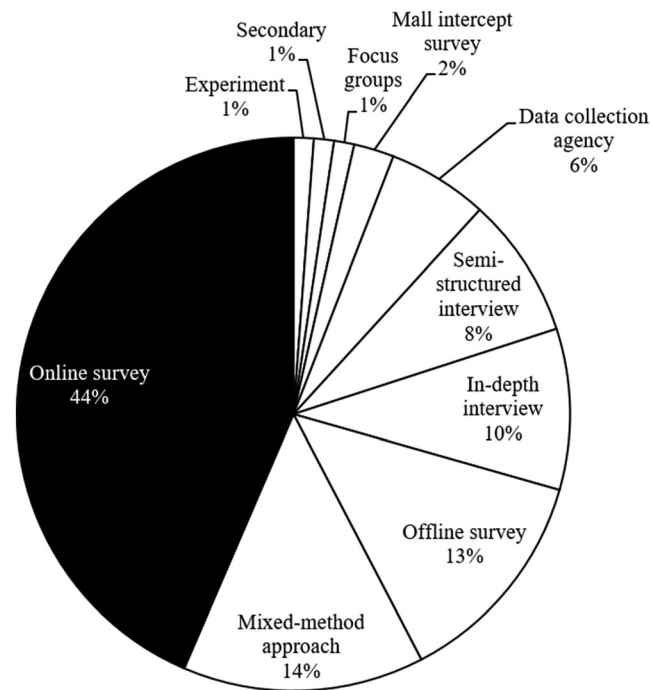
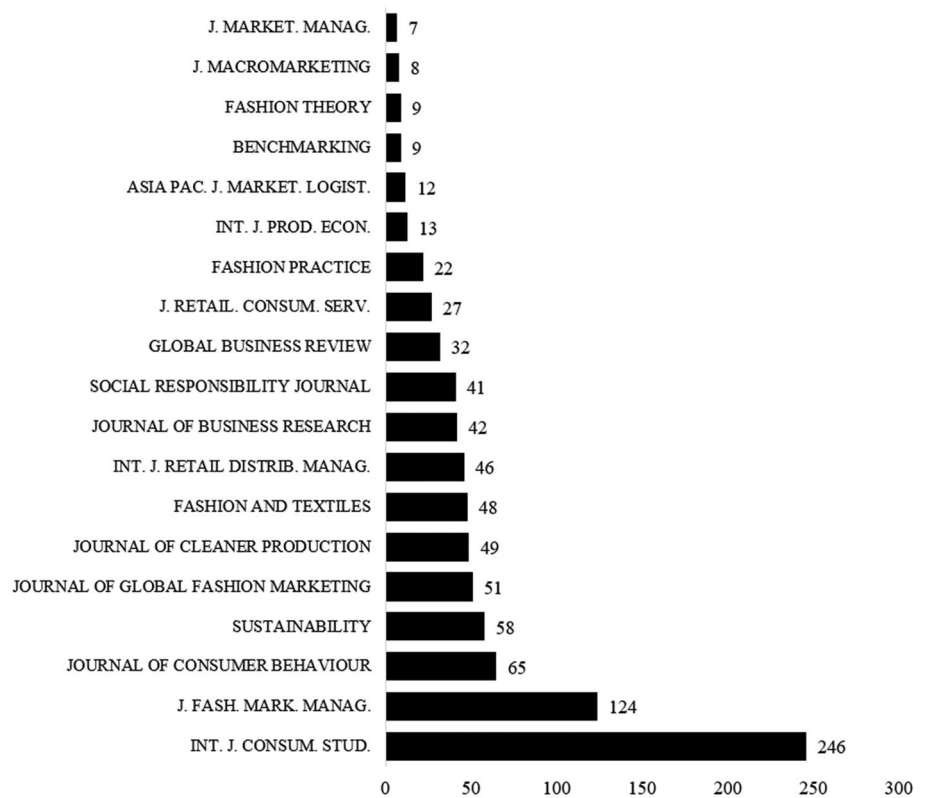


FIGURE 6 Data collection techniques utilized by researchers of green apparel studies

et al., 2020). Apart from TPB constructs, Joshi and Srivastava (2019) also studied the role of brand experience and confirmed that consumers' experiences with a particular green brand positively influenced their intentions to purchase green apparel. H. J. Jung and Oh (2019) argued that self-enhancement (i.e., the satisfaction achieved from consuming sustainable products) also influences the intention to consume green apparel and that individuals with high self-enhancement have altruistic characteristics that, by prioritizing green product purchases, tend to benefit environmentally friendly firms. In addition, social capital can have a positive influence on consumers' intentions to purchase green clothing (J. Kim et al., 2020). While some researchers have explored the overall role of social norms on purchase intentions toward eco-friendly apparel (Cowan & Kinley, 2014; H. J. Jung et al., 2020), others have divided social norms into injunctive norms and descriptive norms (as they have different purchase intention relationships) (T. I. Han, 2018; T. I. Han & Stoel, 2016). Injunctive norms are rooted in the approval of others while descriptive norms are based on an individual's perception of how others behave (Cialdini et al., 1990). T. I. Han (2018) found that descriptive norms showed a significant association with organic cotton purchase intentions for US and South Korean consumers, while injunctive norms only showed a significant association in the South Korean context. This may be due to cultural differences between the two nations, seeing that the United States predominantly has an individualistic-oriented culture whereas South Koreans adhere to collectivistic cultural practices.

Kinley, 2014; T. I. Han, 2018; T. I. Han & Stoel, 2016; Joshi & Srivastava, 2019; Kumar et al., 2021), while a few utilized other models (e.g., the attention-behavioral intention gap model) (H. J. Jung

FIGURE 8 Citations of journals publishing green apparel studies



Note: Journal with citations in the range of '0-3' include Journal of strategy and management, Young consumers, International journal of sustainability in higher education, Journal of consumer policy, Management decision, Critical studies in fashion & beauty, Journal of international consumer marketing, International review of retail distribution and consumer research, and Journal of risk and financial management

4.1.2 | Purchase

Literature explored several factors that positively influence the green apparel purchase practices of consumers, especially consumers' moral intensity (Hong & Kang, 2019), past recycling behaviors (Ha & Kwon, 2016), past green behaviors (Khare & Sadachar, 2017; Khare & Varshneya, 2017), subjective knowledge, and positive prior experience with organic materials (T. I. Han, 2019). While there is evidence that consumers are increasingly turning toward purchasing green apparel (Connell, 2011), some factors still inhibit this transition (Kusá & Urmínová, 2020). One study found that consumption involvement with a particular product does not significantly influence green apparel purchase behavior (Khare et al., 2020). To gain wider acceptance from consumers, Cho et al. (2015) proposed that advanced style consumption must be the way forward for the green apparel industry. They contend that, if firms promoted frugality and fashion consciousness as a consumption style, sustainable clothing would be not only for consumers with a higher income but also for those with a lower income. In a rare attempt, Lundblad and Davies (2016) studied consumers who actually purchase green apparel. They posited that such consumers are motivated by availability, durability, natural material usage, no sweatshops, quality, premium prices, recyclability, timeless cuts, usage, and unique style of pro-environmental production techniques. Apart from their study, most other researchers relied on

subjective measures of behavior (rather than studying green apparel purchase behavior from an objective lens).

4.1.3 | Post-purchase

Slow fashion involving dimensions like authenticity, equity, exclusivity, functionality, and localism (S. Jung & Jin, 2014) takes into account both the production and consumption of apparel (Fletcher, 2014; Iran & Schrader, 2017). Apparel made from eco-friendly materials can become unsustainable if they are discarded quickly (Lang et al., 2016; LeBlanc, 2012). Therefore, the prolonging of a product's lifecycle has become increasingly important in helping reduce resource wastage and energy consumption (Cline, 2012). To attain slow fashion or slow apparel consumption practices, Gupta et al. (2019) suggested promoting style consumption as a viable solution while Sobreira et al. (2020) suggested the empowerment of individuals to think beyond the fast fashion model. Alternatively, Mukendi and Henninger (2020) suggested that fashion rentals could curb the higher consumption of clothing (although it is quite difficult for firms to operate in this space, thus explaining the slow growth of this model). However, environmental values and prosocial behavior may positively influence consumers to donate clothing (Lai & Chang, 2020).

TABLE 1 Thematic classification of articles

Major theme	Minor theme	Articles
Consumer apparel purchase	Pre-purchase	(Albloushy & Hiller Connell, 2019; Blazquez et al., 2020; Bong Ko & Jin, 2017; Chang & Watchravesringkan, 2018; Cowan & Kinley, 2014; D'Souza et al., 2015; T. I. Han, 2018; T. I. Han & Stael, 2016; Jacobs et al., 2018; Joshi & Srivastava, 2019; H. J. Jung et al., 2020; H. J. Jung & Oh, 2019; J. Kim et al., 2020; Kong et al., 2016; Kumagai & Nagasawa, 2020; Kumar et al., 2021; Matthews & Rothenberg, 2017; Min Kong & Ko, 2017; Nam et al., 2017; Nguyen et al., 2019; Oh & Abraham, 2016; Park & Kim, 2016a, 2016b; Razzaq et al., 2018; S. Song & Ko, 2017; Su et al., 2019; Varshneya et al., 2017; Wei & Jung, 2017; Zhao et al., 2019)
	Purchase	(Cho et al., 2015; Connell, 2011; Ha & Kwon, 2016; T. I. Han, 2019; Hong & Kang, 2019; Khare et al., 2020; Khare & Sadachar, 2017; Khare & Varshneya, 2017; Kusá & Urmínová, 2020; Lundblad & Davies, 2016; Ritch, 2015)
	Post-purchase	(Diddi & Yan, 2019; Gazzola et al., 2020; Gopalakrishnan & Matthews, 2018; Gupta et al., 2019; Hedegård et al., 2020; Iran & Schrader, 2017; Janigo & Wu, 2015; S. Jung & Jin, 2014; Lai & Chang, 2020; Lang et al., 2016; Lang & Armstrong, 2018; McEachern et al., 2020; Mukendi & Henninger, 2020; Park et al., 2020; Sobreira et al., 2020; Stein et al., 2020)
Circular economy	Supply chain issues	(Cai et al., 2019; Roy et al., 2020; Talay et al., 2020)
	Business model changes	(Ahmad et al., 2020a, 2020b; Holtström et al., 2019; Lee & DeLong, 2018; Townsend et al., 2019; Wang & Shen, 2017)
	Role of designers	(Clancy et al., 2015; Claxton & Kent, 2020; Ertekin & Atik, 2020; Karell & Niinimäki, 2020; Ozdamar Ertekin et al., 2020)
Consumer awareness	Learning programs	(Abner et al., 2019)
	Advertising	(G. Kim & Jin, 2019; Solér et al., 2015; S. Y. Song & Kim, 2018, 2019)
	Celebrity influence	(McKeown & Shearer, 2019)
	Role of media	(de Lenne & Vandenbosch, 2017)
Barriers		(Ciasullo et al., 2017; D'Souza, 2015; J. Han et al., 2017; Harris et al., 2016; L. McNeill & Venter, 2019; Munir, 2020; Pedersen & Andersen, 2015; Rahman & Koszewska, 2020; Rausch & Kopplin, 2021; Raut et al., 2019; Rothenberg & Matthews, 2017; Whitson-Smith, 2018; Wiederhold & Martinez, 2018)

The redesign (Janigo & Wu, 2015) and resale of used apparel (Lai & Chang, 2020) offers another opportunity to slow down the fashion industry and the production of particularly new clothing. However, this approach requires considerable effort and communication skills to motivate consumers toward embracing such purchases (Gazzola et al., 2020; Gopalakrishnan & Matthews, 2018; Stein et al., 2020). While they offer consumers cheaper prices, great deals, and variety, retail stores that sell apparel for reuse make little profit (Gopalakrishnan & Matthews, 2018). Furthermore, due to a lack of coordination, experience, knowledge, material conditions, and skills, the growth of such outlets is severely hampered (Hedegård et al., 2020). Likewise, due to the cultural and economic differences across countries, consumers have varied inclinations toward purchasing second-hand clothing (Gazzola et al., 2020). Moreover, considerable research is still required to explore the various challenges that green apparel firms encounter in their design and development processes while pushing for slow fashion practices.

Lastly, the consumption of clothing can be significantly slowed when implementing clothing repair (Diddi & Yan, 2019). Interestingly, Lang and Armstrong (2018) found that individuals in fashion leadership are more likely to support clothing repair. It is important not to underestimate the role of upcycling workshops in encouraging

consumers to adopt green apparel consumption behaviors. Utilizing the social practice approach, McEachern et al. (2020) reported an overwhelmingly positive response, suggesting that upcycling workshops can help consumers upscale their old apparel in addition to inculcating a sense of sustainability in other aspects of life.

4.2 | Circular economy

Circular economy refers to the model of production and consumption wherein the reuse, reduce, and recycle formula governs how we produce, circulate, and consume products (Ellen MacArthur Foundation, 2017). After reviewing the selected green apparel-based studies, we identified three dominant circular economy themes: supply chain issues, business model changes, and the role of designers.

4.2.1 | Supply chain issues

The implementation of sustainability in the apparel supply chain is an important issue that already received attention from different

perspectives (Cai et al., 2019; Talay et al., 2020). Roy et al. (2020) suggested two prominent paths through which manufacturers might adopt sustainable supply chains, namely, reactive (under internal and external stakeholder pressure) and proactive (via deliberate firm-intrinsic learning) paths. They further argue that pursuing a reactive pathway may not be an effective strategy to achieve sustainability in the supply chain; rather, proactively drawing from firm-intrinsic learning may prove to be more beneficial in the long run (implementing a wider range of sustainability practices). While these findings may hold true for big corporations, smaller suppliers do not yield much bargaining power and are forced to comply with the unsustainable practices of big buyer firms (Hingley et al., 2015). Talay et al. (2020) suggested different strategies (i.e., collaborations with retailers, complimentary services, environmental quality enhancement of materials, ethical adjustments, and investment in cost-efficient technologies) that small supply firms might adopt to help maintain healthy long-term relationships with their buying firms.

4.2.2 | Business model changes

Innovating the business model in sustainable ways is currently a growing practice among firms (Filser et al., 2021; Ogbeibu et al., 2021; Suchek et al., 2021). The existing business models of apparel manufacturers require significant changes to ensure proper green apparel consumption. Apart from using recycled and organic materials (Wang & Shen, 2017), it requires an overall shift in ideation, product development, manufacturing, and retailing along with repair, reuse, and recycling practices (Holtström et al., 2019; Lee & DeLong, 2018). Although business intelligence systems and other Industry 4.0 technologies are critical in achieving these endeavors (Ahmad et al., 2020a, 2020b), the potential issues firms may encounter while incorporating circular business model changes need further investigation.

4.2.3 | Role of designers

Apparel designers have a crucial role to play regarding sustainability integration within the design process. In addition to fashionability and product quality, they influence the choice of materials to be used (Claxton & Kent, 2020). As such, Ertekin and Atik (2020) contend that designers have an important role in increasing awareness of eco-friendly apparel as well as encouraging waste reduction and recycling, helping develop standards, improving environmental footprints, and supporting local sourcing. Yet, Karell and Niinimäki (2020) found that designers lack adequate knowledge about eco-friendly materials, recycling, and other best practices adopted by green firms, which, in turn, negatively affects the adoption of eco-friendly materials and the production of green apparel. Furthermore, firms dictate certain design aspects of their products—limiting designers' options (Clancy et al., 2015; Claxton & Kent, 2020; Karell & Niinimäki, 2020).

4.3 | Consumer awareness

In the selected literature, researchers explored four different dimensions that may prove effective in amplifying the green apparel purchase behavior of consumers: learning programs, advertising, celebrity influence, and the role of media.

4.3.1 | Learning programs

Formal educational programs can have a profound impact on the pro-environmental attitudes and behaviors of consumers (Vicente-Molina et al., 2013). Abner et al. (2019) redesigned a university-level course to explore the effect of education in modifying the behavioral practices of students. Based on pre- and post-test survey results, education in sustainable development positively influenced the pro-environmental attitude of students but not their environmental purchase behaviors. While the actual behavioral practices of consumers are critical for achieving sustainability, knowledge alone cannot influence it; rather, the aesthetics, cost, and availability of eco-friendly apparel represent critical barriers that inhibit the purchase of such apparel (Kozar & Connell, 2013).

4.3.2 | Advertising

Advertisement campaigns centered around environmental issues are an effective way of inculcating pro-environmental behavioral tendencies in consumers (Yang et al., 2015). For instance, consumers are more likely to purchase apparel from brands that portray higher levels of eco-friendliness in their advertisement campaigns (S. Y. Song & Kim, 2018). Such campaigns typically involve emotional and rational appeals that can be either positive or negative (Kotler & Armstrong, 2018). G. Kim and Jin (2019) found that both positive and negative emotional messages enhanced eco-friendly apparel purchase intentions, although rational appeals had a stronger positive effect on older women. Similarly, S. Y. Song and Kim (2019) argued that firms should include altruistic and egocentric messages in their advertisements as they help enhance eco-friendly apparel purchase intentions. In contrast, Solér et al. (2015) reported that firms have a tendency to engage in muted sustainability (i.e., not opening up about their sustainability progress due to the risk of increased scrutiny from consumers). Therefore, if they have not made significant progress toward sustainability, many firms may be humble in their sustainability disclosures or prefer to communicate superficially about their sustainability progress.

4.3.3 | Celebrity influence

Celebrities have great influence over the masses and, as such, firms often engage them in endorsing products and services (Munir, 2020). After conducting a netnographic study to examine the role of

celebrity influence on social media, McKeown and Shearer (2019) argued that, while celebrities enhance the knowledge and influence the attitudes of consumers toward green apparel, they do not influence consumers' actual behavioral practices.

4.3.4 | Role of media

Regarding green apparel consumption, media may also help shape certain cognitions and behaviors of young individuals. In their study on predicting green apparel purchase intentions, de Lenne and Vandenbosch (2017) examined the role of four different media genres (viz., fashion magazines, specialized magazines, the social media content of sustainable firms, and the social media content of fashion bloggers). They concluded that social media content generated by sustainable organizations and fashion magazines had a positive influence on cognitive factors, whereas social media content generated by fashion bloggers had a negative influence on such cognitions.

4.4 | Barriers

The scale and scope of current sustainability efforts are ineffective in addressing the inherent challenges of the apparel industry's unsustainable business model (Pedersen & Andersen, 2015). To date, only a handful of studies explored such challenges (D'Souza, 2015; Harris et al., 2016; L. McNeill & Venter, 2019; Pedersen & Andersen, 2015; Raut et al., 2019; Whitson-Smith, 2018; Wiederhold & Martinez, 2018). One of the studies unraveled seven different barriers, namely, consumption habits, inertia, lack of availability, lack of knowledge, price of green apparel, transparency, and the image associated with green apparel (Wiederhold & Martinez, 2018). Another study concluded that demonization, inadequate governmental support, ineffective integration, lower investments from abroad, and poor infrastructure impede the development of green apparel supply chains (Raut et al., 2019). Moreover, while inappropriate and insignificant branding and marketing strategies limit the true market potential of green apparel (D'Souza, 2015), consumer-style choices (arising from a perceived self-identity) cannot be overlooked as they also guide purchase behavior and may inhibit individual shoppers from buying green apparel (Whitson-Smith, 2018).

In another study, Rausch and Kopplin (2021) proposed two reasons that inhibit consumers from purchasing green apparel, namely, the latter being perceived as unfashionable and the high costs of green apparel (compared to conventional apparel). Similarly, previous studies highlighted that the cost of green apparel was a significant factor in hampering their purchases (Ciasullo et al., 2017; Rothenberg & Matthews, 2017). Apart from cost, Munir (2020) found six dominant reasons for consumers' non-adoption of green apparel, namely, culture, lack of variety, limited understanding of eco-fashion, non-affordability, poor availability, and style. Similarly, J. Han et al. (2017) reported three factors (viz., lack of social awareness, negative quality perception, and unjustifiable high prices) for consumers'

unwillingness to purchase such products. Finally, garment fit and comfort could also encourage consumers to purchase non-green apparel (Rahman & Koszewska, 2020). In sharp contrast to these studies, J. Han et al. (2017) took a pragmatic approach and exposed consumers to a staged purchase experience involving an exclusive green apparel purchase experience. They found that such staged experiences with green apparels enhanced consumers' knowledge, increased the likely of green apparel adoption, and developed personalized competencies among consumers, which increase future green apparel adoption behaviors (J. Han et al., 2017).

5 | GAPS AND POTENTIAL RESEARCH QUESTIONS

The reviewed green apparel studies had different shortcomings (in terms of both the overall scope of their investigations and the adopted methodological choices). These gaps, along with potential research questions suggested by the current study, are highlighted in Table 2.

6 | FRAMEWORK DEVELOPMENT

Building on the circular economy model of Koszewska (2018) and using institutional theory, we combined the various aspects of the green apparel industry (see Figure 9). Circular economy has been conceptualized in many different ways (Ferasso et al., 2020; Geisendorff & Pietrulla, 2018), although we specifically utilized its cradle-to-cradle (C2C) concept (McDonough & Braungart, 2002) for the current study. C2C aims to restrict the negative environmental impact of ready-to-use products via an alternate model of using eco-friendly production techniques and processes along with less damaging distribution and disposal mechanisms (Visser, 2010). In addition to the recycling of old products into new ones (Huang et al., 2007), it involves a design process to increase the life of existing products and minimize overall pollution levels (Baumgartner & Zielowski, 2007).

As per the institutional theory, a firm is surrounded by various institutions that influence the firm's actions (DiMaggio & Powell, 1983). Firms can encounter three different types of institutional pressures, namely, cognitive, normative, and regulatory pressures, all of which have proven to be effective in pushing firms to adopt green practices (Hofman et al., 2020). Therefore, this theory is relevant to the circular economy context and can prove effective in pushing firms to adopt circular business models.

Both C2C and institutional theory helped us to develop a closed-loop framework that provides a pathway for the green apparel industry to eliminate wastage at all levels. Firstly, the process of green apparel manufacturing starts with apparel design using eco-friendly materials as it helps reduce negative environmental effects at the input level (Horbach et al., 2012). The second tenet of C2C framework involves the adoption of eco-friendly materials as well as materials recycled from worn-out apparel while the third

TABLE 2 Gaps and potential research questions

Major theme	Minor theme	Gaps	Potential research questions		
Consumer apparel purchase	Pre-purchase	<ul style="list-style-type: none"> • Factors that shape the green apparel consumption values of individuals have not been thoroughly explored. • Factors that moderate positive influence on attitudes toward green apparel have not been fully explored. • Literature has not properly explored how negative attitudes toward green apparel can be overcome. • Researchers have not explored the differences in green apparel purchase intentions for different genders across developed and developing economies. • The boundary conditions that may amplify or inhibit consumers' green apparel purchase intentions have not been thoroughly explored. 	<p>RQ1.1. What factors can enhance individuals' values conducive for green apparel purchase?</p> <p>RQ1.2. What factors moderate the influence of self-transcendence values on cognitive and actual green apparel buying practices of individuals?</p> <p>RQ1.3. Can the negative influence of hedonistic shopping values on green apparel purchases be overcome? How?</p> <p>RQ1.4. What factors can help attenuate the negative attitudes of consumers toward green apparel?</p> <p>RQ1.5. Are there any context-specific differences in the moderating factors that dampen the translation of positive attitudes of consumers into green apparel purchases?</p> <p>RQ1.6. How different are the green apparel purchase intentions of consumers from emerging economies compared to that of the developed world?</p> <p>RQ1.7. What different factors can help translate positive green apparel intentions into actual green apparel purchase behaviors, especially in cost-competitive and emerging markets?</p>		
		Purchase	<ul style="list-style-type: none"> • There is inconclusive evidence for factors that significantly enhance green apparel purchases. • Researchers have not explored how negative experiences associated with past green purchases may be overcome. • In the context of green apparel, the antecedents to perceived ethical importance have not been explored. • Researchers are yet to explore the differences in purchase behaviors (and the factors leading to such behaviors) across developed and emerging economies. • Although green apparel includes many different items, researchers need to explore which items are purchased more or less by consumers. 	<p>RQ1.8. What factors can help strengthen the green apparel purchase practices of consumers?</p> <p>RQ1.9. How can the negative experiences of consumers based on past green apparel purchases be overcome?</p> <p>RQ1.10. Do individuals who hold ethical values in high regard still buy non-green conventional apparel?</p> <p>RQ1.11. Do spouses influence the apparel purchase practices of their partners?</p> <p>RQ1.12. Are there discrepancies in the consumer shopping patterns of different green apparel items?</p>	
			Post-purchase	<ul style="list-style-type: none"> • There is a limited understanding of the factors that enhance or inhibit slow fashion practices in consumers. • Since recycling practices are positively related to green apparel purchases, the way recycling tendencies are inculcated into individuals should be studied. • Effective strategies for engaging people to participate in apparel upscaling workshops need to be explored. • Researchers still need to propose steps that may help alleviate the stigma attached to second-hand apparel purchases. 	<p>RQ1.13. What materials, processes, and techniques can increase the lifespan of apparel?</p> <p>RQ1.14. How can regulatory mechanisms be invoked to push firms into taking concrete steps toward promoting slow fashion?</p> <p>RQ1.15. In what ways can individuals be encouraged to recycle their product wastes?</p> <p>RQ1.16. Can people be encouraged to participate in apparel mending and upscale workshops? If yes, how?</p> <p>RQ1.17. Regarding firms, what steps are needed to increase the purchase of second-hand apparel by consumers? How can firms facilitate such a practice and benefit from it?</p>

(Continues)



TABLE 2 (Continued)

Major theme	Minor theme	Gaps	Potential research questions		
Circular economy	Supply chain issues	<ul style="list-style-type: none"> The techniques and tools that can help firms to make their supply chains sustainable have not been explored. Literature has not explored the mechanisms through which firms could pressurize unsustainable suppliers, that have significant control over critical materials, to turn green. 	<p>RQ2.1. In what ways can firms transform their supply chains to incorporate elements of sustainability?</p> <p>RQ2.2. What challenges do firms face while transitioning their supply chains toward sustainability?</p> <p>RQ2.3. Can unsustainable suppliers with significant control over critical materials be pushed to adopt sustainability? How?</p> <p>RQ2.4. What capabilities are required by firms to recycle apparel into raw materials?</p>		
		Business model changes	<ul style="list-style-type: none"> The current state of the apparel industry and its various challenges to transition toward greener solutions have not been studied. The role of leadership styles and board composition in initiating business model changes need to be explored. 	<p>RQ2.5. What are the various issues and challenges that apparel manufacturing firms across the world face, and how easily can they revamp their core business model toward green solutions?</p> <p>RQ2.6. What role do different leadership styles play in a firm's transitioning toward green apparel manufacturing?</p> <p>RQ2.7. Does diversity at a firm's board level affect the decision to adopt green manufacturing practices?</p> <p>RQ2.8. Do women leaders influence the strategic decisions of a firm toward the adoption of green apparel manufacturing?</p>	
			Role of designers	<ul style="list-style-type: none"> There is inconclusive evidence regarding the role of designers in firms' green apparel manufacturing. 	<p>RQ2.9. How can designers influence the sustainable design choices of apparel manufacturers?</p> <p>RQ2.10. In terms of material and design choices, are apparel designers well versed in sustainability? How can they enhance their knowledge about eco-friendly materials and design practices?</p> <p>RQ2.11. While green apparel designers have played a significant role in sustainability, what difficulties do they encounter, and how do they motivate their firms to adopt green apparel manufacturing?</p>
				Consumer awareness	Learning programs
	Advertising	<ul style="list-style-type: none"> Studies are needed to understand the greenwashing practices that firms engage in to present a green image of their apparel. 		<p>RQ3.4. How honest are green advertisement campaigns of apparel manufacturing firms?</p>	

TABLE 2 (Continued)

Major theme	Minor theme	Gaps	Potential research questions
		<ul style="list-style-type: none"> The role of regulatory authorities in controlling the greenwashing tendencies of apparel firms needs proper investigation. The different mediums of communication that can prove effective for green apparel firms are not known. 	<p>RQ3.5. What greenwashing tactics do apparel firms use in their advertisements?</p> <p>RQ3.6. Can regulatory policies push firms to declare the “greenness” level of their products and their overall business operations?</p> <p>RQ3.7. Which mediums of communication are most effective in influencing consumers to purchase green apparel?</p> <p>RQ3.8. How can green apparel firms actively promote and distinguish their products from non-green products on different social media platforms?</p>
	Celebrity influence	<ul style="list-style-type: none"> Regarding influencing shoppers to adopt green apparel purchase behaviors, researchers need to explore the reasons behind celebrities' insignificant influence. In developing economies like India, celebrities are often worshipped—allowing them to exert great influence over many members of the population. Yet, their influence on green apparel purchase tendencies remains to be properly studied. 	<p>RQ3.9. What are the reasons behind the insignificant influence of celebrities in pushing shoppers to adopt green apparel purchase behaviors?</p> <p>RQ3.10. Can developing economies like India present a different picture vis-à-vis the role of celebrities in influencing people to purchase a particular product or service?</p>
	Role of media	<ul style="list-style-type: none"> Studies are needed to fully explore the role of different media genres in consumer adoption of green apparel practices across different geographies. To assess the psychological impact on apparel shoppers, qualitative analyses of different messages and articles should be performed. 	<p>RQ4.1. How can female consumers (entrusted with the responsibility to shop for their children) from less developed countries be informed of the detrimental effects of conventional clothing and encouraged to buy green apparel, especially when constrained by spendable income?</p> <p>RQ4.2. How effective can social media handles prove in highlighting the unethical greenwashing practices of apparel manufacturers? Will such awareness be reflected in the purchases of apparel consumers?</p> <p>RQ4.3. How can small green apparel firms use social media handles effectively to raise awareness about their products?</p>
Barriers		<ul style="list-style-type: none"> Across developed and emerging economies, there is a need to explore the various barriers to green apparel consumption. Thereafter, steps can be proposed to overcome these barriers. Considerable research is needed to explore the coping strategies required to overcome the barriers associated with the green apparel industry. 	<p>RQ5.1. What barriers inhibit consumers from purchasing green apparel in the less developed world?</p> <p>RQ5.2. How can small green apparel firms overcome the various barriers associated with their products, especially in price-competitive markets?</p>

involves the adoption of closed-loop supply chain systems, facilitating apparel manufacturing and the collection of post-industrial waste. The closed-loop supply chain systems also enable a firm to retrieve dead stock from retail outlets and collect used apparel from consumers. Although consumers can be trained to repair and upscale apparel at home, it may not be enough to resolve the apparel dumping issue. Therefore, once clothes are worn out (or considered to be out of fashion), they could be efficiently

collected by the manufacturing firm (or some third party) and transferred to an appropriate recycling facility where the clothes may be repaired, upscaled, downcycled, or reverted into raw material. This circular flow would ensure that manufactured apparels return to the firm (instead of being dumped in water bodies or landfills) after the consumer is done using the firm's products.

Unfortunately, firms tend to engage in lobbying and other unethical practices to avoid their responsibilities toward the environment or

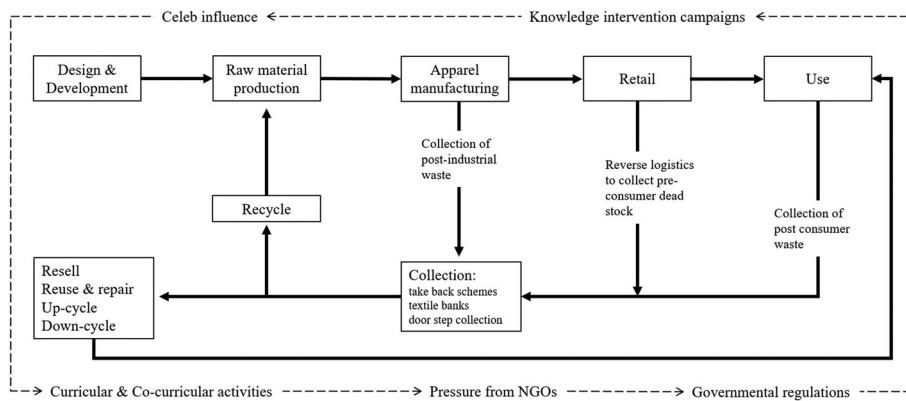


FIGURE 9 Proposed closed-loop flow for the apparel industry

society in general. To avoid such behaviors, firms need to be continually pressured to adhere to appropriate codes of conduct (e.g., the adoption of a circular business flow) by different governmental and non-governmental bodies. Specifically, educational institutions, different media platforms and outlets in the print and digital space, governmental regulations, and non-governmental agencies working on environmental and societal issues could play significant roles in this regard. Moreover, competitive pressure from rival firms could significantly influence a firm's decision to adopt or refrain from a particular strategy.

7 | CONCLUSIONS

This paper reviewed the current state of green apparel research and, in so doing, provided answers to various research questions. At the onset, we extracted the research profile of green apparel literature, followed by a critical analysis of the four themes identified through open and axial coding procedures. The literature focused on the behavioral tendencies of consumers, circular economy, consumer awareness of institutions, and the various barriers to green apparel consumption. By critically examining these themes, we were able to identify gaps in the literature and subsequently highlighted potential research questions for further investigation. In addition, we present a circular economy model of business that could help strengthen the green apparel industry.

7.1 | Theoretical implications

This study has four theoretical implications for green apparel research.

Firstly, from the research profiling of studies, it was understood that researchers mostly observed behavioral aspects related to green apparel consumption by utilizing the TPB. While this supports our understanding of consumption patterns relevant to the apparel industry, it limits our understanding of other crucial aspects relevant to apparel manufacturing firms. Therefore, researchers should employ other theories (resource-based views, institutional theory, networking

theory, etc.) to explore other firm-specific aspects of the green apparel industry.

Secondly, via the thematic coding of relevant articles on the green apparel industry, four major themes emerged and were classified as behavioral tendencies, circular economy, consumer awareness, and barriers. These themes provide distinct categories for researchers to further investigate and could help us to better understand the prospects and challenges or support mechanisms underlying these dimensions or their sub-themes.

Thirdly, this study highlighted various gaps in the green apparel literature and proposed different research questions that, if properly investigated, could significantly contribute toward our understanding of different issues and challenges that green apparel firms encounter in different contexts.

Fourthly, we provided a framework based on circular economy and institutional theory that explains different aspects of the green apparel industry (ranging from design conceptualization to consumption and recycling). This framework can aid researchers in future investigations on the different aspects of the green apparel industry—thus contributing to sustainability as a whole while particularly contributing to the circular economy business model.

7.2 | Management and practice implications

This study has five management and practice implications.

Firstly, our theme-based division of green apparel articles revealed four distinct aspects that researchers investigated over the years and may serve as a guiding factor to those in firm management. For instance, the literature informs us that firms need to remodel their overall businesses (from product ideation to reverse logistics and recycling mechanisms). Throughout this process, they will likely face different challenges (e.g., consumer preferences for non-green clothing, limitations associated with existing distribution networks, and technological challenges) (Holtström et al., 2019). As such, firm managers can utilize this study to deepen their understanding of the various prospects and challenges that might be relevant while transitioning their firm toward providing green apparel.

Secondly, green apparel studies from different parts of the world have been published. While researchers explored different aspects of this green product, managerial insights are still needed to validate their findings. Moreover, managerial insights might highlight the shortcomings of previous academic research studies and provide direction for future research efforts.

Thirdly, this study underscored the role of media outlets in highlighting the environmental aspects of green apparel and influencing consumers' green purchase intentions. In addition to scrutinizing firms' actions and their negative impacts on the environment, media houses working in the print and digital space can amplify the pressure on firms to adopt an environmentally friendly circular economy business model.

Fourthly, as celebrities could influence consumers to adopt green apparel consumption practices, they should come forward and actively promote such products on their social media accounts. Moreover, green apparel firms could engage celebrities with mass appeal to promote their products or to raise awareness about the detrimental effects of the conventional apparel industry.

Fifthly, this study appeals to policymakers to enact strict policy regulations that would punish the manufacturing firms of fast fashion apparel. Furthermore, this study provides a roadmap for firms to switch from a horizontal business model to a closed-loop circular economy model in a systematic manner. However, to fill the loopholes in the existing policies and help firms with infrastructural facilities at the governmental level (since firms cannot do everything on their own), collaborations across nations are required.

7.3 | Limitations and future work

This study has several limitations that need proper acknowledgment. Firstly, we only considered relevant green apparel (indexed in WoS and Scopus databases) that were published in the English language, thus potentially excluding some relevant articles from our search results. In addition to including research papers published in other languages, future studies could include articles other than research papers (e.g., book chapters and proceedings) to complement this study. Secondly, researchers published green apparel-based studies (using different terms for the construct) in a variety of journals with divergent audiences. Therefore, although we used a diverse set of terms and selected studies through a stringent process with various iterations to maximize our search results, some relevant terms may have been missed. Likewise, human error and judgmental bias may have influenced the manual screening and filtration of relevant articles in this study. To minimize bias, we utilized stringent screening criteria and the two scholars involved worked separately (i.e., without any contact during this process) before matching their results at the end. Nevertheless, we advocate for more stringent measures to further minimize bias in future studies.

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CONFLICT OF INTEREST

The authors do not have any competing interests to declare.

AUTHOR CONTRIBUTIONS

SJK and SB participated in the conceptualization, formal analysis, methodology, validation, writing—original draft preparation, and writing—review and editing. PK, RS, and AD participated in the conceptualization, methodology, validation, writing—original draft preparation, and writing—review and editing.

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