

How can consumers behave sustainably in the fashion industry? A systematic literature review of determinants, drivers, and barriers across the consumption phases

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ABSTRACT

Climate change and environmental degradation are strongly affecting our lives and the way companies do business. The fashion industry is responsible for huge environmental impacts, from production to disposal. This study aims to systematically review the literature related to sustainable consumer behavior in the fashion industry. Adopting a consumer perspective, the determinants of consumer behavior towards the sustainable fashion solutions existing for each consumption phase (i.e., (pre-)purchase, use, and post-use) are analyzed. 217 articles are included in the review. Most of these studies focus on generic sustainable garments and mainly investigate women's and/or young people's behavior. Results show many determinants of sustainable consumer behavior, which have been divided into factors hindering (barriers) or driving (drivers) it. The main barriers to sustainable consumption are high prices, skepticism, stereotypes, lack of knowledge and availability, and efforts to access product/service. Further, consumers' environmental concerns and awareness seem to play a secondary role in the decision process. Conversely, high-quality, comfortable, and style garments, together with new emerging technologies and services, can positively contribute to sustainable consumption. In addition, social media can help shift toward sustainable consumption practices, favoring the spread of sustainable knowledge and awareness among consumers. A future research agenda and several implications for managers are provided.

1. Introduction

Anthropogenic pressure on the planet continues growing and human activities consume resources exceeding the earth's biocapacity, severely degrading the environment (Cramer et al., 2018; Rockström et al., 2009). The fashion industry significantly contributes to these negative impacts (European Commission, 2022). Being useful to satisfy essential and more sophisticated human needs (Niinimäki, 2010; Johnson et al., 2008; Kaiser, 1990), clothes are products that all people possess. Through garments, people can fulfill the need for warmth and protection, and express their identity, status, and style (Johnstone and Lindh, 2022; O'cass, 2000). Many resources are used to meet the world's demand for clothing, the global apparel market is huge and continues to grow (McKinsey & Global Fashion Agenda, 2020). The rise of fast fashion trends and cheap garment industrial mass production caused unsustainable consumption patterns (Dissanayake and Sinha, 2015).

The fashion industry's environmental impacts are present in each consumption phase (Centobelli et al., 2022; Pedersen and Andersen, 2015), it is responsible for 10% of global greenhouse gas emissions (European Commission, 2022), microplastic pollution (Mazotto et al., 2021), and 40 million tonnes of textile waste a year, most of which is incinerated or landfilled (McKinsey, 2022) caused by deficiencies in recycling technologies (Matayeva and Biller, 2022). Due to these reasons, the fashion industry has gained priority in the sustainability agenda.

Several solutions exist to make the fashion industry more sustainable, henceforth "sustainable solutions". They can be related: (1) to the intrinsic sustainable properties of the garment, conferred through specific raw materials, design strategies, and production processes used; (2) to the garment maintenance and care by consumers, aimed at extending its functionality, fashionability, and durability; (3) to the garment disposal, allowing its recover and recycle as a new product or as a raw material (Schiaroli et al., 2024).

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To achieve more sustainable production and consumption models, the role of consumers is becoming increasingly important. Only by applying responsible behavior - such as the conscious choice of sustainable products, reduction of consumption, careful use of products aimed at extending their life, and disposal oriented at reusing or recycling the product - a sustainable transition can be promoted (Peattie, 2010). Nowadays, sustainable consumption¹ is widely studied in the literature, which applies several theoretical approaches, adopts multiple theories, and investigates a plethora of factors as determinants² of consumer behaviors (e.g., Groening et al., 2018; Concari et al., 2020).

Referring to the fashion industry, sustainable fashion consumption has received increasing attention in the literature in the past few years. Several studies are aimed at highlighting which factors influence sustainable consumer behavior, in particular purchase intention (Abrar et al., 2021; Chaturvedi et al., 2020), willingness to pay a premium price (Khan et al., 2024; Colasante and D'Adamo, 2021; Dodds et al., 2016), or actual purchase (Jalil and Shaharuddin, 2019; Ha and Kwon, 2016) of sustainable garments, as well as sustainable practices related to garments usage (Pham et al., 2021; Whitson-Smith, 2018; Laitala and Klepp, 2016), and disposal (Zhang et al., 2020; Hwang et al., 2020; Joung and Park-Poaps, 2013). Nevertheless, these investigations are fragmented and present mixed results. Moreover, existing literature reviews on sustainable fashion consumption adopting the consumers' perspective deal each with single aspects of consumption: purchase behavior (Busalim et al., 2022), consumer laundry behavior and practices (Klint et al., 2022), humans' perceptions of recycled textiles products and circular fashion services (Wagner and Heinzl, 2020), collaborative fashion consumption (Jain et al., 2022; Henninger et al., 2021), environmental impacts during clothing usage (Luo et al., 2023), or clothing recycling and reusing modalities (Xie et al., 2021). Nevertheless, a systemic approach concerning the value chain, from raw materials to disposal, is crucial to a complete understanding of sustainable consumption (Ellen MacArthur Foundation, 2017; Peattie, 2010), bearing in mind that both consumers' and firms' activities and interrelations cause impacts (Lebel and Lorek, 2008). Existing reviews on sustainable fashion using a holistic analysis approach are not focused on the consumer perspective (e.g., Abbate et al., 2023) or specifically deal with anti-consumption³ behaviors (Vesterinen and Syrjälä, 2022).

Compared to the existing literature, this review uses a unique approach to study sustainable consumer behavior toward fashion products, i.e., adopting the consumer perspective across the entire consumption process, from the (pre-)purchase phase to the use and post-use phases. In so doing, a comprehensive analysis of the determinants of consumer behavior for each of the multiple solutions to make, use, and dispose of fashion products sustainably is carried out. Thus, this study provides a complete picture of the factors that favor (drivers) or discourage (barriers) the adoption of sustainable behaviors for each phase of consumption. The following research question drives this work:

Which are the determinants of consumer behavior for each of the solutions to make a fashion product more sustainable, across all the consumption phases?

This research question is addressed through a systematic literature review of sustainable fashion consumption. Several contributions arise from the work. From a theoretical point of view, this study (1) employs a

novel analysis perspective for understanding the phenomenon of sustainable fashion consumption, encompassing the whole consumption process, (2) creates novel theoretical frameworks that synthesize existing literature, and (3) traces the path for future research endeavors. From a managerial point of view, this paper provides a comprehensive overview of the drivers, and barriers toward several sustainable solutions that can be very valuable in developing effective sustainable marketing strategies.

The paper is organized as follows. In Section 2, we present the methodology used to conduct the systematic literature review. In Section 3, we show the results organized according to the three consumption phases (i.e., (pre-)purchase, use, and post use). In Section 4, we discuss the findings and provide future research agenda, theoretical and managerial implications, as well as the limitations of the study. Section 5 deals with the conclusions drawn from this work.

2. Methodology

In order to answer the research questions, a systematic literature review was conducted (Page et al., 2021; Paul and Criado, 2020; Seuring and Gold, 2012; Tranfield et al., 2003).

Starting from the research questions, three main thematic domains were identified: *sustainability*, *consumer behavior*, and the *fashion industry*, starting from which several keywords were identified. The output of this process was the list of relevant keywords able to define each thematic domain (see Table 1).

The chosen keywords were combined in a research algorithm using Boolean operators. As a result, the following query was launched to search for relevant articles:

((sustainab* OR ecological OR eco-friendly OR green OR circular OR environmental) AND ("consumer behavior*" OR "purchase behavior*" OR "purchasing behavior*" OR "use behavior*" OR "disposal behavior*")) OR ("sustainable consum*" OR "green consum*") AND (fashion OR cloth* OR apparel OR textile)).

Scopus and Web of Science databases were selected as article sources for the review. On December 31st, 2022, the query was launched on the two databases, limiting the results to articles published in peer-review journals and written in English. Consequently, 536 articles from Scopus and 349 articles from Web of Science were found. After removing 291 duplicates, the starting sample was composed of 594 articles. To ensure the selection of only relevant studies, the following inclusion criteria were considered: (1) articles must be focused on the consumer perspective, studying consumer behaviors and/or their determinants, (2) articles must investigate sustainability, in terms of product characteristics and/or consumer behaviors (e.g., sustainable purchase, use, and/or disposal), and (3) articles must be focused on the fashion industry excluding shoes, accessories, and cosmetics.

Bearing these criteria in mind, the first screening of articles was done by analyzing the title and abstract. This process resulted in the exclusion of 292 papers. In the second phase, a more precise screen was carried out with the analysis of the articles' full text. This process led to the exclusion of 91 papers. Further, 6 papers, cited in the sample of selected papers, were added because they satisfied the inclusion criteria. As a result, a final sample of 217 papers is used for this literature review. The description of article sample characteristics, encompassing the distribution of papers per country, papers per journal, the temporal evolution of papers, and employed methodologies, is reported in Appendix 1. The detailed research process is synthesized in Fig. 1.

As to the analysis, according to the thematic analysis technique (Braun and Clarke, 2006), the 217 articles included for the review were qualitatively analyzed through full-text screening of each paper, aimed at extrapolating data relating to various aspects: type of product/service studied, phase of consumption investigated, theoretical approach, and the factors influencing sustainable consumer behavior. Results were then classified by applying the framework on sustainable solutions of Belz and Peattie (2012) to the fashion industry, classifying the

¹ Many definitions for the concept of sustainable consumption are available in the literature. For instance, according to Dolan (2002, p. 172), "Sustainable production and consumption is the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations".

² Henceforth in the paper, we use the terms "determinants of" or "factors influencing" sustainable consumer behavior as synonyms.

³ This review aimed to clarify the concept of sustainable anti-consumption of clothing by defining it as anti-acquisition, anti-disposal, and pro-usage.

Table 1
Keywords list for each thematic domain.

DOMAINS			
KEYWORDS	SUSTAINABILITY	CONSUMER BEHAVIOR	SECTOR
	Sustainab* Ecological Eco-friendly Green Circular Environmental	Consumer behavio* Purchase behavio* Purchasing behavio* Use behavio* Disposal behavio*	Fashion Cloth* Apparel Textile
	Sustainable consum* Green consum*		

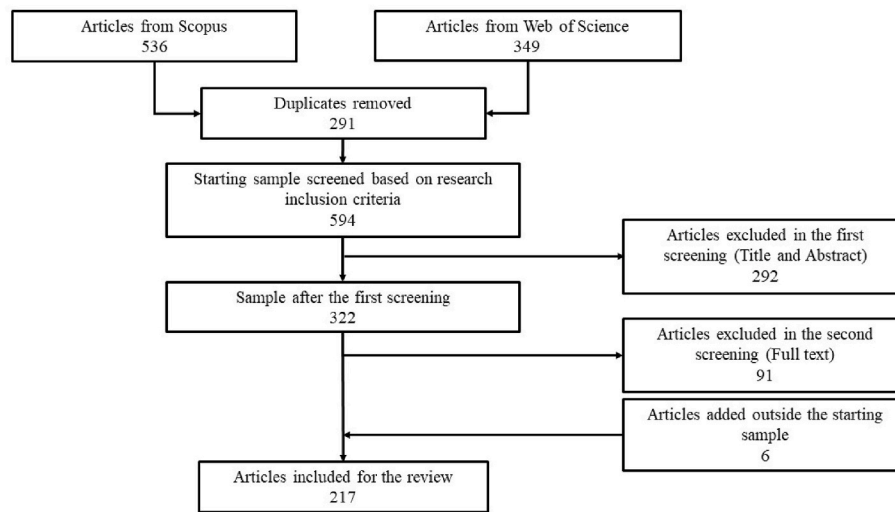


Fig. 1. Research process.

sustainable fashion solutions (as identified by Schiaroli et al., 2024) within different consumption phases. Specifically, Belz and Peattie (2012) distinguished sustainable solutions in: (1) (pre-) purchase solutions, which satisfy consumer needs through product and service offerings, (2) use solutions, which refer to the use of the product and the use-related services, and (3) post-use solutions, which relate to the disposal of a product.

We used the research framework on sustainable solutions in the fashion industry to classify and describe the results on determinants of sustainable consumer behavior in the fashion industry. In the (pre-) purchase phase, we examine consumers' choice behaviors, specifically encompassing purchase intention, willingness to pay, and actual purchase behavior, pertaining to the array of sustainable fashion product offerings. In the use phase, we refer to consumer behaviors aimed at the sustainable use of a fashion product, encompassing consumers' adoption of continuing wearing, sustainable laundry, repair practices, and engagement in collaborative consumption. In the post-use phase, we refer to consumer behavior aimed at adopting sustainable disposal practices of a fashion product that promote a circular flow by recycling or reusing so as to reintroduce it into the consumption cycle.

3. Findings

According to the developed research framework, the following sections present the determinants of sustainable product choice (Section 3.1), sustainable product use (Section 3.2), and sustainable product

disposal (Section 3.3). Most of the studies selected for this review – over 65% of the articles – investigate factors affecting consumer choice toward sustainable fashion products, thus focusing on the (pre-)purchase phase. This highlights that the majority of research so far conducted on sustainable consumer behavior in the fashion industry refers to this phase. On the other hand, approximately 30% of the articles pertain to the use phase, while less than 20% address the post-use phase.⁴

3.1. (Pre-)purchase: determinants of sustainable product choice

It is worth noting that some studies related to the (pre-)purchase phase do not specify the sustainable characteristics of the product, but rather they refer to generic garments - denoted as “eco”, “green”, “environmentally friendly”, “fair-trade”, and “sustainable”, among the others - with sustainable features (see, e.g., Abrar et al., 2021; Kaur and Bhardwaj, 2021; Cowan and Kinley, 2014). In the rest of the paper, these products are denoted as “Generic sustainable garments”. It is also important to note that some studies consider garments that encompass together more than one of the sustainable characteristics above-described - see, e.g., (1) “slow fashion garments”, which incorporate several features such as equity, authenticity, functionality,

⁴ It is important to note that some articles simultaneously investigate multiple consumption phases. For this reason, the sum of the percentages exceeds 100%.

localism, and exclusivity⁵ (Jung and Jin, 2014), and (2) “fast fashion with sustainable features”, which refer to the sustainable initiatives implemented by fast fashion brands (e.g., use of sustainable raw materials, recyclable packaging, offsetting emissions) (Zhou, 2021; Papadopoulou et al., 2021; Chang and Jai, 2015). “Fast fashion with sustainable features” was included in the “Generic sustainable garments” category. Finally, some studies do not focus on a specific sustainable product but rather they refer to specific consumption behaviors, such as consumption reduction (e.g., “wardrobe diet”) (Rhee and Johnson, 2019; Joyner Armstrong et al., 2016), sufficiency behaviors (e.g., Frick et al., 2021), or avoiding purchasing garments associated with high environmental impacts (e.g., Kim et al., 2015).

Extant studies have analyzed consumers’ choice of products belonging to the following categories of sustainable garments: (1) recycled (apparel, wastes, generic material), (2) second-hand, (3) organic (crop, livestock, generic fibers), (4) bio-based, (5) slow fashion, and (6) generic sustainable garments. In this regard, it can be noted that the literature has investigated both consumers’ behavioral intention - i. e., *purchase intention* (also mentioned as willingness to buy, buy intention, intention to buy, patronage intention) and *willingness to pay* (also mentioned as price premium intention) - and their current behavior - i. e., *purchase behavior* (also mentioned as sustainable purchasing, sustainable product choice, socially responsible consumer behavior, slow fashion behavior, green consumption) - towards the different sustainable clothing solutions. We refer to consumer behavior considering both actual behavior and behavioral intentions.

A wide range of studies has been conducted in order to investigate which factors are able to impact purchase intentions (PI), willingness to pay (WTP), and actual purchase behavior (PB). Specifically, most of the studies analyzed consumers’ PI, while fewer focused on WTP and PB. Several studies analyzed the influence of PI on PB focusing on the attitude-behavior gap. Finally, some studies analyzed the influence of PI on WTP or vice versa. More than one hundred distinct determinants emerged from the review of the studies. Table A3 to Table A15 in Appendix 2 report each factor with its definition and the number of studies analyzing it (which could be considered a proxy of the relevance of that factor in sustainable consumer behavior in the fashion industry); factors are grouped according to the classification proposed by Bangsa and Schlegelmilch (2020). Data on the influence of each factor (positive, negative, or not significant) on the specific dependent variable (purchase intention, purchase behavior, willingness to pay), as found in the reviewed studies, is reported in Appendix A⁶ (see Tables 1S, 2S, and 3S).

In the following, we discuss the determinants identified according to their impact on consumer behavior, distinguishing them into barriers and drivers towards sustainable fashion product choice.

With reference to the sustainable garments’ choice, several *barriers*

⁵ Jung and Jin (2014) defined the five dimensions of slow fashion: (1) equity, consumers’ tendency to give value fairness in production and sourcing; (2) authenticity, consumers’ inclination toward hand craftsmanship and traditional garment-making methods; (3) functionality, related to longevity and versatility of clothing, that can be worn longer, more often, and in multiple ways; (4) localism, supports domestic brands which use local production and local resources; (5) exclusivity, consumers’ interest in limited edition or rare clothing produced in small quantity.

⁶ In addition to the references mentioned in the main text, the following sources are cited in the supplementary materials: Albloushy and Connell, 2019; Bernard et al., 2013; Bilsky and Schwartz, 1994; Ceylan, 2019; Dangelico and Pontrandolfo, 2010; Gwozdz et al., 2017; Han, 2018; Henninger et al., 2016; Hustvedt and Dickson, 2009; Jeong and Ko, 2021; Joyner Armstrong et al., 2018; Kim et al., 2012; Kozar and Connell, 2013; Liu et al., 2021; Lundblad and Davies, 2016; Ma and Koo, 2016; Nassivera et al., 2017; Niinimäki and Hassi, 2011; Niinimäki et al., 2020; Notaro and Paletto, 2021; Park and Lee, 2020; Sargisson et al., 2021; Sohn et al., 2021; Su et al., 2019; Thomas, 2008; Tung et al., 2017; Turunen and Halme, 2021; Woodside and Fine, 2019; Zhang et al., 2021.

have been identified through the analysis of studies included in this review. They can be categorized into five groups: (1) *price*, (2) *skepticism*, (3) *knowledge and stereotypes*, (4) *availability*, and (5) *habits and inertia*.

High *price* is perceived as an important barrier when making sustainable fashion choices (Pereira et al., 2021; Kusá and Urmínová, 2020; Wiederhold and Martinez, 2018; Eifler and Diekamp, 2013). Indeed, the literature underlines that sustainable garments are commonly associated with higher prices compared to traditional garments and consumers might choose the cheapest choice (Cairns et al., 2022; Harris et al., 2016), due to scarce economic resources (Connell, 2010), perceived deficiencies in cost benefits (Perry and Chung, 2016), or perceived financial risks associated with sustainable fashion purchases (Han and Chung, 2014). Further, sustainable fashion choices and lifestyles are perceived as expensive (Puspita and Chae, 2021; Algahni and Al-Dabbagh, 2020).

Skepticism discourages consumers from sustainable fashion purchase behaviors (Carranza et al., 2022; Kim and Oh, 2020; Sandhya and Mahapatra, 2018). The literature highlights that consumers might have a low trust toward sustainability claims, due to the lack of transparency, the perception that sustainable garments are not actually environmentally-friendly, the belief that buying eco-apparel does not contribute to mitigating environmental impacts, as well as the perception that firms devote few efforts toward environmental and social responsibility (Blas Riesgo et al., 2022; Ritch, 2022; Pereira et al., 2021; Puspita and Chae, 2021; Harris et al., 2016; Perry and Chung, 2016; Pedersen and Andersen, 2015; Sonnenberg et al., 2014). When consumers harbor feelings of distrust toward the reliability of brands’ environmental claims, perceiving instances of greenwashing, they are dissuaded from choosing sustainable garments (Carranza et al., 2022; Apaolaza et al., 2022). Moreover, consumers often struggle to understand the language used to describe sustainable fashion, generating confusion, frustration, and skepticism, discouraging them from adopting sustainable behaviors (Evans and Peirson-Smith, 2018).

Several studies have highlighted that the lower the consumers’ *knowledge* of sustainable fashion, the lower the consumers’ purchase behavior, *ceteris paribus* (e.g., Frommeyer et al., 2022; Davis and Dabas, 2021; Maloney et al., 2014; Kim and Damhorst, 1998). Indeed, concerning *knowledge and stereotypes*, consumers might perceive sustainable garments as less stylish compared with mainstream apparel (e.g., looking hippies, having inferior design, having no special function, or losing fitting) (Moon et al., 2013; Joy et al., 2012), due to lack of knowledge, perceived performance risks, society expectations, and negative attitude toward garments attributes (Harris et al., 2016; Perry and Chung, 2016; Han and Chung, 2014; Connell, 2010). Further, consumers have limited awareness of the environmental issues related to clothing production and consumption (Connell, 2010), as well as limited knowledge of sustainable fashion (Popowska and Sinkiewicz, 2021; Rahman et al., 2021; Algahni and Al-Dabbagh, 2020) and on how to identify sustainable product characteristics, which entails efforts (e.g., inquire independently about materials and processes used during production) (Williams and Hodges, 2022; Pereira et al., 2021). Scholars underscored how the experience with sustainable garments (i.e., past purchase, interaction, awareness, and knowledge) is positively correlated with sustainable fashion purchase behaviors (Dangelico et al., 2022; Floriano and Matos, 2022; Han, 2019; Cowan and Kinley, 2014; Stall-Meadows and Davey, 2013). Further, scholars highlighted how familiarity with eco-labels and label capabilities to explain sustainable apparel attributes favors the purchase behaviors toward sustainable fashion (Feuß et al., 2022; Dhir et al., 2021; Austgulen, 2016). Consumers need more understandable and clearer information on labels, to highlight product differentiation, increase trust in the company, and drive sustainable purchase decisions (e.g., Byrd and Su, 2020; Koszewska, 2011), since the terminology used by fashion firms per se usually does not guarantee the actual sustainability of the garments and can generate confusion among consumers (Beard, 2008).

Concerning *availability*, consumers might perceive high effort in the

process of purchasing sustainable garments, due to the difficulty in finding them in traditional stores, scarce knowledge of sustainable brands, and limited availability of apparel with desired attributes (Algahni and Al-Dabbagh, 2020; Wiederhold and Martinez, 2018; Perry and Chung, 2016; Žurga et al., 2015; Eifler and Diekamp, 2013; Connell, 2010). According to the literature, the less the store is perceived as accessible and the less sustainable fashion items are perceived as available, the lower the purchase behavior is, *ceteris paribus* (Chang and Watchravesringkan, 2018; Austgulen, 2016).

Consumption *habits* and consumers' *inertia* are other barriers further highlighted (Wiederhold and Martinez, 2018). The consumers' habits to continue shopping in the same stores without being proactive in looking for alternatives where they can buy sustainable clothes, as well as the perception that changing their shopping habits does not make a difference if other people continue to have unsustainable consumption habits, are both negatively associated with sustainable clothing choices. Indeed, studies found that consumers are more likely to engage in sustainable fashion purchasing behaviors when they perceive their consumption patterns can effectively contribute to mitigating environmental problems (i.e., perceived effectiveness) (e.g., Apaolaza et al., 2022; Park and Lin, 2020; Nguyen et al., 2020). Finally, studies found other barriers specific to second-hand garments' purchase: *previous ownership* (e.g., the perceptions of cleanliness and potential health issues), *social pressure* (e.g., considered poor or frugal), *brand loyalty* (i.e., consumer's commitment to a particular brand, manifested in consistent new purchases), and *store* (e.g., efforts to find the store and things inside it) (Wang et al., 2022; Amaral and Spers, 2022; Paço et al., 2021; Kovacs, 2021; Hur, 2020; Kapusy and Lógó, 2020; Perry and Chung, 2016; Žurga et al., 2015; Connell, 2010). Further, concerning online context, low credibility, lack of information on online transactions, and concerns the choice item does not respect the expectations can hinder online second-hand garments purchases (Bae et al., 2022).

With reference to the *drivers* for sustainable fashion choices, the review of studies elucidates avenues through which sustainable fashion consumption can be promoted. Results show that the environmental characteristics of garments seem to be a secondary factor driving consumer behavior. Consumers primarily focus on other attributes, such as (1) *price*, (2) *comfort* (e.g., fit, feel), and (3) *if it is in fashion* (e.g., style, design, color) (Mandarić et al., 2022; Rausch et al., 2021; Popowska and Sinkiewicz, 2021; Rahman et al., 2021; Rahman and Koszewska, 2020; Harris et al., 2016; Perry and Chung, 2016; Žurga et al., 2015; Goworek et al., 2012). *Drivers* toward sustainable fashion product choice can be categorized according to six main themes: (1) *pricing*, (2) *benefits, quality, and aesthetics of the garments*, (3) *ethical and eco-issue and sustainable behaviors*, (4) *social and situational stimuli*, (5) *corporate image*, and (6) *purchasing experience*.

The *pricing* dynamics of sustainable clothing significantly influence their market adoption. Empirical evidence indicates that when consumers perceive sustainable fashion as financially sustainable, perceive they have the financial means to afford it, and have adequate information availability, they are inclined to make the purchase decision (Hasbullah et al., 2022; Kumar and Yadav, 2021; Oncioiu et al., 2021). Studies demonstrated that when consumers perceive a sense of control over engaging in sustainable fashion purchasing behavior (i.e., perceived behavioral control), they exhibit a higher propensity to enact such behavior (Frommeyer et al., 2022; Abrar et al., 2021; Chi et al., 2021; Chaturvedi et al., 2020; Ho et al., 2020; Jalil and Shaharuddin, 2019; Nguyen et al., 2019). In this sense, offering sustainable garments at competitive prices appears fundamental for fostering their adoption in the market.

As consumers value individual *benefits* from clothing purchases, personal and financial needs (e.g., style and image, value for money) play a critical role in sustainable fashion consumption (Jägel et al., 2012). Indeed, studies underscored the importance of consumers' values and feelings linked to sustainable fashion product choice, e.g., functional, emotional, epistemic, and social values (Şener et al., 2022; Yang

et al., 2022; Wei and Jung, 2017; Yoo et al., 2013), perceived benefits (Davis and Dabas, 2021; Khare, 2019; Fu and Kim, 2019; MinKong and Ko, 2017; Han and Chung, 2014), product satisfaction (Tran et al., 2022; MinKong and Ko, 2017), perceived apparel quality (Song and Kim, 2018), perceived value (Kautish and Khare, 2022; Dangelico et al., 2022; Castro-López et al., 2021; Şener et al., 2019; Chaturvedi et al., 2020), as well as price value (i.e., the relation between the cost of the product and the benefits associated with the purchase) (Yang et al., 2022; Kopplin and Rösch, 2021; Chang and Jai, 2015; Yoo et al., 2013). Consumers value most functional product attributes instead of sustainable ones (see e.g., Fuchs and Hovemann, 2022). Even if a manufacturer or a brand is responsible for harmful actions (e.g., labor exploitation or false declarations on environmental impact), consumers who like its products, thanks to their physical and aesthetic characteristics, do not stop buying them (Joergens, 2006). As Niinimäki (2010) highlighted, *quality* and *aesthetics* are essential in fashion purchases, and sustainable attributes can add value only when the garment is already attractive (Cairns et al., 2022; Kovacs, 2021; Davidavičienė et al., 2019; Momberg et al., 2012). In other words, the majority of consumers would not choose sustainable garments if they do not provide enough benefits to satisfy their needs and aspirations (Rausch et al., 2021; Rahman and Koszewska, 2020; Sonnenberg et al., 2014; Grasso et al., 2000). In this context, consumers' fashion knowledge plays a critical role. Consumers interested in fashion have greater information and awareness about sustainable fashion, thereby increasing the perceived value and innovativeness they ascribe to sustainable garments (Johnstone and Lindh, 2022). Results show that consumers' fashion consciousness (i.e., the level of involvement and interest that an individual has in fashion styles and their appearance) is positively related to sustainable fashion purchases (Khare et al., 2021; Thompson and Tong, 2016; Gam et al., 2010). Certainly, producing sustainable clothing featuring high-quality standards and fashionable attributes is critical for its extensive dissemination within the markets. Results show that the choice of sustainable garments can be positively linked to the desire for improvement and self-expression in society, encompassing facets such as status attainment or empowerment and self-transformation (e.g., Kumar and Yadav, 2021; Legere and Kang, 2020; Park and Lin, 2020; Han and Chung, 2014), as well as ego involvement (Zahid et al., 2022), self-esteem in relation to clothing and confidence in communicating self (to others) via clothing (Legere and Kang, 2020). Similarly, open to change consumers may consider sustainable fashion as possessing innovative and distinctive attributes compared to traditional garments, thereby facilitating the articulation of their unique identities. Indeed, consumers who express the need for variety (Fu and Kim, 2019), distinction, creativity, and individuality (Kleinhückelkotten and Neitzke, 2019), the tendency for creative choice counter-conformity (Lang et al., 2016), or cosmopolitanism (Kautish and Khare, 2022; Khare and Kautish, 2020) are prone to choose sustainable fashion. Therefore, effectively communicating these attributes to consumers can foster the adoption of sustainable fashion garments.

From the review emerged that *ethical* and *eco-issues* can be drivers only for sustainability-committed consumers (e.g., Blas Riesgo et al., 2022; Brand and Rausch, 2021). When consumers have a positive attitude toward sustainable fashion (e.g., Chi et al., 2021; Jung et al., 2020; Kaur and Bhardwaj, 2021; Stall-Meadows and Davey, 2013), are environmentally concerned (e.g., Dangelico et al., 2022; Leclercq-Machado et al., 2022; Varshneya et al., 2017; Butler and Francis, 1997), are aware of environmental problems and their consequences (e.g., Rausch and Kopplin, 2021; Sobuj et al., 2021; Nguyen et al., 2020; Dodds et al., 2016), and feel moral obligation toward sustainable consumption (Floriano and Matos, 2022; Betzler et al., 2022; Davis and Dabas, 2021; Chaturvedi et al., 2020; Hong and Kang, 2019), they are prone to perform sustainable fashion purchase behavior. Further, consumers expressing self-transcendence values encompassing mindful consumption (Zahid et al., 2022), moral identity (Legere and Kang, 2020), ethical considerations (de Lira and da Costa, 2022), idealism, and altruistic values (Ahn et al., 2020; Kim and Seock, 2019; Hong and Kang, 2019;

Jacobs et al., 2018; Kim et al., 2015) are prone to choose sustainable garments. Indeed, the concerns for the welfare and interests of others are acknowledged as significant drivers toward sustainable consumption practices (Peattie, 2010). Sustainable consumption literature highlighted how women tend to preserve and protect the environment and act pro-environmentally more than men (e.g., Chwialkowska et al., 2020; Brough et al., 2016). In general, several reviewed studies reported that, *ceteris paribus*, women tend to consider sustainability in their fashion consumption choices more than men (e.g., Rausch et al., 2021), highlighting this tendency also in the fashion industry. Similarly, several studies highlight that consumers who adopt *sustainable behaviors*, encompassing sustainable disposal, recycling behavior, sustainable habits, and generic environmentally friendly behaviors report a higher willingness to perform purchase behaviors toward sustainable garments (e.g., Mishra et al., 2021; Pencarelli et al., 2019; Khare and Varshneya, 2017; Lee, 2011; Kim and Damhorst, 1998). Moreover, Jalil and Sharuddin (2019) found that consumers who adopt a sustainable clothing disposal behavior exhibit heightened purchase behaviors toward recycled garments. Similarly, in the context of slow fashion garment consumption, the consumers' adherence to a slow fashion orientation encompassing its five dimensions (i.e., equity, authenticity, functionality, localism, and exclusivity) is an important driver toward sustainable fashion purchase behavior (Jung and Jin, 2022; Castro-López et al., 2021; Şener et al., 2019). It was also highlighted that performing sustainable behaviors positively impacts sustainable garments' perceived benefits (Khare, 2020), and that such benefits as the perceived sustainability level of the product and the environmental product value may positively influence purchasing behavior (Kim and Oh, 2020; Liang and Xu, 2018).

Since clothing is a means of self-expression and identity formation within society (Kaiser, 1990), *social and situational stimuli* play an important role in influencing consumer behavior. Several studies have identified that the consumers' perception of social pressures to perform sustainable fashion purchase behavior (i.e., subjective norms) positively influences their behaviors (e.g., de Lira and da Costa, 2022; Davis and Dabas, 2021; Park and Lin, 2020; Ho et al., 2020; Kim and Seock, 2019; Han and Chung, 2014). Nowadays, multimedia channels play a pivotal role in disseminating information and fostering communication among consumers, thanks to their extensive coverage and interactive nature. Scholars highlighted how the activity and information sharing among consumers in the digital environment, encompassing electronic word of mouth, influencers' influence, social media influence, and social media use and perceptions, positively influence purchase behaviors towards sustainable garments (Kautish and Khare, 2022; Johnstone and Lindh, 2022; Zhao et al., 2019; MinKong and Ko, 2017). It was also highlighted that social media channels may play a key role in increasing consumers' knowledge and awareness of sustainable fashion (e.g., Bennetta and Oeppen Hill, 2022; Algahni and Al-Dabbagh, 2020; Kusá and Urminová, 2020). For instance, *celebrities'* online communication was found to have a positive effect on sustainable fashion awareness and shift toward sustainable practices, as well as on successfully reversing negative stereotypes regarding sustainable clothing. These effects are enhanced by a higher consumer engagement in the online community, as well as by a higher connection between celebrity and sustainability matters (McKeown and Shearer, 2019). In addition, online community members share information and build expertise (e.g., how to evaluate sustainability in a product, how to find trusted information sources) among themselves, increasing knowledge of the other associates and playing an active role in sustainable behaviors development (Cervellon and Wernerfelt, 2012). Indeed, studies found that celebrities' influence and the consumers' online community engagement increase consumers' green clothing involvement (Khare et al., 2021) and green clothing knowledge (Khare and Kautish, 2020), which may positively affect sustainable fashion purchase decisions. Fashion companies ought to leverage these multimedia instruments and platforms to enhance the promotion of their sustainable offerings and cultivate their brand image among

consumers.

The significance of maintaining a robust and transparent *corporate image* cannot be overstated as it serves to mitigate the risk of being perceived as engaging in greenwashing practices. Indeed, positive expectations about fashion brand sustainability positively impact purchase behavior (Ciasullo et al., 2017). Corporate reputation, trust, and brand equity drive consumers toward sustainable fashion choices (Vătămănescu et al., 2021; Neumann et al., 2020; Chang and Jai, 2015). Similarly, Seo and Kim (2019) found that positive beliefs toward non-profit thrift stores drive consumers' purchases in the second-hand fashion context. Moreover, Grazzini et al. (2021) emphasized that sustainable attributes in a fashion product, such as recycled fibers, increase perceived warmth (defined as the consumers' perception of companies' sincerity, kindness, and morality intentions) which, in turn, positively influences consumer purchase behaviors. Scholars underscored how corporate marketing information, particularly those highlighting sustainable activities (e.g., CSR, environmental protection strategies, and environmental responsibility) and eco-friendly marketing content (e.g., caring, nature connectedness, and ethicality perceived in the advertising messages), are critical in managing consumers' skepticism, driving consumers to sustainable fashion purchase behaviors (Vătămănescu et al., 2021; Neumann et al., 2020; Song and Kim, 2018; Dabija, 2018; Kong et al., 2016; Chang and Jai, 2015; Kim et al., 2015). Further, conveying this information through visual and verbal nudges can increase consumers' willingness to pay more (Roozen et al., 2021). Reviewed studies highlighted how immersive technology (e.g., virtual reality) and in-store experience could connect producers and consumers, increasing transparency and may also contribute to encouraging sustainable fashion consumption, increasing consumers' engagement and participation (Cross et al., 2021). Further insights into digitized technologies for the fashion industry can be found in Akram et al. (2022).

Overall, it appears essential to ensure that the consumer *purchasing experience* is perceived as pleasant, considering that hedonic values encompassing shopping enjoyment, enjoyment-based motivation, consumption hedonism, and hedonic shopping value positively affect sustainable fashion purchase behavior (e.g., Yang et al., 2022; Hasbullah et al., 2022; Soyer and Dittrich, 2021; Kumar and Yadav, 2021; Jung et al., 2020; Ahn et al., 2020; Kleinhüchelkotten and Neitzke, 2019; Gam, 2011). In terms of distribution channels, tailored offerings encompassing aspects such as packaging, transaction processes, and shipment methods have been identified as able to promote consumers' purchase behaviors (Kumar and Yadav, 2021). Similarly, consumers' affinity towards online and catalog shopping fosters purchase behaviors (Jacobs et al., 2018). Additionally, customer satisfaction related to timely delivery and post-sale services contributes positively to consumer engagement (Tran et al., 2022). Furthermore, attributes associated with retail settings, including customer service and store design, serve as drivers towards sustainable fashion choices (Chan and Wong, 2012). In the realm of second-hand shopping, De Groot (2021) discovered that the presence of a fresh linen scent positively impacts store evaluation, which in turn positively affects consumers' purchase behavior.

Finally, studies found specific drivers related to the second-hand garment category: (1) *cheap price* allowing to save money, (2) *unique style*, (3) *treasure and bargain hunting* (feeling fun and exciting), (4) *encouragement of creativity*, and (5) *enhancement of social identity* in relation to fitting in and improving the overall fashion self-concept (e.g., Wang et al., 2022; Hur, 2020; Kapusy and Lógó, 2020; McNeill and Venter, 2019; Machado et al., 2019; Liang and Xu, 2018; Perry and Chung, 2016; Cervellon et al., 2012).

3.2. Use: determinants of sustainable product use

This section is divided into two sub-sections related to factors affecting (1) *personal fashion use* and (2) *collaborative fashion consumption*.

3.2.1. Personal fashion use

This section deals with three different elements of personal fashion use: (1) *continuing wearing*, (2) *laundry practices*, and (3) *repair activities*.

3.2.1.1. Continuing wearing. Continuing wearing garments, i.e., extending their life cycle, permits to reduce consumption as well as mitigates environmental impacts. In this context, through a *wardrobe study*, Whitson-Smith (2018) highlighted drivers and barriers to wearing a garment (e.g., comfort, fit, ease of care, wardrobe organization, and garment visibility). *Barriers* are related to the psychological state of the consumer (e.g., perception of self via clothing, change in personal circumstance, length of ownership, and difficulty in combining garments). Thus, as Harris et al. (2016) highlighted, *social pressure* leads consumers to regularly update and vary their wardrobe, since wearing the same items multiple times is not socially accepted.

With the aim to overcome this barrier and understanding consumers' feelings about wearing the same garments for longer, some studies used experimental methodologies (e.g., *wardrobe diet*) reporting similar results (Bardey et al., 2022; Rhee and Johnson, 2019). In these studies, participants had to reduce their clothing use by choosing a limited set of clothing items to wear for a defined time (e.g., four weeks). After a starting negative feeling (e.g., frustration, concern toward other people's judgement, loss of freedom to express self), during and after the experience participants report positive sensations (e.g., saving time and money, feeling less superficial, becoming confident) and state that will change their consumption habits toward sustainable ones. The experience led them to feel less stressed in their clothing practice and a pleasant feeling of having more clarity in their fashion practice, decision-making, and organization. This drives extensions of garments' life (e.g., re-styling what they already owned) and increased awareness of the impact of fashion consumption on the environment. Further, participants experienced a detachment from fashion trends focusing on finding their own style, reducing the feeling of social pressure, and increasing creativity, joy, and excitement. Similarly, Joyner Armstrong et al. (2016) and Ruppert-Stroescu et al. (2015) realized the *fashion detox* experiment, i.e., ten weeks during which participants cannot purchase any clothing item. Consumers reported challenges: (1) individual (e.g., internal yearning for new and different things, inability to satisfy specific clothing needs), (2) social (e.g., feelings of jealousy, appearance inadequacy), and (3) cultural (e.g., temptation generated from fashion marketing prompts, breaking the rules) levels. Nevertheless, positive benefits were highlighted during and after the abstinence experience: (1) personal (e.g., enhancing creativity and self-regulation), (2) monetary saving, and (3) garments life extension through the greater use of their wardrobe. However, frugal consumption is still generally associated with negative feelings such as "poverty" and "not following the fashion trends" (e.g., Kovacs, 2021). Further, only a limited portion of owned clothes is regularly used, highlighting the diffusion of the overconsumption phenomenon.

Some firms make efforts to promote sufficiency behavior (e.g., extending product lifetime). It was found that nudging activities (e.g., online communications interventions on clothing consumption) can successfully increase sufficiency behavior in the short term and drive consumers' positive attitudes toward the company (Frick et al., 2021). Further, it was found that individuals with high self-transcendence values show more sufficiency behavior compared to individuals with high self-enhancement values. Finally, a recent study demonstrated that AI fashion curation service (i.e., style consultancy application) could improve sustainable practices and consumer satisfaction (Shin et al., 2022). Specifically, application's attributes, like convenience, usefulness, and recommendation suitability, have a positive effect on clothing's effective use which in turn can help reduce the amount of discarded or neglected clothing.

3.2.1.2. Laundry practices. Laundry practices represent the main activities of clothing care during use. The way consumers do it can highly impact the clothing life cycle and environmental impacts (e.g., water and energy consumption). Laundry practices were investigated in their several components (e.g., washing temperature, the day before washing, and detergent use).

Studies identified *barriers* to sustainable laundry practices. Washing temperature decrease is hindered by the importance attributed to the *cleanliness* of the garments, which is perceived to be reached only through high-temperature washing (e.g., Laitala et al., 2012). Consumers' *lack of knowledge and uncertainties* about laundry practices (e.g., detergent dosage, machine load and program) results in unsustainable behaviors (Laitala and Klepp, 2016; Kruschwitz et al., 2014; Goworek et al., 2012). Washing and drying instructions provided with garments are not perceived to be related to sustainability by consumers (Kovacs, 2021). Further, the *idea of appearing dirty* is the main barrier to reducing clothing washing frequency (Jack, 2013).

The *reasons to wash* can be linked to diverse motivations: (1) physical (e.g., dirt, smell), (2) habits, (3) emotional (e.g., freshen, remove history, prepare for new situations, show affection), (4) community censorship, and (5) self-auditing (Jack, 2013). However, contrasting results emerged: some studies found that reasons and frequency for washing garments are related to habits (e.g., the length of worn and the garment type) rather than dirty or odor detection (McQueen et al., 2020; Yates and Evans, 2016), others found that the reason to wash is mainly based on the level of soiling rather than on habits (e.g., Laitala and Klepp, 2016). Finally, also *reasons not to wash* clothes are identified: (1) convenience (e.g., avoiding a mundane chore, saving time, saving money), (2) longevity (e.g., to extending life), and (3) preserving emotions (Jack, 2013).

Further, studies found differences in laundry practices (e.g., washing temperature, frequency, and treatment used) based on consumers' countries of origin, garment types (e.g., t-shirts or jeans), and garment composition (e.g., cotton or wool) (Laitala and Klepp, 2016; Laitala et al., 2012). The clothing item type is the main factor driving consumers to behave differently in laundry practices (Yates and Evans, 2016). Further, clothing type also influences the frequency of detecting the odor. Clothing items, such as underwear, socks, and sportswear, tended to be washed more frequently due to the stronger odor detected (McQueen et al., 2020).

3.2.1.3. Repair activities. Repair activities permit extending garments' life cycle and restoring functionality and/or fashionability. However, nowadays it can be easier and more convenient to replace an old damaged garment with a new one than repair or modify it, due to several reasons (e.g., cheap price of new garments, skills for repairing are disappearing) (Harris et al., 2016). Further, during the last few years, the average time that consumers spent on repair has decreased (Laitala and Klepp, 2018). Indeed, the literature highlighted that repair activities are not widespread and that most consumers do not repair any garments.

Barriers to repair include lack of quality, price of repair – consumers compare this price to that of a new garment, which often is the same or even lower –, and lack of competence or knowledge on how to repair (e.g., Zhang and Hale, 2022; Laitala and Klepp, 2018). In addition, if consumers knew how to repair their clothing, they would fix them instead of disposing of them (Bennetta and Oeppen Hill, 2022). Conversely, the main *reasons to repair* are quality and emotional attachment, as well as the fact that better quality and cheaper repair services can drive longer clothing use (e.g., Laitala et al., 2021). Further, two categories of consumers emerge as more prone to be engaged in repair activities: (1) environmentally-concerned consumers (Laitala and Klepp, 2018; Žurga et al., 2015) and (2) fashion-sensitive consumers (Haines and Lee, 2021; McNeill et al., 2020a). Thus, on the one hand, environmental concerns, general recycling behavior, and previous repair experience are positively related to repair activities. On the other

hand, emotional connection with highly fashionable garments stimulated fashion-sensitive consumers to repair them. Further, it was found that women and the elderly are more inclined and engaged in repair (e.g., Laitala et al., 2021). Concerning those consumers involved in repair, self-repair activities are more common than the use of professional services (e.g., tailors). In addition, consumers engaged in “Do It Yourself” activities groups reported positive feelings and a shift toward sustainable clothing consumption practices (Hirscher et al., 2018). Indeed, these repair and remake activities are able to drive consumers to adopt a slow fashion lifestyle, acquire knowledge and new skills, and build relationships with others so becoming better integrated into the community and society (Niinimäki et al., 2021).

3.2.2. Collaborative fashion consumption

Collaborative fashion consumption is expressed by the concepts of sharing among users and having access to garments instead of owning them (e.g., through renting, online renting, clothing platforms).

Several *barriers* hinder collaborative fashion use. As clothing is a means to express one’s own style and identity, not owning the garments is one of the main perceived barriers to participating in collaborative forms of fashion consumption (e.g., McNeill and Venter, 2019).

Concerning clothing renting, the consumers’ perceived barriers are different depending on whether the clothing renting is short- or long-term (Tunn et al., 2021). Specifically, barriers related to the link between the service provider and the customers - i.e., effort to access service and high wear and tear of clothing offered - have a major influence on short-term renting. Conversely, barriers related to the use phase - i.e., low garments’ comfort and quality - have a higher influence on long-term renting. Further, a limited number of dresses available to rent, scarce flexibility in the rental period, and favorable price of new dresses available on the market are other barriers highlighted in the extant literature (Johnson and Plepys, 2021; Iran and Schrader, 2017).

Several *drivers* toward participating in collaborative forms of fashion consumption can be identified: (1) it is considered a form to be a part of the community and fit in social contexts enabling confidence and emotional well-being, through easy access to formal and luxury garments; (2) it generates emotional pleasure that is associated with the strengthening of interpersonal relationships in the sharing among peers or by exploring new forms of luxury goods consumption (e.g., renting by occasion); (3) it is a mean to express individuality and stand out through easy access to several clothing alternatives, reducing the perceived risk in fashion self-expression, thanks to the flexibility of the renting service; (4) the aspiration to make more sustainable consumer choices, especially for young consumers, supporting the extension of the product life cycle and reducing new purchases; (5) to avoid having to buy a dress, saving money (Johnson and Plepys, 2021; Pantano and Stylos, 2020; McNeill and Venter, 2019).

Further, reviewed quantitative studies showed that the intention to adopt collaborative forms of clothing consumption is positively influenced by several factors. *Attitude* towards collaborative clothing consumption and *subjective norms* (also mentioned as social norms) are the most relevant factors (e.g., Lee and Huang, 2020; Becker-Leifhold, 2018). A few specific factors, used less frequently, have a positive impact on collaborative forms of clothing consumption: (1) *perceived behavioral control*; (2) *perceived usefulness and ease of use*; (3) *economic benefit*; (4) *egoistic value orientations* (fashion involvement, status consumption, susceptibility to interpersonal influence); (5) *fashion leadership*; (6) *tendency for creative choice counter-conformity*; (7) *trust and reputation*; (8) *ecological importance* (9) *compatibility* (e.g., Pham et al., 2021; Iran et al., 2019). It is important to note that environmental concerns or awareness are not significant in influencing consumer behavior (e.g., Khan and Rundle-Thiele, 2019; Becker-Leifhold, 2018), except in the study by Lee and Huang (2020), who highlighted that consumers with a high perception of the ecological importance of participating in collaborative forms of fashion consumption (e.g., reducing pollution and saving natural resources); are more willing to be engaged in clothing renting. Only

one study found a factor having a negative influence on collaborative fashion usage, i.e., *materialism* (Johnson et al., 2016). However, the effect of such a factor was found not significant in other studies (Navia et al., 2021; Becker-Leifhold, 2018).

3.3. Post-use: determinants of sustainable product disposal

Garments’ lifecycle ends when consumers consider their clothes obsolete (e.g., do not want to wear them anymore or wear them rarely - Zhang et al., 2020) and decide to dispose of them. This process can take place in several ways (e.g., donate, resell, recycle, throw into the trash) and can be affected by several factors. Indeed, the literature review highlighted that disposal reasons are linked to technical/physical and psychological factors. Concerning *technical/physical* reasons, damage due the wear and tear results in the most common reason for clothing disposal. This reason is derived usually from the low quality of the garments. Other technical/physical reasons are not fitting well and lack of storage space (Paço et al., 2021; McQueen et al., 2021; Gazzola et al., 2020; Laitala and Klepp, 2020; Zhang et al., 2020). Concerning *psychological* reasons, changes in fashion trends and “no longer used” are important clothing disposal reasons. Preferences are fewer common reasons, e.g., consumers do not like the clothing anymore or consider it no longer needed (Zhang et al., 2020; Gazzola et al., 2020; Žurga et al., 2015; Birtwistle and Moore, 2007). Further, it was highlighted that the disposal reason may differ depending on the garment type and the consumers’ characteristics (Laitala et al., 2015). In addition, emotional attachment can extend garment ownership, however averting clothing reuse (Whitson-Smith, 2018) since consumers emotionally attached to a particular garment tend to maintain and store it, preventing its reuse or sustainable disposal.

The disposal method chosen by consumers is strictly affected both by the above-mentioned reasons, as well as by the garment characteristics (e.g., quality and type). Low-quality garments (e.g., fast fashion garments) are easily worn out and are usually repurposed as a rag or are disposed of in unsustainable ways (e.g., thrown into the trash) (Joung, 2014). These are the least likely to be sent for reuse. Conversely, garments disposed of due to changes in fashion trends, with high quality, high price, and from famous brands are usually reused. Indeed, consumers are more likely to resell, donate, gift, or swap garments with these characteristics driven by feelings of guilt for throwing into the trash high-quality and expensive garments (Cruz-Cárdenas and del Val Núñez, 2016; Birtwistle and Moore, 2007). Accordingly, it was found that formal wear garments are more likely to be sold, gifted, or swapped, while casual wear garments are more likely to be trashed (McNeill et al., 2020b). If consumers consider that the clothing item to be disposed of may still have value, they tend to ensure that it is reused again instead of throwing it away (Joung, 2014). Concerning the garment type, socks, underwear, and t-shirts were hardly reused because they are intimate clothing, and their use is strictly personal. Further, environmental concerns, positive feelings relating to helping other people and avoiding waste, as well as convenience are only minor determinants of sustainable clothing disposal (e.g., Cruz-Cárdenas et al., 2017; Morgan and Birtwistle, 2009).

Regarding the most used sustainable disposal solutions, donating to charity or humanitarian associations emerge as the most common (e.g., Sonnenberg et al., 2022; Sinha et al., 2022; Laitala and Klepp, 2020; Zhang et al., 2020; Birtwistle and Moore, 2007), with many consumers indicating this method as the most used for the disposal of their clothing. Also gifting or swapping with family members and friends, as well as reusing it as a rag, are quite common clothing disposal practices among consumers. Conversely, all the diverse methods to resell and recycle clothes (e.g., collecting bins, recollecting campaigns) emerge as the least used sustainable disposal solutions (e.g., Kovacs, 2021). This is due to the perceived effort to carry it out as well as to the consumers’ lack of knowledge of its importance and how to perform these behaviors better (Ekström and Salomonson, 2014; Goworek et al., 2012; Morgan and

Birtwistle, 2009). Indeed, the existence of infrastructures for donation and recycling clothes and their location influence sustainable disposal behaviors (Williams and Hodges, 2022). Finally, well-educated women are more prone to sustainable disposal of their garments (Popowska and Sinkiewicz, 2021; Nenckova et al., 2020). However, women are generally higher fashion-oriented and purchase more often, thus easily obsoleting their old clothing, contributing more to the disposal (Zhang et al., 2020).

Fig. 2 summarizes the determinants of sustainable consumer behavior in the fashion industry, divided into drivers and barriers, as emerged from the review.

4. Discussion, implications, and future research agenda

This Section discusses the review results providing cues for future research and implications. The Section is divided into five sub-sections. Section 4.1 discusses the results not specific for a given consumption phase. Sections 4.2, 4.3, and 4.4. Discuss the results concerning specifically the (pre-)purchase, use, and post-use phases. Section 4.5 discusses the limitations of this study.

4.1. General discussion

Results of this systematic review show that over 65% of the articles are made up of quantitative studies. Future studies could adopt a qualitative approach to explore green apparel choices, as suggested by previous research (e.g., de Lira and da Costa, 2022; Rahman et al., 2021; Sandhya and Mahapatra, 2018), as well as mixed methods, as advocated by several researchers (e.g., Feuß et al., 2022; Kopplin and Rösch, 2021; Zhou et al., 2021) to have deep insight into sustainable consumption behaviors. Further, with the aim to overcome the attitude- and/or the intention-behavior gap, both experimental studies (e.g., real purchase setting) and actual data on garments consumption could be used (Grazzini et al., 2021; Klein et al., 2020; McKeown and Shearer, 2019).

Most of the analyzed studies used samples of consumers highly

involved in fashion and environmental issues (e.g., women, young, or fashion-addicted consumers). However, this might undermine the generalizability of the results and provide a limited understanding of the perceptions and behavior of those consumers who are less involved and have limited awareness of these matters. Hence, future studies should address this category of consumers, aimed at favoring the diffusion of sustainable consumption practices. For these reasons, efforts of future research should be devoted to reaching samples more representative of the entire population (e.g., Brand and Rausch, 2021; Hong and Kang, 2019), investigating consumers who do not implement sustainable choices when buying clothes (Pereira et al., 2021). Further, the literature recommends a longitudinal study approach (e.g., Frick et al., 2021; Khare and Kautish, 2020; Rhee and Johnson, 2019), capable of highlighting shifts in consumer behavior over time, following changes in the market concerning both the offer (e.g., new technologies, new characteristics of products and services) and the context conditions (e.g., war and Covid-19 pandemic).

Among the articles in the sample, less than 15% involved two or more countries and less than 6% compared behaviors of consumers belonging to two different cultures or economies. Indeed, several studies highlighted the need for future research on the comparison between different national markets to investigate whether sustainable consumption habits and behaviors can differ based on the culture (e.g., individualistic vs. collectivistic) and economy (e.g., emerging vs. mature) of each country (e.g., Castro-López et al., 2021; Kumar and Yadav, 2021; Brand and Rausch, 2021). Likewise, given the great attention paid to consumers from mature economies, such as the US, European, and Chinese, researchers suggested exploring other countries and emerging markets (Zahid et al., 2022; Kopplin and Rösch, 2021; Vătămănescu et al., 2021; De Groot, 2021). Future studies could also profile consumers, using several attributes related to sustainability, relevance given to fashion, and psychology, among different cultures, thus providing strategic insights for marketers (Park et al., 2017).

Concerning the green characteristics of the products, the review highlighted that the more diffused way to investigate sustainable

(PRE-)PURCHASE	USE		POST-USE
DRIVERS			
<p>Product choice</p> <ul style="list-style-type: none"> • High comfort and fit • High quality • Fashionable style and design • Information spread by celebrities, media, and inside online communities • Competitive price • Unique style • Treasure hunting • Creativity • Enhancement of social identity 	<p>Laundry</p> <ul style="list-style-type: none"> • Convenience, saving time and money • Extending clothing life • Knowledge of laundry practices <p>Repair</p> <ul style="list-style-type: none"> • Emotional attachment • High quality • Cheaper repair services • Environmental concerns • Fashion sensitivity 	<p>Continue wearing</p> <ul style="list-style-type: none"> • High comfort and fit • Ease of care • Wardrobe organization • Garments visibility <p>Collaborative Fashion Consumption</p> <ul style="list-style-type: none"> • Be part of the community • Source of emotional pleasure • Mean of self-expression • Environmental concerns • To avoid new purchases 	<p>Disposal</p> <ul style="list-style-type: none"> • In fashion • High quality • High price • From famous brands • Feeling of guilt • Willingness to help other people
BARRIERS			
<p>Product choice</p> <ul style="list-style-type: none"> • High price of sustainable garments • Skepticism • Lack of consumer knowledge and negative stereotypes • Limited availability • Habits and inertia • Previous ownership • Efforts to find the store and things inside it 	<p>Laundry</p> <ul style="list-style-type: none"> • Perception of cleanliness • Lack of knowledge and uncertainties • Idea of appearing dirty <p>Repair</p> <ul style="list-style-type: none"> • Lack of competence or knowledge on how to repair • Low quality garments • High price of repair • Cheap price of new garments 	<p>Continue wearing</p> <ul style="list-style-type: none"> • Perception of self via clothing • Change in personal circumstance • Length of ownership • Difficulty in combining garments <p>Collaborative Fashion Consumption</p> <ul style="list-style-type: none"> • No ownership • Efforts to access the service • Wear and tear of available clothing • Low comfort or quality 	<p>Disposal</p> <ul style="list-style-type: none"> • Low quality garments • High wear and tear • Changes in fashion trends • Availability of the service • Lack of knowledge • Emotional attachment

Fig. 2. Framework of determinants, divided into drivers and barriers, of sustainable consumer behavior in the fashion industry across consumption phases.

consumer behavior in the fashion industry is to consider a general green product as the topic of the study. When asking consumers to report their behaviors, studies used adjectives like “green”, “sustainable”, “eco”, and “environmentally-friendly” to define the garments, without being specific about the green attributes. Among these, several studies measured consumer behavior in relation to a generic green product according to the study by Kim and Damhorst (1998), which includes different characteristics of sustainable fashion products, such as natural dyeing process, recycled material, or organic fibers. This method does not allow for evaluating the consumers’ intention regarding specific products or sustainable categories, as well as making distinctions and comparisons among them. Only few articles investigate and compare specific sustainable product solutions among each other (Dangelico et al., 2022; Kleinhüchelkotten and Neitzke, 2019; Hong and Kang, 2019; Stall-Meadows and Davey, 2013) or sustainable product characteristics with traditional ones (Friedrich, 2021; Brand and Rausch, 2021; Roozen et al., 2021; Rahman and Koszewska, 2020; Momberg et al., 2012). These studies highlighted that consumer behavior may be dependent upon a specific sustainable attribute. Thus, future studies should be more specific with regard to sustainable product attributes they are referred to, as well as compare and contrast different specific sustainable solutions.

4.2. (Pre-)purchase

Some contrasting results emerged for the most studied sustainable product categories, i.e., recycled, organic, or second-hand, concerning the influence of factors encompassing perceived behavioral control, subjective norms, and environmental apparel knowledge (see Appendix A). Hence, further studies are needed to shed light on these results; moreover, future research should be devoted to extending knowledge on other product categories less investigated (e.g., bio-based - see e.g., Wijayarathna et al., 2022). In addition, in developing new theoretical models to further investigate sustainable consumer behavior, it is advised that future studies: (1) build on the past models (as suggested by Abrar et al., 2021; Dhir et al., 2021; Sobuj et al., 2021), (2) use new variables (Vătămănescu et al., 2021; Park and Lin, 2020; Legere and Kang, 2020), especially those linked to the digital environment (Tran et al., 2022; Frick et al., 2021; Khare et al., 2021), and (3) consider possible mediating, moderating or interaction effects among them (Khare et al., 2021; Pham et al., 2021).

Results show that sustainable product attributes seem to play a secondary role (i.e., they are rated by most consumers less important than other product attributes, such as price, quality, and aesthetic) in influencing consumers’ purchase behavior. This result may provide a cue for future research toward the extension of the analysis of the impacts of sustainable attributes on consumption behaviors. Indeed, future studies should analyze new and specific sustainable product attributes (Kumagai, 2020), as well as how different associations of these attributes are able to affect consumer behavior (Carranza et al., 2022). Further, it would be interesting to understand which combinations of sustainable and traditional attributes are considered most attractive by consumers and to evaluate differences in behaviors based on different clothing items (e.g., t-shirts vs jackets).

High prices appeared as the main barrier to sustainable garments acquisition, according to what happens in several other industries (e.g., Joshi and Rahman, 2015). Scholars could deepen knowledge on this issue, by comparing the willingness to pay more for specific sustainable product options for products with different sustainable characteristics (e.g., organic vs. bio-based). From a practitioners’ perspective, in order to overcome this barrier, companies have two different options. One of these is that companies commit to reducing the price of sustainable garments, making them competitive with unsustainable alternatives (e.g., Grasso et al., 2000). The other option is that companies focus on differentiation strategies, highlighting that sustainable garments are superior in terms of quality, style, and durability compared to

unsustainable alternatives.

According to the literature, the skepticism towards the sustainability of garments, as well as towards the declarations and the environmental commitment of companies, remains high among consumers (Blas Riesgo et al., 2022; Ritch, 2022; Perry and Chung, 2016). In this regard, scholars could further explore factors driving such skepticism, for instance focusing on the history and name of the brand, company communications and environmental statements, characteristics of the product offered, and social influence (e.g., reviews and comments from other users). In addition, the study of strategies to overcome consumers’ skepticism should be deepened. From a managerial implications perspective, companies should make information on the sustainability of their activities transparent and easy for consumers to access, taking a more active role in increasing consumers’ awareness (Bennetta and Oeppen Hill, 2022). Further, marketers should focus on the clarity of these messages, creating narratives over key sustainable themes to improve consumers’ knowledge, trust, and loyalty toward the brand (Evans and Peirson-Smith, 2018). For instance, they should explain to consumers, through intuitive forms, how buying sustainable clothes has a positive effect. This could be done through the product passport, i.e., a QR code associated with the garment (Centobelli et al., 2022). This new technology allows consumers to visualize the production steps and the sustainability elements, increasing product traceability as well as consumer awareness and trust (McKinsey, 2022).

Stereotypes related to sustainable clothing and low consumer knowledge are important barriers. Scholars should explore the ways in which these stereotypes can be overcome. In the same way, it would be interesting to measure the effectiveness of tools aimed at increasing consumers’ knowledge about the issues related to clothing production (e.g., awareness campaigns and environmental declarations of companies, label information). In this regard, given the increasing impact of the internet and social media on the purchasing process, celebrities and online influencers can play a key role in reversing negative stereotypes regarding sustainable clothing and increasing consumers’ awareness. Since few studies have been published on this topic, this issue needs further investigation. Further, consumers’ knowledge of the different sustainable characteristics of clothing should be evaluated, with the aim to highlight knowledge gaps. With regard to managerial implications, our study results highlight that companies should make the sustainable characteristics of products easy to recognize (e.g., clarifying sustainable messages and using easy-to-understand labels) (Wang et al., 2022; Sonnenberg et al., 2014), allowing consumers to easily distinguish sustainable products from the traditional alternatives.

Concerning the availability of sustainable garments and the effort in the purchase process, future studies could further investigate these barriers by assessing the extent of their impacts. Both the physical level, i.e., the actual availability of products and stores, and the cognitive level, i.e., related to the knowledge of sustainable alternatives and where to find them, should be considered. In terms of managerial implications, this study suggests that companies should help consumers find sustainable garments and recognize their sustainable characteristics (Abrar et al., 2021) through the use of labels with messages easy to understand and a transparent promotion, aimed at increasing consumer awareness (Ritch, 2022).

The literature highlights that only sustainability-committed consumers give more value to sustainable product characteristics compared to other product attributes. Scholars should explore the ways in which even scantily environmentally-conscious consumers can judge the sustainable characteristics as relevant in the purchasing phases. Indeed, these consumers perceive a negative trade-off in the purchase of sustainable clothing (Jägel et al., 2012) due to the above-mentioned barriers and are not pushed to change their consumption habits towards sustainable choices. Thus, companies should design marketing campaigns aimed at attracting this category of consumer as well (Wang et al., 2022) in order to make sustainable fashion available and attractive to a wider market.

Finally, the role of the digital context where consumers interact cannot be neglected. Future studies should focus on how consumers interact in these environments (disseminating their knowledge and suggestions on sustainable products) and with the new available technologies, assessing their actual impact in promoting sustainable practices. From this perspective, it would be interesting to evaluate similarities and differences among consumers with different characteristics (Pham et al., 2021; Lee and Huang, 2020). From a managerial perspective, the growing relevance of digital technologies, suggests that companies use online promotion, e.g., through influencers and advertising on social channels, to foster the purchase of their sustainable garments, as well as to increase consumers' knowledge about sustainable fashion (Bennetta and Oeppen Hill, 2022). As highlighted in recent studies (e.g., Bae et al., 2022), firms could use new consumer-centered technologies to improve the experience of online purchasing, such as avatar fitting services or item online customization, overcoming the concerns of not receiving clothing satisfying their expectations. Further, combining them with other information (e.g., price or discounts) can help overcome the perceived risk associated with online sustainable purchases (Feuß et al., 2022).

4.3. Use

Extending the useful life of clothing is essential for sustainability. Therefore, on the one hand, companies should be encouraged to produce garments able to be used longer (e.g., with higher quality or timeless style). On the other hand, it is necessary to increase the consumers' knowledge of the best practices for taking care of the different types of clothing. For these reasons, it is important to extend the study of the strategies that make it possible to extend the life of the garment. Hence, scholars could deepen the study, from the consumer's point of view, of services provided by firms to extend the use of the garment (e.g., repair, cleaning, and style consultancy) by evaluating their effective diffusion and use, as well as what factors can drive consumers to use them. Further, future studies could explore strategies to increase consumer knowledge of sustainable clothing care practices. Scholars should compare private repair and professional repair services (Laitala et al., 2021), compare different product types, and investigate what contributes most to increasing repair (Laitala and Klepp, 2018). From the company perspective, our study results suggest that companies should engage in promoting these services by making them accessible to an increasing number of users, e.g., making repair and updating services available at competitive prices. Further, it is essential to promote awareness and skill-building campaigns on repair activities (Zhang and Hale, 2022) and foster consumer engagement in DIY groups and activities. In the same way, online communities and clear information on the label can help inform consumers about sustainable practices in clothing maintenance and care.

Collaborative fashion consumption allows for reducing the environmental impacts of the fashion industry (e.g., Kumar et al., 2022). Future studies can investigate how product type, duration of use (Tunn et al., 2021), as well as individual values and social and economic factors (Iran et al., 2019), can influence consumer collaborative fashion consumption adoption behavior. Further, research toward digital collaborative apparel consumption should be deepened (Pantano and Stylos, 2020) with a particular focus on consumers-to-consumers and consumers-to-business relationships (Joyner Armstrong and Park, 2017) and on the influence of the technological characteristics of the service (Navia et al., 2021). Finally, experimental designs are suggested to study the different collaborative fashion consumption forms (McNeill and Venter, 2019; Becker-Leifhold, 2018). In terms of managerial implications, companies that manage and offer this service should rely on the insights discussed in the review to strengthen their marketing strategies, enhancing the consumer experience in physical or online stores. For instance, companies may ensure that they provide high-quality garments and make them easily accessible through promotional campaigns,

by making them available through an app or by offering clothing at more competitive prices.

4.4. Post-use

Proper disposal or reuse of end-of-life clothing is essential to mitigate the environmental impacts of the fashion industry. Making consumers more aware and pushing them to adopt sustainable disposal practices is essential, as it leads to reducing the impact on landfills as well as the exploitation of virgin raw materials. The results of this review show a lack of consumer knowledge of sustainable disposal alternatives and effort to access these services. Therefore, on the one hand, scholars should deepen the study of the reasons that drive consumers towards correct sustainable disposal, as well as the effectiveness of existing services and trust in suppliers, such as humanitarian associations, companies, and the municipality. On the other hand, in terms of implications for practice, our study results highlight that these suppliers should improve the accessibility of their services and encourage their use, as some businesses are doing by including the collection of used clothes within the point of sale and offering vouchers or discounts in exchange. Further, campaigns aimed at increasing consumers' awareness about how, when, and where to dispose of their clothing are needed (Ekström and Salomonson, 2014).

A summary of the future research directions according to the consumption phase or general (i.e., valid for all the phases) is reported in Table 2.

4.5. Limitations

This study is not without limitations. First, only the Scopus and Web of Science databases were analyzed. There may be other relevant articles

Table 2
Synthesis of future research agenda.

FUTURE RESEARCH AGENDA	
(Pre-) purchase	<ul style="list-style-type: none"> ● Investigating the effect of variables, reporting contrasting results, on consumers' intentions and behaviors, building on the past models using new variables, especially those linked to the digital environment, considering possible mediating, moderating or interaction effects among them. ● Analyzing sustainable product attributes and how different associations of these attributes are able to affect consumer behavior. ● Understanding which combinations of sustainable and traditional attributes are considered most attractive by consumers, also comparing different clothing items. ● Studying whether consumers are willing to pay more for specific sustainable product options by comparing products with different sustainable characteristics. ● Studying celebrities' and influencers' online communication role in reversing negative stereotypes and fostering sustainable consumption.
Use	<ul style="list-style-type: none"> ● Studying the services capable of extending the use of the garments, by evaluating their effective diffusion, use, and what factors can drive consumers to use them. ● Exploring strategies to increase consumer knowledge of sustainable clothing care practices. ● Investigating how product type, duration of use, as well as individual values and social and economic factors can influence consumer collaborative fashion consumption adoption behavior. ● Extending the research on digital collaborative apparel consumption and how consumers interact in these digital environments.
Post-use	<ul style="list-style-type: none"> ● Studying the reasons that drive consumers towards correct sustainable disposal, the effectiveness of existing services and trust in suppliers, such as humanitarian associations, companies, and the municipality. ● Investigating availability barriers at a physical level, i.e., in the actual availability of services, and on a cognitive level, i.e., knowledge of sustainable disposal alternatives and where to find them.

outside these databases. Second, this review only includes articles published in scientific journals, while further insights may emerge from the gray literature. Third, studies focused on shoes or accessories are not included in this article and could provide further relevant findings for the fashion industry.

5. Conclusions

This review aimed to explore the factors affecting consumer behavior toward different solutions to make a garment more sustainable across all consumption phases, through an in-depth analysis of 217 articles. This article provides a holistic view of the determinants of sustainable consumer behaviors in the three consumption phases. Several considerations can be made. Since clothes are a means of expressing their own identity in the community, consumers attach great importance to style in their purchasing choices. Thus, it is important to make sustainable garments attractive and fashionable. Consumers place great value on the quality and comfort of garments. Making a garment with these characteristics is essential, especially with a view to extending its duration. Increasing consumer knowledge and awareness appears critical to overcome skepticism and promote sustainable consumption behaviors. Thus, it is necessary to provide adequate and exhaustive information on the sustainability of the garment regarding product attributes (i.e., (pre-)purchase), maintenance and life-extension practices (use), and reuse or recycling services (post-use). Collaborative consumption is an important sustainable alternative; efforts should therefore be made to make the related service accessible to more and more consumers. The company's offer of services aimed at increasing sustainability in the use and disposal phases of the garment is also essential to foster sustainable consumer behavior. Further, the use of new technologies in the production, offer, use, and disposal phases are fundamental to reduce the environmental impact of the fashion industry. The study of their development, application, consumers' perceptions about them, and actual use should be deepened. In today's hyper-connected society, the use of digital tools is increasingly widespread and their role in sharing and disseminating sustainable practices has become more relevant. Their use and the interactions between companies and consumers and among consumers deserve further investigation. Concerning new trends,

rapid technological development opens up different scenarios for the future of the fashion industry, such as virtual fashion (e.g., online personalization, metaverse simulation) and smart fashion (e.g., clothing electronically enabled made with fibers capable of changing color, adapting to different temperatures) (Akram et al., 2022; McKinsey, 2022). Further, to foster sustainable consumption, it may be useful to combine multiple sustainable solutions so that the sustainability of the product increases across all phases of consumption. Indeed, a holistic approach is essential to develop sustainable strategies as all the consumption phases are interconnected and can influence each other. Finally, it is important to remember that both companies, through their product and services offering, and consumers, through their choices and behaviors, play a key role in the transition to sustainable consumption practices.

We hope that this review will stimulate future research and will represent a reference point for managers, scholars, policy makers, and students interested in deepening the understanding and fostering the diffusion of sustainable fashion.

CRedit authorship contribution statement

Valerio Schiaroli: Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Luca Fraccascia:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization. **Rosa Maria Dangelico:** Writing – review & editing, Validation, Supervision, Methodology, Conceptualization.

Declaration of competing interest

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

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jclepro.2024.144232>.

Appendix 1. Sample characteristics

Concerning the sample characteristics, the distribution of the papers over time, reported in Fig. A1, shows a significant increase in the number of studies since 2016, which reflects the recent growing attention of scholars toward sustainable consumer behavior in the fashion industry. Specifically, the papers included in the review involve consumers of 47 different countries⁷. The USA is the most studied country, with over 50 papers focused on US consumers. Other countries that received extensive attention are Germany, China, South Korea, the UK, and India, with several articles investigating consumers of these nationalities. There are no studies on Central America while studies on African consumers only refer to South African and Nigerian ones. Further, there are 27 cross-country studies, aimed at investigating differences and similarities among multiple contexts. As shown in Fig. A1, in the early 2000s, studies mainly focused on consumers from North America and Europe. Starting in 2015, a significant increase in studies on Asian consumers and studies involving two or more countries together is reported. A complete representation of papers per country is reported in Table A1.

⁷ Conceptual studies were excluded from the country analysis, since there was not a focus on a specific consumer sample.

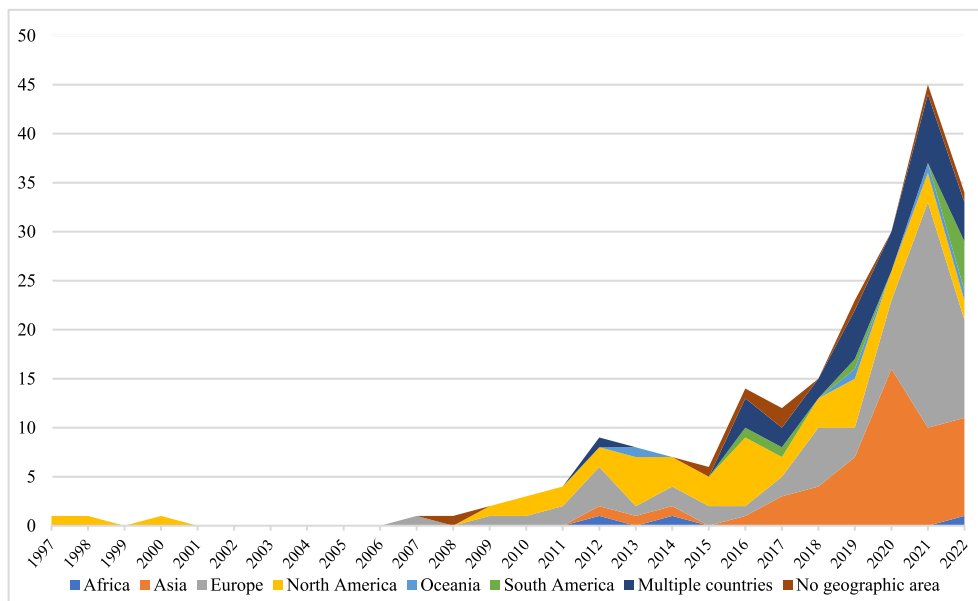


Fig. A1. Evolution over time of the number of papers per geographic area (according to the nationality of the consumers in the sample).⁸

Papers have been published in 79 different journals (see Table A2). These journals refer to the three thematic domains on which the research is built, i.e., sustainability (e.g., “Sustainability” and “Journal of Cleaner Production”), consumer behavior (e.g., “International Journal of Consumer Studies” and “Journal of Global Fashion Marketing”), and textile and fashion industry (e.g., “Journal of Fashion Marketing and Management”, “Clothing and Textiles Research Journal”). Concerning the methods used, the majority of studies applied a quantitative research approach. Qualitative or mixed methods are less used; this could be due to the focus on the consumer perspective, with most authors adopting surveys to study consumption behaviors. Specifically, 153 quantitative, 36 qualitative, 25 mixed methods, and 3 conceptual studies were detected.

Table A1
Number of papers per country

Country	Number of papers	
	Single country	Multi-country
USA	45	11
Germany	15	9
South Korea	15	5
China	12	10
UK	12	6
India	12	2
Italy	8	3
Norway	4	2
Vietnam	4	0
Brazil	4	0
Poland	3	3
Spain	3	3
Japan	3	2
Netherlands	3	1
Turkey	3	1
Finland	3	0
South Africa	3	0
Sweden	2	5
Malaysia	2	1
Ecuador	2	0
Hungary	2	0
Pakistan	2	0
Australia	2	0
Canada	1	4
France	1	3
Portugal	1	2
New Zealand	1	1
Chile	1	1
Bangladesh	1	0
Cipro	1	0

(continued on next page)

⁸ The year 2022 includes articles published till December 31st (2022) and several articles in press.

Table A1 (continued)

Country	Number of papers	
	Single country	Multi-country
Croatia	1	0
Czech Republic	1	0
Indonesia	1	0
Kuwait	1	0
Lithuania	1	0
Perù	1	0
Romania	1	0
Saudi Arabia	1	0
Slovakia	1	0
Slovenia	1	0
Sri Lanka	1	0
Austria	0	2
Iran	0	1
Kazakhstan	0	1
Nigeria	0	1
Switzerland	0	1
Ukraine	0	1

Table A2
Number of papers per journal

Journal	Number of papers
Sustainability (Switzerland)	27
Journal of Fashion Marketing and Management	18
International Journal of Consumer Studies	17
Journal of Cleaner Production	17
International Journal of Fashion Design, Technology and Education	10
Journal of Global Fashion Marketing	9
Clothing and Textiles Research Journal	7
International Journal of Retail and Distribution Management	7
Journal of Retailing and Consumer Services	5
Business Strategy and the Environment	5
Research Journal of Textile and Apparel	4
Fashion and Textiles	4
Asia Pacific Journal of Marketing and Logistics	3
Journal of Business Research	3
Young Consumers	3
Fashion Theory - Journal of Dress Body and Culture	2
Journal of Consumer Behavior	2
Journal of Consumer Policy	2
Social Responsibility Journal	2
Waste Management	2
Journal of the Textile Institute	2
Global Business Review	2
Journal of Asian Finance, Economics and Business	2
Journal of Risk and Financial Management	2
Others ^a	60
Tot	217

^a Journals with less than two articles.

Appendix 2. Definition and impacts of determinants of sustainable consumer behavior

According to the classification proposed by [Bangsa and Schlegelmilch \(2020\)](#), we classified the factors able to affect consumers' behaviors towards the different sustainable solutions into three macro-categories, depending on whether they refer to (1) *Consumers*, (2) *Marketing and Purchase*, or (3) *Social context*. These categories concern, respectively, the personal sphere of the consumer (e.g., attitude, values, feelings), product attributes and the marketing strategy used by the company (e.g., attributes, price, advertising, CSR), and factors of external influence (e.g., social influence, celebrities, online communities). Furthermore, we identified subcategories for each of these categories, as common in this kind of studies (e.g., [Testa et al., 2021](#); [Joshi and Rahman, 2015](#)). Specifically, the factors belonging to the consumer category can be divided into five subcategories: (1) *Values* - this category includes factors able to define the consumer's psychological system characteristics (e.g., judging criteria, goals importance) guiding behaviors. Values are organized according to the five [Schwartz \(1992\)](#) categories ([Tables A3, A4, A5, A6, and A7](#)); (2) *Environment* - this category includes factors concerning consumer's ties with the natural environment ([Table A8](#)); (3) *Control* - this category includes factors relating to the consumers' capabilities to perform the behavior ([Table A9](#)); (4) *Fashion* - this category includes factors concerning the importance consumers attribute to the fashion industry and the fashion garments in their lives ([Table A10](#)); and (5) *Personal norms* ([Table A11](#)). Factors belonging to the Marketing and Purchase category were divided into: (1) *Product* - concerning product attributes and perceptions, values and feelings linked to it ([Table A12](#)); and (2) *Marketing and sustainability strategies* - concerning firms' reputation, promotional activities, distribution channels, and retail outlets ([Table A13](#)). Finally, factors belonging to the Social and structural context category were divided into: (1) *Non-digital specific* ([Table A14](#)) and (2) *Digital specific* ([Table A15](#)).

Table A3
Openness to change values.

Factor	Definition	N. of studies including the factor
Need for variety/Distinction/Individuality	The desire to be fashionable and to adopt new styles to reflect individuality (Fu and Kim, 2019).	2
Cosmopolitanism	Willingness to engage with other cultures and integrate within them (Cleveland and Laroche, 2007).	2
Tendency for creative choice counter conformity/Creativity	“Consumer buying original, novel, or unique fashion clothing, or putting clothing and accessories into different ensembles to reflect their unique identity and personal styles” (Lang et al., 2016, p. 2).	2

Table A4
Conservation values.

Factor	Definition	N. of studies including the factor
Religiosity	Commitment toward following the teachings of own religion and depicting this commitment in attitudes and actions (Razzaq et al., 2018).	1
Cost and price consciousness	Attention toward the cost of clothing items and the costs associated with the purchase (Gam, 2011).	2
Frugality	“The degree to which consumers are both restrained in acquiring and in resourcefully use of economic good and services to achieve longer-term goals” (Lastovicka et al., 1999, p. 88).	2

Table A5
Self-enhancement values.

Factor	Definition	N. of studies including the factor
Authority and status	Special feelings experienced when consumers shop deriving from customized treatment, special discounts, gift wrapping, free home delivery, or easy replacement. (Kumar and Yadav, 2021).	1
Self-enhancement in sustainable consumption	“Positive emotion of achievement or satisfaction that a consumer expects to come from consuming products sustainably” (Jung and Oh, 2019, p. 5).	5
Centrality	“The extent to which one places possession acquisition at the center of one’s life” (Nguyen et al., 2019, p. 7).	1
Success	“The extent to which one uses possessions as indicators of success and achievement in life” (Nguyen et al., 2019, p. 7).	1
Egoistic value	“Interest in trying to maximize individual outcomes to self-matter, such as social power, wealth, authority, and influence” (Kim and Seock, 2019, p. 84).	1
Utilitarian value	“Utilitarian value relies on an alternative capacity for performance, such as quality and usability. It can also be defined as the possibility for consumers to possess a product that is close to what they want” (Park and Lin, 2020). Careful judgment and evaluation of benefits (Razzaq et al., 2018).	2
Utilitarian motivations	“Motivation that is goal-oriented, rational, and mission critical” (Kumar and Yadav, 2021, p. 2).	2
Self-expressiveness	Consumers’ willingness to maintain or enhance their social identity and express themselves by purchasing and wearing sustainable clothing (Mishra et al., 2021; Park and Lin, 2020)	5
Need for status/Conspicuous consumption/Social prestige	“Tendency to purchase goods and services for the status or social prestige value that they confer to the owner” (Eastman et al., 1999, p. 41).	3
Need for uniqueness	“The trait of pursuing differentness relative to others through the acquisition, utilization, and disposition of consumer goods for the purpose of developing and enhancing one’s social and self-image” (Tian et al., 2001, p. 52)	2
Visibility	“Individual’s perception of the purchased good being visible to others” (Kopplin and Rösch, 2021, p. 3).	1

Table A6
Self-transcendence values.

Factor	Definition	N. of studies including the factor
Bio-altruistic values	“Concerns for non-human species such as plants and animal, and the conservation of the planet; and an appreciation for social justice and the welfare of other human beings” (Kim and Seock, 2019, p. 84).	2
Idealism	“Concern for others’ welfare and for the consequences of moral issues among other people” (Hong and Kang, 2019, p. 6).	1
Moral identity	“The extent to which individuals (a) view benevolent traits and values as imperative to their sense of self (internalized moral identity) and (b) how important they believe communicating these values by non-verbal actions to be in their everyday life (symbolized moral identity)” (Legere and Kang, 2020, p. 3).	1
Altruism	Concern and orientation toward others through caring or compassion (Romani et al., 2013; Straughan and Roberts, 1999).	1
Mindful consumption	“Paying superior attention while making buying decisions by carefully buying to prevent harmful consequences on self, community, and nature” (Zahid et al., 2022, p. 5).	1
Ethical considerations	“Moral principles and standards that guide the behavior of individuals or groups as they obtain, use, and dispose of goods or services. Ethical consumers actively seek alternatives to conventional products because they firmly believe in ethical issues based on the moral values they cultivate” (de Lira and da Costa, 2022, p. 5).	1

Table A7
Hedonic values.

Factor	Definition	N. of studies including the factor
Hedonic motivation	Forces driving consumption behavior in search of fantasy, happiness, enjoyment, and sensuality (Kumar and Yadav, 2021).	2
Hedonic shopping value/Shopping enjoyment/ Consumption hedonism/Aesthetic consumption	It refers to emotions like gratification, pleasure, and joy that consumers feel associated with the shopping process (Kleinhüchelkotten and Neitzke, 2019; Razzaq et al., 2018; Gam, 2011).	4
Adventure	“Sensual excitement experienced by consumers during the shopping” (Kumar and Yadav, 2021).	2
Enjoyment-based motivations	Intrinsic motivation associated with the enjoyable feelings generated from performing sustainable purchase choices (Ahn et al., 2020).	1
Motivation	“Pleasure/pain also referred to as sensation, hope/fear or the anticipation of an outcome and finally social acceptance/rejection, or social evaluation” (Soyer and Dittrich, 2021, p. 4).	1
Bargain hunting	It is a form of self-gratification that ensues from by-passing the conventional market system and taking advantage by accessing the same products at littler cost (Roux and Guiot, 2008).	1

Table A8
Determinants related to the environment.

Factor	Definition	N. of studies including the factor
Attitude toward sustainable purchase	The consumers' positive or negative evaluation of performing the sustainable garment purchase (Seo and Kim, 2019; Ajzen, 1985).	36
Perceived environmental effectiveness	Evaluation of the extent to which consumers' consumption behavior can contribute to mitigate environmental problems (Ellen et al., 1991; Webster, 1975).	8
Environmental concern	“The degree to which consumers are concerned about environmental problems and support efforts to solve them” (Dunlap and Jones, 2002, p. 485).	30
Environmental knowledge	Individuals' information about the natural ecosystem and how humans can affect it through their behaviors (Fryxell and Lo, 2003; Arcury and Johnson, 1987).	14
Environmental apparel knowledge	Consumers' information and awareness about sustainability features of garments and of their production processes (Abrar et al., 2021; Kim and Damhorst, 1998).	16
Sustainable consumer behaviors	Every action executed by consumers that is positive in environmental terms or that minimizes the impacts; this includes the evaluation of a broader set of alternatives to reduce consumption or to find alternative ways to satisfy consumers' wants, aimed at not preventing future generations from fulfilling their own needs (Peattie, 2010; Dolan, 2002).	9
Past experience with sustainable garments	It refers to consumers' direct or indirect contact with sustainable garments occurring in several forms, such as past purchases, usage, and information search or exposure (Han, 2019; Cowan and Kinley, 2014).	6

Table A9
Determinants related to the perceived behavioral control.

Factor	Definition	N. of studies including the factor
Perceived behavioral control	“The extent to which individuals are apt to exercise control over the behavior in question” (Ajzen, 1985, p. 30).	17
Financially sustainable Opportunity	The consumer has the financial means to purchase the product (Oncioiu et al., 2021).	1
Ability	“Refers to the circumstances that allow or facilitate a person to perform a behavior. It reflects the degree to which a situation is conducive to achieving the desired outcome” (Hasbullah et al., 2022, p. 5).	1
Perceived money availability	“Refers to an individual's capacity to act. Even the most driven individual is unlikely to engage in the designated behavior without the appropriate abilities” (Hasbullah et al., 2022, p. 5).	2
Perceived store accessibility	“Consumers' actual behavioral control beliefs which can make them eligible to buy what they want” (Chang and Watchravesringkan, 2018, p. 152).	2
Perception of availability	The convenience of the store location and attractiveness (Chang and Watchravesringkan, 2018).	1
Information availability	Consumers are informed about where to find sustainable garments alternatives in the marketplace (Austgulen, 2016).	1
Information availability	Availability of “Product or service information that shoppers seek while making a purchase decision” (Kumar and Yadav, 2021, p. 3).	1

Table A10
Determinants related to fashion.

Factor	Definition	N. of studies including the factor
Fashion interest/involvement/orientation/ lifestyle/clothing involvement	The extent to which a consumer considers fashion clothing relevant to him/her tailor and creative self-expression of identity (O'cass, 2000).	11

(continued on next page)

Table A10 (continued)

Factor	Definition	N. of studies including the factor
Slow fashion orientation	How consumers perceive the five dimensions of slow fashion: equity, authenticity, functionality, localism, and exclusivity (Castro-López et al., 2021; Şener et al., 2019).	3
Confidence in communicating self (to others) via clothing/Ego involvement	“How confident a person feels about his or her ability to choose clothing that conveys a certain message to others or expresses the need for a different identity” (Legere and Kang, 2020, p. 4).	2
Global social identity/Global self identity	“Desire to emulate the lifestyle of other cultures by purchasing products that reflected membership to international consumer groups” (Kautish and Khare, 2022, p. 476).	1
Self-esteem in relation to clothing	“The degree to which a person believes about the importance of clothing use in affecting their evaluation of self-worth, self-regard, and self-respect” (Legere and Kang, 2020, p. 3).	1

Table A11

Determinants related to personal norms.

Factor	Definition	N. of studies including the factor
Personal norms/Moral intensity	“Self-expectations for specific action in particular situations that are constructed by the individual. Activated personal norms are experienced as feelings of moral obligation, not as intentions” (Schwartz, 1977, p. 227).	8

Table A12

Determinants related to the product.

Factor	Definition	N. of studies including the factor
Perceived quality	“Consumer’s judgment about a product’s overall excellence or superiority” (Zeithaml, 1988, p. 3).	2
Perceived uniqueness	“The extent to which consumers perceive that an item of apparel is distinct from other competing products and brands involving not only the product’s design and style, but also its symbolic value of sustainability that is conveyed in the advertisement” (Song and Kim, 2018, p. 5).	2
Perceived benefits/Cognitive response/Affective response	Positive effects associated with the product perception, purchase, and use (Fu and Kim, 2019; Han and Chung, 2014).	6
Functional value	“Functional value is defined as the perceived utility for functional, utilitarian, or physical performance” (Wei and Jung, 2017, p. 4).	3
Emotional value	“Emotional value refers to the product’s capacity to arouse feelings or affective states” (Wei and Jung, 2017, p. 4).	4
Social value	“Social value is the value acquired from the product’s association with one or more specific social groups” (Wei and Jung, 2017, p. 4).	2
Epistemic value	“Choices that provide novelty and curiosity, thereby satisfying consumers’ knowledge seeking aspirations” (Yoo et al., 2013, p. 29).	2
Price value/Value for money	The relation between the cost of the product and the benefits associated with the purchase (Kopplin and Rösch, 2021).	5
Perceived value/Sustainable fashion apparel perception	“Consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (Zeithaml, 1988, p. 14).	6
Product satisfaction/Customer satisfaction	Fulfillment of consumers’ needs and expectations (MinKong and Ko, 2017)/“It is the attainment of consumption patterns, showing the level of satisfaction with desires and expectations” (Tran et al., 2022, p. 4).	2
Labeling satisfaction	Fulfillment of expectations about label capabilities to explain sustainable apparel attributes (Dhir et al., 2021).	1
Labeling desire	“Consumers’ desire for the proper labels, which assure them that the green apparel product is environmentally friendly” (Dhir et al., 2021, p. 3593).	1
Familiarity with labels	Refers to knowledge and awareness related to sustainable labels (Austgulen, 2016).	1
Eco labels	“Eco-labels function as extrinsic cues that work like information marks and provide useful information to the consumer about particular environmental properties and features of a product” (Feuß et al., 2022, p. 1).	1
Information seeking	Refers to check garment’s information, such as the wash tag, which material the product is made of/fibre content, and where the product is made (origin) (Austgulen, 2016).	1
Perceived contradiction	“If individuals identify luxury as inconsistent, frivolous, and meaningless, they will perceive a discrepancy between the contents of luxury and sustainability” (Carranza et al., 2022, p. 6).	1
Perceived risk	“The nature and amount of risk perceived by a consumer in contemplating a particular purchase decision” (Cox and Rich, 1964, p. 33).	3
Perceived skepticism	The consumers’ tendency to doubt, disbelieve, and question (Kim and Oh, 2020).	3
Perceived sustainability level	Consumer perception of how sustainable the product and the materials used to make it are (Kim and Oh, 2020).	1
Preference for durability	The shape and color of the product maintain their properties over time (Jacobs et al., 2018).	1
Emotional product attachment	“Which has also been referred to as psychological ownership, is defined here as the connection between an individual and an object” (Shaver and Yan, 2022, p. 8).	1
Product environmental value	The purchase of second-hand garments allows reducing the consumption of new products, mitigating environmental impacts (Liang and Xu, 2018).	3

Table A13
Determinants related to marketing and sustainability strategies.

Factor	Definition	N. of studies including the factor
Sustainable apparel launch	Placing a new sustainable garment on the market (Kumagai and Nagasawa, 2020).	2
Corporate marketing information	It refers to modalities adopted by firms to spread information about their sustainability activities to consumers, such as through company messages, spokesperson, and logos, and the content and reliability of this information (Kong et al., 2016).	1
Nudges (visual and verbal)	“Any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any option or significantly changing their economic incentives” (Thaler and Sunstein, 2008, p. 89). Tools to promote pro-environmental and sustainable consumption behaviors (Roozen et al., 2021).	3
Customized offering	“Changes in product or service features as well as changes in the packaging, transaction, and shipment” (Kumar and Yadav, 2021, p. 4) with the goal to provide unique value to consumers.	1
Customer fulfillment	“It is defined as the ability of companies or businesses to fulfill customer orders or requests with good interaction and customer support, on-time delivery, and after sale services” (Tran et al., 2022, p. 4).	1
Perceived caring	“Consumer’s response to a green advertising message that conveys a sense of caring and benevolence” (Song and Kim, 2018, p.3).	1
Perceived nature connectedness	“The extent consumers feel connected to nature in response to green advertisements” (Song and Kim, 2018, p.4).	1
Perceived ethicality	“The degree consumers positively perceived fairness, morality, and justice in a green advertisement (Song and Kim, 2018, 3)	1
Perceived CSR/Environmental protection strategies/ Environmental responsibility/Expectations about fashion brand sustainability	Perception of sustainability efforts and beneficial activities carried out by a company (Vătămănescu et al., 2021; Neumann et al., 2020; Chang and Jai, 2015).	7
Online and catalog shopping affinity	Consumer affinity for online or catalog purchase modality as a firm distribution channel (Jacobs et al., 2018).	1
Non-profit thrift store beliefs	“Consumers’ evaluation of non-profit organizations’ transparency in terms of whether they faithfully practice their social missions with profits generated from thrift stores” (Seo and Kim, 2019, p. 4).	1
Store related attributes/Fresh linen scent	It refers to store characteristics, such as customer service, store display and environment, store’s ethical practices, and shop convenience. These include music, scent, and coloured walls (De Groot, 2021; Chan and Wong, 2012).	2
Store evaluation	The extent to which consumers perceived the store as stimulating and interesting, as well as the consumers’ general impressions about it (De Groot, 2021).	1
Trust	Degree of willingness to believe that the other party will behave as expected (Hart and Saunders, 1997). It concerns consumer confidence in the reliability and integrity of the firm’s declarations about the product and sustainability (Neumann et al., 2020).	2
Perceived greenwashing	“Consumers’ distrust toward the reliability of brands’ environmental claims. [...] Consumers perceived that company communications frequently pass on certain false data regarding the natural practices and ecological advantages of the items being promoted to them” (Carranza et al., 2022, p. 6).	2
Brand loyalty	“Loyalty to the brand is defined as the consumer’s commitment to a particular brand, based on a strong and favorable attitude, manifested in consistent purchase” (Amaral and Spers, 2022, p. 4).	1
Perceived brand equity/Corporate reputation	“Total value that a brand has based on consumers’ brand awareness, brand image, brand loyalty, perceived price and perceived quality” (Chang and Jai, 2015, p. 858).	2

Table A14
Determinants related to context non digital specific.

Factor	Definition	N. of studies including the factor
Subjective norms	“Person’s perception of the social pressures put on him to perform or not perform the behavior in question” (Ajzen, 1985, p. 12).	39
Public education	“Curricula designed to teach pro-environmental behaviors and describe ecological and social impacts” (Kong et al., 2016, p. 106).	1

Table A15
Determinants related to context digital specific.

Factor	Definition	N. of studies including the factor
Social media use and perceptions	The use of social media as a means to direct purchase choices and as a source of information on news, shopping, products, and brands (Zhao et al., 2019).	1
Online communities/Social media influence	Interactive virtual social spaces where people share ideas, learn and get support from other members, influencing each other (Khare et al., 2021).	2
Electronic word of mouth	Spread (positive or negative) messages about a product or service via the internet (MinKong and Ko, 2017).	2
Celebrities/Influencers	Individuals who enjoy popular recognition in the community and have an influence on others (Khare et al., 2021).	2

Data availability

No data was used for the research described in the article.

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