DOI: 10.52131/pjhss.2025.v13i3.3012

Pakistan Journal of Humanities and Social Sciences

Volume 13, Number 03, 2025, Pages 274-285
Journal Homepage:
https://journals.internationalrasd.org/index.php/pjhss

Sustainability in Fashion Design Practice: A Systematic Review

Umbreen Kanwal Dogar[1], Shahid Zaheer[2], Fizzah Arshad Rao[3]

[1] National Textile University, Faisalabad, Pakistan. Email: umbreenkanwald@gmail.com
[2] National Textile University, Faisalabad, Pakistan. Email: profshahidzaheer@gmail.com
[3] University of Southern Punjab, Multan, Pakistan. Email: mdesign@pifd.edu.pk

ARTICLE INFO

Article History:
Received: August 10, 2025
Revised: September 28, 2025
Accepted: September 29, 2025
Available Online: September 30, 2025

Keywords:
Sustainability
Sustainable Fashion Practices
Eco-Friendly Fashion Practices
Systematic Review

Funding:
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

Sustainability in fashion is an important aspect to secure fashion for the new generation. Therefore, this study aims to investigate the sustainability in fashion design practices and to explore the integration of circular economy principles into fashion design. This study is based on a systematic review of previous studies on fashion and sustainable practices in fashion. For this purpose, different articles from different countries are selected, including Pakistan. This study uses the PRISMA 2020 methodology to fulfill the objectives of the study. The result of the study indicates that there are many sustainable practices are being implemented in different countries, and Pakistan as well. But there is still insufficiency in the research on sustainable fashion, which covers the luxury items, jewelry, clothing, and general products. This review of the study provides an important direction to policymakers, future studies, and the fashion industry in different countries.

***© 2025 The Authors, Published by iRASD. This is an Open Access article distributed under the terms of the* Creative Commons Attribution Non-Commercial License**

Corresponding Author's Email: umbreenkanwald@gmail.com

1. Introduction

Over the past 20 years, the fashion industry is grown a lot due to fast innovation in fashion. This transition focuses on quickly producing large amounts of similar, ready-to-wear clothes that people are encouraged to buy and replacing items frequently (Todeschini et al., 2017). According to McKinsey's state of fashion predicts that the global fashion industry will grow by 2 to 4 percent in 2024. This fashion sector is expected to lead in generating the economic profit. The fashion market is expected to hit $880.91 billion revenue in 2025 with an expected annual growth rate (CAGR) of 7.64% from 2025 to 2029 (Mu et al., 2025). The Sustainable Development Goal (SDGs) 12, which accentuates the integration of sustainable consumption and production at all levels. To meet this goal, the global environmental justice should prioritize encouraging sustainable business practices, consumer choices, and the reduction or elimination of fast changing in fashion (Bick et al., 2018). The fashion industry is one of the world's most polluting sectors. Every year, it uses 79 billion cubic meters of water, emits 1.7 billion tons of carbon dioxide (CO_2), and generates approximately 92 million tons of clothing waste. These carbon emissions significantly contribute to global warming (Centobelli et al., 2022). Pakistan's textile industry holds a strong position in the global market due to its premium fabric quality, design innovation, and large cotton firms. Pakistan plays a major role in yarn spinning and exports cotton across Asia. To shift to a circular economy, which promotes sustainable production methods to reduce environmental impact as well as improve resource efficiency (Abbas & Halog, 2021). The realization of sustainable fashion is quite sufficient and related to different attributes.

There are some studies that have a similar concept linked to fashion, with the term being referred to as "sustainable" definition (Castro-López, Iglesias, & Puente, 2021), which can be confusing researchers. Moreover, the literature available suggests that the sustainable fashion concept remains unrigged among consumers, and future research ventures ought to enlighten the issue. There are some studies which present in literature relates to sustainable are geared towards investigation of consumer behavior and fashion consumption to some green

fashion solutions in other words some explore the buying behaviour of recycled garments or garments made of organic materials (Davis & Dabas, 2021; Han, 2019) etc as well as the consumer acquisition of washing practices (McNeill et al., 2020; McQueen et al., 2021), most of these studies center on a single sustainable product or a restriction stage of usage. This current study contributes to promoting the use of sustainable materials and ethical practices across the fashion supply chain. The research investigates eco-friendly manufacturing methods and waste reduction strategies within the fashion industry. Furthermore, this study aims to investigate the sustainability in fashion design practices and to explore the integration of circular economy principles into fashion design. This study is significant in addressing the environmental impact alongside the rapid expansion of fast fashion. Further, it also highlights an actionable pathway to sustainability. This research provides a valuable insight for policymakers and industry stakeholders by identifying practical strategies to foster long-term sustainability and transition of the fashion industry towards a circular economy.

2. Literature Review

2.1. Relevant theories

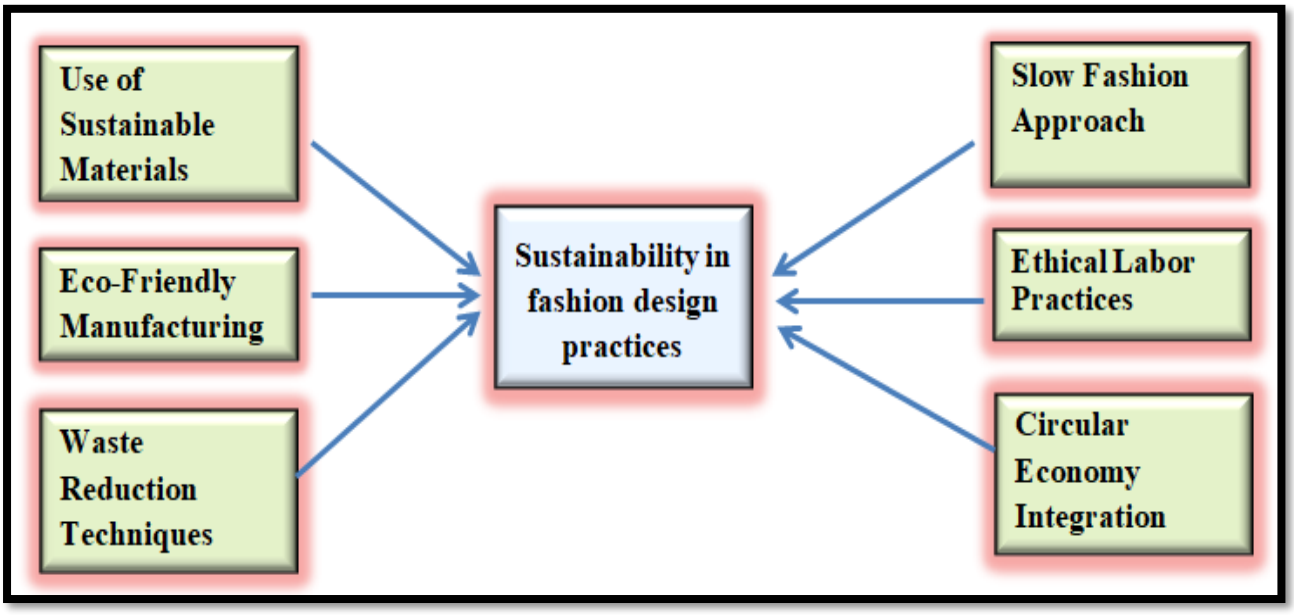
This study also focuses on the main theories related to sustainable fashion practices, such as the Triple Bottom Line Theory, the Circular Economy Theory, and the Product Life Cycle Theory. Triple Bottom Line theory inspires industries to get more profit and focus on impact on the atmosphere and society (Gimenez, Sierra, & Rodon, 2012). Triple Bottom Line theory emphasizes three things including people, planet, and profit. TBL theory supports the fashion industry to make more money. It focuses on people, which includes the behavior of workers and the condition of a safe workplace in ethical labor practice (Arowoshegbe, Emmanuel, & Gina, 2016). The part of the planet includes the protection of the atmosphere. Sustainable materials and waste reduction techniques used by the fashion industry reduce pollution. Profit part is related to the income of businesses, but in a responsible and fair situation. This situation is created by fashion industries in which slow fashion policies support brands to make more profit while making long-term and high-quality products. Circular economy theory is important to reduce pollution and reuse waste material. This theory is followed by fashion industries, and these industries take part in regenerating the natural system and making the atmosphere clean (Suárez-Eiroa et al., 2019). Some waste reduction techniques are used in industries in which fabric scraps are reused.

Sustainable materials are used in this production process, which reduces the risk of pollution. The slow fashion industries make long-lasting fabric which encourages people not to buy new ones (Rahla, Mateus, & Bragança, 2021). There are fewer advanced materials used by the fashion industry, which reduces the risk of pollution in the atmosphere. Circular economy theory supports establishing a responsible fashion industry (Niinimäki et al., 2020). Furthermore, Product life cycle theory supports organizations to make good decisions related to investment, pricing, marketing, and when to introduce the product (Thietart & Vivas, 1984). This theory also helps in sustainable policy by inspiring the method of reuse of materials. PLC theory defines the various stages of a product. This includes starting, growing, and the popularity or ending of the product. In the fashion industry, PLC theory is about the manufacturing of fabric and the final stage of fabric. Eco-friendly and sustainable materials reduce pollution in the atmosphere. The slow fashion industries make long-lasting clothes based on short-term trends (Jaradat et al., 2025). The waste reduction techniques are used by industries to reuse old fabric and turn it into new fabric. Product life cycle theory supports designers in making a plan about the full life cycle of fabric that is better for people and the planet.

2.2. Conceptual framework and preposition

This part of the study explains the major components of the sustainable fashion design practices. The following diagram explains the use of sustainable materials, eco-friendly manufacturing, waste reduction techniques, slow fashion approach, ethical practices, and circular economy integration.

Figure 1: Major sustainable practices



2.2.1. Use of Sustainable Materials and Sustainability in Fashion Design Practice

The use of sustainable materials has a positive impact on the sustainability of fashion design. Organic cotton, reusable fabric, and bamboo are sustainable materials that decrease the ecological impact of the fashion industry. Further regular material increases the risk of pollution, but sustainable material is used carefully and protects natural resources, which do not impact the atmosphere (Moreira, Felgueiras, & Marques, 2025). The fashion industry likes to use sustainable materials and participate in minimizing pollution and greenhouse gas radiations. This industry needs to use sustainable materials not only to save the atmosphere but also to foster ethical responsibility (Yuan et al., 2025). Moreover, the Supply chain is an important factor of sustainable fashion, and the use of sustainable materials supports sustainable procurement in the supply chain (Cabrera et al., 2025). Moreover, the use of sustainable materials in the fashion industry inspires progress in fabric technology. Now, the consumers are more aware of environmental problems, the desire for fashion in clothing increases, and brands incorporate sustainability into their morals. According to Romero et al. (2025), the integration of sustainable materials is not a tendency but a commitment that increases the sustainability in fashion design. The use of sustainable materials promotes equality in creativity and confirms that fashion has a positive impact on people and the climate. Sustainable materials are the basis of sustainable fashion and support in redesigning the industry for long-term development.

2.2.2. Eco-friendly Manufacturing and Sustainability in Fashion Design Practice

Eco-friendly manufacturing is a main element of sustainability in fashion design. Eco-friendly manufacturing decreases the risk of ethical effects of the production process (Ansari, Faiz, & Qureshi, 2025). This eco-friendly manufacturing includes water-saving methods and reusable energy sources to reduce pollution. Ethical manufacturing methods are related to pollution, but eco-friendly manufacturing methods increase sustainability in fashion design. Eco-friendly manufacturing includes water conservation. Some textile mills waste a lot of water in finishing and dying fabrics and the waste materials flow into rivers and streams, which reduces sustainability in fashion design (Kaur, Siddhey, & Shukla, 2024). Some good policies are used in eco-friendly manufacturing such as the closed-loop water method and eco-friendly dyes which reduce the risk of pollution. After using eco-friendly manufacturing methods, fashion industry not only decreases ecological footprints but also establishes a good reputation among consumers. This method increases sustainability in fashion design by aligning global sustainability aims and promoting inventions in sustainable technology. Moreover, eco-friendly manufacturing promotes the fashion industry into a more responsible and moral system (Dubey, Kumar, & Yadav, 2025; Kaur, Siddhey, & Shukla, 2024).

2.2.3. Waste Reduction Techniques and Sustainability in Fashion Design Practice

Waste reduction techniques are an important factor for obtaining sustainability in fashion design (Gözene & Metlioğlu, 2025; Islam et al., 2025). The fashion industry is one of the biggest contributors to global textile waste. The fashion industries produce a large amount of waste materials from fabric offcuts during the production process. Using waste reduction policies reduces the impact on sustainability in fashion design and increases the progress of the fashion system. Zero-waste pattern is one of the main techniques of waste reduction followed by fashion industries in which fabric is produced using the entire fabric with no waste pieces (Kim, 2025; Zdonek, Podgórska, & Hysa, 2025). Innovative design is necessary for this technique. Reusable material is widely used which allows industries to break down used material to make new threads for future use. These ways increase the durability cycle of waste material and decrease the desire for raw material. Overproduction increases the amount of waste material, that's why brands use small-scale production methods to avoid overproduction (Lei & Li, 2021). Sustainability in fashion design is possible if textile mills use digital technologies, and these methods reduce material waste during production by permitting designers to test fabrics without making sample pieces (Aus et al., 2021). Waste reduction techniques used by the fashion industry not only provide advantages to the atmosphere but also inspire consumers' behavior. Moreover, these techniques conserve resources and establish fashion as more sustainable.

2.2.4. Slow Fashion approach and Sustainability in Fashion design Practice

The slow fashion approach is a main part of sustainability in fashion design. Slow fashion design fosters good production and long-lasting fabrics. But fast fashion policies provide mass production and low cost and quality of fabrics. The slow production approach inspires fashion designers and brands to make fewer but good products by using sustainable materials (Ma et al., 2024; Shafie et al., 2021). The slow fashion approach makes a quality product that is used for a long time instead of producing a huge amount of products. This decreases the will to purchase and increases the durability of garments, which also lowers the desire for material and the use of water in the production process (Kim & Lee, 2022). A slow fashion approach helps local producers and supports laborers. This ensures that workers are treated fairly by producers. Fashion design is in a sustainable condition if this social responsibility exists. According to the consumers, the slow fashion approach fosters sympathetic buying behaviour. This inspires consumers to capitalize on the good quality of material and limits excessive expenditures (Manzo et al., 2025). The slow fashion approach promotes a link between consumers and the fashion industry. Designers and brands donate to more social and sustainable fashion method that establishes a balance between creativity and long-term effect (Ortegón Cortazar et al., 2025).

2.2.5. Ethical Labor Practice and Sustainability in Fashion Design Practice

Ethical labor practices are the main element of sustainability in fashion design. This confirms that workers in industries feel free and are treated with respect (Niinimäki, 2015). Sustainability in fashion not just safeguards the atmosphere, but it also fosters social responsibility in the workers' supply chain. Ethical labor includes giving wages on time, reasonable working hours, and workplace conditions in the area where workers are oppressed (Heinze, 2020). In many industries, workers face unsafe workplaces and low wage patterns. This social rejection increases social inequality and decreases human rights. But sustainability in fashion industries allows accountability and companies that increase ethical standards. Ethical labor practices increase production in fashion industries (Nkrumah et al., 2024). This provides long-lasting health for the fashion industry by establishing trust with customers and creating a skilled and experienced workforce. Further, when workers are treated equally, they feel free at the workplace, and then workers are more motivated and more able to make high-quality garments (Rana, 2024). Moreover, ethical labor practice helps local businesses by providing skilled workers. Ethical labor decreases the danger of child labor and poor working situations. Ethical labor practices are important for obtaining sustainability in fashion design (Orzada & Cobb, 2011).

2.2.6. Circular Fashion integration and Sustainability in Fashion design

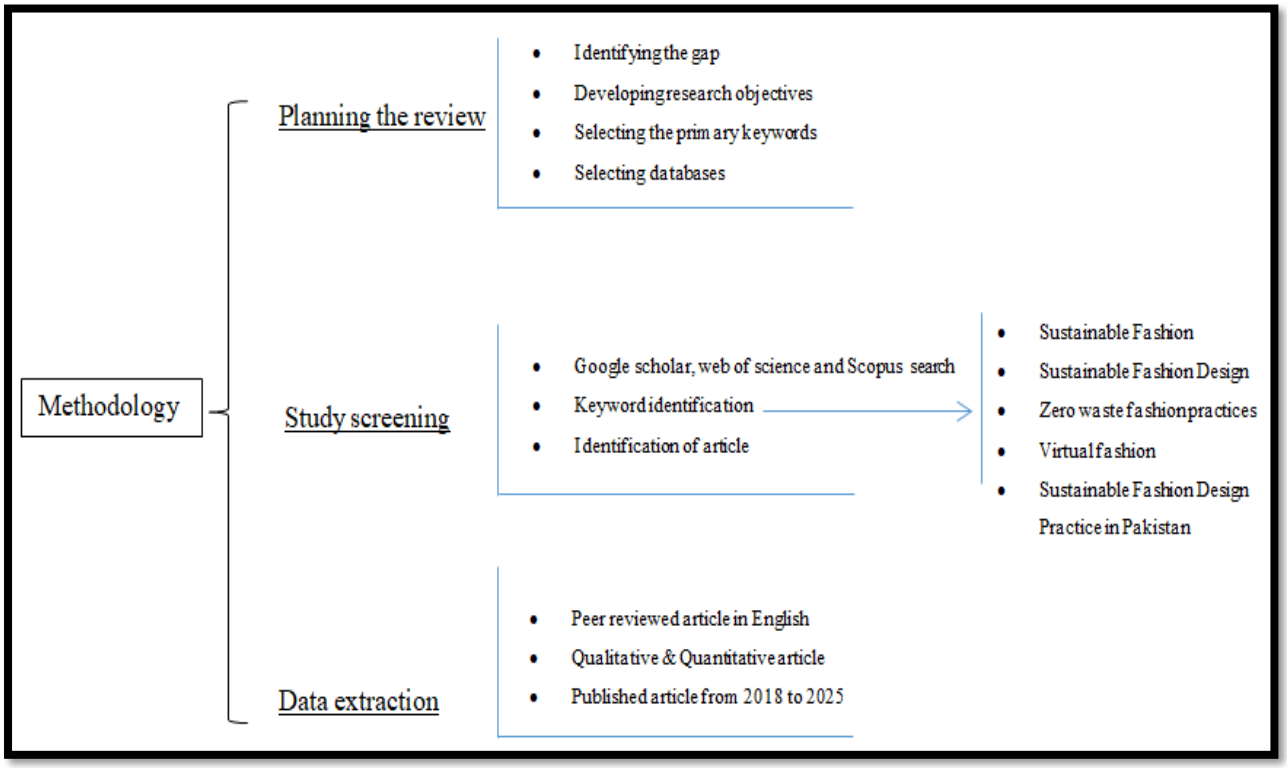
The circular economy integration is an important factor for fostering long-lasting sustainability in fashion design. Non-circular models have increased waste material, pollution, and resource consumption. But circular economy integration reduces waste, increases the life span of material, and recreates a natural system (Cervantes Puma et al., 2025). Fashion

designers play an important role in inserting complexity by choosing sustainable and supporting products. By using closed-loop systems, the fashion industries play an important role in reducing textile waste. Digital technologies improve efficiency and waste material reduction (Casciani & D'Itria, 2024). Sustainability in fashion design enlarges ecological concern to involve ethical responsibility and ethical sourcing. Consumer knowledge is an important element for the circular economy integration, as a change in consumer behaviour is important to help the model. Consumers having knowledge, they are free to take part in clothing and reusable activities (Abdelmeguid, Afy-Shararah, & Salonitis, 2024). The circular fashion model faces some issues, like modifications in the business model and cost policies. It provides chances for leadership and innovation in a fast-growing market. The circular economy integration is not just a tendency, but it is important for more sustainable upcoming outcomes in the fashion industry (Ravi, 2024).

3. Methodology

This study is based on systematic reviews of previous studies related to the intention to purchase a takaful. There are some steps for a systematic review of the literature that are explained in Figure 2. Initially, planning was conducted for reviewing the literature and identification of gaps, second, developing the objective of research, third, the selection of primary keywords and databases. For the article screening Google Scholar, web of Science and Scopus search engine were selected, and keywords

Figure 2: **PRISMA 2020 flow diagram**



After that, data was extracted from peer-reviewed articles in the English language, both qualitative and quantitative articles were selected, published from 2018 to 2025. The aim is to select this period for reviewing the most recent articles published about sustainable fashion practice and what factors could influence the purchase intention.

Table 1: Selection criteria of articles

	Total Records	**Details**
Identification	166 records	Web of science, Taylor & Francis and Scopus
Screening	151 records	143 records screened and assessed
Eligibility	130 records	123 relevant studies selected for further analysis
Inclusion	120 studies	116 studies were finally included in the review
Exclusion	Irrelevant content, non-peer-reviewed,	10 records

The literature selection process began with the identification of 166 records retrieved from databases including Web of Science, Taylor & Francis, and Scopus. After removing duplicates and obviously irrelevant items, 151 records remained, of which 143 were screened based on their titles and abstracts. In the eligibility stage, 130 records were assessed in full, resulting in 123 studies being considered relevant for further analysis. Finally, 120 studies met the inclusion criteria, and 116 were ultimately included in the review after the final assessment. A total of 10 records were excluded at various stages due to irrelevant content or because they were not peer-reviewed, ensuring that only high-quality, relevant research was incorporated into the study.

Figure 3: Publishing years and quantities of the article

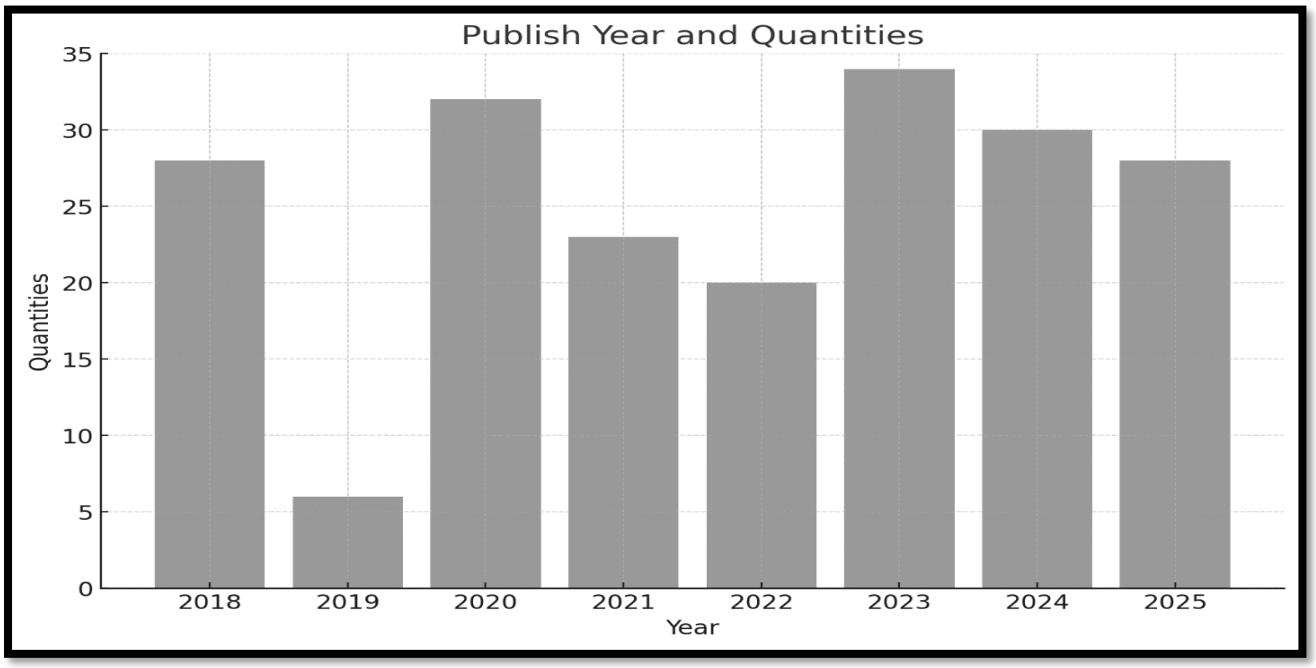


Figure 4*:* Cloud word from 75 articles

The diagram is a word cloud about the notion of sustainable fashion design. The biggest and the most prominent ones, SUSTAINABLE and FASHION DESIGN, showcase the major theme at the center. On either side are the related terms that symbolise the most important concepts and approaches in sustainable fashion. These are environmental practices which comprise of; Ecological, Environment, Recycle, Reduce, Zero Waste, Biodegradable and Up-

cycling. Material and production-related terms such as, "Organic," "Fibers," "Hemp," "Materials," and "Natural" are testimonies of the use of responsible and renewable materials. Emphasis on ethical and social responsibility is also made through the use of such words as Ethical, Conscious, Responsible, Transparent, and Local. The color scheme consists of shades of green, teal and brown to create the impression of the environment, nature and environmental awareness with the irregular cloud shape used as the design image representing interconnected concepts. Nonetheless, there are also some spelling errors and even missing in the given diagram, implying it is auto-generated and can be edited to be used in the business context. In general, the word cloud is visually descriptive of the most basic principles and vocabulary of sustainable fashion design

Table 2: Author and main focus articles

Author(s) and Year	Main Idea
Abbas and Halog (2021)	Analyzed Pakistan's textile sector and recommended circular and sustainable production practices.
Abdelmeguid, Afy-Shararah and Salonitis (2024)	Presented strategies to promote circular behavior in the fashion value chain.
Ansari, Faiz and Qureshi (2025)	Explored eco-friendly methods in art and design toward sustainability.
Arowoshegbe, Emmanuel and Gina (2016)	Reviewed the link between sustainability and the triple bottom line.
Aus et al. (2021)	Proposed upcycling integration in garment manufacturing for circular fashion.
Bick, Halsey and Ekenga (2018)	Highlighted environmental injustice caused by fast fashion globally.
Shafie et al. (2021)	Emphasized benefits of sustainable practices in fashion design.
Bocken et al. (2014)	Developed archetypes for sustainable business models.
Cabrera et al. (2025)	Investigated consumer intention for apparel made from recycled plastics using machine learning.
Casciani and D'Itria (2024)	Suggested digital technology adoption to support circular fashion.
Centobelli et al. (2022)	Provided a holistic view to slow down the fast fashion industry.
Cervantes Puma et al. (2025)	Identified best practices of circular economy in the built environment.
Dubey, Kumar and Yadav (2025)	Explored the use of eco-friendly materials in manufacturing.
Gimenez, Sierra and Rodon (2012)	Assessed how sustainable operations impact the triple bottom line.
Gözene and Metlioğlu (2025)	Presented zero waste strategies from a designer's perspective.
Heinze (2020)	Examined emotional labor of sustainable fashion entrepreneurs.
Islam et al. (2025)	Evaluated environmental impacts of fashion from post-consumer waste.
Jaradat et al. (2025)	Linked ERP utilization with cost control and economic sustainability.
Kaur, Siddhey and Shukla (2024)	Discussed future trends in sustainable fashion design.
Kim (2025)	Reviewed zero-waste pattern-making techniques in fashion.
Kim and Lee (2022)	Developed an educational program for sustainable fashion design.
Lei and Li (2021)	Introduced a pattern-making approach for zero-waste fashion.
Ma et al. (2024)	Analyzed sustainable fashion design practices using mixed methods.
Manzo et al. (2025)	Reviewed AI-based conversational agents in sustainable fashion.
Moreira, Felgueiras and Marques (2025)	Introduced circular economy concepts into fashion education.
Niinimäki (2015)	Outlined ethical principles underlying sustainable fashion.
Niinimäki et al. (2020)	Analyzed environmental costs of fast fashion production.
Nkrumah et al. (2024)	Investigated ethical fashion practices in Ghana's garment industry.
Ortegón Cortazar et al. (2025)	Studied motivational factors behind slow fashion consumption.
Orzada and Cobb (2011)	Explored academia-industry collaboration in ethical fashion.
Rahla, Mateus and Bragança (2021)	Offered practical strategies to apply circular economy in buildings.
Rana (2024)	Highlighted ethical practices for sustainable fashion.
Ravi (2024)	Identified challenges to recycling plastic packaging in the U.S.
Romero et al. (2025)	Analyzed sustainability indicators in eco-conscious trainer brands.
Suárez-Eiroa et al. (2019)	Linked circular economy principles to sustainable development.
Agenda (2020)	Forecasted key trends and challenges in the fashion industry.
Thietart and Vivas (1984)	Investigated strategies for business success across the product lifecycle.
Todeschini et al. (2017)	Identified opportunities and challenges in sustainable fashion

	business models.
Yuan et al. (2025)	Proposed a competency system for sustainable fashion designers in China.
Zdonek, Podgórska and Hysa (2025)	Evaluated value propositions of fashion companies in the zero waste movement.

4. Discussion

This systematic review reveals the complex and multidimensional nature of sustainability within fashion design practices. These phenomena address both production-related strategies and ethical considerations in the post-production phase. There are six core dimensions emerged as essential contributors to sustainable fashion: use of sustainable materials, eco-friendly manufacturing, waste reduction techniques, slow fashion approach, ethical labor practices, and circular economy integration. These interconnected elements signify a significant transformation in the industry from rapid, disposable fashion towards more mindful, responsible, and long-lasting practices. The use of sustainable materials stands out as a fundamental driver of eco-conscious fashion. Incorporating organic cotton, recycled fabrics, and biodegradable textiles helps minimize environmental harm and extends the lifecycle of clothing. Numerous studies emphasize that material choices are critical in reducing the ecological footprint of garments and are vital for achieving broader sustainability targets (Cabrera et al., 2025; Yuan et al., 2025). Furthermore, Eco-friendly manufacturing further advances sustainability by reducing harmful chemical usage, conserving natural resources like water and energy, and lowering carbon emissions. Techniques such as low-impact dyeing, digital textile printing, and waterless processes were frequently cited as effective methods. These innovations not only fulfill environmental objectives but also meet the increasing demand for transparency and accountability in production processes (Dubey, Kumar, & Yadav, 2025; Kaur, Siddhey, & Shukla, 2024).

Moreover, Waste reduction techniques, including zero-waste pattern cutting, upcycling, and made-to-order production, represent another crucial avenue. These strategies limit landfill waste and encourage resourcefulness in design. Designers increasingly view waste as an opportunity, repurposing leftover materials into new fashion items, thereby maximizing product value and sustainability. From the consumer standpoint, the slow fashion approach promotes conscious consumption, durability, and quality over quantity. It counters the fast fashion cycle by encouraging consumers to invest in timeless, long-lasting garments. This shift in behavior is essential to curbing overproduction and reducing textile waste. Additionally, slow fashion fosters emotional connections between people and their clothes, encouraging longer use and care (Gözene & Metlioğlu, 2025; Islam et al., 2025). Ethical labor practices were a consistent theme across the reviewed literature, highlighting the importance of fair wages, safe working conditions, and the elimination of labor exploitation Rana 2024). Social responsibility is inseparable from sustainability, and ethically produced clothing tends to build greater consumer trust, loyalty, and brand value (Heinze, 2020). Lastly, the circular economy integration introduces a regenerative model in which products are designed with reuse, repair, and recycling in mind. Initiatives such as garment take-back programs, clothing rentals, resale platforms, and up-cycling systems ensure that products and materials stay in use longer. This model supports the fashion industry's transition toward closed-loop systems and waste minimization (Casciani & D'Itria, 2024; Cervantes Puma et al., 2025). In other words, sustainability in fashion design requires a holistic, life-cycle-oriented approach that begins with raw material selection and continues through manufacturing, consumption, and disposal. Furthermore, researchers and practitioners should explore the scalability of these practices, advocate for policy reforms that mandate sustainable standards, and emphasize consumer education to encourage responsible fashion choices**.**

5. Conclusion

The systematic review sheds more light on the fact that sustainability in fashion design is a multidimensional phenomenon that involves production mechanisms and moral practices in post-production activities. The six core dimensions that, according to the experts, have manifested themselves to be crucial elements include the use of sustainable materials, eco-friendly manufacturing process, reducing waste methods, slow fashion strategy, ethical treatment of labor, and the integration of the circular economy. Sustainable materials are an important feature that helps to minimize environmental exploitation and maximize the lifecycle of the products. These materials consist of organic cotton, recycled, and biodegradable textiles.

Sustainability is also improved by eco-friendly manufacturing, which involves reducing chemical application and use of resources and reducing emissions by using new methods such as low-impact dyeing and waterless manufacturing. The reduction of waste, like zero-waste pattern cutting, upcycling and made-to-order manufacturing, restricts discarding into landfill and encourages resourcefulness in design. The slow fashion movement moves the consumer emphasis to the high quality, durability of the product, and an emotional bond of clothing, and as a result decreases the overproduction.

A responsible labor procedure, like putting employees through decent pay, working environments, and eradicating exploitation, improves consumer-mindedness and brand attachment. Closed-loop systems can be maintained by the application of a circular economy when it reuses, fixes, and recycles items, ensuring more prolonged use of the materials. Theoretically, the study adds value to sustainability literature by contextualizing fashion design in a multidimensional form, which entails an environmental, social and economic approach. It supports the life-cycle thought and circular economy theories in the creative industries and also isolates sustainable supply chains with ethical theories of consumption behaviors. Additionally, it opens up the academic discussion of slow fashion regarding the social-cultural movement that impacts consumer identity and brand perception. In practice, the findings enable the fashion designers, manufacturers, and brands to take actionable measures to implement sustainable principles in the course of material selection, associative and production capabilities, and business models. This study helps policymakers in creating laws and incentives that encourage ethical working standards and environmentally sound manufacturing. Further, it also encourages consumer education policies that seek to change the buying patterns towards quality, durability, and fair-trade sourcing. Furthermore, attaining sustainability in fashion involves a life-cycle perspective in full, involving creative design, moral duty, and consumer participation.

5.1. Limitations and Suggestions for Future Studies

This study has important implications in the context of awareness, knowledge, and practices in sustainable fashion design. But there are some flaws in the recent study that can be covered by further research on the current framework in the study. The current study consists of systematic reviews and synthesizing existing evidence from many studies in different countries, mainly regarding fashion and fashion sustainability. The main challenge faced while selecting the quality and availability of existing studies. It took time to select only relevant studies and remove those studies that lacked well-designed, relevant information on sustainable practices. Therefore, this study has selected limited articles that consist of different countries. It is recommended for future studies to specify the country and articles to see the factors related to practices in fashion. Further, the current study developed a conceptual framework to get results, but future studies can use the same model and empirically estimate its results.

Reference

Abbas, S., & Halog, A. (2021). Analysis of Pakistani Textile Industry: Recommendations Towards Circular and Sustainable Production. In S. S. Muthu (Ed.), *Circular Economy* (pp. 77-111). Springer Singapore.

Abdelmeguid, A., Afy-Shararah, M., & Salonitis, K. (2024). Towards circular fashion: Management strategies promoting circular behaviour along the value chain. *Sustainable Production and Consumption*, *48*, 143-156. https://doi.org/10.1016/j.spc.2024.05.010

Agenda, G. F. (2020). Commitment. Global Fashion Agenda. In.

Ansari, M., Faiz, F., & Qureshi, S. (2025). Eco-Friendly Method in Art and Design: In the Direction of Sustainability. *The Critical Review of Social Sciences Studies*, *3*(2), 1925-1933.

Arowoshegbe, A. O., Emmanuel, U., & Gina, A. (2016). Sustainability and triple bottom line: An overview of two interrelated concepts. *Igbinedion University Journal of Accounting*, *2*(16), 88-126.

Aus, R., Moora, H., Vihma, M., Unt, R., Kiisa, M., & Kapur, S. (2021). Designing for circular fashion: integrating upcycling into conventional garment manufacturing processes. *Fashion and Textiles*, *8*(1), 34. https://doi.org/10.1186/s40691-021-00262-9

Bick, R., Halsey, E., & Ekenga, C. C. (2018). The global environmental injustice of fast fashion. *Environmental Health*, *17*(1), 92. https://doi.org/10.1186/s12940-018-0433-7

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, *65*, 42-56. https://doi.org/10.1016/j.jclepro.2013.11.039

Cabrera, C. A. L., Ong, A. K. S., Diaz, J. F. T., Cahigas, M. M. L., & Gumasing, M. J. J. (2025). Plastic to apparel: an analysis of sustainable purchasing intention using a machine learning ensemble. *Humanities and Social Sciences Communications*, *12*(1), 822. https://doi.org/10.1057/s41599-025-05205-z

Casciani, D., & D'Itria, E. (2024). Fostering Directions for Digital Technology Adoption in Sustainable and Circular Fashion: Toward the Circular Fashion-Tech Lab. *Systems*, *12*(6), 190. https://doi.org/10.3390/systems12060190

Castro-López, A., Iglesias, V., & Puente, J. (2021). Slow Fashion Trends: Are Consumers Willing to Change Their Shopping Behavior to Become More Sustainable? *Sustainability*, *13*(24), 13858. https://doi.org/10.3390/su132413858

Centobelli, P., Abbate, S., Nadeem, S. P., & Garza-Reyes, J. A. (2022). Slowing the fast fashion industry: An all-round perspective. *Current Opinion in Green and Sustainable Chemistry*, *38*, 100684. https://doi.org/10.1016/j.cogsc.2022.100684

Cervantes Puma, G. C., Salles, A., Turk, J., Rajčić, V., Muñoz Puche, A., Korniejenko, K., Tsalkatidis, T., Tavares, V., Martos, R. P., Ruchinskaya, T., & Bragança, L. (2025). Circular Economy Best Practices in the Built Environment. In L. Bragança, P. Griffiths, R. Askar, A. Salles, V. Ungureanu, K. Tsikaloudaki, D. Bajare, G. Zsembinszki, & M. Cvetkovska (Eds.), *Circular Economy Design and Management in the Built Environment* (pp. 5-24). Springer Nature Switzerland.

Davis, L., & Dabas, C. (2021). Capturing sustainable fashion purchase behavior of Hispanic consumers in the US. *Journal of Global Fashion Marketing*, *12*(3), 245-259. https://doi.org/10.1080/20932685.2021.1899016

Dubey, D. K., Kumar, S., & Yadav, A. K. (2025, 2025). Exploration of adoption of eco-friendly materials in the manufacturing industry. RECENT ADVANCEMENTS IN ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS IN ENGINEERING,

Gimenez, C., Sierra, V., & Rodon, J. (2012). Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*, *140*(1), 149-159. https://doi.org/10.1016/j.ijpe.2012.01.035

Gözene, H. Y., & Metlioğlu, H. H. (2025). Zero waste approach in sustainable fashion design: designer perspective for pre-consumer waste management. *Tekstil ve Mühendis*, *32*(137), 79-93.

Han, T.-I. (2019). Objective knowledge, subjective knowledge, and prior experience of organic cotton apparel. *Fashion and Textiles*, *6*(1), 4. https://doi.org/10.1186/s40691-018-0168-7

Heinze, L. (2020). Fashion with heart: Sustainable fashion entrepreneurs, emotional labour and implications for a sustainable fashion system. *Sustainable Development*, *28*(6), 1554-1563. https://doi.org/10.1002/sd.2104

Islam, M., Shamsuzzaman, M., Hasan, H. M. R. U., & Atik, M. A. R. (2025). Environmental Sustainability of Fashion Product Made from Post-Consumer Waste: Impact Across the Life Cycle. *Sustainability*, *17*(5), 1917. https://doi.org/10.3390/su17051917

Jaradat, Z., AL-Hawamleh, A., Altarawneh, M., Al-Tahat, S., & Akram Nazzal, M. (2025). Effects of effective ERP system utilization on enterprise economic sustainability through product life cycle cost control. *Journal of Business and Socio-economic Development*, *5*(3), 240-258. https://doi.org/10.1108/JBSED-10-2024-0103

Kaur, U., Siddhey, P. K., & Shukla, R. (2024). The Future Outlook for Innovative Sustainable Fashion Design:. In M. Shahbaz & F. Shahzad (Eds.), *Advances in Business Strategy and Competitive Advantage* (pp. 265-286). IGI Global.

Kim, B. (2025, 2025-1-13). A Foray into Zero-Waste Pattern-Making Procedure in Apparel Design—A Review. Making Waves Toward A Sustainable and Equitable Future,

Kim, J., & Lee, J. H. (2022). Development of Sustainable Fashion Design Education Program. *Archives of Design Research*, *35*(4), 149-173. https://doi.org/10.15187/adr.2022.11.35.4.149

Lei, G., & Li, X. (2021). A Pattern Making Approach to Improving Zero-Waste Fashion Design. *Fashion Practice*, *13*(3), 443-463. https://doi.org/10.1080/17569370.2021.1982503

Ma, J., Huang, L., Guo, Q., & Zhu, Y. (2024). Sustainability in design: Sustainable fashion design practices and environmental impact using mixed-method analysis. *Business Strategy and the Environment*, *33*(7), 6889-6910. https://doi.org/10.1002/bse.3843

Manzo, D. S. H., Jiang, Y., Elyan, E., & Isaacs, J. (2025). Artificial Intelligence-Based Conversational Agents Used for Sustainable Fashion: Systematic Literature Review. *International Journal of Human–Computer Interaction*, *41*(8), 4640-4652. https://doi.org/10.1080/10447318.2024.2352920

McNeill, L. S., Hamlin, R. P., McQueen, R. H., Degenstein, L., Garrett, T. C., Dunn, L., & Wakes, S. (2020). Fashion sensitive young consumers and fashion garment repair: Emotional connections to garments as a sustainability strategy. *International Journal of Consumer Studies*, *44*(4), 361-368. https://doi.org/10.1111/ijcs.12572

McQueen, R. H., Moran, L. J., Cunningham, C., & Hooper, P. M. (2021). Exploring the connection between odour and clothing disposal. *The Journal of The Textile Institute*, *112*(11), 1859-1866. https://doi.org/10.1080/00405000.2020.1848114

Moreira, S., Felgueiras, H. P., & Marques, A. D. (2025). Circular Economy Practices in Fashion Design Education: The First Phase of a Case Study. *Sustainability*, *17*(3), 951. https://doi.org/10.3390/su17030951

Mu, X., Zhou, D., Hou, J., Zhang, H., & Guan, W. (2025). From Mannequin to Human: A Pose-Aware and Identity-Preserving Video Generation Framework for Lifelike Clothing Display. *arXiv preprint arXiv:2510.16833*. https://doi.org/https://doi.org/10.48550/arXiv.2510.16833

Niinimäki, K. (2015). Ethical foundations in sustainable fashion. *Textiles and Clothing Sustainability*, *1*(1), 3. https://doi.org/10.1186/s40689-015-0002-1

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, *1*(4), 189-200. https://doi.org/10.1038/s43017-020-0039-9

Nkrumah, E., Appiah, N. A., Pardie, S. P., Howard, E. K., & Acquaye, R. (2024). Ethical Dimensions in Sustainable Fashion Design Practice: Analysis of the Garment Industry in Ghana. In C. Aigbavboa, W. Thwala, J. N. Mojekwu, L. Atepor, E. Adinyira, G. Nani, & E. Bamfo-Agyei (Eds.), *Sustainable Education and Development—Clean Energy* (pp. 443-459). Springer Nature Switzerland.

Ortegón Cortazar, L., Cachón-Rodríguez, G., Pascual Nebreda, L., & Medrano, M. L. (2025). Motivational dimensions of slow fashion to promote environmentally and socially sustainable consumption in the fashion industry. *Journal of Fashion Marketing and Management: An International Journal*, *29*(5), 761-780. https://doi.org/10.1108/JFMM-07-2023-0184

Orzada, B. T., & Cobb, K. (2011). Ethical fashion project: partnering with industry. *International Journal of Fashion Design, Technology and Education*, *4*(3), 173-185. https://doi.org/10.1080/17543266.2011.606233

Rahla, K., Mateus, R., & Bragança, L. (2021). Implementing Circular Economy Strategies in Buildings—From Theory to Practice. *Applied System Innovation*, *4*(2), 26. https://doi.org/10.3390/asi4020026

Rana, N. (2024). Ethical Fashion Practices. In *Threaded Harmony: A Sustainable Approach to Fashion* (pp. 29-43). Emerald Publishing Limited.

Ravi, B. (2024). *Quantifying barriers to recycling plastic packaging in the United States*. Massachusetts Institute of Technology.

Romero, M. J. M., Kapsali, V., Wang, L., & Busfield, J. J. (2025). An analysis of sustainability and performance indicators in Eco-Conscious trainers' brands. *Scientific Reports*, *15*(1), 21581. https://doi.org/10.1038/s41598-025-04186-y

Shafie, S., Kamis, A., Ramli, M. F., Abu Bedor, S., & Ahmad Puad, F. N. (2021). Fashion Sustainability: Benefits of Using Sustainable Practices in Producing Sustainable Fashion Designs. *International Business Education Journal*, *14*(1), 103-111. https://doi.org/10.37134/ibej.vol14.1.9.2021

Suárez-Eiroa, B., Fernández, E., Méndez-Martínez, G., & Soto-Oñate, D. (2019). Operational principles of circular economy for sustainable development: Linking theory and practice. *Journal of Cleaner Production*, *214*, 952-961. https://doi.org/10.1016/j.jclepro.2018.12.271

Thietart, R. A., & Vivas, R. (1984). An Empirical Investigation of Success Strategies for Businesses Along the Product Life Cycle. *Management Science*, *30*(12), 1405-1423. https://doi.org/10.1287/mnsc.30.12.1405

Todeschini, B. V., Cortimiglia, M. N., Callegaro-de-Menezes, D., & Ghezzi, A. (2017). Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers,

opportunities, and challenges. *Business Horizons*, *60*(6), 759-770. https://doi.org/10.1016/j.bushor.2017.07.003

Yuan, H., Wu, Y., Tao, H., Yin, J., Fang, Y., Zhang, J., & Zhang, Y. (2025). Construction of a sustainable design competency assessment system for fashion designers in China. *International Journal of Technology and Design Education*, *35*(1), 305-332. https://doi.org/10.1007/s10798-024-09896-4

Zdonek, I., Podgórska, M., & Hysa, B. (2025). The Sustainable Fashion Value Proposition of Companies Identifying with the Zero Waste Movement. *Sustainability*, *17*(3), 887. https://doi.org/10.3390/su17030887