

Academic Agendas of Sustainable Fashion and Its Relevance With the SDGs Since the Rana Plaza Collapse

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Abstract

The sustainable fashion (SF) movement can enhance the lives of producer communities in both developed and developing countries by addressing socio-environmental impacts. However, despite the growing attention, the concept of SF remains unclear to many people. This study examines the academic agendas of SF since the Rana Plaza collapse and addresses how they align with the United Nations' Sustainable Development Goals. The study analyzes 2,026 research articles from 2013 to 2023 and identifies 17 topics using automated content analyses. These outline how SF studies have gained academic interest in various fields over the past decade. Additionally, the coding results emphasize economic factors more than social and environmental factors. Although the fashion industry plays a vital role in economic development and offers a competitive export commodity for leveraging an abundant workforce in developing countries, they must improve their competitiveness by adopting alternative strategies rather than competing solely on low labor costs. This study suggests enhancing transparency through sustainable supply chains, contributing to the social aspect of SF. Sustainability is an evolving concept closely linked to social, economic, and ecological systems. Researchers and managers must understand its changing meaning over time and effectively communicate it to society.

Keywords: sustainable fashion, sustainable development goals, academic agenda, automated content analysis, topic modeling

1. Introduction

1.1 The Problem Statement and Research Purpose

The Rana Plaza tragedy was a disaster caused by human action, which could have been prevented. The world was shocked by the magnitude of incidents that brought global visibility to the human rights abuses experienced by women workers in the garment sector (Vijayarasa and Liu, 2021). As such, it triggered some researchers to engage with the sustainable development issues facing the fashion industry due to compelling neglect in related discussions (Koksal et al., 2017). The sustainable fashion (SF) movement can improve producer communities' lives in developed and developing countries by addressing socio-environmental impacts. However, many scholars (Koksal et al., 2017; Cai and Choic, 2020; Karaosman et al., 2017; Filho et al., 2019; White, Nielsen, and Valentini, 2017) have pointed out that research on SF in developing countries needs to be improved. Academia plays a vital role in researching solutions that prevent similar tragedies from occurring.

Furthermore, Niinimäki et al. (2020) investigate that the fashion industry alone accounts for 8 to 10% of all industrial carbon dioxide emissions. It also significantly impacts water, accounting for about 20% of industrial water pollution, and contributes to microplastic pollution through textile treatments, dyeing, and waste. Additionally, the fashion industry has increasingly outsourced its production to developing countries with the advancement of globalization. Violation of wages, safety and health issues, harassment, and overtime work were found in practices associated with sweatshops due to consumer demand for low-priced apparel (Reimers, Magnuson, and Chao, 2016). To address these issues, there is a need for social norms, rules, and practical solutions to improve fashion products through resource efficiency and workers' rights while reducing environmental impacts (Fletcher and Grose, 2012).

Despite efforts to promote SF, it is clear that the public has not widely accepted the concept yet. The market is still overwhelmed with unsustainable products, such as easily discarded clothing. SF extends beyond catering to environmentally and ethically conscious consumers; raising awareness and encouraging more people to make choices that benefit the environment and society is essential. However, the concept of sustainable development still appears unclear to many people (Mensah, 2019). Many scholars continue to ask questions about its meaning,

history, and implications for development theory and practice (Mensah, 2019). Gomis et al. (2017) argue that different groups provide varying criteria to define sustainable development based on their interests. To have a meaningful conversation about SF, we must ask ourselves what needs to be sustained (Von Busch, 2022). Niinimäki (2015) also posits that SF is a complex and somewhat ambiguous concept. There still needs to be a gap between the definition and what it means in the fashion industry.

Meanwhile, the SF is often compared to fast fashion. Fast fashion prioritizes low prices and quick production, usually compromising worker safety and environmental standards (Joy et al., 2012). Both fast fashion and fast food focus on mass-produced, standardized products. While rapid production is not inherently unethical, it frequently aims to boost sales and economic growth, leading to adverse ecological and social effects (Fletcher, 2010). However, Fletcher (2010) pointed out SF is not merely the opposite of fast fashion; instead, it represents a mindful approach by designers, buyers, retailers, and consumers regarding the impacts of their products on workers, communities, and the environment. The unintelligibility may explain why SF has had difficulty penetrating the consumer market. Some scholars argue that sustainable development is relevant to macro-level perspectives, while others believe it is suitable for analyzing multi-level perspectives. Palm (2023) argues that the absence of clear definitions of SF is problematic. This ambiguity allows the fashion industry to make unfounded claims without effectively mitigating its adverse impacts on people and the planet. Henninger, Alevizou, and Oates (2016) also highlighted that a lack of clear definitions can lead to greenwashing. The SF has gained popularity in marketing alongside terms like eco-friendly and organic. When a fashion company promotes itself as sustainable without adequately understanding the concept, it risks damaging consumer trust (Henninger et al., 2016). Therefore, engaging in a thorough discussion about what sustainable fashion truly means for society is essential.

This paper contributes to SF studies from several perspectives. Firstly, this study examines the academic agendas of SF in the wake of the Rana Plaza collapse, a significant social incident affecting the current garment industry. This analysis helps to reveal how scholars interpret the concepts of SF. It is also a matter of how SF studies align with the SDGs. Although the slogan "No One Left Behind" can be interpreted as having various meanings, one interpretation could be to improve the poor working conditions of workers in developing countries. As a result, the second contribution is to analyze SF studies by comparing the SDGs. Thirdly, although academics have a crucial role in explaining the importance of SF to consumers and society, there are only limited literature reviews studies on SF comprehensively. This study employs automated content analysis (ACA) using big data to delineate the comprehensive pictures of SF.

Hence, this study aims to explore the academic agendas surrounding SF studies since the Rana Plaza collapse and its relevance to the UN SDGs to recommend a solution to improve the social aspects of the fashion industry.

1.2 Related Literature

1.2.1 Why Is the Collapse of the Rana Plaza Important to the SDGs?

On April 24, 2013, the Rana Plaza building collapsed in a suburb of Dhaka, Bangladesh. This catastrophe killed 1,134 workers and injured over 1,500 individuals. The world was shocked by the magnitude of this disaster, which occurred in a building that contained five factories that produced clothes for well-known fashion brands. This incident resulted in the most fatalities due to a structural collapse in modern history (Chowdhury, 2017). Such tragedies must never occur again; this issue affects developing countries and those that outsource clothing production. It is a global problem that requires attention.

In 2015, UN member countries adopted the SDGs as a blueprint for achieving peace and prosperity for people and the planet. The SDGs were created by merging the Millennium Development Goals (MDGs) with global environmental targets based on planetary boundaries (Griggs et al., 2013). The MDGs aimed to reduce extreme poverty in developing countries through eight goals: halving poverty rates, providing universal primary education, promoting gender equality, reducing child mortality, improving maternal health, combating diseases like HIV/AIDS, ensuring environmental sustainability, and fostering global partnerships for development. While the SDGs are not merely an extension of the MDGs, they are developed based on their philosophy, emphasizing the sustainability of developing countries, including Bangladesh.

There are 17 Goals, 169 Targets, and 231 Indicators that make up the structure of the SDGs. Cai and Choi (2020) divided 17 goals into social, economic, and environmental categories. Table 1 presents their corresponding descriptions per the UN SDGs (Cai and Choi, 2020). Within the 17 SDG Goals, Goal 12 is crucial for the fashion industry to prioritize responsible consumption and production. Palakshappa and Dodds (2020) suggest that people can consciously create a sustainable environment while consuming through interactions with the brand. Palakshappa and Dodds (2020) address SDGs Goal 1, "No Poverty," and Goal 11, "Sustainable Cities and Consumption." In a developing country, light manufacturing industries, including fashion, could present

economic development opportunities through trade expansion and foreign currency acquisition. For example, although Africa faces hunger and most of its population still resides in poverty, the younger generation is very interested in fashion brands and the creative industries (Corner, 2014). Many local designers are contributing to a burgeoning African fashion industry based on integrating Western and African cultures that apply local traditional artisanal skills and craftsmanship (Corner, 2014). Additionally, Goal 11 is linked to slow fashion because local production and traditional values are critical elements for it in the local community (Jun and Jin, 2016; Clark, 2008; Nagano, 2021), contributing to developing community-based sustainable consumption and production practices.

Table 1. The UN’s 17 SDGs under three categories (Cai and Choi, 2020)

Social	Economic	Environment
#1 No Poverty	#8 Decent work and economic growth	#6 Clean water & sanitation
#2 Zero Hunger	#9 Industry innovation & infrastructure	#7 Affordable & clean energy
#3 Good health and well being	#10 reduced inequalities	#13 Climate action
#4 Quality education	#12 Responsible consumption & production	#14 Life below water
#5 Gender equality	#17 Partnership for the goals	#15 Life on land
#11 Sustainable cities and consumption		#17 Partnership for the goal
#16 Peace, justice, and strong institution		
#17 Partnerships for the goals		

1.2.2 Reviewing SF Literature Reviews

This study reviews SF literature reviews to investigate the current state of the academic research and identify research issues. As the principles of SF have gained attention, the number of literature reviews on SF has increased during the last decades. Table 2 lists literature reviews regarding research fields, year, and the number of systematic literature reviews from 2013 to 2023. The list includes both qualitative and quantitative literature reviews. In qualitative research, the total number of literature reviews is 34, and the average number of reviewing academic papers is 78. Contrarily, the total number of quantitative literature reviews is only 3 articles, and the average is 433.

Table 2. A list of systematic literature review for SF: 2013-2023

Main Theme	Authors (year): the number of reviewing literature reviews
CE	Vanacker et al. (2023): 78, Yiyan & Zakaria (2023): 75, Caldera et al. (2022): 85, Abdelmeguid et al. (2022): 55, Hugo et al. (2021): 66, Ki (2020): 119, Wagner & Heinzl (2020): 47, Hole & Hole (2019): 62, Filho et al. (2019): 85
SSCM	Islam et al. (2021):91, Cai & Choi (2020): 64, Koksai et al. (2017):45, Yang et al. (2017): 48, Karaosman et al. (2017): 38
CSR, Ethical	Di Vaio et al. (2022): 114, White et al. (2017):73, Thorisdottir & Johannsdottir (2020):209
Consumer behavior	Zhao et al. (2023): 52, Busalim et al. (2022): 88, Sinha et al. (2022):400, Domingo et al. (2022): 55
Technology	Bienkowska (2023): 620, Ramos et al. (2023): 37, Mesjar et al. (2023): 74
Consumption	Arrigo (2021): 101, Henninger et al. (2021): 154, Rahman et al. (2023): 280, Vesterinen & Syrjala (2022): 58
Others	
Business model	Thorisdottir & Johannsdottir (2019): 19
Green apparel	Khan et al. (2023): 90
Merchandising	Wu et al. (2022):165
Slow fashion	Solino et al. (2020):105
SNS	Vladimirove et al. (2023): 92
Marketing	Mensah (2019): 12

The most commonly discussed topic in the SF literature review is Circular Economy (CE), with nine papers providing valuable insights. Key issues include the relationship between circularity and garment durability (Vanacker et al., 2023), the role of designers in CE transformation (Yiyan and Zakaria, 2023), and the enablers and barriers for upcycling businesses (Caldera et al., 2022). Research also highlights the challenges of implementing CE in business management (Abdelmeguid, Afy-Shararah, and Salontis, 2022), the drivers and practices that affect CE adoption (Hugo, Nadae, and Lima, 2021), consumers' sustainability awareness (Wagner and Henzel, 2020; Hole and Hole, 2019), and implementing extended producer responsibility for textile recycling to improve production and designer accountability (Filho et al., 2019). The second popular theme is sustainable supply chain management (SSCM), exploring from various angles. These include social risk management for suppliers (Koksal et al., 2017), balancing sustainable practices (Cai and Choi, 2020), and differing perspectives on sustainability in developed versus developing countries (Yang, Song, and Tong, 2017). Research also examines SSCM implementation barriers in Egypt (Elbary et al., 2022), maps sustainable practices in manufacturing (Islam, Perry, and Gill, 2021), categorizing them into product, process, and supply chain (Karaosman et al., 2017). White et al. (2017), Di Vaio et al. (2022), and Thorisdottir and Johannsdottir (2020) review the literature on corporate social responsibility (CSR). Zhao, Peng, and Yu (2023) explored consumer behavior. Ramos et al. (2023) and Mesjar et al. (2023) explore emerging technologies like artificial intelligence and the metaverse. Collaborative consumption is a rising trend linked to e-commerce and sustainability awareness (Arrigo, 2021; Henninger et al., 2021). Other categories include green apparel (Khan et al., 2023), fashion business models (Thorisdottir and Johannsdottir, 2019), social networking in fashion (Vladimirove et al., 2023), and marketing (Mensah, 2019). Figure 1 shows a stacked area chart for the number of literature reviews of the SF from 2013 to 2023.



Figure 1. A stacked area chart for the number of SF literature reviews: 2013-2023

2. Method

SF is relevant to various academic fields, from social and natural science. Applying qualitative literature reviews to address SF is appropriate for subjective views; however, capturing all of its relationships is challenging for qualitative analysis. This study addresses the academic agendas of SF using automated content analysis (ACA). This study analyzes the status quo of SF studies based on a macro-level perspective using ACA.

2.1 Analytical Framework

This study establishes the analytical framework in two steps: (1) it applies ACA to analyze the academic agendas of SF studies comprehensively, and (2) it uses the results of the ACA to analyze the academic attainment of these studies compared with the SDGs.

2.1.1 Extracting Academic Agendas Using ACA

Content analysis is a research method that provides a systematic and objective means to describe specific phenomena based on verbal, visual, or written data (Solino, Teixeira, and Dantas, 2020; McBee-Black,

Ha-Brookshire, 2020; Amado et al., 2018; Chen and Edwards, 2019). The advantage of the ACA is that it is efficient and effective in classifying massive amounts of data (Chen and Edwards, 2019). Additionally, Keller et al. (2020) referred to ACA's topic modeling method as a bottom-up approach to delineate the latent thematic structures.

2.1.2 Analyzing Academic Attainments Through SDGs

This study develops coding criteria for analyzing the topic model results in the second step. Human coders labeled the topic model results based on the interpretation of the terms compared with the 17 Goals.

To address academic attainment, the analytical framework is based on comparing text mining results and the 17 SDGs. Table 3 presents an example of coding reference information on the topic modeling results compared to the SDGs. For example, the term “sustainability” becomes relevant to all SDGs. The reference criteria regarding the terms “society,” “economics,” and “environment,” as developed by Cai and Choi (2020), are applied to Table 1. “Slow fashion” is relevant to Goals 1 and 12 (Palakshappa and Dodds, 2020). A sustainable value chain (Caronne, 2020) and CE (Gardetti and Luquw, 2020) are essential for achieving Goal 12. The values of occurrence probability that constitute the calculated topics were used as a weight for each term and summed up to evaluate the attainment of SF studies based on the relevance of the 17 Goals.

2.2 Inclusion and Exclusion Criteria

This section provides an overview of the criteria used to select data for the study. The data was collected from four leading databases, EBSCO, Ingenta, Taylor and Francis, and Web of Science, by analyzing academic articles. These databases are known for their comprehensive educational and professional digital content collection, making them versatile enough to cover various subjects in SF studies. The inclusion criteria for the study were journal articles and conference proceedings published in English between 2013 and 2023. The search terms were "sustainable fashion" and "fashion sustainability." The extracted text data includes only the title and abstract of the articles. A total of 2,011 articles were extracted from EBSCO, 612 from Ingenta, 319,327 from Taylor and Francis, and 3,148 from Web of Science; however, the study eliminated overlapping articles that appeared in multiple databases. The study excluded articles that were not relevant to SF. For example, the term "fashion" was often used as a synonym for "manner," "way," "method," "system," "mode," "style," "approach," and "tool," which were not relevant to the study. In the end, 2,026 articles were retrieved that met the inclusion criteria.

Table 3. Examples of coding reference information

Term	SDGs Goals
Sustainability, Sustainable	#1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, #12, #13, #14, #15, #16, #17
Social	#1, #2, #3, #4, #5, #11, #16, #17
Economic, economy	#8, #9, #10, #12, #17
Environment	#6, #7, #13, #14, #15, #17
Slow fashion	#1, #12
Supply	#12
Circular	#12
Product	#12
. . .	

2.3 Text Mining

A text mining tool called R version 3.5.2, which the R Foundation produces, is applied to analyze the ACA. To conduct the analysis, this study applies "tidytext" analysis in R, which requires a table with one token per row. Therefore, this study uses a document term matrix (DTM), excluding "stop words" from the search terms. In Phase 3, this study uses Latent Dirichlet Allocation (LDA) to analyze topics. LDA is based on the idea that words appear within specific topics. LDA searches for patterns of words that occur together within a collection of documents, known as a corpus. This pattern search is called unsupervised learning. The benefit of unsupervised learning is that it enables researchers to explore potential themes in the text (Wang and Liu, 2023).

This study uses the “topic models” package in R, which includes an LDA model. In the topic model procedure, raw data is first transformed into a DTM and processed to evaluate the topic model. The "tidytext" package extracts the per-topic-per-word probabilities using beta from the model. Next, the output is interpreted based on the coherence of topics, and each pattern of topics is given a name.

3. Results

3.1 Exploring Research Agendas of SF Literature

3.1.1 The Number of Retrieved Articles

Figure 2 presents the total number of retrieved articles from 2013 to 2023. In Figure 2, the line shows that the slope is stable from 2013(n=50) to 2016 (n=74) and moderately inclines from 2016 (n=74) to 2020 (n=170). Then, the line steeply inclines from 2021 (n=258) to 2023 (n=501). The total number of retrieved articles was approximately ten times in ten years. This indicated that the research theme regarding SF has been increasingly paying attention to the academic agenda since 2013.

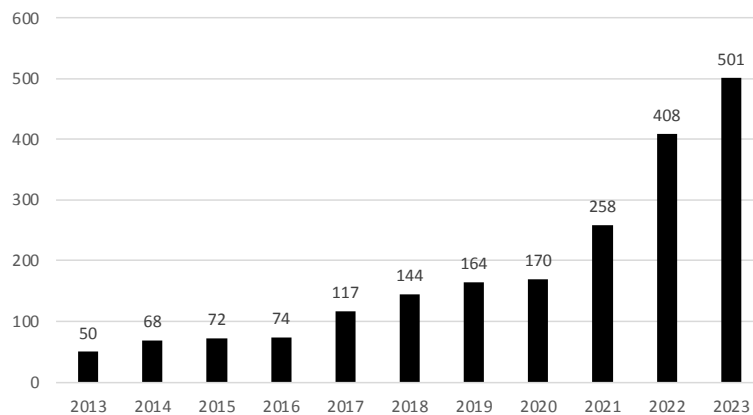


Figure 2. The number of retrieved articles: 2013-2023

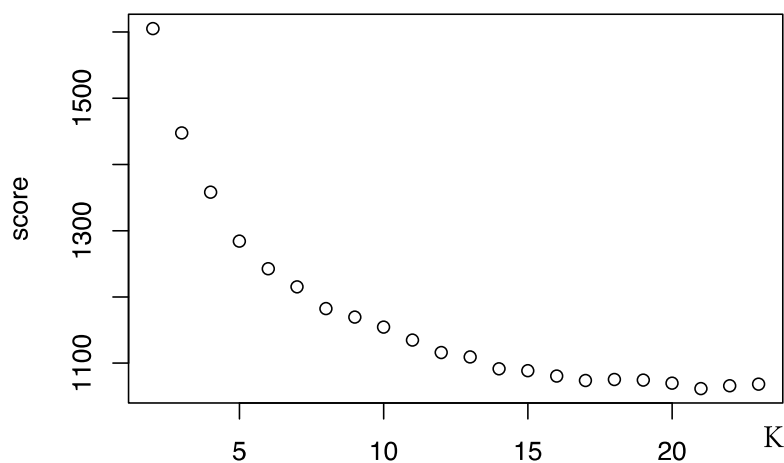


Figure 3. The perplexity score

3.1.2 Results of Topic Model

This study applies the LDA topic model to examine a comprehensive approach to exploring academic agendas regarding SF studies. Figure 5 presents the results of the perplexity score. Perplexity is a measure used to evaluate the performance of a probabilistic model. It can be calculated from the negative log-likelihood. The LDA topic model requires setting a parameter (k) to run the model and often uses perplexity as a tool to evaluate the model’s predictive performance. Saitoh (2018) noted that low perplexity indicates a good probabilistic model,

which can accurately predict text data. Therefore, based on Figure 4, this study decides that $k = 17$ is the most suitable number of topics.

Appendix A presents the results of the LDA topic model. It shows how each word is associated with each topic, and the beta score indicates the probability of the word's occurrence. Based on multiyear research on SF studies, this study identified seventeen academic agendas indicating SF. Table 4 lists the interpretation of the 17-topic model results.

Table 4. A list of seventeen topics

Topic	Interpreted themes
Topic 1	Consumer behavior
Topic 2	Consumer purchase intention
Topic 3	Natural fiber, material, and fabric
Topic 4	Sustainable, eco, and environmentally friendly fashion
Topic 5	Cultural and traditional fashion design
Topic 6	Corporate social responsibility
Topic 7	Sustainable supply chain management
Topic 8	Circular economy
Topic 9	Luxury brand and SF
Topic 10	Research method and literature review
Topic 11	Data analysis and online survey
Topic 12	Clothing and women
Topic 13	Fast fashion and environmental sustainability
Topic 14	Product and customer service in retail and market
Topic 15	Recycling waste and textile production
Topic 16	Sustainable, slow and ethical fashion
Topic 17	Model, proposed framework, and method

3.2 The Current Status of SF to the UN SDGs

Appendix A includes the coding results, which demonstrate the topic modeling outcomes and the 17 goals outlined by the SDGs. Each term is assigned a code based on its relevance to each goal. For example, “consumer,” “consumption,” “product,” and “production” are relevant to Goal 12, “Responsible consumption and production pattern,” as well as “fashion,” “apparel,” “clothing,” and “textile,” since they concern products. “Industry” is relevant to Goal 9, “Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.” The terms “study,” “research,” and “paper” are relevant to Goal 4, which refers to education. Terms whose coding cannot be determined are left blank.

The radar chart in Figure 4 provides an overview of how much each topic's value contributes to each goal. In Figure 4, this study utilizes the coding results to analyze the proportions of the three areas of the triple bottom line concerning academic contributions made over the past ten years. Based on the findings in Figure 4, the academic agenda has given importance to Goal 12, with Goal 8 ranking second highest and Goal 4 ranking third. It was expected that Goal 12, which is responsible for consumption and production, would show outstanding values.

Figure 5 presents the same tabulation results as Figure 4, but it has been re-aggregated based on the triple bottom line of economy, environment, and society. Coding the topic model results evaluates the level of academic contributions made toward each SDG goal. In Figure 5, the economic field scored the highest at 5.48 (38.7%), followed by the societal field at 5.02 (35.4%). The environmental field had the lowest score at 3.67 (25.9%).



Figure 4. The values of summing up each value in 17 goals

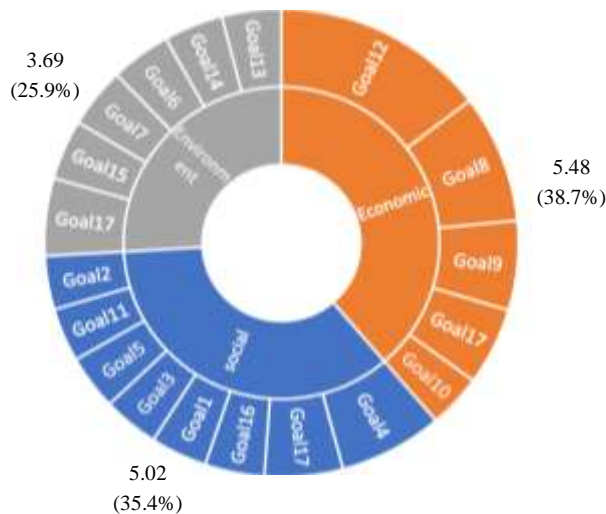


Figure 5. Summing each value based on a triple bottom line

4. Discussion

This study examines the academic focus on SF and how it aligns with the SDGs. In Figure 2, the findings reveal several noteworthy trends. Between 2013 and 2023, the number of articles centered on SF has increased significantly, showing nearly a tenfold rise during this period. This growth has been particularly pronounced from 2020 to 2023. One contributing factor to this research in academic interest may be the rise of fast fashion in the mid-2000s. Additionally, advancements in digital technologies have played a vital role in this growing field. The study also highlights a rising demand in chemistry and biotechnology for eco-friendly dyeing processes and the development of biodegradable and recyclable fibers from waste materials.

Table 4 includes various aspects such as consumer behavior and purchase intentions, eco-friendly, ethical, and SF, culture and traditional fashion, CSR, SFSC, CE, luxury brands, gender and fashion, fast and slow fashion, customer service and retailing, recycling waste, and research methods, data analysis, and modeling. The topics demonstrate how SF studies have gained academic interest in various fields over the past decade. These 17 topics are the concepts that constitute SF from a scholarly perspective.

From the results of coding topics with each goal of the SDGs, Goal 12, in particular, stood out. Results indicate that SF studies highlighted responsible consumption and production patterns, which predominantly compose the academic agenda. Goal 12, Target 12.8, would ensure that people have the information relevant to sustainable

development and harmonious lifestyle choices with nature.

The foundation of a responsible consumer and production community requires awareness of social problems (Palakshappa and Dodds, 2020). The Rana Plaza collapse is symptomatic of a global fashion industry that abuses human rights and inequalities (Vijayarasa and Liu, 2022). Domeisen (2006) argues that the UN focuses on SF for developing countries because the local fashion design in developing countries can be a competitive export commodity and contribute to humanitarian assistance by promoting economic development through investment.

Furthermore, this study assumed the social perspectives of SF, which are likely to increase due to the academic attention following the Rana Plaza collapse. However, the results indicate that the assumption was wrong. While academic scholarship addresses various topics, it prioritizes more economic goals than social and environmental concerns. The connections between socio-environmental issues and developing countries still need to be studied.

According to McKinsey's report, the fashion industry ranks seventh globally in GDP, valued at \$1.3 trillion and employing over 300 million people (ellenmcarthurfoundation.org). While shifting production to developing countries has created inexpensive clothing, it has led to negative social impacts, such as low wages, long hours, and unsafe conditions. The Rana Plaza disaster highlights the consequences of unethical production practices. The report also noted that the industry contributes to severe environmental issues, including water contamination and shortages. Fashion managers and researchers must prioritize social responsibility and the well-being of workers.

The global production systems of the fashion industry have faced significant changes due to geopolitics, rising production costs, and exceptionally high wages in China (Elbary et al., 2022). These shifts have created investment opportunities and economic benefits for countries like Egypt (Elbary et al., 2022) and Bangladesh (Uddin, Razzak, and Rahman, 2022). Additionally, the apparel and textile industries are crucial in these regions, with a large labor pool as their primary competitive advantage. However, other emerging economies, such as Vietnam, Cambodia, Myanmar, and Ethiopia, rapidly increase their production capacities (Uddin et al., 2022). These countries often depend solely on low-cost, ready-made garment production to remain competitive. To make a differentiation, Elbary et al. (2022) and Uddin et al. (2022) suggest that adopting sustainable production practices can be a competitive advantage for attracting foreign investment in the evolving global production landscape.

Moreover, one potential solution is to enhance the transparency of the supply chain, which is essential for tracking the ecological, economic, and social impacts of production activities. For instance, to prevent similar tragedies in the future, the Fashion Revolution, a nonprofit organization in the United Kingdom, emphasizes the importance of transparency and accountability (fashionrevolution.org). Measuring sustainability efforts includes calculating an environmental and circularity score for the supply chain involved in textile and clothing products. An economic and social score could be assigned to each company that produces these items (Alves et al., 2024). The European Commission's Action Plan aims to leverage the potential of digitizing product information through solutions using digital passports, tagging, and watermarks to improve transparency. The Sustainable Markets Initiative Fashion Task Force also introduced digital IDs to enhance the transparency of production processes. While these steps are small, they indicate progress toward greater sustainability and ethical practices. Enhancing transparency in production processes also supports the advancement of the SDGs.

Moreover, findings suggest that environmental issues would have received more attention due to their urgent nature. In particular, the fashion industry is a significant consumer of agricultural products, such as cotton, wool, linen, and other natural materials used in apparel production (Ogilvy et al., 2022). It is becoming crucial for the fashion industry to prioritize a primary producer of environmental performance management. Land use change related to apparel material production affects the soil, air, water, flora, and fauna. They also impact carbon dioxide emissions, including energy usage such as diesel and oil in agricultural machinery, fertilizers, animal emissions (wool and leather products), and ecosystem service loss (Ogilvy et al., 2022). Regenerative agriculture is expected to be important in future SF research agendas.

5. Conclusions

This study explored how academics have addressed SF issues since the Rana Plaza collapse and captured the themes of academic agendas concerning SF and its relevance with SDGs. The findings show that scholarly interest in SF studies has increased annually, and studies on circular economy and fashion supply chains are prominent topics in the literature. This study contributed to understanding the current state of researchers' comprehension of SF and the fact that ACA has been successfully implemented to analyze the complex nature of SF. The fashion industry can become an essential economic driver in developing countries but is also linked to socio-environmental problems. The study compared SF practices against the SDGs. Among the SDGs, Goal 12,

which pertains to responsible consumption and production, emerged as the most significant for the academics studying SF. These findings highlight the importance of responsible consumption and production patterns to improve transparency and accountability.

The limitation of this study is that it only focuses on the academic perspectives of SF. Henninger et al. (2016) noted that stakeholders have different realities regarding this concept. Consumers see SF as a luxury item, while small and medium-sized business owners consider it affordable and fashion-forward. Industry experts want to produce fashion sustainably, but the cost needs to be solved. Designers face a trade-off between costs and sales. The combination of stakeholder and academic perspectives creates a more comprehensive understanding of SF, making it a crucial topic for future research.

SF is a term that does not have a single, fixed definition (Palm, 2023), as it is constantly evolving and closely tied to societal, economic, and ecological systems. Until a few decades ago, fast fashion was not even a concept. With the increasing development of digital technology, SF is expanding into the virtual realm. Furthermore, climate change is a significant factor affecting SF's idea. All these factors can influence how we consume fashion and how the fashion industry should produce products. Misconceptions about SF can lead to a loss of consumer trust and greenwashing. Researchers and managers need ongoing efforts to comprehend the significance of SF in the context of evolving times and effectively communicate it to society.

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Appendix A. Results of the Topic Model

Topic1			Topic2			Topic3		
term	beta	coding	term	beta	coding	term	beta	coding
consumer	0.0641	#12	purchase	0.0396	#12	natural	0.0188	#envi
consumption	0.0633	#12	consumer	0.0371	#12	fiber	0.0176	#12
sustainable	0.0545	#goals	intention	0.0317	-	material	0.0145	#12
fashion	0.0501	#12	behavior	0.0235	#12	cotton	0.0132	#12
study	0.0317	#4	perceived	0.0229	-	fabric	0.0131	#12
behavior	0.0271	#12	attitude	0.0195	#12	textile	0.0123	#12
consumers	0.0262	#12	effect	0.0189	-	dyeing	0.0985	#12
clothing	0.0213	#12	environmental	0.0186	#envi	wool	0.0928	#12
purpose	0.0131	-	relationship	0.0180	#17	application	0.0921	-
research	0.0128	#4	apparel	0.0164	#12	leather	0.0892	#12
Topic4			Topic5			Topic6		
term	beta	coding	term	beta	coding	term	beta	coding
sustainable	0.1010	#goals	design	0.0841	#8	sustainability	0.0629	#goals
fashion	0.0570	#12	fashion	0.0232	#12	social	0.0548	#social
development	0.0540	#8	research	0.0143	#4	environmental	0.0284	#envi
industry	0.0363	#9	traditional	0.0126	#4	economic	0.0254	#econ
apparel	0.0308	#12	based	0.0121	#9	companies	0.0209	#8
eco	0.0242	#envi	practice	0.0118	#8	corporate	0.0205	#8
practices	0.0188	#8	designers	0.0115	#8	responsibility	0.0182	#12
product	0.0174	#12	creative	0.0113	#9	performance	0.0138	#8
manufacturing	0.0143	#12	education	0.0103	#4	industry	0.0110	#9
sector	0.0136	-	project	0.0094	-	enterprises	0.0094	#8
Topic7			Topic8			Topic9		
term	beta	coding	term	beta	coding	term	beta	coding
chain	0.0718	#12	circular	0.0591	#12	brand	0.0690	#8
supply	0.0715	#12	business	0.0578	#8	fashion	0.0649	#12
sustainability	0.0328	#goals	economy	0.0471	#econ	sustainable	0.0458	#goals
management	0.0315	#8	fashion	0.0372	#12	luxury	0.0356	#8
sustainable	0.0276	#goals	model	0.0361	#8	sustainability	0.0324	#goals
fashion	0.0180	#12	industry	0.0230	#9	social	0.0270	#social
study	0.0163	#4	innovation	0.0204	#9	marketing	0.0240	#8
apparel	0.0137	#12	system	0.0172	#16	media	0.0215	#9
companies	0.0123	#8	digital	0.0133	#9	brand	0.0191	#8
paper	0.0108	#4	models	0.0127	#8	study	0.0174	#4
Topic10			Topic11			Topic12		
term	beta	coding	term	beta	coding	term	beta	coding
research	0.0617	#4	data	0.0483	#9	clothing	0.0636	#12
literature	0.0342	#4	analysis	0.0477	#9	garment	0.0156	#12
study	0.0235	#4	study	0.0336	#4	women	0.0129	#5
review	0.0223	#4	survey	0.0209	#4	clothes	0.0122	#12
future	0.0195	-	conducted	0.0203	#4	consumers	0.0117	#12

provide	0.0194	#12	online	0.0173	#9	quality	0.0114	#4
studies	0.0170	#4	research	0.0169	#4	hand	0.0113	#4
paper	0.0156	#4	qualitative	0.0162	#4	garments	0.0976	#12
sustainability	0.0131	#goals	based	0.0157	#9	wardrobe	0.0976	#12
field	0.0121	#15	analyzed	0.0136	#9	items	0.0877	#12

Topic13			Topic14			Topic15		
term	beta	coding	term	beta	coding	term	beta	coding
fashion	0.1050	#12	product	0.0413	#12	waste	0.0479	#9
industry	0.0059	#9	customer	0.0221	#8	textile	0.0444	#12
fast	0.0370	-	service	0.0159	#8	production	0.0297	#12
environmental	0.0202	#envi	market	0.0118	#8	environmental	0.0249	#envi
global	0.0191	-	retail	0.0113	#8	recycling	0.0231	#9
sustainability	0.0182	#goals	quality	0.0110	#4	impact	0.0224	#8
impact	0.0176	#8	systems	0.0105	#16	clothing	0.0217	#12
environment	0.0164	#envi	retailer	0.0098	#8	life	0.0174	#3
world	0.0120	-	low	0.0091	-	reduce	0.0117	#7
growing	0.0117	#8	retailers	0.0089	#8	cycle	0.0113	#6

Topic16			Topic17		
term	beta	coding	term	beta	coding
fashion	0.1500	#12	model	0.0320	#8
sustainable	0.0366	#goals	based	0.0290	#9
slow	0.0257	#1, #12	framework	0.0222	#8
sustainability	0.0174	#goals	process	0.0185	-
article	0.0150	#4	proposed	0.0163	-
concept	0.0122	-	study	0.0154	#4
ethical	0.0108	#10	decision	0.0140	#16
cultural	0.0097	#4	method	0.0127	#8
system	0.0089	#16	network	0.0111	#17
context	0.0086	-	analysis	0.0966	#9

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