

MAPPING THE INTERSECTION OF FAST FASHION AND CLIMATE CHANGE: A BIBLIOMETRIC ANALYSIS OF PUBLICATION TRENDS, KEY CONTRIBUTORS AND RESEARCH THEMES

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Abstract: *The fast fashion industry has increasingly been recognised as a significant contributor to climate change, prompting growing scholarly attention across sustainability, environmental management, and business research. This study systematically examines the evolution, structure, and thematic development of scientific literature at the intersection of fast fashion and climate change between 2010 and 2025 using a bibliometric approach. A total of 2,697 peer-reviewed journal articles indexed in the Scopus database were analysed following established identification, screening, and eligibility procedures. Data visualisation and science mapping were performed using VOSviewer (v.1.6.20) to analyse the keyword occurrence patterns. To enhance analytical clarity, a minimum occurrence threshold was applied to filter salient keywords and reveal dominant research clusters. The findings indicate a pronounced acceleration in publication output after 2020, reflecting heightened academic and societal concern regarding climate impacts, sustainability, and responsible production within the fast fashion sector. The literature is concentrated within a small number of sustainability-oriented journals, supported by a core group of recurring contributors from interdisciplinary backgrounds such as supply chain management, environmental science, and sustainable business. Keyword mapping reveals four major thematic clusters, highlighting established research streams related to environmental impacts, sustainable supply chains, circular economy practices, and emerging discussions on governance and systemic change. This study contributes to the literature by providing a comprehensive overview of the intellectual landscape of fast fashion and climate change research, identifying dominant themes and*

research gaps, and offering a structured foundation for future theoretical and empirical investigations.

Keywords: *Fast Fashion, Climate Change, Bibliometric Analysis, Consumer Behaviour, VOSviewer, Sustainability*

Introduction

Fashion and textile sector has gained substantial economic traction, contributing billions in investments and revenue to national growth, however this industry responsible for 10% of global carbon emission, 20% of global wastewater and for vast amounts of ocean based plastic pollution (United Nations, 2025). To date, fast fashion market has been recognised as one of unsustainable industry poses a critical challenge and destruction to the planet, due to the business model offers low-cost premium fashion imitations with a limited shelf life (Joy et al., 2012a; Mcneill & Moore, 2015; Niinimäki et al., 2020; Papadopoulou et al., 2022). In fact, fast fashion has a negative impact on the environment, where the trash of obsolete or undesirable clothing amounts to around 17 million metric tons (Geyer et al., 2017, 2022), signify as one of the most polluting businesses. Hence, the production of fast fashion goods, consume a large number of raw materials, causing water pollution, and accounting for 10% of global CO₂ emissions through its "just-in-time" production strategy and supply chain (Brewer, 2019).

Consumer behaviour, attitudes, belief and values which looking for a sensation of urgency from purchase experiences, reinforces a trend of purchasing more while using products less frequently, raising concerns about its social and environmental implications (Bruce & Daly, 2006; Dzhengiz et al., 2023; Egharevba et al., 2023; Rosely & Syed Ali, 2023; B. Zhang et al., 2021). Fast fashion products are hedonistic and might drive impulsive purchasing behaviour due to their high degree of symbolism (Bläse et al., 2024; Egharevba et al., 2023; Gawior et al., 2022) has been designed to lure materialist consumers that concern with trend and styles with minimal investment. Practicing a slogan of "Today's Treasures, Tomorrow's Trash" enable consumers easily replenish and discard their apparel without having financial risk and limitation (Joy et al., 2012a). Furthermore, the business model of fast fashion itself, emphasizing on limited and low durability, deteriorate the characteristics of slow fashion which previously associated with exclusivity, prestige, glamour and luxury (Brewer, 2019; Joy et al., 2012a, 2012b; Jung & Jin, 2016).

Similarly, consumers that concern with self-image and identity, enjoy the quick pace of fast fashion which offer them self-gratification within their financial mean and low-cost investment. Conversely, slow fashion scholar, argue that fashion consumers should seek satisfaction while using or wearing it instead of purchase the fashion items, thus, which should be worn and valued longer (Magnuson et al., 2017). This notion aligns with prior studies, although the purchase commonly driven by hedonic needs, emotional gratification and impulsiveness (Mashilo et al., 2025; Syafei & Narimawati, 2024), often results in regret, underutilisation, and disposal unused fashion items (Avcı & Hacikelesoglu, 2021; Kalbasi & Amani, 2022).

Consequently, a tremendous consumers demand of fast fashion resulted in increasing textile waste, cause environmental degradation (Blundell & Camilleri, 2023; Shirvanimoghaddam et al., 2020; Stanton et al., 2023), thus, leading towards the ecological and social problem such as climate change, the scarcity of natural resources and the overuse of chemicals (Jones & Podpadec, 2023; Peters et al., 2021). The production of fast fashion raising serious

environmental, social and economic problem but also causes disposal or post-consumption of fashion goods, contribute to the environmental consequences due to the excessive usage of energy and water consumption. Although fast fashion industry continuously being criticised on their irresponsible action on the environmental destruction, the fast fashion market continuously response to the consumers demand as it is cheap, offering new and up-to-date styles, become a disposable item at the expense of the environment. Beyond production, the accelerated consumption and disposal of garments further exacerbate environmental pressures, reinforcing a linear “take-make-waste” model that is incompatible with climate mitigation goals. As global awareness of sustainability increases, fast fashion is no longer viewed solely as a consumer trend but as a systemic environmental challenge requiring urgent scholarly and policy attention.

Meanwhile, post-production and consumption waste issues such as discarding the unwanted garments, piling up the landfilled as the markets are oversaturated by second-hand garments and clothing (Niinimäki et al., 2020). This explains why Malaysia generated more than 430,000 metric tonnes of textile waste in 2021, with the majority originating from household consumption, underscoring a critical need to examine consumer behaviour patterns as drivers of environmental impact (Waste Management Association of Malaysia, 2025). The convenience and allure of fast fashion foster impulsive buying and constant wardrobe turnover, exacerbating environmental degradation and unsustainable consumption (Hassan & Ara, 2022; McNeill & Moore, 2015; Papadopoulou et al., 2022). Sustainable Development Goals 12, lifestyles and fashion industries have been urged to collaborate and engage in any activities particularly to protect the climate changes, and responsible production and consumption besides sustainable innovation (United Nations, 2022). In light of fragmented and limited research examining fast fashion within the context of climate change, particularly in Southeast Asia, there is a need to situate global discussions within regionally grounded perspectives, while maintaining a comprehensive understanding of the field.

The ecological crisis driven by the fashion industry is well-documented in the environmental sciences. Research indicates that the sector is responsible for approximately 10% of global carbon emissions and is a significant contributor to the acceleration of global warming (United Nations, 2025). Studies in the 'hard sciences' have focused extensively on life cycle assessments (LCA), water toxicity, and carbon sequestration within textile manufacturing (Butt et al., 2023; Divrik, 2025; Halibas et al., 2025; Ruslan et al., 2023; Shah & Singh, 2025; X. Zhang & Zhang, 2025). However, while the science of climate change provides the metrics of destruction, it often overlooks the behavioural solutions. As discovered in prior literature on bibliometric analysis, the over-reliance on environmental science without an equal contribution from business management which emphasised on consumers psychological and behavioural factors in addressing the issues of global warming and climate changes.

Despite the growing body of literature on fast fashion and climate change, existing studies remain fragmented across multiple disciplines, including environmental science, business and social sciences, unable to develop a coherent understanding of the field’s overall structure and direction. Many studies focusing on specific aspects, such as consumer behaviour, sustainability practices, or supply chain management, without offering comprehensive overview on the evolution of body of knowledge integration. This fragmentation limits the ability to identify dominant research trends, key contributors and emerging thematic areas. Additionally, bibliometric analysis provides a systematic approach to synthesising large volumes of scientific output, allowing the mapping of publication patterns, influential factors and conceptual developments over time. Therefore, the present study addresses the lack of an

integrated perspective by offering a comprehensive bibliometric mapping of fast fashion and climate change research from 2010 to 2025, providing a structured understanding of its growth, intellectual foundations and future research directions. By identifying current trends and neglected themes, this research provides a roadmap for future management-led interventions in the fashion-climate crisis. The objectives of this study are to:

1. Analyse the evolution and growth of scientific publications on fast fashion and climate change from 2010 to 2025, focusing on publication trends, subject area distribution, leading countries, authors and journals.
2. Visualize and interpret the conceptual structure of the field using keyword co-occurrence analysis, identifying major thematic clusters and emerging research directions.

Methodology

Bibliometric analysis has emerged as a cornerstone of modern scholarship for evaluating and mapping the cumulative knowledge within a specific scientific domain (Donthu et al., 2021). Unlike traditional narrative reviews, which may be susceptible to researcher bias and subjective interpretation, bibliometric analysis utilizes mathematical and statistical techniques to provide a transparent, reproducible, and objective overview of the research landscape (Irawan & Fernando, 2025). This methodology is divided into two primary categories: descriptive performance analysis of the literature and conceptual structure of the research field. While performance analysis evaluates the productivity and impact of research constituents (e.g., authors, countries, and journals), conceptual structure focuses on the structural relationships and intellectual interactions between these constituents (Yadav, 2024).

In the context of sustainability and climate change, bibliometric studies are increasingly indispensable for identifying "academic silos" and emerging hotspots that traditional qualitative methods might overlook (Sakib et al., 2024; Sakib, Uddin, et al., 2025; Sakib, Ullah, et al., 2025). Current studies emphasise the power of science mapping, specifically through tools like VOSviewer, to uncover thematic clusters and track the temporal evolution of keywords (Yusof et al., 2025). For instance, bibliometric evidence has been used to highlight the rising intersection of digital transformation and environmental stewardship, providing policymakers with data-driven insights to allocate resources effectively (Hamid, Ahmad, et al., 2024). By quantifying research trends, bibliometric analysis serves as a "macro-lens" that allows researchers to detect significant gaps, such as the underrepresentation of behavioural disciplines in solving ecological crises (Osman et al., 2025).

Data Collection and Analysis

This study aimed to analyse and assess literature published in the field of fast fashion and climate change that was published between 2010 and 2025. The aim of study is identifying current trends and neglected themes, and expand the findings for future management-led interventions in the fashion-climate crisis. The bibliographic data for this study was retrieved from the Scopus database in February 2026. Scopus was selected for its extensive coverage of peer-reviewed literature in both environmental and social sciences. The Scopus database was used to retrieve articles in this topic. The search was limited to the period 2010–2025 to capture the evolution of the field from its foundational years to the current "sustainability surge." To refine the dataset, only documents in English were included. The document types were restricted to Journal Articles, Reviews, and Conference Papers to ensure a high standard of peer-reviewed content. Non-peer-reviewed notes, editorials, and books were excluded. The final dataset comprised 2,697 documents. Publication counts were obtained from the Scopus

database and aggregated into multi-year periods to enhance interpretability of long-term publication trends.

Data analysis followed a two-fold approach;

- Descriptive Performance Analysis: Using the Scopus "Analyse Search Results" tool to evaluate publication trends by year, country, and subject area for the year 2010-2025.
- Conceptual Structure of the Research Field: VOSviewer (v.1.6.20) was used for network visualization. Keyword co-occurrence analysis was performed to identify thematic clusters, while overlay visualization was used to detect emerging trends.

Keyword co-occurrence analysis was employed to uncover the conceptual structure of the fast fashion and climate change research field. This technique is widely used in bibliometric studies to identify relationships between frequently co-occurring keywords, which reflect shared research interests and underlying thematic linkages within a body of literature. Author keywords were selected as the unit of analysis, as they represent researchers deliberate conceptual framing of their studies. The analysis was conducted using VOSviewer, applying a minimum occurrence threshold of 15 to reduce noise and enhance thematic interpretability. This threshold ensured that only substantively recurring concepts were retained, resulting in a manageable and meaningful network structure. The resulting keyword network was visualised using network and overlay visualisations to identify dominant thematic clusters and examine their temporal development. Together, these visualisations provide insights into both the core knowledge domains and emerging research directions in the field.

The descriptive performance analysis reveals a rapid expansion and increasing diversification of research at the intersection of fast fashion and climate change, driven by growing contributions across disciplines, countries, and scholarly outlets. However, publication growth alone does not reveal how knowledge in this field is conceptually organised or which themes dominate scholarly discourse. To address this gap, the next section examines the intellectual structure of the field through keyword co-occurrence analysis, enabling the identification of major research themes and their temporal evolution.

Systematic searching strategies

There are three main processes in the systematic searching strategies process namely identification, screening and eligibility.

Identification

Identification is a process to search any synonym, related terms and variation for the main keywords for the study namely fast fashion, fashion, impulse purchase, social media and live streaming. It aims to provide more options for selected database to search for more related articles for the review. The keywords are developed based on the research question as suggested by (Okoli & Schabram, 2010) and the identification process relied on online thesaurus, keywords used by past studies, keywords suggested by Scopus, and keywords suggested by experts. The authors managed to enrich the existing keywords and developed full search string (based on Boolean operator, phrase searching, truncation, wild card and field code functions) on one main database namely Scopus. Scopus has the ability to be leading database in a systematic literature review due to several advantages it possesses such as advance searching functions, comprehensive (indexing more than 5000 publishers), articles' quality control and have multidisciplinary focus (Cantu-Ortiz, 2018; Hosseiniara, 2023; Montoya & Prosser, 2018). The searching process in Scopus database has resulted in a total of 4344 articles.

TITLE-ABS-KEY ("fast fashion" OR "fashion industry") AND ("climate change" OR "carbon emission*" OR "global warming") AND PUBYEAR > 2009 AND PUBYEAR < 2026 AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))

Screening and Eligibility

This study screened all the 4344 articles by choosing the criteria for articles selection which is done automatically based on the sorting function available in the database. The selection criteria are based on the research question as suggested by Budgen et al. (2007). As it is almost impossible for the researchers to review all the existing published articles, Okoli (2015) suggested the researchers should determine the range of period that they able to review. Higgins et al. (2011) on the other hand stated that restriction on timeline publication should be activated only if it is known that related studies could only have been reported during a specific time period. Based on the searching process on the selected database, it was realized that the number of studies related to fast fashion and climate change have multiplied starting from 2010 to 2025, therefore, based on this, the timeline was selected as one of the inclusion criteria. Furthermore, to ensure the quality of review, only articles with empirical data and published in a journal are included.

Moreover, only articles published in English are incorporated in the review to avoid confusion in understanding. This process had excluded 1647 articles as they did not fit the inclusion criteria. A total of 2,697 documents were included after a two-stage screening process, where records were assessed against the pre-defined eligibility criteria regarding language, publication type, and thematic relevance. To refine the dataset, only documents in English were included. The document types were restricted to Journal Articles and Reviews to ensure a high standard of peer-reviewed content. Non-peer-reviewed notes, editorials, and books were excluded.

To ensure a comprehensive and representative mapping of the global fashion-climate nexus, this study utilizes a macro-bibliometric dataset of 2,697 documents. While a more restricted search query could offer a tighter thematic focus, the selection of a larger dataset was prioritized to ensure data robustness and minimize the risk of sampling bias. The justification for this comprehensive approach is fourfold:

Table 1. The Inclusion and Exclusion Criteria.

Criteria	Inclusion	Exclusion
Timeline	2010-2024	<2010
Document type	Article journal	Chapters in book, book series, book, conference proceeding
Language	English	Non-English
Database	Scopus	WoS, Google Scholar

Findings and Discussion

Research Question 1

How do scientific literature on fast fashion and climate change evolved between 2010 to 2025 in terms of publication growth, disciplinary spread and key contributing actors?

As shown in Table 2, research on fast fashion and climate change remained limited and fragmented between 2010 and 2015, indicating an emerging but underdeveloped research area. A steady increase in publications is observed from 2016 onwards, followed by a pronounced

acceleration after 2019. The period from 2022 to 2025 exhibits exponential growth, reflecting a substantial expansion of scholarly attention and signalling the consolidation of this research domain. Given the number of visualisations required for subsequent bibliometric analyses, a consolidated table was used to enhance readability while still clearly representing temporal growth patterns. This growth is largely driven by research output from a limited number of countries, indicating geographical concentration alongside overall publication expansion.

The data reveals a dramatic shift in publication over the 15-year study period and demonstrates important developments in fast fashion and climate changes. With 2697 publication, the finding reveals a clear, non-linear growth trajectory in scholarly publications addressing fast fashion and climate change from 2010 to 2025. The early period (2010–2012) is characterised by very low publication output, indicating that climate change considerations were largely peripheral within fast fashion research. Studies during this phase were fragmented and primarily exploratory, reflecting the absence of a coherent research agenda linking fashion systems explicitly to climate impacts.

However, between 2013 and 2015, a gradual increase in publications is observed, signalling the beginning of conceptual engagement with sustainability and environmental responsibility in the fashion industry. This period marks the early recognition of fast fashion as an environmentally relevant phenomenon, though climate change remained an implicit rather than central concern.

Surprisingly, a turning point occurs during 2016–2018, when publication output rises to a moderate but stable level. This growth coincides with increasing global attention to environmental degradation, life-cycle assessment, and supply chain transparency, suggesting that fast fashion research began to integrate climate-related perspectives more systematically. Hence, the most significant acceleration emerges from 2019 onwards. The period 2019–2021 demonstrates rapid growth, followed by exponential expansion between 2022 and 2025. This surge indicates that climate change has transitioned from a peripheral issue to a central analytical lens in fast fashion scholarship, marking the field's entry into a consolidation and expansion phase.

Table 2. Publication Trend on Fast Fashion and Climate Change (2010–2025)

Period	No. Of Publication	Trend Characteristics	Interpretation
2010-2012	Very low (13 per year)	Sporadic emergence	Initial and fragmented scholarly attention
2013-2015	Low (21 per year)	Gradual increase	Early conceptual engagement begins
2016-2018	Moderate (92 per year)	Steady growth	Growing recognition of environmental relevance
2019-2021	High (396 per year)	Rapid acceleration	Climate change becomes central for fast fashion debates
2022-2025	Very high (2175 per year)	Exponential growth	Field enters rapid expansion and consolidation phase

The exponential growth in publications from 2010 to 2025 coincides with a marked diversification of disciplinary engagement. Initially dominated by environmental science and social sciences, the field has progressively attracted contributions from business and management, energy studies, engineering, computer science, and economics. This broadening of subject areas suggests that fast fashion and climate change has evolved from a niche environmental concern into a multidimensional research problem, thereby accelerating publication output. Table 3 demonstrates the growth of publication based on subject area and discipline. While the topic of climate changes synonym with Environmental Science discipline, Business, Management and Accounting dominating the fast fashion and climate changes research with 1231 publication. The finding also illustrates the upsurging publication trend on fast fashion and climate changes as Social Sciences and Economics, Econometrics and Finance discipline shifting their research interest towards climate changes, validates that research is no longer just identifying environmental damage; it is actively seeking structural, managerial, and behavioural solutions.

Furthermore, the current finding explains how diversification suggests that fast fashion and climate change has evolved into an interdisciplinary research domain, attracting scholars concerned with carbon emissions, resource efficiency, circular economy, policy governance, and sustainable consumption. As climate change became a priority research agenda across multidisciplinary, particularly after 2019, the topic of fast fashion served as a critical empirical context for examining broader environmental and socio-economic challenges. Importantly, the exponential growth observed after 2022 aligns with heightened global policy discourse, sustainability reporting requirements, and climate-related commitments, which have intensified academic interest across discipline. As a result, the surge in publications reflects not only increased awareness of fast fashion's climate impact, but also the institutionalisation of climate change as a cross-cutting research imperative.

Table 3. Publication Trend on Fast Fashion and Climate Change by Subject Area (2010–2025)

Rank	Subject Area	Publications	Percentage (%)
1	Business, Management and Accounting	1231	18.8
2	Environmental Science	1111	17.2
3	Social Sciences	1050	16.2
4	Other	472	9.9
5	Energy	601	9.4
6	Engineering	536	8.4
7	Computer Science	409	6.6
8	Economics, Econometrics and Finance	330	5.1
9	Decision Sciences	249	3.8
10	Arts and Humanities	160	2.5
11	Material Sciences	119	2.1

The analysis of the geographical distribution reveals that research on the fast fashion-climate nexus is a global endeavour, dominated by major manufacturing hubs and high-consumption economies. As shown in the Table 4, the top 10 most productive countries contribute a significant portion of the 2,697 articles in the dataset. China leads the global output with approximately 455 documents. This dominance is likely due to China's position as the world's largest garment producer and the subsequent urgent need for localized research on industrial pollution, water stress, and carbon mitigation.

The United Kingdom (366 documents) and the United States (274 documents) follow closely behind. Their high rankings reflect a research focus on consumer culture, post-consumer waste management, and the policy-driven move toward "Net Zero" targets. Together, these three countries account for a substantial proportion of total research output, indicating their central role in shaping the field.

Notably, India (271 publications) and Malaysia (107 publications), representing emerging economies nations, also feature prominently among the top contributors. European countries, including Italy, Spain, Germany, and France, collectively represent a strong regional cluster, reflecting Europe's longstanding engagement with sustainability, environmental regulation, and responsible production. This geographic distribution suggests that fast fashion and climate change research is not confined to a single academic or economic bloc but reflects diverse national priorities and production-consumption contexts.

Country-level publication output provides a critical explanation for the rapid acceleration of research output observed from 2019 onwards. High-contributing countries such as China, the United Kingdom, and the United States possess strong research infrastructures, extensive higher education systems, and policy-driven sustainability agendas, enabling large-scale scholarly production. As for China and India, the volume of publications reflects their central position in global textile manufacturing and fast fashion supply chains, making climate-related impacts both a policy concern and a research imperative. Conversely, the prominence of the United Kingdom, United States, and European countries reflects their roles as major consumer markets, regulatory leaders, and sustainability innovation hubs.

Interestingly, the inclusion of both producer- and consumer-dominant economies indicates a structural broadening of the research field, which aligns with the interdisciplinary expansion observed in subject-area and journal-level analyses. This multi-country engagement accelerates publication output by increasing funding availability, cross-national collaborations, and policy relevance. The strong contribution from a diverse set of countries substantiates the argument that the exponential growth in publications is driven by globalisation of the research agenda, rather than isolated academic interest. As climate change increasingly intersects with fast fashion's environmental, social, and economic impacts, more countries are compelled to engage in scholarly investigation.

In fact, the rise of countries from the Global South among the top contributors suggests a shift from predominantly Western-centric discourse to more inclusive, production-side perspectives. This shift enriches the field but also contributes to the observed publication surge, as new empirical contexts and policy challenges enter academic debate.

Table 4. Most Prolific Countries on Fast Fashion and Climate Change Research (2010–2025)

Rank	Country	Publications
1	China	455
2	United Kingdom	366
3	United States	274
4	India	271
5	Italy	240
6	Australia	148
7	Spain	127
8	Germany	120
9	France	108
10	Malaysia	107

Furthermore, the analysis of documents by author highlights a relatively small group of scholars who have made sustained contributions to the fast fashion and climate change literature. As illustrated in Table 5, Choi, T.M. leads in productivity with 13 articles, exceptionally high citation count (25,627) and h-index (87), indicating both sustained output and substantial scholarly impact. Other prominent contributors include Mishra, U. (11 articles), Zorpas, A.A. (10 articles), and D’Adamo, I. (9 articles), each of whom demonstrates a strong balance between publication volume and citation influence.

Notably, the authors originate from a diverse set of countries, including the United Kingdom, India, Cyprus, Italy, the Netherlands, Norway, South Korea, and China, reinforcing the global nature of scholarly leadership in this field. The presence of highly cited and high-h-index scholars indicates that the observed publication surge is not driven by fragmented or low-impact research, but rather by authoritative intellectual leadership. Authors such as Backen, N.M.P. and Sarkar, B., despite publishing fewer articles, exhibit exceptionally high citation counts, suggesting that seminal works by a small number of scholars have shaped subsequent research trajectories.

In fact, the alignment between author countries and the top contributing countries identified earlier indicates a structural reinforcement mechanism: nations with strong publication output also host leading scholars who act as intellectual anchors for the field. The dominance of a relatively small group of high-impact authors supports the interpretation that the exponential growth in publications reflects a consolidation phase rather than uncontrolled proliferation. Influential scholars provide theoretical frameworks, methodological templates, and conceptual clarity that enable faster and broader knowledge production by the wider research community.

Notably, the prominence of scholars associated with operations and supply chain research indicates that climate change discussions in fast fashion are increasingly framed around production efficiency, emissions reduction, and system-level interventions, rather than solely consumer behaviour or awareness-based approaches. This diversification of author expertise reflects the expanding scope and methodological maturity of the literature. This transition explains the upsurging publication numbers accelerated after 2019; once foundational work was

established by leading authors, subsequent studies could build incrementally rather than conceptually from scratch.

Table 5. Most Prolific Authors on Fast Fashion and Climate Change Publication (2010–2025)

Rank	Author	Articles	Citations	h-Index	Country
1	Choi, T.M.	13	25,627	87	United Kingdom
2	Mishra, U.	11	2,323	23	India
3	Zorpas, A.A.	10	9,178	54	Cyprus
4	D'Adamo, I.	9	9,228	57	Italy
5	Papamichael, I.	9	1,692	25	Cyprus
6	Backen, N.M.P.	8	26,905	65	Netherlands
7	Henninger, C.E.	8	2,115	23	United Kingdom
8	Laitala, K.	7	2,184	20	Norway
9	Sarkar, B.	7	17,136	74	South Korea
10	Shen, B.	7	5,764	39	China

As shown in Table 6, analysis of documents by source indicates a clear concentration of publications within a small group of sustainability-oriented journals. The analysis of the top 10 journals publishing research on fast fashion and climate change reveals a high concentration of output within sustainability- and environment-focused outlets. Sustainability Switzerland leads decisively with 235 publications, followed by the Journal of Cleaner Production (146 publications) and Business Strategy and the Environment (111 publications). Together, these three journals account for a substantial share of total publications in the field.

In terms of scholarly influence, citation counts further underscore the dominance of these journals. Sustainability Switzerland and Journal of Cleaner Production exhibit exceptionally high citation volumes, indicating that they function not only as primary dissemination platforms but also as agenda-setting journals for fast fashion and climate change research. Notably, the presence of journals such as Environmental Science and Pollution Research, Sustainable Production and Consumption, and Sustainable Development highlights the strong integration of environmental science and sustainability policy perspectives, while Journal of Fashion Marketing and Management represents a more domain-specific but comparatively lower-volume contributor.

The dominance of sustainability-oriented journals provides a structural explanation for the exponential publication growth observed from 2022 onwards. High-output journals such as Sustainability Switzerland and Journal of Cleaner Production are characterised by broad thematic scopes, interdisciplinary openness, and high publication capacity, enabling rapid absorption of emerging research topics. This journal ecosystem lowers entry barriers for scholars from diverse disciplines such as business, environmental science, energy studies, and social sciences; thereby accelerating publication output. The contrast between publication volume and citation concentration also suggests a field in rapid expansion, where newer studies are still accruing citations while benefiting from established foundational work.

Moreover, the emergence of circular economy journals in the top 10 indicates thematic evolution within the field. This shift aligns with the later growth phases identified in the publication trend analysis, suggesting that conceptual maturation and journal diversification occur simultaneously. Hence, the journal-level evidence strongly corroborates the earlier finding that fast fashion and climate change research has entered a consolidation and expansion phase. The surge in publications is not merely demand-driven but is also enabled by supply-side academic infrastructure, particularly high-capacity sustainability journals with global reach.

Table 6. Most Prolific Journal on Fast Fashion and Climate Change Publication (2010–2025)

Rank	Journal	Publication	Citations
1	Sustainability Switzerland	235	483, 826
2	Journal of Cleaner Production	146	344,775
3	Business Strategy and the Environment	111	36,815
4	Corporate Social Responsibility and Environmental Management	27	17,008
5	Environment Development and Sustainability	26	40,560
6	Environmental Science and Pollution Research	26	241,680
7	Circular Economy and Sustainability	25	5,037
8	Journal of Fashion Marketing and Management	24	2,071
9	Sustainable Development	24	19,271
10	Sustainable Production and Consumption	24	27,694

Taken together, the findings on publication growth, leading journals, geographic concentration and prolific authors indicate that research on fast fashion and climate change has transitioned from an emerging topic to a structured and rapidly expanding field. The concentration of publications in sustainability-oriented journals and the sustained contributions of a core group of scholars suggest increasing scholarly legitimacy and consolidation. Hence, the rapid growth of publication shows the structural forces involving disciplinary expansion, journal capacity, geographic concentration and intellectual leadership.

Research Question 2

What are the dominant research themes and emerging directions in fast fashion and climate change literature?

The network visualisation reveals that research on fast fashion and climate change is conceptually structured around four major themes: (1) corporate sustainability and strategic responses, (2) environmental impact and textile production systems, (3) consumer behaviour and sustainable fashion consumption, and (4) sustainable supply chain and operational management. Figure X presents the keyword co-occurrence network visualisation, revealing four major thematic clusters structuring the literature on fast fashion and climate change. The

first cluster centres on corporate sustainability and strategic responses, emphasising governance, CSR, and ESG-oriented approaches. The second cluster focuses on environmental impacts and textile production systems, highlighting emissions, life cycle assessment, and environmental management. The third cluster captures consumer behaviour and sustainable fashion consumption, addressing attitudes, purchase intentions, and willingness to pay. The fourth cluster reflects supply chain and operational management perspectives, including logistics, manufacturing efficiency, and digital transformation. Together, these clusters illustrate the multidimensional and interdisciplinary nature of research in this field.

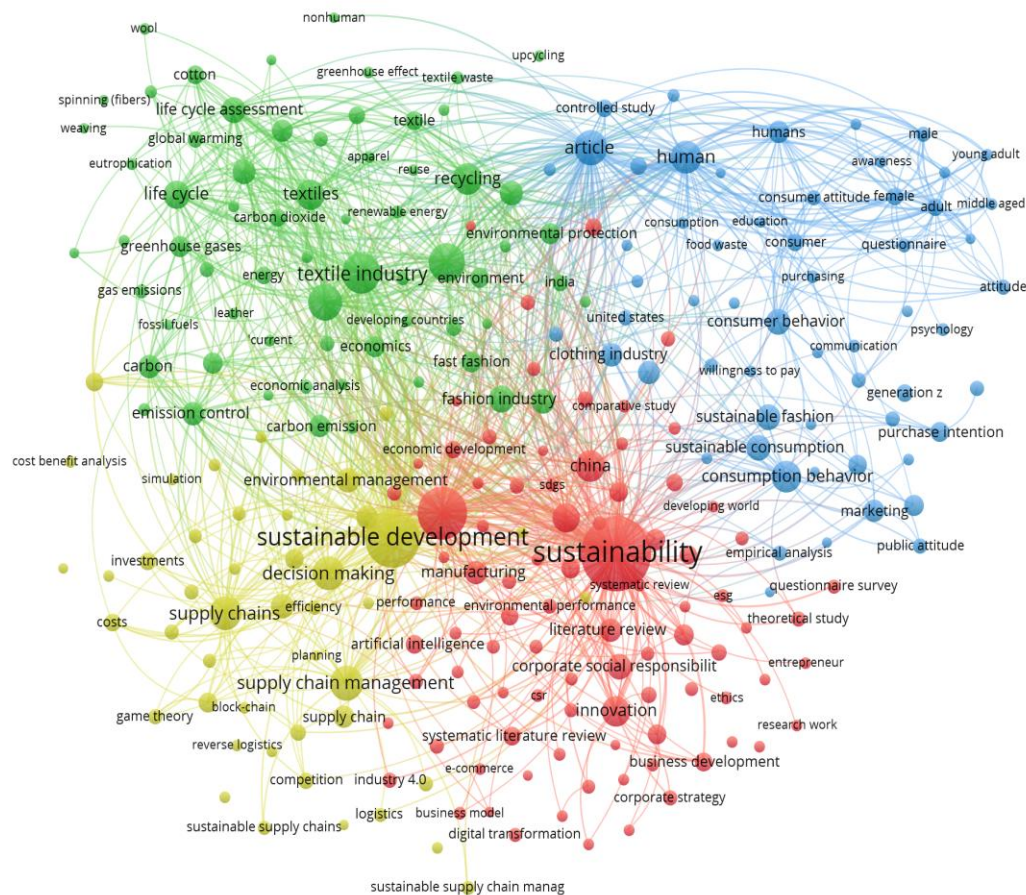


Figure 1: Visualisation of Conceptual Themes

The conceptual themes that derive from the network visualisation, describe four clusters of the current study on fast fashion and climate change. Analysing from the network visualisation, this study has developed four clusters based on the conceptual structure. Cluster 1 captures firm-level and strategic perspectives on sustainability in the fashion industry. Studies here focus on how companies respond to climate change through governance mechanisms, CSR initiatives, ESG frameworks, and strategic innovation.

Cluster 2 illustrate existing research examining the environmental consequences of textile production, including emissions, resource use, and waste. Life cycle assessment and environmental impact measurement are central approaches within this theme. While Cluster 3 focuses on the demand side of fast fashion, investigating how consumer attitudes, intentions, and psychological factors influence sustainable purchasing decisions. It highlights the growing

role of consumers in driving sustainability outcomes. Finally, Cluster 4 represent study on operational and supply-chain-level solutions, including logistics optimisation, digital transformation, and efficiency improvements aimed at reducing environmental impacts across the fashion value chain.

Table 3. Emerging Clusters and Themes through Keyword Co-Occurrence Analysis

Cluster	Thematic Label	Dominant Keywords	Area of Discussion
Cluster 1: Red	Institutional and Strategic Sustainability	Sustainability, China, Innovation, Literature Review, Corporate Social Responsibility (CSR), Business Development	The role of fashion industry in focusing on firm-level strategies, governance mechanism and ethics to respond to sustainability and climate-related pressures
Cluster 2: Green	Environmental Impact and Lifecycle Assessment	Textile Industry, Life Cycle Assessment (LCA), Global Warming, Greenhouse Gases, Carbon Emission, Environmental Protection	Foundational literature addressing environmental impact of fast fashion, focus on emission, climate change mitigation, sustainability framework in textile and apparel industry
Cluster 3: Blue	Consumer Behaviour and Sustainable Fashion	Human, Consumer Behavior, Sustainable Fashion, Purchase Intention, Psychology, Sustainable Consumption	Examining consumer decision-making, attitudes, and behavioural intentions towards sustainable fashion and climate change
Cluster 4: Yellow	Operational Process and Supply Chain	Sustainable Development, Supply Chains, Decision Making, Manufacturing, Environmental Management, Logistics	Focus on operational and production-level interventions, including sustainability supply chains, circular economy practices, performance optimisation to reduce environmental impacts

Additionally, the current study also identifies the emerging trends on the issue of fast fashion and climate change which will provide an insight for future research. The overlay visualisation indicates that early research at the intersection of fast fashion and climate change was predominantly grounded in macro-level sustainability and environmental impact assessments. Core themes such as sustainability, sustainable development, textile industry, and carbon emissions appear in earlier publication periods, suggesting that initial scholarly attention centred on understanding the scale and severity of environmental harm caused by the fast fashion system. This foundational phase established the scientific basis for linking fashion production and consumption to climate change, emissions growth, and resource depletion.

multi-disciplinary, theory-driven field. By jointly analysing publication trends, subject areas, journals, countries, and authors, the study provides a structural explanation for knowledge growth rather than a descriptive account. Unlike studies that isolate performance indicators or mapping techniques, this paper integrates trend analysis with intellectual structure analysis, showing how bibliometric indicators operate as an interconnected system. Therefore, this approach advances bibliometric methodology by emphasising explanatory synthesis over visual abundance.

Future Research, Limitation of Study and Conclusion

In conclusion, this study provides a comprehensive bibliometric overview of research at the intersection of fast fashion and climate change from 2010 to 2025, revealing a rapidly expanding and increasingly interdisciplinary field. The growth in publications reflects rising global concern over the environmental impacts of fast fashion, particularly as research contributions diversify across sustainability science, environmental management, business strategy, and consumer behaviour. Through keyword co-occurrence analysis, this study uncovers coherent thematic clusters that trace the field's evolution from impact assessment and supply-chain efficiency toward circular economy, sustainable consumption, and climate mitigation strategies. The study clarifies how scholarly attention has shifted in response to climate imperatives and industry transformation. The findings offer a robust evidence base for academics, policymakers, and practitioners seeking to advance more sustainable fashion systems and identify future research directions within this rapidly evolving landscape.

Despite its contributions, this study is subject to several limitations inherent to bibliometric research. First, the analysis relies on a single bibliographic database, which, although comprehensive and widely used, may underrepresent publications from regional journals, non-English outlets, or emerging economies. Second, bibliometric indicators such as citation counts and h-index favour older publications and established scholars, potentially overlooking recent high-quality contributions with limited citation windows. Third, the study emphasises quantitative performance and structural patterns rather than in-depth content analysis; as a result, the evolution of theoretical perspectives, methodological rigor, and empirical findings within individual studies is not directly assessed.

Future research could address these limitations in several ways. Comparative analyses across multiple databases could improve coverage and robustness, while longitudinal citation normalisation may better capture emerging scholarship. In addition, qualitative or mixed-method reviews could complement bibliometric insights by examining how dominant theories, consumer behaviour models, and policy narratives evolve within the fast fashion–climate change nexus. Future studies should explore underrepresented regions and alternative actors, such as Global South supply-chain stakeholders and consumer movements, to broaden the field's theoretical and empirical foundations and avoid intellectual concentration.

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