

A Systematic Bibliometric Review Of Godhadi Quilts Through The Lens Of Sustainability, Textile Repurposing And Waste Management

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Abstract

Purpose

This paper has been designed to investigate research trends in terms of sustainable reuse or repurposing and waste management in relation to traditional Godhadi quilt making through a bibliometric analysis.

Design

A bibliometric study has been made by analysing 260 publications downloaded from the Scopus database. The results of the bibliometric indicators of publications, such as the trend of publications and co-occurrence of keywords, have been visualized by the use of VOSviewer.

Results

The findings indicate a marked rise in research work published after 2017, establishing a greater body of academic literature on sustainable fashion and management of textile waste. There were four prominent themes in the research: circular economy, sustainability, recycling-textiles to text, and waste management. A major country contributing to such body of literature is India, and key publications can be found in the Journal of Cleaner Production.

Originality

This research work offers a structured literature review of the connection between textile crafts and sustainable fashion studies. Through the mention of Godhadi quilting in relation to the circular economy approach in textile recycling, this research provides a bibliometric indication of the significance of indigenous textile crafts in sustainable textile waste practices.

Keywords: Bibliometric Review, Godhadi Quilts, Sustainability, Textiles Repurposing, Waste Management.

1. Introduction

Sewing has always been a need for women, and it has evolved into an “aesthetic” activity that allows practitioners to express their creativity [1]. In a world where design is increasingly recognised as a crucial component in accomplishing environmental goals, quilts have been positively recognised as a productive response to historical and cultural events, a new outlet for creativity, and a symbol of sisterhood and solidarity [2]. Sustainable futures are being promoted by using traditional and cultural commodities [3]. A surge in interest for sustainable crafts has been witnessed, but there is still no shared understanding of artisanship and its intersections with art, design, and creation [4].

Most of the literature still acknowledges the possibility of individual artisans many of whom are disadvantaged economically to create a critical mass and advance sustainability. Thus, in order to create an atmosphere that is favourable for recycling textiles into godhadi, this study seeks to contribute to the pattern shift from individual actions to communities of practices rooted in local settings. For generations, people in

rural India have relied on skilled labour and distinctive handicrafts to meet their basic needs [5]. Most of their craft goods were produced using resources available locally [6]. Their cultural and spiritual links to the area and community influence how they employ local resources, methods, and customs. They have evolved over millennia of shared knowledge and experiences, making them well adapted to local settings. Working together within the community can preserve the sentimental values of used clothing, keep useful items out of landfills, and raise the monetary value of their expertise.

This study seeks to analyse the present development and research trends in waste management by repurposing textiles and forecasting the future research path for traditional godhadi quilts. This initiative is critical for furthering the study on traditional crafts.

1.1 The sustainability movement

Enhanced contributions have strengthened the theoretical and philosophical underpinnings of sustainable design [7]. Global environmental, social, and economic issues are addressed by the expanding field of sustainable fashion, which covers a wide variety of subjects, approaches, and concepts. Textile wastes may be upcycled to further boost utilitarian value, in addition to being repurposed [8]. Similar environmental advantages in waste management are provided by recycling and upcycling [9]. People need to be socially and environmentally conscious, and economically equitable in order to attain full sustainability [10].

Walker and Phillips [11] stated that values and beliefs that give actions meaning should be prioritised alongside social fairness, economic stability, and environmental effects. Walker [12] suggests that products may be evaluated in new ways using environmental aspects. Recycled parts, eco-materials, and residual materials can be investigated to increase sustainability and conservation value [13].

1.2 The advancement of sustainable development

Roseland [14] insists that the advancement of sustainable development is hampered by consumerism and resource exploitation. The repurposing of textiles that would otherwise be discarded is possible through the application of a “Cradle-to-Cradle” strategy [15]. By preserving traditional history, generating social employment, promoting creative industries, and improving environmental stewardship, godhadi artisans may support sustainable development.

Ehrenfeld [16] asserts that design for sustainability entails developing new action-producing structures to replace inefficient patterns [17]. Traditional knowledge, defined as an accumulated body of knowledge transmitted through culture, continues to offer valuable insights [18]. Design increasingly acknowledges traditional ecological knowledge, particularly for indigenous representation and cultural industries [19]. However, advancement and globalisation have caused old artisan practices to disappear globally [20]. Indigenous knowledge and customs may improve people’s lives and the environment over the long run [21].

1.3 Reusing, Recycling, and Reducing Wastes

Design has an obligation to address environmental and social challenges, and design thinking can facilitate solutions when problems are viewed as opportunities [22]. Reusing, recycling, and reducing waste can be achieved through the 3R programme [23]. Waste materials are repurposed into new components through recycling [24]. The fashion industry has increased its consumption of natural resources and created disposal challenges, leading to discussions on circular economy and extended product life cycles [25,26].

Godhadi craft has long been used to recycle and reuse old garments while supporting community upliftment [27]. Continued consumerism limits progress towards sustainable development, contributing to the decline of traditional craft practices [28,29]. If India’s

culture is to be truly sustainable, crafts like godhadi must be conserved and expanded, providing artisans with employment, social connection, and purpose. The act of quilting and the finished product become tangible communal archives that empower artisans and their communities [30,31]

To the best of the authors' knowledge, this study is the first systematic bibliometric review that specifically examines godhadi quilts and related traditional quilting practices within the framework of sustainability, circular economy, textile repurposing, and waste management. By applying bibliometric and co-word analysis to Scopus-indexed literature, the study provides a structured mapping of research trends, thematic clusters, and intellectual foundations, thereby positioning indigenous craft practices as significant contributors to contemporary sustainable fashion discourse

2. Data Collections and Methodology

The idea of this study is to look at how traditional crafts influence sustainable, recycled design for a more meaningful future. This study employed a bibliometric method, with the primary purpose of completing a systematic literature review and identifying themes using relevant keyword searches. A bibliometric evaluation offers precise guidance for future research and is a methodical approach to look back on the past and suggest possible topics of study [32]. Scopus was used to retrieve papers for bibliometric analysis. The bibliometric study provides an intellectual and conceptual framework for determining references using keyword co-occurrence and co-word analysis [33]. Bibliometric indexes evaluate a publication's impact on research by considering author, country, and citation count per publication [34].

This study examines 260 notable works in the “sustainable repurposing of textiles” literature from January 1974 to January 2024, as determined by Scopus. Scholarly papers were retrieved using keywords such as quilts, recycling, reusing, repurposing, repurposing textiles, sustainability, waste management, and needlecraft connected to “Godhadi or Quilts craft”. Figure 1 depicts the features of the initial data search using these keywords.

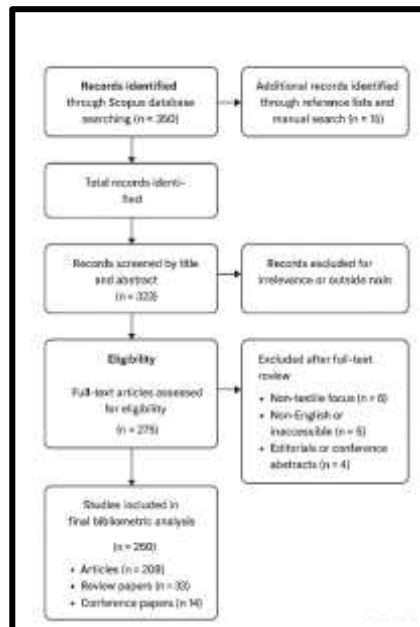


Figure 1. PRISMA-based literature selection process for studies on sustainable textile repurposing and craft-based fashion systems

2.1 Synthesis of descriptive data

The study provides an overview of the long-term and rapidly growing topic of handicraft-based research. Bibliometric techniques were employed to monitor academic discussions related to godhadi craft. This section examines how influential authors and organisations have shaped discourse on godhadi craft in the context of waste management and sustainable textile repurposing. The analysis also presents a synthesis of current knowledge, highlighting leading countries, authors, and organisations engaged in research on this topic.

2.2 Analysis of the yearly publishing volume

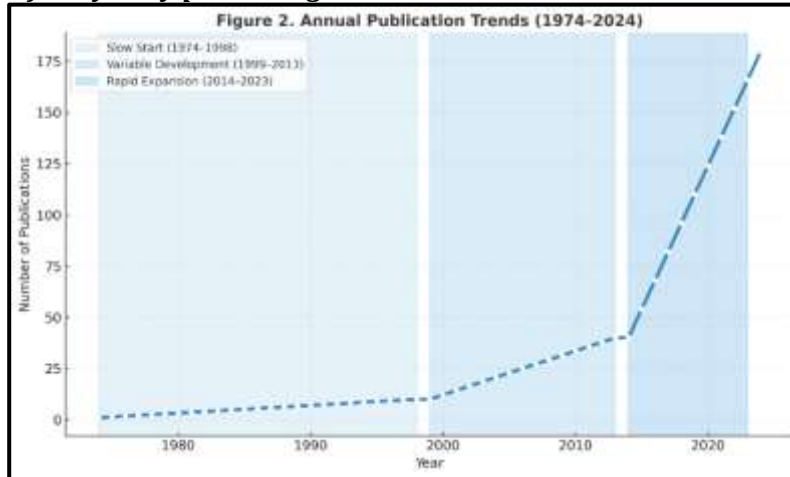


Figure 2. Growth trajectory of scholarly publications on sustainable textile repurposing (1974–2024).

Figure 2 depicts the history of Scopus-indexed publications on godhadi craft and sustainable textile repurposing since 1974. Variations in publication trends allow the categorisation of research into three development stages, as presented in Table 1. The yearly publishing volume reflects the evolution and growth patterns of research in this field [35].

Table 1. Stages of Research Development in Sustainable Textile Repurposing (1974–2023)

Phase	Period	Number of Publications	Key Characteristics	Research Focus
Initial Phase	1974–1998	24	Limited global attention; conceptual studies on reuse and recycling	Early environmental awareness; introduction of sustainable development concepts
Variable Growth Phase	1999–2013	78	Gradual increase in interdisciplinary studies	Transition toward circular economy, lifecycle assessment, and eco-design

Rapid Growth Phase	2014–2023	158	Sharp rise in sustainability-related publications; widespread adoption of bibliometric methods	Integration of circular economy, waste valorization, and sustainable fashion frameworks
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Table 1. Stages of Research Development in Sustainable Textile Repurposing (1974–2023).

Classification of publication trends into three growth phases—initial (1974–1998), variable (1999–2013), and rapid (2014–2023)—highlighting changes in research volume and thematic focus.

2.3 Analysis of most influential papers including citations and key authors

The largest number of citations was used to identify the most influential papers in key areas. These investigations span from 1974 to 2024. A total of 220 studies related to handmade quilts and crafts were identified between January 1974 and January 2024. The most cited paper was published in the Journal of Cleaner Production in 2018, titled “Environmental impact of textile reuse and recycling – A review”, authored by Sandin Gustav and Peters Graig M., receiving 497 citations. The next most cited paper, “The circular economy in the textile and apparel industry: A systematic literature review”, co-authored by Jia Fu and Yin Shiyuan, was published in the Journal of Cleaner Production in 2020 and received 309 citations.

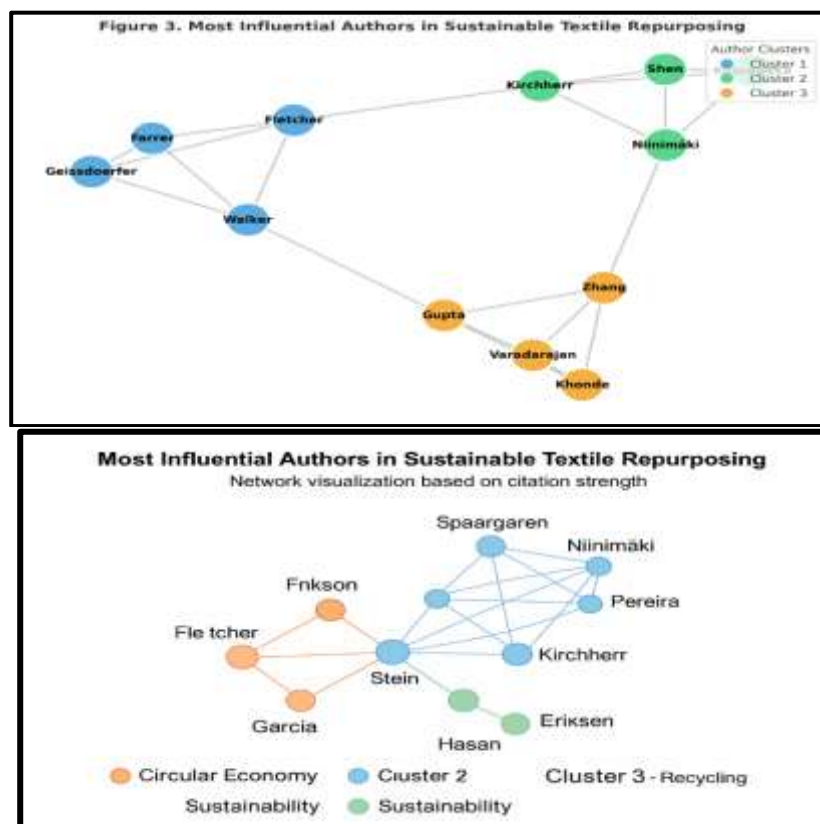


Figure 3. Citation-based network of influential authors in sustainable textile and circular fashion research

2.4 Most significant academic publications

The University of Oradea (51 publications with a total citation of 347), City University of Hong Kong (213 publications with a total citation of 10,758), and University of Oradea (81 publications with a total citation of 2,481) are among the most significant academic contributors in the field of sustainable textile repurposing and waste management. Table 3 presents the most significant academic sources.

2.5 Country-wise analysis

Country-wise analysis highlights the global research contribution to sustainable textile repurposing and waste management. The analysis identifies leading countries based on publication output and citation impact. Research output is dominated by developed and emerging economies, reflecting increasing academic interest in sustainability, circular economy, and textile waste management. The distribution of publications across countries demonstrates collaborative research patterns and indicates regions actively contributing to studies related to handicrafts, recycling, and sustainable design. This analysis provides insight into geographical research trends and the international scope of studies related to godhadi and textile repurposing.

Table 2. Geographical Distribution of Publications

Rank	Country	Publications	Citations	Research Emphasis
1	United Kingdom	58	2,840	Sustainable design, policy, circular fashion
2	United States	52	2,650	Supply chain and material innovation
3	India	38	1,980	Craft-based sustainability and textile waste
4	China	35	1,750	Recycling technologies, life cycle analysis
5	Finland	25	1,380	Sustainable fashion and design innovation
6	Netherlands	20	1,120	Circular economy frameworks
7	Sweden	18	1,050	Eco-design and consumer studies
8	Australia	16	890	Sustainable production systems
9	Italy	15	820	Waste valorization in textiles
10	Germany	13	770	Industrial sustainability and material reuse

Table 4. Geographical Distribution of Publications.

Top 10 countries producing Scopus-indexed research on sustainable textile repurposing and waste management, illustrating global participation and focus areas.

2.6 Keyword co-occurrence

Keyword co-occurrence analysis was conducted to identify major research themes and relationships among frequently used terms in the selected literature [36]. The analysis reveals strong linkages between keywords such as sustainability, textile waste, recycling, repurposing, circular economy, handicrafts, and quilts. These keyword clusters indicate dominant research directions and emerging themes in sustainable textile practices [37]. Co-occurrence mapping helps in understanding the conceptual structure of the field and highlights the interconnectedness of waste management, sustainable fashion, and traditional craft practices within the existing literature.

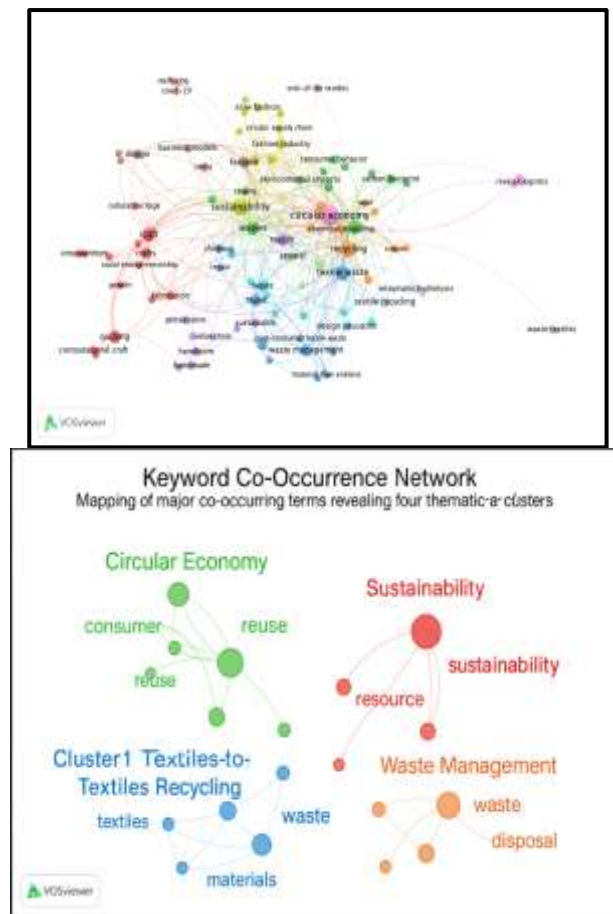


Figure 4. Keyword co-occurrence network revealing core sustainability themes in fashion and textile repurposing research.

Table 3. Co-Occurrence Analysis of Keywords

Rank	Keyword	Occurrences	Link Strength	Related Theme
1	Sustainability	142	480	Environmental & social sustainability
2	Circular Economy	126	465	Policy and system innovation
3	Recycling	118	455	Textile-to-textile recovery
4	Waste Management	104	412	Solid waste reduction strategies
5	Upcycling	97	388	Value-added reuse
6	Textile Waste	91	360	Resource efficiency
7	Sustainable Fashion	83	342	Design and consumer behaviour
8	Life Cycle Assessment	75	295	Environmental metrics
9	Reuse	68	260	Material recovery processes

10	Godhadi Quilts	22	80	Indigenous craft-based sustainability
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2.7 Thematic evolution

Thematic evolution analysis illustrates the progression of research themes over time in sustainable textile repurposing studies. Early research primarily focused on recycling and waste reduction, while later studies expanded towards sustainability, circular economy, and socio-cultural aspects of traditional crafts. Recent literature reflects a growing emphasis on community-based practices, indigenous knowledge, and sustainable design strategies. The thematic evolution demonstrates a shift from material-centric approaches to holistic perspectives that integrate environmental, social, and cultural sustainability, positioning godhadi craft within contemporary sustainability discourse.

3 Analysis and detailed findings

Bibliometric Performance

From January 1974 to January 2024, 350 relevant Scopus-indexed publications addressed issues related to textile repurposing and waste management. The bibliometric study provides insight into the intellectual structure of the field and improves comprehension of the interrelationship between sustainability, recycling, and waste management. This section analyses the key topics that emerged from the bibliometric evaluation.

Intellectual Structure

The intellectual structure of the research domain is organised into four major themes derived from cluster analysis:

Theme 1: Circular Economy (Clusters 4, 6, and 9)

Theme 2: Sustainability (Clusters 4, 2, 3, and 11)

Theme 3: Textiles-to-Textiles Recycling (Clusters 1, 3, 7, and 4)

Theme 4: Waste Management (Clusters 3, 6, 7, and 13)

3.1 Circular Economy

The circular economy seeks to replace the concept of “end-of-life” with reducing, reusing, recycling, repurposing, and resource recovery at every level of production, distribution, and consumption [38]. Through restorative and regenerative design, the Ellen MacArthur Foundation envisions a fashion circular economy that benefits business, society, and the environment by keeping clothing within a closed-loop system. Research on textile reuse within the circular economy addresses supply chain management, consumer attitudes, environmental sustainability, and the role of technology in fostering circularity [39]. This vision is based on reducing harmful chemicals, increasing clothing utilisation, enhancing recycling, and improving resource efficiency.

3.2 Sustainability

Unsustainable consumer behaviour, including excessive and short-term clothing purchases, contributes significantly to global environmental degradation [40]. Previous studies have examined consumer perceptions and purchasing behaviour related to sustainable fashion. Environmental concerns and cultural values are among the primary motivations for choosing sustainable clothing [41]. Studies indicate that consumers are becoming more environmentally conscious and are willing to pay more for environmentally friendly products, while also engaging in practices such as purchasing used clothing [42,43]. Sustainable fashion consumption also includes wearing products longer, returning, renting, exchanging garments, and purchasing from eco-friendly or second-hand clothing sources [44,45].

3.3 Textiles-to-Textiles Recycling

Increasing textile recycling is a key component of the Ellen MacArthur Foundation’s circular economy strategy for textiles. This initiative addresses the issue that

approximately 87% of discarded clothing is sent to landfills worldwide [46]. Textile products designed with eco-friendly and non-toxic materials are particularly suited for recycling within a circular economy [47]. Textile-to-textile recycling involves collecting and processing used clothing and fabric waste to produce new fibres or textiles for reuse in clothing, home textiles, and other products [48]. However, a significant portion of clothing waste is unsuitable for closed-loop recycling due to design practices that overlook recyclability [49,50].

3.4 Waste Management

Textile waste constitutes a substantial portion of the approximately 92 million tonnes of waste generated globally each year [51]. Textile waste arises from fibre production, textile manufacturing, and apparel consumption and is categorised as pre-consumer, post-consumer, and industrial waste. This waste presents environmental, economic, and social challenges, including increased greenhouse gas emissions, land and water contamination, and financial losses within the textile industry [52,53]. Disposal of textile waste also contributes to social inequality, as used clothing from high-income countries is often exported to low- and middle-income countries, where low-wage labour is involved in sorting, categorising, and redistribution for second-hand markets [54].

4. Discussion: Implications for the Future of Sustainable Fashion

The bibliometric analysis thus identified four dominant themes underlying the literature on godhadi crafts: circular economy, sustainability, textiles-to-textiles recycling, and waste management. The succeeding discussion interprets these themes to investigate their relevance to sustainable fashion and textile waste management. In the present study, bibliometric analysis was performed with a view to conduct a comprehensive review of the literature on godhadi crafts with respect to sustainable textile reuse and waste management. VOSviewer was utilized for co-word analysis to identify domain-specific research trends. It emphasizes the main issues which involve reuse practices, waste in textiles, creativity, sustainability, environmental impacts, and life cycle assessment of textiles.

Despite increasing scholarly attention, challenges in managing textile waste are still paramount, especially in developing countries; improper and unorganized collection systems result in non-standard flows of recyclates. Textile waste remains complicated, non-homogeneous, and involves a blend of different fibres, dyes, treatments, and garnishes, which complicates sorting and separation techniques. Moreover, recycling methodologies on textile waste also suffer from technological, economic, and environmental limitations. Still, effective recycling methodologies have not yet been developed for natural fibre, whereas recycling synthetic fibres requires large amounts of energy. As a direct consequence, dumping continues to be the dominant disposal method in many areas [58], leading to greenhouse gas, landfill, and plastic pollution emissions, especially from the microfibre rash in synthetic fabrics [59].

4.1 Theme 1: Circular Economy

Proposition 1: Enhancing material circularity through local sourcing and upcycling initiatives

Collaboration with textile producers and waste management agencies can enable artisans to access discarded fabrics and textile waste for producing eco-friendly godhadi quilts. This approach supports employment generation and cultural heritage preservation.

Proposition 2: Facilitating knowledge exchange and skill development for circular practices

Organising workshops and training programmes can enhance artisan awareness of zero-waste design and product life cycles.

4.2 Theme 2: Sustainability

Proposition 3: Integrating traditional knowledge with modern sustainability practices Collaboration among researchers, artisans, and policymakers can facilitate the identification of culturally appropriate technologies for the godhadi sector, supporting waste reduction and responsible consumption.

Proposition 4: Promoting stakeholder engagement and supply chain transparency Partnerships among textile producers, industry stakeholders, and consumers can improve supply chain transparency for godhadi products.

4.3 Theme 3: Textiles-to-Textiles Recycling

Proposition 5: Optimising processes and technologies for textile-to-textile recycling. Existing recycling processes should be optimised through research into advanced sorting techniques and fibre regeneration methods.

Proposition 6: Establishing collaborative networks Coordination among textile producers, recyclers, and policymakers through value chain management can reduce costs and improve efficiency in textile collection, sorting, and processing.

4.4 Theme 4: Waste Management

Proposition 7: Utilising textile waste streams for godhadi craft production Business collaborations with textile producers, garment manufacturers, and recycling centres can enable the reuse of discarded fabrics for godhadi production, demonstrating sustainable resource use.

Proposition 8: Research and development initiatives for textile waste recycling technologies

Investment in research and development programmes, academic collaborations, and technology transfer initiatives is essential to advance mechanical recycling and chemical recycling.

Table 4. Emerging Themes from Co-Word Analysis

Theme	Cluster Keywords	Conceptual Focus	Representative Studies
Theme 1: Circular Economy	circular economy, resource recovery, policy, eco-design	Transition toward closed-loop textile systems	[Kirchherr et al., 2017]; [Geissdoerfer et al., 2017]
Theme 2: Sustainability	sustainable fashion, ethical design, social responsibility, SDGs	Integrating social and environmental sustainability	[Elkington, 1998]; [Fletcher, 2013]
Theme 3: Textiles-to-Textiles Recycling	recycling, upcycling, fibre regeneration, material flow	Technological and manual recycling processes	[Zhang et al., 2016]; [Shen, 2014]
Theme 4: Waste Management	textile waste, landfill reduction, waste valorization	Strategies for reducing post-consumer textile waste	[Koszewska, 2018]; [Niinimäki et al., 2020]

5. Limitations

This study is limited to bibliometric data retrieved from the Scopus database. Articles and documents from other databases related to circular economy, sustainability, textile-to-textile recycling, and textile waste management were not included. The dataset can be analyzed using VOSviewer and may be used to validate or extend the findings of this study.

6. Conclusion

The study proves that research into sustainable textile repurposing and waste management has increasingly recognized the value of traditional crafts such as Godhadi quilting. It identifies, through a bibliometric review, four key themes: circular economy, sustainability, textiles to textiles recycling, and waste management, which have been central in the growing body of literature. These findings suggest that indigenous craft practices are of relevance not only to broader cultural considerations but also to current discussions on sustainable fashion and circular resource usage. This study indicates, by highlighting existing trends in research, a better level of understanding as to how traditional textile practices may enable environmentally responsible fashion systems. It further calls for future studies that combine wider data sources with practical, community-based insights to further strengthen sustainable fashion research.

Acknowledgement

I am appreciative to my organisation, the journal, the editor, and the reviewers for enabling me to carry out my study and supporting my work. I am grateful to Symbiosis Institute of Media and Communication Professor Ashwani Kumar Upadhyay's assistance in comprehending the bibliometric review.

Declarations

Funding Symbiosis International (Deemed University) awarded open access funding. This study did not receive any outside support.

Ethics, Consent to Participate, and Consent to Publish declarations Not applicable since there were no clinical studies, human interventions, or sensitive personal data involved, ethical approval was not needed for bibliometric review. As such, consent to participate and publish is not required. This manuscript contains no identifiable personal

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