An analysis of research hotspots and trends in fashion design based on Chinese cultural elements

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Abstract. Chinese culture, rooted in thousands of years of historical development, demonstrated profound philosophical depth and aesthetic vitality. Its integration into fashion design attracted growing academic attention. The purpose of this study was to systematically analyse the research progress, core themes, and evolving trends in this field. A total of 1,214 academic articles indexed in the China National Knowledge Infrastructure database were examined using CiteSpace software. Bibliometric and visualisation methods were applied to investigate annual publication volume, author and institutional collaboration networks, highly cited literature, keyword co-occurrence, clustering, burst detection, and timeline distribution. It was found that research output increased steadily and peaked in 2024. Collaborative relationships among researchers and institutions remained fragmented, with academic influence concentrated among a small number of prolific contributors and key universities. Highly cited studies primarily addressed the contemporary transformation of traditional motifs, cultural innovation, and design methodology. Keyword clustering identified "New Chinese Style", "cultural innovation", "traditional craftsmanship", and "design expression" as dominant themes. Timeline and burst analyses revealed a trend shift from heritage-oriented exploration to interdisciplinary integration, digital empowerment, and market-oriented innovation. This study offered theoretical insights and methodological references for scholars, educators, and designers engaged in the sustainable and creative application of Chinese cultural elements in fashion. It also contributed to the global dissemination and contemporary reinterpretation of Chinese culture within fashion discourse

Keywords: CiteSpace; visualisation analysis; Chinese-inspired design; cultural innovation; design innovation

INTRODUCTION

Chinese cultural elements referred to symbols, concepts, and artefacts that originated from traditional Chinese culture or have emerged in the context of contemporary Chinese society, bearing a strong association with Chinese identity. These elements were widely recognised by the Chinese public, and through them, consumers were able to associate a product or design specifically with Chinese culture, rather than with other ethnic or cultural traditions (Yuan, 2024). In the field of fashion design involving Chinese cultural elements, numerous scholars focused on the cultural symbolism and design adaptability embedded in traditional decorative patterns, exploring how these motifs could be innovatively integrated into contemporary fashion through geometric reconstruction, digital printing, and textile craftsmanship. J. Song *et al.* (2024) highlighted

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that cloud motifs, as widely used traditional patterns, demonstrated significant innovation potential in areas such as fabric reconstruction, digital technologies, and embroidery techniques. T. Dong (2024) proposed three strategies for incorporating blue-and-white porcelain art into fashion design: direct pattern application, partial decorative accents, and modular sequential arrangement, aiming to achieve an organic integration between traditional art and contemporary expression.

The redesign of traditional garment structures and the incorporation of regionally distinctive craftsmanship also gained scholarly attention. J. Song *et al*. (2023) examined the fastening system of Ming Dynasty garments, classifying them by type, position, and combination method, and suggested that applying these structural techniques in modern design could enrich garment layering and enhance ergonomic adaptability. C. Liu & Q. Liu (2021) explored the innovative application of the Zhongshan suit in menswear for the elderly, proposing the retention of classic collar shapes, plackets, and pocket structures while introducing functional details such as detachable cuffs, reflective strips, and portable medicine pockets to improve practicality and market relevance. Y.P. Lin *et al*. (2024) analysed the use of Gan embroidery techniques in wool garments, emphasising how stitches such as flat, long-short, and random stitch embroidery could enhance texture and ornamentation on garment details like collars, cuffs, and plackets. H.W. Tian (2024) investigated the cultural value of traditional embroidered dudou undergarments and their redesign potential in contemporary children's and women's fashion, suggesting that patchwork and embroidery techniques could provide unique inspiration for modern clothing.

Emerging technological methods also played a central role in the reinterpretation of traditional clothing elements. Q. Wu *et al.* (2021) proposed an AI-based fashion design method using generative adversarial networks (GANs) and style transfer algorithms, demonstrating how artificial intelligence could construct contemporary visual aesthetics while preserving traditional cultural elements. B. Zhang *et al.* (2024) studied the application of Chinese landscape painting colours in modern textile design, using Wang Ximeng's "A Thousand Li of Rivers and Mountains" from the Song Dynasty as an example. They applied an improved K-means algorithm to extract dominant colour palettes and developed garment design practices through colour network modelling, confirming that traditional colour systems could provide both theoretical and practical support for contemporary fashion aesthetics. Simultaneously, bibliometric analysis and knowledge mapping became important tools in this field. W. Wang & B. Chen (2024) used CiteSpace to compare Chinese and international research, highlighting a Chinese focus on design innovation and an international emphasis on cultural strategy and diversity.

While these studies have provided valuable insights in terms of methods and perspectives, there is still a lack of comprehensive bibliometric analysis and knowledge mapping of the overall landscape of Chinese cultural elements in fashion design. This article aimed to identify research trends, high-frequency keywords, key thematic clusters, and knowledge domains, thereby contributing to a more integrated academic understanding of the field and offering theoretical support for future research directions and design innovation.

MATERIALS AND METHODS

To ensure the comprehensiveness and accuracy of the data, this study utilised both Chinese and English academic databases as sources for bibliometric analysis. The core search terms included "Chinese culture", "Chinese elements", and "fashion design" with the search period ending on February 6, 2024. However, the results indicated that databases such as Web of Science (WoS) and Scopus yielded a limited number of records, with relatively few highly relevant publications, rendering them insufficient to support large-scale visual analysis using CiteSpace software. Therefore, the primary data source for this study was the China National Knowledge Infrastructure (CNKI). The search was restricted to documents categorised as "research articles", and non-academic materials such as prefaces, book reviews, and design portfolios were excluded. After this screening process, a total of 1,214 valid Chinese-language academic papers were retained for analysis. CNKI is a key national informatisation project aimed at facilitating the sharing of knowledge and information resources across society. It hosts the world's largest continuously updated full-text database of Chinese academic journals, and China's most comprehensive and dynamic full-text database of statistical yearbooks (Wang & Tang, 2022).

The current study employed CiteSpace technology to analyse all the collected literature data. CiteSpace is a Java-based application developed by Professor Chaomei Chen at Drexel University, a leading scholar in the field of information visualisation (Zou *et al*., 2022). It has been widely used for the visual analysis of academic literature and co-citation networks (Chen, 2004). CiteSpace supports three core analytical functions: identifying the nature of research frontiers, labelling and clustering disciplinary fields, and detecting research trends and sudden changes based on network data. In this study, CiteSpace 6.2.R3 was used to process the selected literature sample by conducting keyword-based analysis. The parameters were set as follows: the time span was set from 2015 to 2025, with one year per slice. The node type was set to "Keyword", the g-index was used as the thresholding method, Cosine was selected as the algorithm for link strength, and Pathfinder was applied for network pruning. Based on these settings, a total of 1,214 valid Chinese-language articles were analysed to

visualise the knowledge structure related to the application of Chinese cultural elements in fashion design. The analysis aimed to extract key knowledge nodes, map the evolutionary trajectory of research themes, and outline the knowledge production patterns within the field.

The study applied bibliometric and visualisation approaches using the CiteSpace tool for a comprehensive analysis of scientific publications. The analysis was carried out in the following areas:

1. Investigation of the overall development of scientific research in this area: quantitative and temporal dynamics of publications, spatial (regional) characteristics of research dissemination, identification of leading authors, scientific institutions, and the most cited papers. The structure of academic interaction between the main research centres was also analysed.

2. Identification of current scientific trends: an analysis of keywords, their frequency, coherence, clustering, and time periods of activity (burst detection) was carried out, which allowed identifying the main knowledge clusters in the subject.

3. Study of the main trends in the development of fashion design with the inclusion of Chinese cultural elements: the dynamics of thematic changes and transformations of approaches were analysed, which allowed characterising the evolution of scientific discourse in this area.

Thus, the main trends in the development of research, leading authors, institutions and regions of

activity were identified. The analysis of keywords and clusters helped to identify relevant research areas and trace the evolution of scientific discourse and changes in approaches in this area.

RESULTS AND DISCUSSION

Annual publication volume and author collaboration network analysis. The number of publications per year served as an important indicator for evaluating the development of scientific research and, to a certain extent, reflected the growth of knowledge within a given field (Xiao & Sun, 2023). Figure 1 illustrated the annual publication volume related to the application of Chinese cultural elements in fashion design, as indexed by CNKI from 2015 to 2025. Overall, the number of publications in this field showed a rising trend, with relatively stable year-on-year growth. From 2015 to 2018, publication volume increased gradually. In 2015, only 42 articles were published, followed by steady growth, reaching 71 articles in 2017. However, a slight decline occurred in 2018. Beginning in 2019, publication numbers began to increase significantly, peaking at 134 articles in 2021, with an average annual growth rate exceeding 20%. Between 2022 and 2024, the field entered a phase of rapid expansion. The number of publications rose from 159 in 2022 to 211 in 2023, reaching a peak of 289 articles in 2024 – an increase of nearly sevenfold compared to 2015. The sharp drop observed in 2025 was due to the cutoff date for data collection.
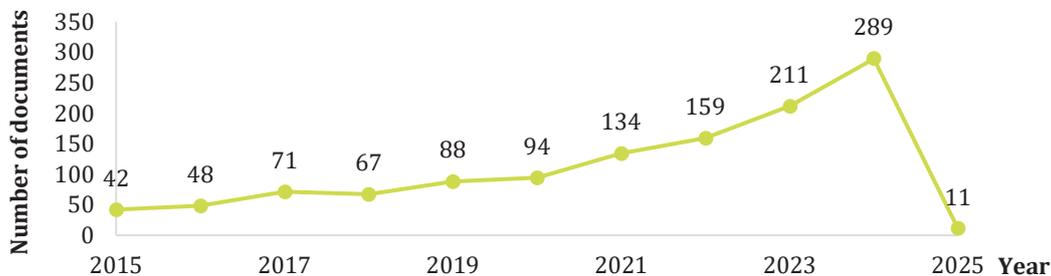

Figure 1. Annual publications on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: created by the authors based on data from the CNKI database (2015-2025)

Prolific authors and their collaborative teams served as the core driving force behind the development of publications in a given discipline (Wang, 2017). By using CiteSpace and setting the node type to "author", an author collaboration network map was generated to visualise research activity in the field of fashion design based on Chinese cultural elements (Fig. 2).

In the network, larger nodes represented authors with a higher number of publications, while thicker connecting lines indicated stronger collaborative relationships between authors. Overall, a total of 332 researchers have participated in this field, indicating a relatively large research community. However, the distribution remained fragmented. Specifically, only 13

authors have published more than three articles in this field. Among them, two authors have published four papers, and only one author has published as many as seven, suggesting that the core research force was relatively small and that academic influence was concentrated within a limited group of highly productive authors. Meanwhile, 239 authors have published only one article, accounting for 72% of the total author population. The network diagram showed few and scattered links between authors, and the node density is low. Notably, close collaborative relationships existed only among a few individuals, such as Huang Yongli, Chen Xiaodong, and Huang Chen. This indicated that the overall collaboration in this field was still weak, with most

authors working independently or maintaining mi-ni-mal partnerships. Therefore, the frequency and strength of scholarly collaboration remained to be enhanced in future research development.
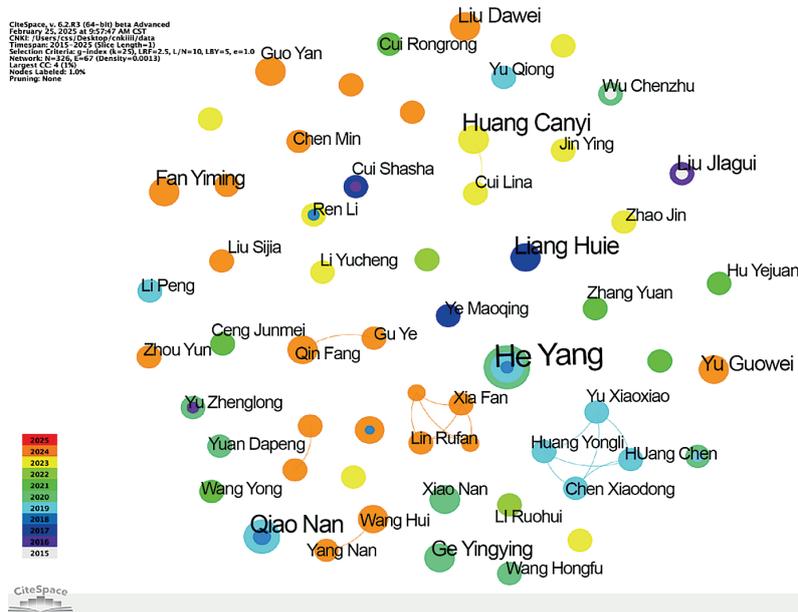

Figure 2. Author collaboration network on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

Institutional collaboration network analysis. By using CiteSpace to analyse the effective literature sample, an institutional collaboration network map was generated, as shown in Figure 3, illustrating the distribution of research institutions involved in fashion design based on Chinese cultural elements. This field was primarily supported by textile and apparel universities, art academies, and comprehensive science, and engineering institutions, exhibiting a pattern characterised by a few core institutions taking the lead, while overall collaborative links remained relatively weak.
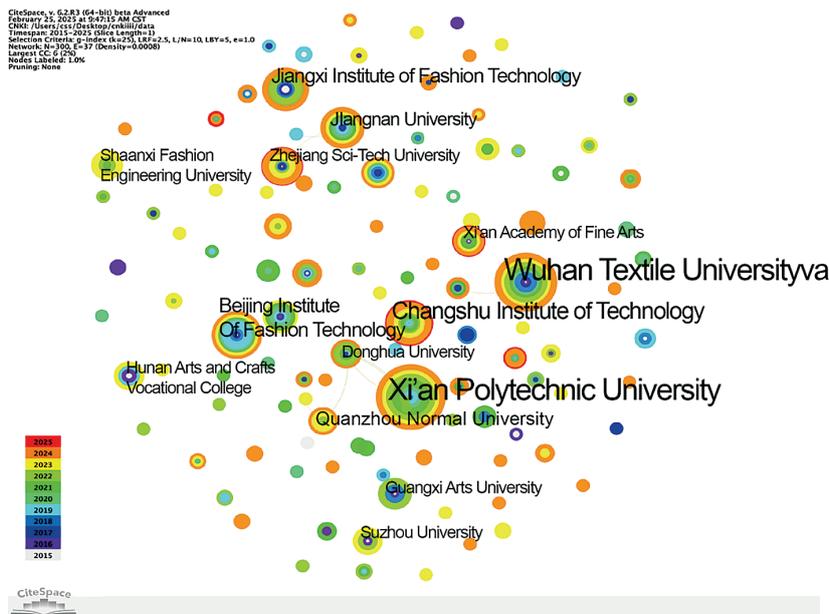

Figure 3. Institutional collaboration network on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

Wuhan Textile University, Xi'an Polytechnic University, and Beijing Institute of Fashion Technology occupied central positions within the collaboration network, as indicated by their relatively large node sizes, reflecting high publication outputs. This prominence was largely attributed to the long-term disciplinary accumulation and academic strengths these institutions possessed in textile science, fashion engineering, and design studies. For instance, Wuhan Textile University, a leading institution in China's textile and fashion sector, had a strong research foundation in textile materials, intelligent manufacturing, and apparel technology innovation (ShanghaiRanking, 2024a). Xi'an Polytechnic University focused on fashion design and engineering, with considerable research output in areas such as traditional costume structures, craftsmanship optimisation, and intelligent fashion design (ShanghaiRanking, 2024b). Beijing Institute of Fashion Technology was particularly renowned for its expertise in fashion design and traditional culture studies, maintaining a long-standing focus on ethnic costume research, New Chinese Style innovation, and cultural and creative industries development (Wan & Li, 2024).

Other institutions such as Changshu Institute of Technology, Zhejiang Sci-Tech University, and Jiangnan University have also demonstrated notable publication output, indicating a meaningful contribution to the field. In terms of collaboration, institutions like Xi'an Polytechnic University, Donghua University, and Quanzhou Normal University showed interconnectedness, suggesting the establishment of modest institutional partnerships. However, most institutional relationships remained loosely connected, with a dominance of independent research or small-scale collaboration. Overall, higher education institutions continue to play a dominant role in this field, while interdisciplinary and cross-regional collaboration remains limited. A stable, nationwide research network has yet to take shape. In the future, this field would benefit from enhancing interdisciplinary integration, regional synergy, and international cooperation, thereby expanding both the depth and breadth of research and boosting its global impact.

Analysis of highly cited literature. Highly cited literature typically held substantial academic influence in a given research field and often reflected research hotspots and developmental trends. By analysing the ten most cited articles (Table 1) published between 2015 and 2025 on the application of Chinese cultural elements in fashion design, two primary research directions emerged.

Rank	Author	Title	Citation frequency	Year	Journal
1	Yang Shuo & Liu Weidong	The rise of "National fashion" from the perspective of fashion design	59	2020	Hunan Packaging
2	Yang Bei & Zhong Wei & Zhang Wanyu	Design and innovation practice of Liangshan Yi embroidery pattern based on semiotics	51	2020	Journal of Silk
3	Wang Weijin & Li Yanxiao	Esthetics principles of Chinese paper-cutting art and its application in fashion design	47	2016	Journal of Silk
4	Chen Xiang & Liu Yue	Culture factor extraction and design application of shadow play based on satisfaction analysis	43	2019	Journal of Graphics
5	Li Xizhen & Sun Zhiqin	Research on the knowledge map and visualisation of fashion design field in China based on CiteSpace	42	2020	Journal of Silk
6	Deng Yan	Application of Chinese traditional auspicious patterns in modern design	35	2019	Packaging Engineering
7	Wang Qiao & Li Zheng	Nanjing brocade pattern and its application in "new Chinese" clothing design	32	2019	Journal of Silk
8	Jiang Liping	Application of Chinese traditional pattern in modern costume design	30	2019	Chemical Fiber & Textile Technology
9	Zu Yidan & Shen Kaixuan & Wang Jin	Study on economical technology of ancient chinese costume	29	2015	Journal of Silk
10	Lei Yu	Application of national traditional culture in art design	27	2020	Packaging Engineering

Table 1. Highly cited literature on Chinese cultural elements in fashion design

Note: data updated as of January 2025
Source: created by the authors based on data from the CNKI database (2015-2025)

The first area centred on the contemporary transformation of traditional cultural elements with a particular focus on how traditional Chinese culture was both inherited and innovatively reinterpreted in modern fashion design. Y. Lei (2020) integrated ethnic traditional culture with art design, thoroughly exploring ethnic elements within Chinese traditional culture and their application in fashion design practices. Y. Deng (2019) analysed the characteristics of traditional auspicious patterns, exploring their integration with modern design in terms of form, meaning, and spirit, and clarified the paths for their development. L.P. Jiang (2019) emphasised an in-depth understanding of the cultural connotations embedded in traditional patterns, arguing that the integration of Chinese traditional motifs with Western design can result in unique visual styles.

The second research area pertained to cultural innovation and design methodologies, where scholars paid greater attention to the innovative expression of cultural symbols within contemporary design systems, and the role of data analysis and intelligent technology in advancing fashion design research. S. Yang & W.D. Liu (2020) explored the Guochao phenomenon (a Chinese cultural fashion trend) through Chinese fashion brand case studies, arguing that Guochao culture empowered domestic fashion branding. X. Chen & Y. Liu (2019) based on satisfaction analysis methods, examined the extraction and design application of cultural factors of shadow theatre, contending that the modernisation of traditional culture had to balance aesthetic values and market acceptance.

Co-occurrence analysis of keywords. Keywords provided a concise and high-level summary of a research topic. Analysis of high-frequency keywords allowed for the identification of research hotspots, developmental trends, and interrelationships among different research themes. Based on the valid corpus, CiteSpace was employed to analyse high-frequency keywords related to the application of Chinese cultural elements in fashion design. The resulting keyword co-occurrence network included 418 nodes and 664 links, with a node density of 0.0051 and a modularity (Q) value of 0.8678, indicating a well-structured clustering outcome. The keyword co-occurrence knowledge map covering the period from 2015 to 2025 is shown in Figure 4.
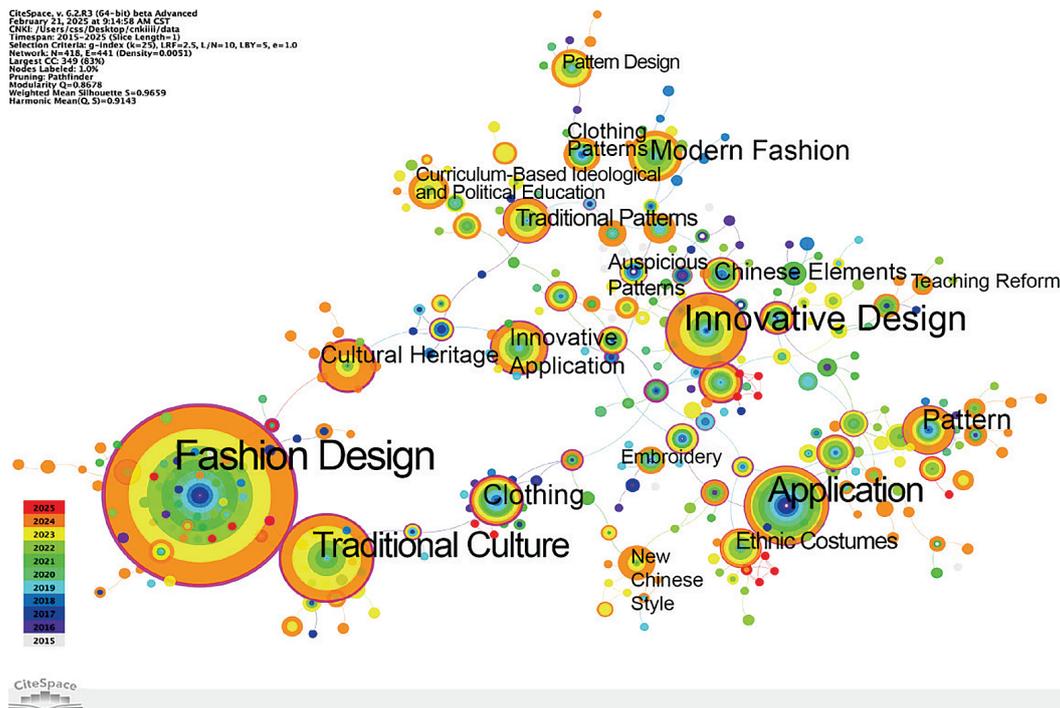

Figure 4. Keyword co-occurrence map on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

In this map, nodes were visualised using the Tree Ring History model. The size of the ring reflected the frequency of the keyword – larger rings indicated higher frequencies. The colour of the rings represented the time period during which the keyword was active, with colours progressing from the centre outward to indicate the temporal span from earlier to more recent publications. The thickness of each coloured segment was proportional to the keyword's frequency within that corresponding time slice. According to the keyword co-occurrence network, "fashion design" emerged as the central research theme in this domain, occupying

the largest node. It was closely linked to several other high-frequency keywords, including "traditional culture", "cultural inheritance", and "innovative design", suggesting that recent studies focused on the innovative application of traditional cultural elements in contemporary apparel design. In addition, "application", "traditional motifs", and "ethnic costumes" also occupied prominent positions, reflecting sustained scholarly interest in the application of cultural elements – such as traditional patterns, embroidery techniques, and colour systems – in fashion design.

Cluster analysis of keywords. Keyword clustering referred to a network of interconnected keywords with similar research themes within a particular field. The thematic content of each cluster was typically labelled based on high-frequency title terms extracted from the articles within that group (Guan & Guo, 2021). The clustering analysis of keywords related to the application of Chinese cultural elements in fashion design was conducted using CiteSpace, resulting in the generation of a keyword clustering map (Fig. 5) and corresponding cluster information (Table 2).
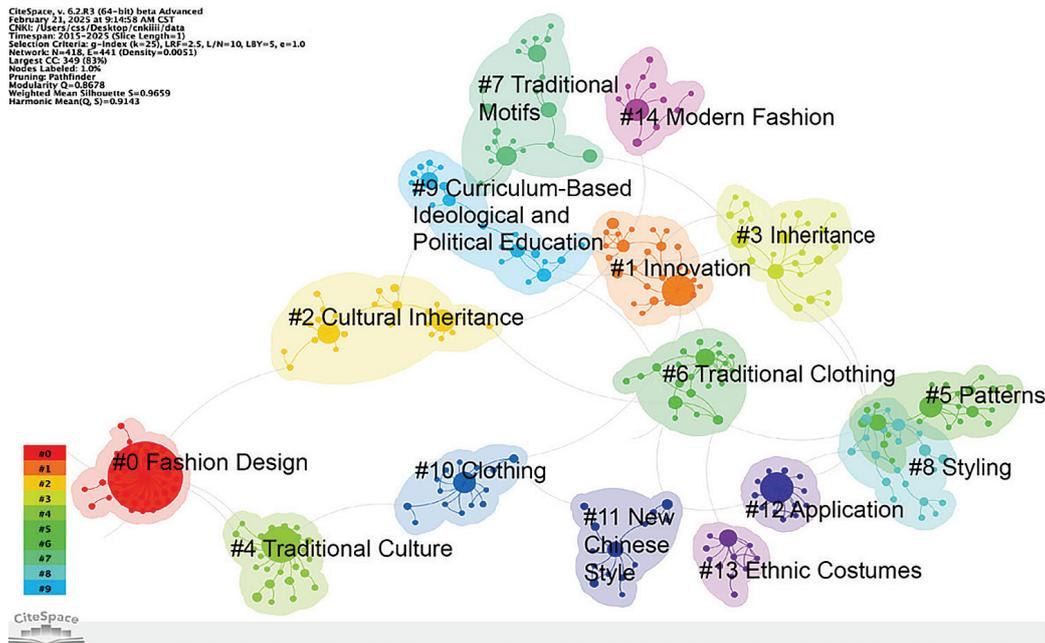

Figure 5. Keyword clustering map on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

ClusterID	Size	Silhouette	mean (Year)	Label (LLR)
				Table 2. Keyword timeline map on Chinese cultural elements in fashion design
#0	43	1	2020	fashion design; modern fashion design; apparel and accessories design; red culture; innovation
#1	26	0.978	2019	innovation; innovative design; fashion design; auspicious patterns; tradition
#2	25	0.944	2020	cultural inheritance; innovative application; form of expression; design thinking; visual communication
#3	25	0.963	2018	inheritance; ethnic culture; hanfu; development; confucianism
#4	24	0.988	2021	traditional culture; cultural value; peking opera facial makeup; traditional craftsmanship; application
#5	22	0.943	2020	pattern; paper-cutting art; design; motif; modern womenswear
#6	22	0.943	2019	traditional clothing; ethnic minorities; elements; culture; re-innovation
#7	21	0.967	2019	traditional motifs; traditional patterns; pattern design; apparel patterns; cultural confidence
#8	21	0.948	2021	styling; artistic value; colour; fabric; design methods
#9	21	0.922	2020	curriculum-based ideological and political education; Chinese style; traditional elements; guochao; streetwear brands
#10	15	0.959	2018	apparel; Zhongshan suit; costume; aesthetic; embroidery technique
#11	14	0.98	2021	new Chinese style; costume elements; application value; integration of Chinese and Western styles; rootedness

Table 2. Continued

ClusterID	Size	Silhouette	mean (Year)	Label (LLR)
#12	13	0.902	2019	application; animation character design; function; design application; traditional costume elements
#13	11	1	2023	ethnic costumes; Guangxi; Aigc; Yao ethnic group; vocational education at secondary level
#14	11	1	2019	modern fashion; modern apparel and accessories; printing and dyeing design; ink wash pattern; innovative zhuang brocade

Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

According to established standards, a Q-value greater than 0.3 and an S-value above 0.5 indicated a reliable clustering outcome (Chen *et al*., 2015). In this study, the Q-value was 0.8678 and the S-value was 0.9659, demonstrating a robust and reliable clustering structure. By combining the clustering results from Figure 5 with the keyword cluster information in Table 2, four major thematic knowledge domains related to the application of Chinese cultural elements in fashion design were identified:

1. Fashion design and contemporary innovation

The primary cluster keywords in this domain included #0 fashion design, #1 innovation, #11 New Chinese Style, and #14 modern fashion. Research in this area focused on reconstructing traditional cultural elements within modern apparel and accessories to create innovative styles that met contemporary market demands. The development of New Chinese Style fashion served as a representative case, achieved through silhouette optimisation, the modernisation of embroidery and motifs, and the use of innovative materials (Liu *et al*., 2024; Sun & Wang, 2024). The rise of Guochao drove the extensive application of traditional cultural symbols in fashion design, further strengthening consumers' sense of cultural identity (Wang & Xu, 2023).

2. Cultural inheritance and symbolic application

The cluster keywords associated with this theme included #2 cultural inheritance, #3 inhertance, #4 traditional culture, #6 traditional clothing, #12 application, and #13 ethnic costumes. The researchers focused on the adaptation of traditional silhouettes, the innovation of embroidery techniques, and the contemporary expression of cultural symbols. This included the integration of traditional costume elements such as Hanfu, qipao, and Miao embroidery into contemporary fashion design (Ning & Tian, 2015). The innovative design of ethnic clothing aimed to preserve cultural connotations while optimising structure, materials, and craftsmanship to suit contemporary wearing habits (Wang & Li, 2016). Meanwhile, the rise of the "Guochao" economy encouraged the market-oriented use of traditional cultural symbols, with many brands redesigning classic patterns, colour systems, and cultural motifs to enhance cultural value and strengthen consumer identity.

3. Garment craftsmanship and structural design

This research domain included cluster keywords such as #5 patterns, #7 traditional motifs, and #8 styling. Designers integrated traditional techniques such as embroidery, tie-dye, and digital printing with modern fashion to enhance both aesthetic appeal and market viability (Xu, 2023). The researchers also emphasised the compositional methods of incorporating traditional motifs into apparel design (Li, 2023), balancing modern aesthetics with the preservation of cultural symbolism.

4. Fashion culture communication and education

Key cluster terms in this area included #9 curriculum-based ideological and political education and #10 apparel. This theme integrated fashion education with traditional culture, social responsibility, and creative thinking. It supported curriculum reform to improve students' understanding of the cultural value of apparel and encouraged awareness of sustainability, ethnic heritage, and social responsibility, thereby cultivating cultural confidence (Wu, 2022). Furthermore, the global dissemination of Chinese fashion culture was emphasiwed through cross-cultural exchanges, digital technologies, and international fashion platforms, aiming to elevate the global impact of Chinese apparel traditions (Jia, 2023; Du, 2024).

The cluster analysis allowed identifying four key thematic areas of research in the field of fashion design based on Chinese cultural elements. These include: contemporary interpretation of traditional motifs in fashion design, symbolic reinterpretation of cultural heritage, combination of traditional craftsmanship with innovative structural solutions, and development of fashion education with a focus on cultural values. These areas reflect the desire to integrate cultural heritage into current design practices, ensuring a balance between aesthetics, functionality, and social significance.

Analysis of keyword bursts and timeline mapping. Burst detection and timeline analysis of keywords related to fashion design based on Chinese cultural elements provided a clear visualisation of the field's historical evolution and the trajectory of emerging research hotspots (Fig. 6, 7). These analyses, including keyword bursts (with associated burst strength and time intervals) and timeline visualisation, helped to trace the progression of scholarly attention.

Figure 6. Keyword burst map on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)

Figure 7. Keyword timeline map on Chinese cultural elements in fashion design
Note: data updated as of January 2025
Source: generated by the authors using CiteSpace, based on data from the CNKI database (2015-2025)
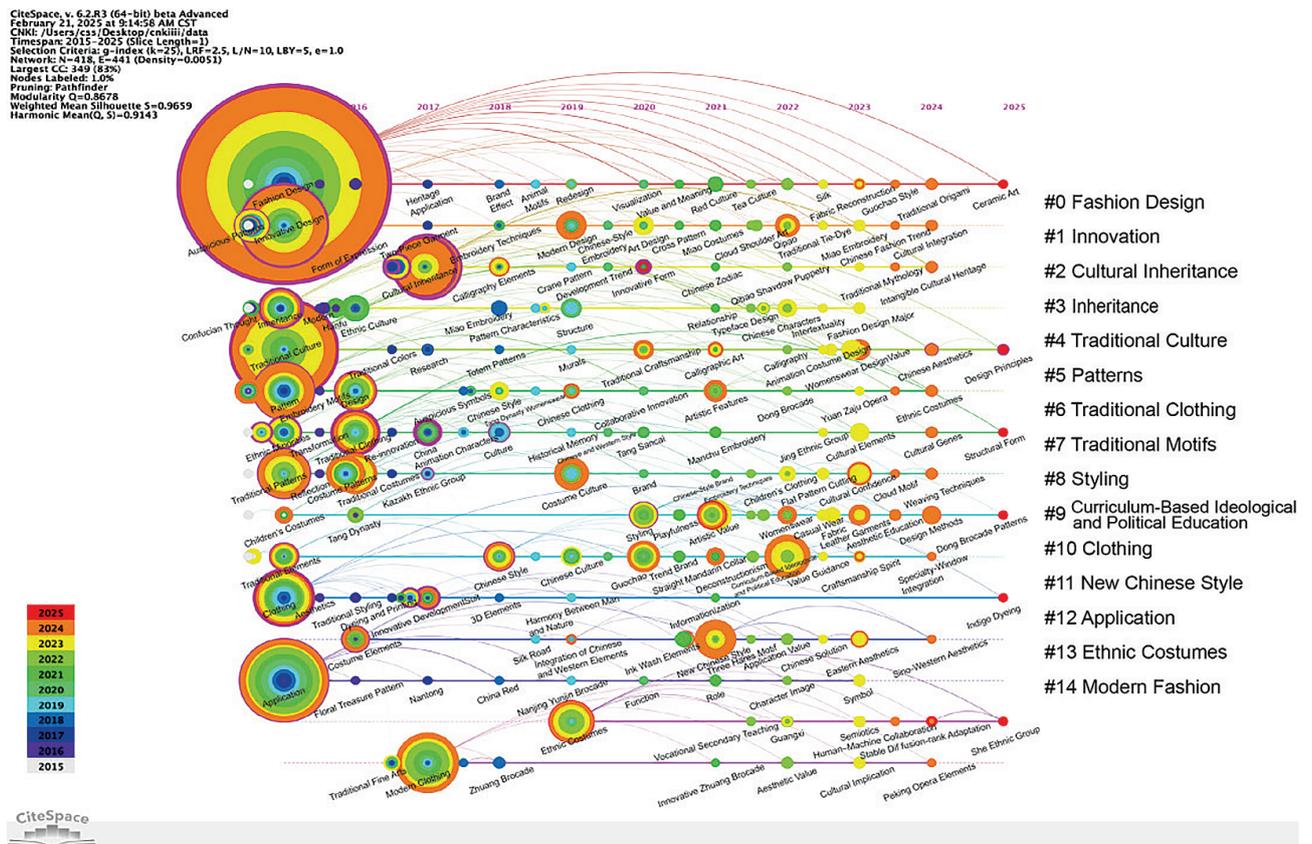
Based on the statistical data of burst keywords and the timeline map – shown in Figures 6 and 7 – the following characteristics were identified. Keywords such as "application" (2015), "auspicious patterns" (2015) and "tradition" (2015) represented some of the earliest emerging research focuses in this field. These topics primarily addressed the application of traditional Chinese costume elements and ethnic cultural symbols (Qi, 2015) – in particular, the integration of auspicious patterns, papercutting, and traditional handicrafts into fashion design. Subsequently, keywords such as "ethnic culture" (2016), "craftsmanship" (2016), and "form of expression" (2017) became prominent, reflecting a research shift from symbolic interpretation to the revival and innovation of traditional craftsmanship (Du & Zhou, 2021). In recent years, emerging keywords such as "New Chinese Style" (2023), "womenswear design" (2023), and "leather garments" (2023) indicated a growing scholarly interest in the integration of traditional costume elements with modern fashion, and a focus on the development of specific apparel categories.

From the perspective of duration, the keywords "application" (2015-2020) and "ethnic culture" (2016-2021) were the most sustained research hotspots, each lasting five years. This indicated that the contemporary application of traditional apparel elements and the inheritance of ethnic cultural symbols have remained core areas of academic interest over an extended period. Following closely was the keyword "China", which remained active for four years, suggesting that Chinese cultural elements became a central topic of discussion in fashion design during that period. Topics related to New Chinese Style emerged as a new hotspot from 2023 to 2025, highlighting the innovative evolution of traditional clothing styles in contemporary fashion design.

This research field has experienced four major bursts of keyword activity, occurring in 2015, 2018, 2019, and 2023. In 2015, keywords such as "application", "auspicious patterns", and "tradition" underwent noticeable bursts, indicating that early research focused primarily on integrating traditional cultural symbols, ethnic motifs, and handicraft techniques into fashion design. In 2018, keywords like "apparel", "culture", and "patterns" emerged, showing a gradual expansion of research toward cultural expression and the development of visual language in apparel design. The year 2019 marked another intensive burst period, with keywords such as "structure", "modern design", and "Chinese culture" reflecting a shift toward structural optimisation, methodological innovation, and the modern reinterpretation of traditional craftsmanship. In 2023, the emergence of keywords like "New Chinese Style", "womenswear design", and "leather garments" suggested an increasing focus on category-specific innovation and the systematic development of fashion styles in modern apparel design.

Regarding burst strength, the keyword "application" ranked highest with a value of 5.43, demonstrating the strong research focus on how traditional apparel elements were integrated into modern apparel and accessories, particularly in terms of cultural symbols, techniques, and materials. "Curriculum-Based Ideological and Political Education" and "colour" followed, with burst strengths of 3.8 and 3.22, respectively. This indicated that curriculum reform has become an important area in fashion design education, and that colour remained a vital component of apparel design research. The keyword "New Chinese Style", with a burst strength of 2.72, reflected growing scholarly interest in this design trend, including topics such as modern reinterpretations of traditional silhouettes, contemporary expressions of embroidery and motifs, and the embodiment of traditional aesthetic values (Liu & Xu, 2023).

The keyword timeline map clearly revealed the temporal evolution of research on fashion design incorporating Chinese cultural elements, which could be divided into three distinct stages. Stage 1 (2015-2018) focused on the extraction and decorative application of traditional cultural symbols. Core keywords such as "application", "auspicious patterns", and "tradition" indicated that early research emphasised the application of traditional Chinese motifs, folk art symbols, and ethnic cultural elements in apparel design, with particular attention to their visual expression in contemporary fashion. Stage 2 (2019-2022) exhibited thematic diversification, including culture, structure, modern design, styling, colour, and curriculum-based ideological and political education. research in this stage began to shift from symbolic decoration toward structural refinement, innovation in design methods, and the modernisation of ethnic cultural expression (Wang *et al*., 2022; Iudova-Romanova, 2025). The burst of curriculum-based ideological and political education in 2022 also signalled a growing integration of fashion education with cultural identity, emphasising the role of fashion design curricula in promoting national culture, social responsibility, and sustainable development. Stage 3 (2023-2025) was marked by keywords such as New Chinese Style, womenswear design, leather garments, Guochao trend, and computer-aided design, indicating an ongoing shift toward the systematic construction of New Chinese Style and the innovation of apparel categories.

Trends and prospects in fashion design research based on Chinese cultural elements. With the rapid advancement of digital technologies and the deepening of academic inquiry, research on fashion design based on Chinese cultural elements has gradually transcended traditional perspectives, moving toward interdisciplinary integration, theoretical refinement, and practical application. By analysing the relevant literature, this study summarised the current state and future trends of research in this area.

The study of fashion design rooted in Chinese cultural elements has evolved from traditional cultural interpretation toward a fusion of theoretical development and practical application. Early research primarily focused on documenting and analysing the cultural symbols, patterns, and craftsmanship of traditional Chinese attire. Methodologies were largely limited to historical analysis, visual interpretation, and case studies, lacking systematic theoretical frameworks and failing to generate replicable design models. In recent years, scholars have increasingly incorporated perspectives such as cultural identity, semiotics, and consumer culture theory to explore the innovative application of Chinese cultural elements in contemporary fashion design (Yang & Liu, 2020). In particular, under the growing influence of the New Chinese Style design philosophy, how traditional cultural symbols were recontextualised through apparel design has become a prominent topic. Researchers have also began integrating market research and user experience analysis to evaluate the design value and market adaptability of cultural elements (Yu, 2022), thereby promoting the transformation of theoretical research into practical innovation. Looking ahead, the construction of a comprehensive theoretical system remained a pressing issue. Especially in the context of interdisciplinary collaboration, there was great potential in leveraging emerging technologies such as artificial intelligence (AI) and computer vision to optimise traditional costume design methods, as described by Y.W. Zhang *et al*. (2024), – an area worthy of further in-depth exploration.

From the perspective of current research hotspots, studies on fashion design based on Chinese cultural elements focused on three primary areas. First, the innovative expression of cultural symbols. How elements such as traditional silhouettes, patterns, and embroidery were reinterpreted in modern apparel design remained a central academic concern (Chen & Hu, 2023). The development of New Chinese Style fashion, for example, involved not only the optimisation of traditional garment structures but also the integration of traditional handicrafts with modern technologies. Second, the integration of diverse cultures. With the acceleration of globalisation, researchers have paid increasing attention to the fusion of traditional Chinese costume elements with international design styles. Topics such as East-West hybrid design and the global promotion of Chinese-inspired fashion have become emerging research focal points (Cheng, 2024). Third, the market orientation driven by consumer culture. The rise of Guochao has brought widespread attention to the commercialisation of traditional clothing elements. How fashion brands leveraged cultural narratives to attract consumers has become a core research topic. Future studies may further integrate insights from consumer psychology and data analytics to explore how cultural elements

can enhance brand identity and market competitiveness (Cui, 2023).

The diversification of research methods and the integration of multiple disciplines have become key trends in this field. Earlier studies predominantly relied on historical document analysis, fieldwork, and case studies, with relatively limited methodological diversity. Since the term "3D" first appeared in this research field in 2018, the continuous evolution of digital technologies has led to the successive introduction and widespread application of methods such as data analysis, intelligent design, and user experience research in fashion design studies. For instance, CiteSpace knowledge mapping has become a widely used tool for tracing the evolutionary paths of fashion design research (Xiang *et al*., 2024; Qin & Mu, 2024). The application of technologies such as computer-aided design (CAD), virtual fitting, and AI-generated content (AIGC) became increasingly widespread in fashion design, offering new possibilities for the digital expression of cultural elements and intelligent design (Chen & Tong, 2025; Wei & Liu, 2025). Future research is expected to place greater emphasis on the application of intelligent algorithms in fashion design (Zhao, 2021), aiming to achieve deeper integration between cultural elements and smart design, and thereby enhance the overall innovation capacity of fashion design.

The study of fashion design based on Chinese cultural elements demonstrates a shift from traditional analysis to an interdisciplinary approach that combines theoretical reflection, digital technologies, and practical innovation. The widespread adoption of tools such as CAD, AIGC, virtual fitting, data analysis and knowledge visualisation is helping to deepen the connection between cultural identity, design and market adaptability. Future research will focus on the development of comprehensive theoretical models and the use of intelligent algorithms to optimise design and enhance the competitiveness of cultural content in the fashion industry.

CONCLUSIONS

This study employed CiteSpace-based knowledge mapping to systematically review and visualise research on the application of Chinese cultural elements in fashion design. Compared with traditional literature review methods, this data-driven approach provided a more objective and systematic perspective. By analysing high-frequency keywords, identifying thematic clusters, and detecting bursts, the study constructed a clear knowledge structure that effectively illustrated the evolution and internal logic of key research themes within the field. The results indicated a general upward trend in annual publication volume, with a rapid growth phase from 2021 to 2024, during which the number of publications rose from 134 to 289. A total of 332 researchers participated, demonstrating a considerable research scale; however, only 13 authors published

more than three papers, reflecting a low proportion of prolific contributors and a relatively fragmented collaboration pattern. Research institutions were predominantly higher education establishments, with limited interdisciplinary and cross-regional cooperation, and no stable nationwide research network had yet been established. Highly cited literature primarily focused on the contemporary transformation of traditional cultural elements and cultural innovation methodologies, emphasising the reinterpretation of traditional symbols and the empowering role of intelligent technologies in design research.

The knowledge structure of this field was categorised into four major domains: fashion design and contemporary innovation; cultural inheritance and symbolic application; garment craftsmanship and structural design; and fashion culture communication and education. "New Chinese Style" emerged as a prominent research focus, with scholars exploring how traditional cultural symbols could be aligned with contemporary aesthetics through silhouette optimisation, embroidery innovation, and colour system reconstruction. Overall, the field transitioned from traditional cultural interpretation towards a synthesis of design innovation and practical application, with research methods increasingly reflecting interdisciplinary integration and technological enhancement. Future studies may incorporate consumer research and user experience analysis, expand the use of intelligent design tools, and establish globalised strategies for cultural dissemination, thereby facilitating the sustainable and innovative expression of Chinese cultural elements in the international fashion

context. Although knowledge mapping offered significant advantages in revealing research trends, the analysis was still subject to limitations related to database coverage and keyword selection strategies. At present, the study relied primarily on Chinese-language databases (CNKI), lacking the integration and comparative use of international databases such as Web of Science and Scopus. As a result, it had yet to fully reflect how Chinese cultural elements are perceived, interpreted, and applied in global fashion design contexts.

Future research should, incorporate more qualitative approaches based on quantitative analysis, such as in-depth interviews, case studies, and user experience evaluations. These methods will provide deeper insights into the cultural semantics, visual language, and practical application of Chinese cultural elements in fashion design. Furthermore, expanding data sources to include both Chinese and international databases would help construct a globally oriented research framework and promote the innovative and sustainable integration of Chinese cultural elements within the international fashion discourse.

CONFLICT OF INTEREST
The authors declare no conflict of interest.

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Аналіз дослідницьких напрямків і тенденцій в дизайні одягу на основі китайських культурних елементів

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Анотація. Китайська культура, вкорінена в тисячолітньому історичному розвитку, демонструє глибоку філософську глибину та естетичну життєздатність. Її інтеграція в дизайн одягу привертає дедалі більшу увагу науковців. Це дослідження мало на меті систематично проаналізувати науковий прогрес, основні теми та тенденції, що розвиваються в цій галузі. За допомогою програмного забезпечення CiteSpace було проаналізовано 1 214 наукових статей, проіндексованих у базі даних Китайської національної інфраструктури знань. Бібліометричні та візуалізаційні методи були застосовані для дослідження річного обсягу публікацій, авторських та інституційних мереж співпраці, високоцитованої літератури, повторюваності ключових слів, кластеризації, виявлення сплесків та розподілу за часовою шкалою. Було виявлено, що обсяг наукових публікацій неухильно зростав і досяг піку у 2024 році. Відносини співпраці між авторами та установами залишалися фрагментарними, а академічний вплив зосереджувався серед невеликої кількості продуктивних авторів та ключових університетів. Найбільш цитовані дослідження стосувалися переважно сучасної трансформації традиційних мотивів, культурних інновацій та методології дизайну. Кластеризація ключових слів визначила «новий китайський стиль», «культурні інновації», «традиційне ремесло» та «дизайн-експресія» як домінуючі теми. Хронологічний аналіз та аналіз сплесків показав зміну тенденції від досліджень, орієнтованих на спадщину, до міждисциплінарної інтеграції, розширення цифрових можливостей та інновацій, орієнтованих на ринок. Це дослідження запропонувало теоретичні висновки та методологічні рекомендації для науковців, освітян і дизайнерів, які займаються сталим і творчим застосуванням китайських культурних елементів у моді. Воно також сприяло глобальному поширенню та сучасному переосмисленню китайської культури в дискурсі моди

Ключові слова: CiteSpace; аналіз візуалізації; дизайн у китайському стилі; культурні інновації; дизайнерські інновації