Article

Quantitative Approaches to to Halal Practices: A Bibliometric Analysis

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Abstract: This study applies bibliometric analysis to investigate the scholarly landscape of halal practices, particularly identifying research trends, key contributions, and emerging themes. A total of 541 publications from 2020 to 2024 were retrieved from the Scopus database and analysed using VOSviewer and Harzing's Publish or Perish. Halal tourism, consumer behaviour, halal certification, and supply chain management are all important ~~key~~ areas of study. The data show a consistent growth in research production, with a notable surge in publications in 2024, indicating increased academic and industrial interest. Citation analysis found highly influential papers on halal tourism and supply chain concerns, while keyword co-occurrence analysis identified "halal tourism," "certification," and "consumer trust" as prominent themes. Despite its contributions, the study admits some limitations, such as relying on a single database and excluding non-English publications. The study also emphasis~~z~~es technology-driven research, such as digital tracing ~~traceability~~ systems and customer sentiment monitoring. These findings highlight the dynamic nature of halal research and its ability to respond to current issues. The insights derived offer directions for future academic inquiry and serve as a foundation for policy formulation, particularly in advancing industrial halal standards and supporting global regulatory harmonisation. Future research should focus on under-represented topics such as halal finance, sustainability, and the integration of emerging technology, which will provide more chances to broaden the field's intellectual and practical effects.

Keywords: Halal practices; bibliometric analysis; quantitative research; Halal Tourism; consumer behaviour

Introduction

The concept of halal, derived from Islamic principles, has become a critical aspect of global trade and consumer behaviour, transcending religious boundaries to attract a wide range of consumers, including non-Muslims. Halal practices will ensure products' ethical, quality, and hygienic compliance and may offer a unique value proposition for halal products, especially for food, cosmetics, and pharmaceutical industries. The acceptance of halal has increased dynamically. The global halal market is projected to grow substantially, reaching $4.96 trillion by 2030, driven by increasing demand from Muslim-majority and non-Muslim countries (Amna Puri, 2023). Despite its economic significance, research on halal practices has largely focused on qualitative approaches, leaving critical gaps in understanding its quantitative dimensions. Quantitative research is essential to measure market trends, consumer preferences, and the efficacy of regulatory frameworks, thereby informing policymakers and businesses on optimal strategies (Khairuddin et al., 2020).

Bibliometric analysis emerges as a robust method to map the academic landscape, offering insights into scholarly productivity, citation networks, and thematic evolution within halal-related research. Such an approach is particularly relevant for identifying research trends, influential works, and gaps in the literature, enabling scholars and practitioners to build on a systematic knowledge base (Kushwaha &Talib, 2024).

Although halal practices have garnered increasing attention, the literature is predominantly descriptive or conceptual, lacking a quantitative synthesis of scholarly output. This has resulted in a limited understanding of the academic trends, key thematic areas, and influential contributors to the field. Moreover, the absence of bibliometric studies in this domain hinders the ability to evaluate the trajectory and impact of halal-related research critically. Addressing this gap is crucial to advancing the field and guiding future studies toward unexplored yet critical dimensions (Ahmad Jafar, 2024).

This study takes a comprehensive approach to halal-related research, focusing on prominent and emerging themes such as halal tourism, education, halal food, and certification. These topics are not only common in scholarly publications but also reflect ongoing regulatory, economic, and social issues within the global halal landscape. Specifically, the study aims to: (1) identify leading authors, institutions, and journals contributing to halal scholarship; (2) analyse keyword co-occurrences to uncover key thematic clusters; and (3) examine citation patterns to highlight influential works and intellectual trends. Through these objectives, the study seeks to provide a structured overview of the current state of halal research and guide future scholarly and policy efforts.

Literature Review

The scholarly exploration of halal practices has gained significant traction over the past decade, driven by the expanding global Muslim population and increasing demand for halal products and services. The application of bibliometric methods has become pivotal in mapping the intellectual structure, emerging trends, and research gaps within this field. Halal certification remains a dominant theme in scholarly works due to its centrality in ensuring compliance with Islamic law across food and non-food sectors. Bibliometric studies reveal that certification processes, regulatory frameworks, and trust mechanisms have been extensively analysed, particularly in Southeast Asia, where Malaysia and Indonesia serve as significant contributors (Judijanto et al., 2025). Yet, inconsistencies in regulatory standards across regions pose ongoing challenges, suggesting a need for greater global harmonization (Hamzah et al., 2024). This aligns with research emphasizing the integration of blockchain technology to enhance traceability and transparency in halal certification, a growing subfield in halal supply chain management (Putri, 2025).

Supply chain management in the halal industry, particularly halal supply chain management (HSCM), has witnessed growing scholarly attention, yet remains relatively underdeveloped compared to certification and consumer studies. Recent bibliometric research has highlighted the emergent integration of blockchain, traceability systems, and sustainability within HSCM frameworks (Hasnan et al., 2024). Studies suggest that while the adoption of advanced technologies like blockchain enhances traceability, their practical implementation faces hurdles, including infrastructural limitations and regulatory fragmentation (Fernando et al., 2024). Furthermore, sustainability concerns are increasingly being embedded in HSCM research, reflecting broader global trends toward ethical consumption and environmental responsibility (Putri, 2025).

Consumer behaviour research within halal contexts underscores the interplay between religious commitment, trust in certification, and purchasing decisions. Quantitative analyses consistently identify certification trust and perceived product quality as key drivers of halal product consumption, appealing to both Muslim and non-Muslim consumers due to ethical and safety assurances (Aneesh & Siddiq, 2024). However, some gaps persist, notably in consumer knowledge of halal supply chains beyond food products, particularly in sectors like personal care and beauty. For instance, consumer awareness of halal sourcing and production methods significantly influences purchase intentions for these non-food products (Adiningtyas & Yunus, 2024).

Halal tourism has also become an emerging and increasingly significant sector, has been a focal point of several bibliometric analyses. The body of research highlights consumer satisfaction, branding, and cultural adaptation as central themes (Putera & Rakhel, 2023). Nevertheless, regulatory inconsistencies across

destinations and a lack of uniform standards remain pressing issues, echoing broader certification challenges. Additionally, research gaps in integrating technology-driven solutions, such as virtual experiences in halal tourism, suggest opportunities for future exploration (Fernando et al., 2024).

Sofian et al. (2023) highlight structural inconsistencies between countries like Malaysia and Thailand in halal certification and auditing systems. Although both nations adhere to the halalan thoyyiban principle, the implementation varies significantly, with Malaysia utilizing a more technologically integrated online system, while Thailand still relies on manual processes. These discrepancies, coupled with shared challenges such as enforcement gaps and public awareness, underscore the pressing need for more unified and integrated regulatory models within the halal ecosystem (Sofian et al., 2023).

In addition, Abd Rahman et al. (2025) stress the growing importance of embedding Maqasid Syariah in halal-related sectors beyond certification, particularly in digital marketing for shariah-compliant tourism. Their work illustrates how ethical principles rooted in Islamic jurisprudence can be translated into consumer-facing strategies, thus enhancing both market trust and compliance. However, their findings also imply a gap in connecting these consumer-level values with upstream halal logistics and certification processes (Abd Rahman, 2025).

When comparing major thematic streams, certification, supply chain, consumer behaviour, and tourism, a pattern of fragmentation becomes evident. Certification and consumer behaviour studies are relatively mature, often quantitative, and focused on compliance, trust, and branding. In contrast, supply chain and tourism literature are more recent and exploratory, often lacking integration with consumer-based or regulatory frameworks. Additionally, while digital transformation is acknowledged across domains, few studies offer cross-sectoral frameworks that connect supply chain innovation with consumer expectations or certification logic.

This fragmentation reveals a conceptual gap: there is still a lack of integrated halal business models that holistically combine certification, supply chain practices, and consumer behaviour in a unified framework. Despite the expanding halal market, current scholarship tends to analyse these components in isolation. Holistic models that bridge industry operations and consumer insight are essential to advancing halal ecosystem resilience, especially in the face of global standardisation efforts and sustainability imperatives (Azwani et al., 2024; Lestari et al., 2021).

While substantial bibliometric efforts have mapped the halal research landscape, critical gaps persist. Notably, cross-sectoral studies integrating halal finance, digital innovations, and sustainability remain limited despite their increasing relevance in contemporary discourse. Furthermore, regional disparities, especially the dominance of Southeast Asian contributions, highlight the need for broader geographic representation to enrich global perspectives (Zafar et al., 2024). Future research should embrace interdisciplinary approaches, leveraging technology and policy studies to address these gaps.

Methodology

The term "bibliometrics" was first coined by Alan Pritchard in 1969 in his seminal work "Statistical Bibliography or Bibliometric"(Pritchard, 1969; Andres, 2009; Gingras, 2016). Bibliometric analysis has since been extensively used to map the intellectual structure of knowledge domains. This method provides a systematic approach to uncovering the development and composition of a scholarly knowledge base (White & McCain, 1998). This study employs a bibliometric analysis approach to quantitatively examine scholarly works related to halal practices by using Scopus as the primary data source. Scopus was selected for three key reasons: first, its consistent indexing criteria ensure high-quality and relevant documents; second, its comprehensive coverage of documents surpasses that of Web of Science in social science and educational research domains (Hallinger & Nguyen, 2020); and third, its advanced export features for bibliographic data surpass those offered by Google Scholar. These characteristics make Scopus ideal for bibliometric studies (White & McCain, 1998).

The bibliometric dataset was collected using the following advanced search string in Scopus:

((TITLE-ABS-KEY(halal) AND TITLE-ABS-KEY("quantitative" OR "statistical" OR "analysis")) AND PUBYEAR > 2019 AND PUBYEAR < 2025 AND (LIMIT-TO(SUBJAREA,"SOCI") OR LIMIT-TO(SUBJAREA,"BUSI") OR LIMIT-TO(SUBJAREA,"ARTS") OR LIMIT-TO(SUBJAREA,"ECON")) AND (LIMIT-TO(DOCTYPE,"ar")))

The search was conducted on November 4, 2024, at 11:09 p.m., targeting peer-reviewed journal articles published in English between 2019 and 2024. This timeline was chosen to capture recent trends and advancements in halal practice research, particularly focusing on quantitative methods. To ensure relevance, the study restricted its analysis to journal articles in English. Other document types were excluded, such as conference papers, book chapters, or non-English articles. While these restrictions ensure a focused review, they may also limit the inclusion of potentially relevant studies in other languages or formats. In addition, irrelevant articles were manually excluded through a screening process, which involved the removal of duplicate records, articles unrelated to the halal domain, and papers that did not align with the study's focus on quantitative or statistical analysis. The study adheres to the Modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria for search and selection processes (Zakaria et al., 2020).
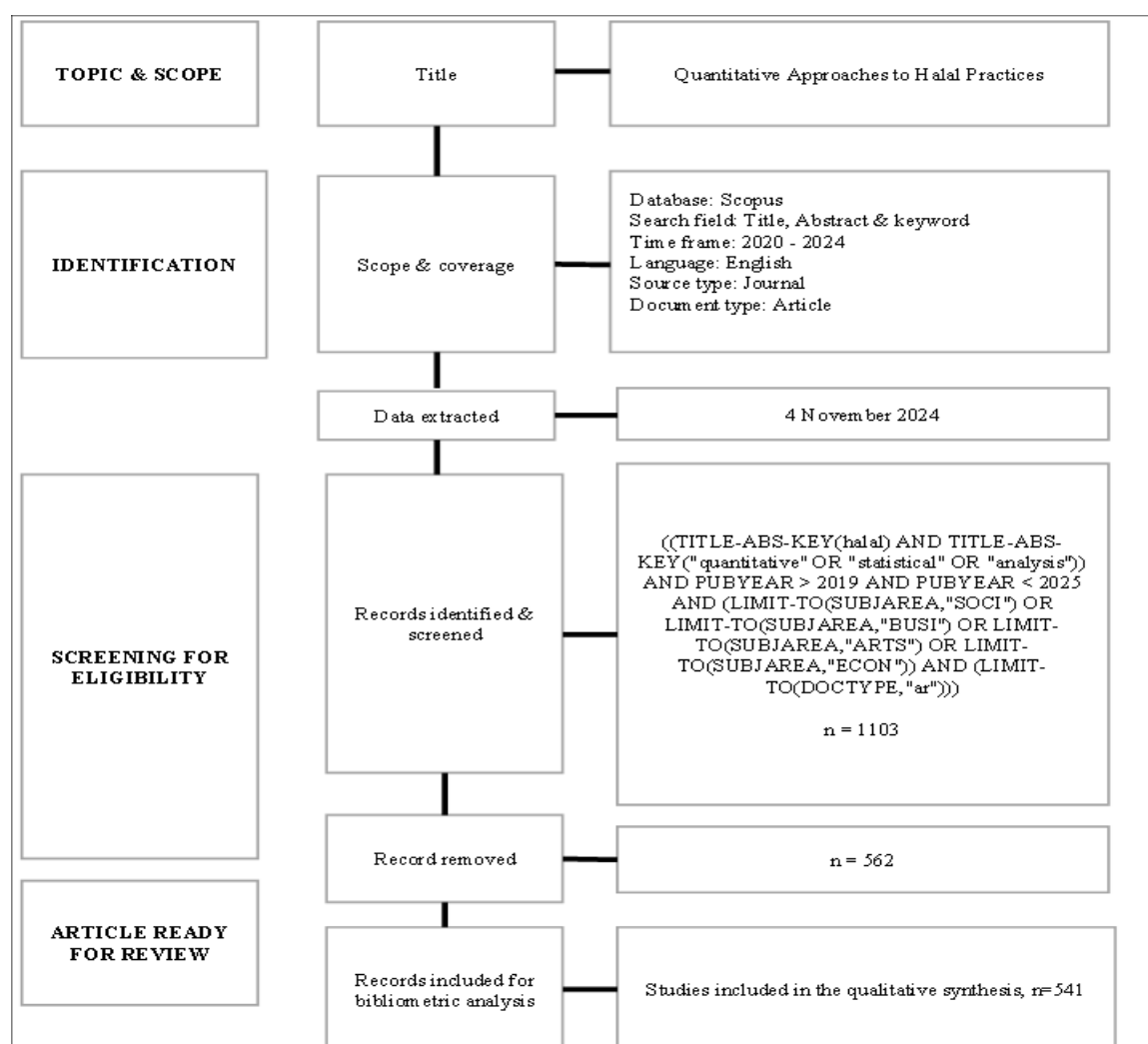

Figure 1. Flow Diagram of The Search Strategy
Source: Modified from PRISMA (Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009)

Figure 1 shows the flow diagram of the search strategy. The dataset was analysed using descriptive statistics, citation analysis, and co-citation analysis. These methods were employed to identify publication trends, key authors, influential works, and emerging themes in halal-related research. Bibliometric tools were used to visualize the structural makeup of the research field and to explore its thematic evolution, as suggested by (Zupic & Čater, 2015). While Scopus was chosen for its quality and scope, the study acknowledges the limitation of relying solely on a single database, which may omit relevant literature from other databases such as Web of Science or regional journals not indexed in Scopus. Future research may consider using multiple databases to achieve broader coverage and capture a more diverse set of perspectives.

The Findings

541 documents were gathered for this study from the Scopus database. Data frequencies based on the total number of papers published, including the yearly trend, the most active journals, the most prolific countries, and the most prolific author in the study area, were calculated using descriptive analysis. Regarding the citation analysis, Harzing's Publish or Perish software was used to gather information on citation metrics and the most well-known scholarly works on the research topic. Additionally, VOSViewer software was used to analyse bibliometric metadata for co-authorship, bibliographic coupling, keyword co-occurrence and citation. The quantity of shared resources determines the links between items like publications, journals and authors in bibliographic coupling. A table or network visualization map is used to display the analysis's findings.:

1. Publications by Year

The total publications by year illustrate the trends in scholarly output related to the study area from 2020 to 2024 (Table 1). As a result of the influence of outside influences and the changing focus of research in this field, the data shows dynamic fluctuations in publication activity. The field has a well-established interest, as seen by the 97 articles that were reported in 2020. A significant drop to 71 publications in 2021, however, indicates a reduction in research production. Global interruptions like the COVID-19 pandemic may be to blame for this decline, as they probably limited research efforts, publishing schedules, and resource availability. Output decreased during this time, demonstrating how susceptible the academic research ecosystem is to outside shocks.

Table 1. Total publications by years

Year	TP
2024	163
2023	123
2022	87
2021	71
2020	97

Following this decline, a steady recovery is observed. In 2022, the number of publications increased to 87, marking a gradual resurgence in scholarly activity as researchers adapted to post-pandemic conditions. This trend continued in 2023 with a significant rise to 123 publications, demonstrating renewed vigour in academic engagement. The increase could signify heightened interest in the field, potentially driven by emerging research priorities, technological advancements, or increased funding opportunities. The year 2024 marks the peak of publication activity within the analysed period, with a total of 163 publications. This sharp rise suggests the field's growing importance and academic recognition. The steep growth trajectory may also indicate the establishment of robust research networks, enhanced collaboration, and diverse research themes.

Critically, while the growth pattern from 2022 to 2024 is promising, the earlier decline in 2021 underscores the need for more resilient research infrastructures to withstand external disruptions. The surge in publication output in 2024 appears to be influenced by several factors, including government-driven halal initiatives, increased research funding, and the growing global emphasis on halal industry development. This increase may also reflect a broader post-pandemic recovery, particularly within halal supply chains and

tourism, which began to regain momentum in response to renewed consumer confidence and digital transformation. Overall, the trend points to a dynamic research landscape with strong potential for continued expansion and interdisciplinary relevance.
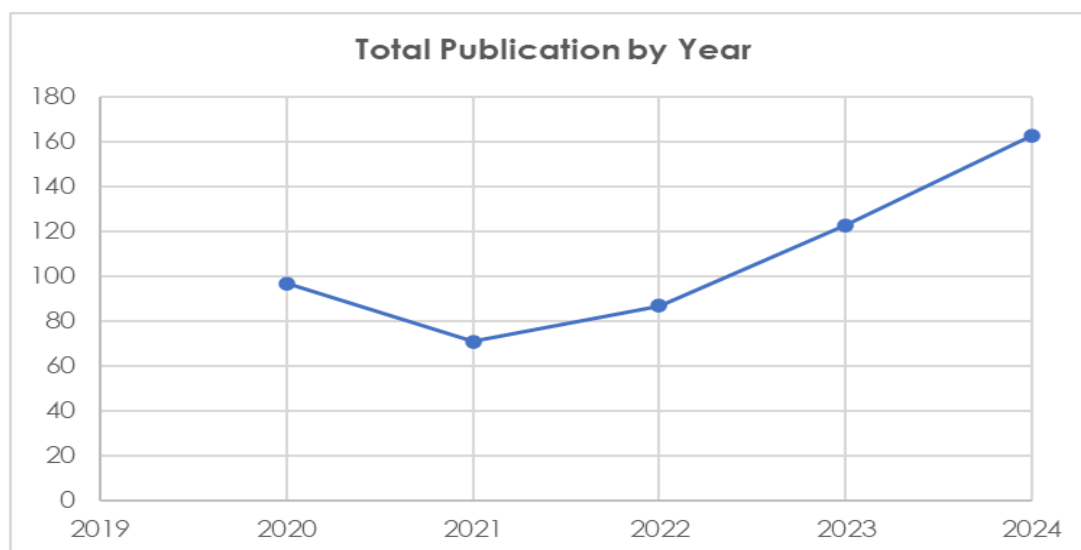

Figure 2. Growth patterns of publication by year

2. Citation Network Analysis
To address the most influential publications on halal practices through a bibliometric lens, citation metrics were analysed to identify key works driving academic discourse in the field. Citation networks of 541 publications were examined using Harzing's Publish or Perish and VOSViewer tools to perform centrality analyses and visualize the relationships between articles. Table 2 summarizes the citation metrics for the analysed publications.

As shown in the data (Table 2), the 541 publications generated a total of 4,649 citations over four years. The average number of citations per year was 1,162.25, with each document receiving an average of 8.59 citations. The h-index of 31 indicates that 31 papers have been cited at least 31 times, while the g-index of 44 demonstrates that the most highly cited papers significantly elevate the overall impact of the field. These metrics highlight the growing academic influence of halal research.

Table 2. Citation metrix

Metrics	Data
Papers	541
Number of Citations	4649
Years	4
Citations per Year	1162.25
Citations per Paper	8.59
Cites_Author	1724.75
Papers_Author	211.80
Authors_Paper	3.40
h_index	31
g_index	44

The publication trends reflect a multifaceted exploration of topics, with key areas of focus including halal certification, consumer trust, and supply chain logistics. Foundational works, such as those addressing halal's ethical and religious dimensions, are highly cited and serve as cornerstones for subsequent research. In recent years, studies incorporating quantitative approaches and modern technologies, such as blockchain for halal traceability and digital consumer platforms, have gained prominence, reflecting the field's adaptability to emerging trends.

The sustained growth in citations and the increasing interdisciplinarity of publications indicate the expanding relevance of halal research. The integration of diverse methodologies and themes, including market analysis, regulatory frameworks, and consumer behaviour, highlights the importance of halal practices across global industries. This upward trajectory of citations and publication output demonstrates the field's ability to evolve and address contemporary challenges, making it a critical area of study in both academic and industrial contexts.

The top 10 highly cited publications on halal practices reflect a strong emphasis on understanding consumer behaviour, supply chain integrity, and halal tourism, alongside emerging methodologies for enhancing operational and marketing strategies (Table 3). The most cited paper by Rahman et al. (2020) examines the impact of tourists' perceptions on halal tourism destinations, employing a structural model analysis to highlight the critical role of consumer perception in shaping destination competitiveness. Similarly, Ainin et al. (2020) sentiment analysis of multilingual tweets on halal tourism underscores the relevance of digital tools in capturing public sentiment, contributing to improved strategic decision-making.

Table 3. Top 10 highly cited publications

No.	Authors	Title	Year	Cites
1	M. Rahman, S. Moghavvemi, T. Thirumoorthi, M.K. Rahman	The impact of tourists' perceptions on halal tourism destination: a structural model analysis	2020	98
2	S. Secinaro, D. Calandra	Halal food: structured literature review and research agenda	2021	84
3	S. Khan, M.I. Khan, A. Haleem, A.R. Jami	Prioritizing the risks in Halal food supply chain: an MCDM approach	2022	83
4	S. Ainin, A. Feizollah, N.B. Anuar, N.A. Abdullah	Sentiment analyses of multilingual tweets on halal tourism	2020	82
5	F.A. Amalia, A. Sosianika, D. Suhartanto	Indonesian Millennials' Halal food purchasing: merely a habit?	2020	81
6	R.T. Ratnasari, S. Gunawan, I. Mawardi, K.C. Kirana	Emotional experience on behavioural intention for halal tourism	2020	80
7	I. Vanany, J.M. Soon, A. Maryani, B.M. Wibawa	Determinants of halal-food consumption in Indonesia	2020	74
8	N. Ab Rashid, J. Bojei	The relationship between halal traceability system adoption and environmental factors on halal food supply chain integrity in Malaysia	2020	71
9	T. Handriana, P. Yulianti, M. Kurniawati, N.A. Arina, R.A. Aisyah, M.G. Ayu Aryani, R.K. Wandira	Purchase behaviour of millennial female generation on Halal cosmetic products	2020	61
10	A.H. Ngah, T. Ramayah, M.H. Ali, M.I. Khan	Halal transportation adoption among pharmaceuticals and cosmetics manufacturers	2020	59

In the area of food supply chain management, Secinaro et al. (2021) and Secinaro and Calandra's (2021) structured literature review provides a comprehensive research agenda for halal food studies, identifying critical challenges and opportunities in the field. Khan et al., (2021) study uses a multi-criteria decision-making (MCDM) approach to prioritize halal food supply chain risks, addressing logistical and ethical considerations. Meanwhile, Ab Rashid and Bojei (2020) exploration of halal traceability systems examines how environmental factors influence supply chain integrity in Malaysia, demonstrating the importance of technological adoption for ensuring compliance and consumer trust.

Consumer behaviour remains a central theme, as evidenced by Amalia et al., (2020) study on Indonesian Millennials' halal food purchasing behaviour, which questions whether their consumption patterns are habit-driven or informed by religious principles. Vanany et al., (2020) research focuses on the determinants of halal food consumption in Indonesia, providing insights into cultural and socioeconomic drivers. In the

cosmetics industry, Osman et al., (2022) explore millennial women's purchase behaviour for halal cosmetic products, highlighting preferences influenced by ethical considerations and lifestyle trends.

The domain of halal transportation is addressed by Ngah et al., (2022), who investigate the adoption of halal logistics among pharmaceuticals and cosmetics manufacturers. Their findings emphasize the critical role of ethical compliance in enhancing market credibility. These publications underscore the interdisciplinary nature of halal research, spanning tourism, consumer behaviour, and supply chain management. They highlight the growing relevance of integrating advanced analytical techniques and digital tools to address evolving challenges. Many of the cited works on halal tourism and consumer behaviour reveal overlapping constructs such as trust, satisfaction, and perception, indicating a convergence around themes of halal consumer experience. This convergence reflects a broader trend toward understanding how ethical, religious, and service-based expectations intersect across tourism, food, and lifestyle industries. These works provide a strong foundation for future studies and underscore the global significance of halal practices in fostering trust, compliance, and market growth.

3. Keywords and Co-occurrence Analysis

In response to the research objective of identifying the most prevalent themes in halal research, this study analysed keyword co-occurrences to determine the central ideas explored by scholars in this field. Table 4 presents the frequencies of the top five keywords, which were computed using bibliometric data. The most frequently used keyword is "Halal Tourism" (89 occurrences; 16.45%), reflecting its dominant role in halal research. This prevalence signifies the growing interest in understanding the dynamics of halal-friendly travel experiences, consumer preferences, and market development. The second most frequently used keyword is "Halal" (65 occurrences; 12.01%), a broad term encompassing the principles of Islamic law, ethical practices, and certification processes, highlighting the multidisciplinary scope of halal studies.

Table 4. Top keywords

Author Keywords	Total Publications (TP)	Percentage (%)
Halal Tourism	89	16.45%
Halal	65	12.01%
Halal Food	46	8.50%
Indonesia	34	6.28%
Education	81	30.57

"Halal Food" ranks third with 46 occurrences (8.50%), underscoring the importance of this sector in terms of supply chain integrity, consumer behaviour, and regulatory frameworks. Tied in fourth place are "Indonesia" and "Religiosity," each with 34 occurrences (6.28%). The focus on Indonesia underscores its pivotal role in shaping the global halal market. This prominence is driven by a combination of factors, including a large Muslim population, active halal certification authorities, and sustained governmental commitment to developing the halal economy. The repeated appearance of "Indonesia" as a keyword reflects not only its position as a major contributor to scholarly output but also as a practical model in implementing a comprehensive halal ecosystem. In parallel, the frequent occurrence of "religiosity" highlights the enduring influence of cultural and spiritual values in driving consumer behaviour and informing market strategies across halal sectors.

The keyword analysis reveals the thematic priorities within halal research, demonstrating a strong focus on tourism, ethical principles, and market leadership. These findings provide valuable insights into the evolving discourse, with opportunities for future research to address emerging areas such as digital innovation and sustainability within halal industries. In this study, the VOSViewer program was employed to perform a term co-occurrence analysis, creating a network visualization map (Figure 3) based on the keywords extracted from publications related to halal research. To ensure robust analysis, a term needed to appear at least 10 times in the titles and abstracts of the publications to be included in the map. The minimum number of occurrences per term was set at five, and fractional counting was applied to balance the influence of frequently occurring

terms. Out of the dataset, 108 keywords met these criteria, representing a variety of themes within the research field.

The network visualization map, as shown in Figure 3, provides a graphical representation of the relationships between keywords. The size of the circles corresponds to the frequency of term usage, while the proximity and thickness of connecting lines reflect the strength of co-occurrence relationships. The largest cluster in the map highlights "halal tourism" as the most frequently co-occurring keyword, emphasizing its centrality to the field. This keyword is connected to terms like "tourism industry," "satisfaction," and "destination," reflecting the growing focus on creating halal-friendly experiences for Muslim travellers. Another prominent cluster revolves around "relationship" and "respondent," which frequently co-occur with terms like "trust," "attitude," and "purchase intention," indicating a strong emphasis on consumer behaviour and marketing studies.

In addition, the terms "halal food" and "certification" appear frequently and are associated with themes such as supply chain management, regulation, and integrity. These findings underscore the importance of ensuring halal compliance in food production and distribution, a topic that resonates with consumer trust and industry practices. The visualization also reveals a geographical and cultural dimension, as "Indonesia" is prominently linked with topics like religiosity, SMEs (small and medium enterprises), and consumer trust. This reflects the critical role of Indonesia as a leader in halal innovation and market expansion.

Figure 3. Network visualisation map for co-occurrence of keywords

The overlay map (Figure 4) generated from the keyword co-occurrence analysis provides a visual representation of trends in halal research over time (2022 to 2023), revealing the evolution of research topics and emerging themes in the field. As suggested by Goksu (2021), such maps are valuable for identifying shifts in focus and the development of new areas of inquiry. The colour gradient in the overlay map reflects the timeline of research, with darker colours (green) indicating earlier studies and lighter colours (yellow) signifying more recent developments.

The map reveals distinct clusters of research activity, each representing key themes in halal studies. Emerging Trends (Yellow Nodes) refers to recent studies that highlight a growing interest in consumer behaviour and satisfaction, as indicated by keywords such as "trust," "attitude," "purchase intention," and "satisfaction mediator." These topics reflect an increasing emphasis on understanding how halal products and services meet consumer needs and preferences, aligning with advancements in behavioural science and

marketing strategies. Consistent Themes (Green Nodes) refers to central terms like "halal tourism," "development," and "certification" which remain dominant across the timeline, suggesting sustained scholarly interest in these areas. Topics such as halal certification and supply chain processes underscore the importance of maintaining authenticity and trust in halal products.

The overlay map also reveals geographical and cultural focus. Terms like "Indonesia," "Muslim consumer," and "religion" highlight the importance of cultural and regional contexts in shaping halal research. These terms indicate a strong focus on Southeast Asia, particularly Indonesia, as a key region driving halal innovation and market growth. Technological Integration: Emerging topics such as "supply chain transparency" and "digital platforms" suggest a growing recognition of technology's role in enhancing halal compliance and operational efficiency. Integrating digital tools in halal supply chains and traceability systems reflects broader trends in global logistics and ethical consumerism.

Notably, the appearance of "Education" as a high-frequency keyword (30.57%) may reflect metadata inflation from journal titles, author affiliations, or source indexing terms rather than direct topical engagement. This may indicate a minor data cleaning limitation, commonly observed in bibliometric analyses, where structural or institutional descriptors are inadvertently captured as keywords despite having limited conceptual relevance to the study's core themes.
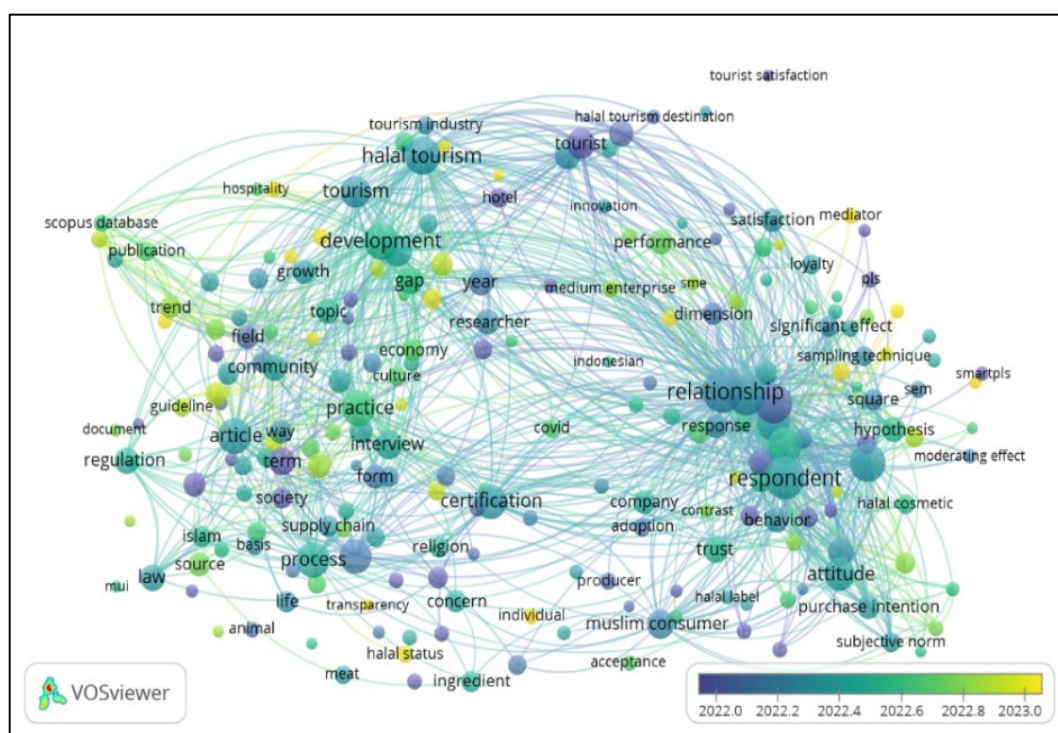

Figure 4. Overlay visualisation map of term co-occurrence of title and abstract field

Discussion

The bibliometric trends observed in this study indicate a growing academic interest in halal-related research, particularly in the domains of halal tourism, supply chain integrity, and digital traceability. The increase in total publications from 2021 to 2024 suggests that halal practices are evolving from niche academic topics into mainstream scholarly discussions, reflecting their growing significance in global consumer markets.

A key finding from the co-occurrence analysis (Figure 3) is the thematic separation between supply chain practices, such as certification, logistics, and traceability, and consumer-centric topics such as attitude, trust, and purchasing behaviour. This thematic bifurcation reflects the fragmented nature of halal research, where technical and behavioural aspects are often explored in isolation. However, recent overlay visualisation (Figure 4) suggests a growing convergence, with terms such as relationship, consumer perception, and certification increasingly appearing together in the same research clusters.

The prominence of halal tourism in the top-cited publications (Table 3) points to a broader transformation in the halal economy. Halal consumption is no longer confined to dietary practices; it now encompasses lifestyle, travel, and identity. The rise of digital traceability systems, particularly those involving blockchain and Internet of Things (IoT) technologies, further indicates a shift toward transparency and global standardisation in halal compliance. These developments align with the increasing demand among Muslim consumers for assurance in the sourcing, handling, and marketing of halal products and services.

From a theoretical standpoint, these patterns call for a more integrated approach to halal studies, one that combines elements of Islamic marketing, consumer behaviour, supply chain ethics, and regulatory governance. The evidence supports the need for holistic halal business models that can bridge operational efficiency with consumer trust, particularly in a rapidly digitising and globalising market environment.

Practically, these insights are relevant to policy-makers, certification bodies, and industry practitioners who aim to strengthen Malaysia's position as a global halal hub. As halal markets expand, the development of comprehensive and interdisciplinary frameworks will be essential to support sustainability, cross-border trade, and consumer confidence.

Conclusion

This study has mapped the research landscape of halal practices using bibliometric methods, highlighting key trends in areas such as halal tourism, consumer behaviour, supply chain integrity, and traceability. The increase in publications and the rise of interdisciplinary themes demonstrate the growing complexity and maturity of halal research. These findings offer a helpful foundation for scholars, practitioners, and policymakers aiming to understand the development of halal-related knowledge and its importance to changing market and regulatory demands.

The analysis, however, has some limitations. It relies only on data from the Scopus database, which does not include relevant works indexed on platforms like Web of Science and Google Scholar. Additionally, recent publications from 2024 that have not yet been indexed may have been left out, potentially missing the latest developments. Future research could overcome these limitations by broadening data sources and including non-English publications and conference proceedings to provide a more comprehensive view of global contributions.

Regarding future research directions, several areas stand out for their urgency and potential impact. First, there is a clear need to develop integrated halal business models that connect certification systems, supply chain practices, and consumer behaviour within a single framework. This is especially relevant given the growing calls for industry-wide resilience and transparency. Second, the increasing focus on digital traceability systems, including blockchain and smart logistics, highlights the need for further research on how technology can improve halal assurance and build consumer trust. Third, the bibliometric trends identified in this study may serve as a useful reference for policymakers and standard-setting bodies aiming to harmonize halal certification worldwide. Understanding where research is concentrated and where it is lacking can help inform more consistent and inclusive regulatory strategies. Lastly, topics that are still underexplored, such as halal finance, sustainability, and the digitalization of halal services, merit closer attention, especially given their relevance to ethical consumption and Islamic economic principles.

Overall, the findings of this study suggest that halal-related research is undergoing significant transformation. Bibliometric evidence can contribute meaningfully to both scholarly discourse and policy formation, particularly in efforts to unify global halal standards and ensure that research remains responsive to the needs of consumers, industries, and regulators alike.

Conflicts of Interest: The authors declare no conflict of interest.

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