A Bibliometric Analysis of Halal Pharmaceuticals Consumer Behavior

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Abstract. The halal pharmaceutical industry is experiencing significant growth as consumer awareness and demand for Sharia-compliant products continue to rise. This study conducted a bibliometric analysis to examine research trends, influential authors, and key themes related to halal pharmaceutical consumer behavior. Using a dataset of 103 articles retrieved from Google Scholar, the study applied bibliometric methods, including performance analysis and science mapping, to identify research patterns. The findings revealed an increasing number of publications over the years, highlighting the growing academic interest in this field. Keyword co-occurrence analysis indicates that topics such as halal certification, consumer trust, and regulatory compliance are central themes in the literature, while emerging areas such as digital marketing and supply chain transparency present new research opportunities. The co-authorship analysis suggests that collaboration among researchers remains limited, indicating the need for greater interdisciplinary cooperation. Highly cited papers in this domain provide foundational insights but also reveal gaps in understanding the psychological and cultural factors influencing consumer behavior. This study contributes to the academic discourse on halal pharmaceuticals by mapping the current research landscape and offering recommendations for future studies.

Keywords: Halal pharmaceuticals, consumer behavior, bibliometric analysis, research trends

1. INTRODUCTION

The pharmaceutical industry has seen substantial growth in the global Muslim consumer market. Muslim spending on pharmaceuticals reached US$108 billion in 2022, up by 7.8% from US$100 billion in 2021, and is forecast to reach US$142 billion in 2027 at a CAGR of 5.7% (DinarStandard, 2023). Aside from the expanding Muslim market, increasing awareness of halal pharmaceutical products is also expected to drive future demand for these products (Kasri et al., 2023). Understanding consumer behavior in this industry is crucial for stakeholders— including researchers, policymakers, and industry practitioners—in developing strategies that meet market expectations and drive sustainable growth.

Bibliometric analysis has been emerging as a powerful tool for assessing the evolution of research trends in various fields, including halal pharmaceuticals (Zunianto et al., 2023). Using quantitative methods and statistical techniques, bibliometric analysis enables scholars to evaluate the impact of scientific publications, identify key research themes, and uncover gaps in knowledge (Donthu et al., 2021). Despite the growing body of literature on halal pharmaceuticals, there is still a need for a systematic and comprehensive assessment of consumer behavior in this sector. This study aims to address this gap by analyzing the existing scholarly contributions on the topic, offering valuable insights into research trends and emerging themes.

The significance of consumer behavior in the halal pharmaceutical industry extends beyond individual consumer purchasing decisions. It encompasses factors such as brand perception, trust in the halal certification process, cultural influences, and regulatory compliance (Mazuki & Bhari, 2024). Moreover, the rise of digital platforms has transformed consumer engagement, shaping preferences and purchase patterns (Srivastava & Raina, 2021). A thorough understanding of these aspects is essential for industry players to enhance product development, marketing strategies, and policy frameworks that cater to the needs of halal-conscious consumers.

This study employs bibliometric analysis to systematically examine research on consumer behavior in the halal pharmaceutical sector, drawing from Google Scholar databases and utilizing Microsoft Excel as an analytical tool. By mapping the trajectory of scholarly work in this domain, the study seeks to provide a comprehensive overview of research patterns, influential authors, and key publications. The findings will contribute to the existing knowledge base and serve as a foundation for future research and industry advancements in halal pharmaceuticals.

2. METHODS

The primary objective of this study was to conduct a bibliometric analysis of the existing body of research on consumer behavior in halal pharmaceuticals. Bibliometric analysis employs quantitative methods and statistical tools to identify patterns and trends in publications. This approach helps researchers gain an overall understanding of the topic, identify gaps in knowledge, and guide future research (Donthu et al., 2021). The study used Google Scholar as the primary database, Microsoft Excel for statistical analysis, and VOSviewer for creating network maps in bibliometric analysis. The methodology followed recommendations outlined by Donthu et al. (2021).

Step 1

Specific procedures for bibliometric analysis were selected. Performance analysis and science mapping were identified as the primary methods in such investigations (Donthu et al., 2021). Science mapping examines relationships between entities, while performance analysis assesses contributions to a particular field.

Step 2

Involved defining document selection criteria and keywords. This study focused on the keyword 'halal pharmaceuticals' within Google Scholar because it was the largest bibliographical resource, covering publications from 2014 to 2025, yielding 103 relevant articles.

Step 3

Involved data analysis using VOSviewer for scientific mapping and Microsoft Excel for performance analysis.

Step 4

Evaluated the growth trajectory of research on halal pharmaceuticals consumer behavior since 2014 and identified thematic trends. The study also pinpointed research gaps in this area.

3. RESULTS AND DISCUSSION

This study reviewed 103 articles related to halal pharmaceuticals consumer behavior. Table 1 presents the number of research papers published on halal pharmaceuticals consumer behavior from 2014 to 2025. While only one paper was published in both 2014 and 2015, the number gradually rose in subsequent years, reaching its peak in 2023 with 20 papers. This upward trend suggests that halal pharmaceutical research has gained significant momentum, particularly in recent years.

Table 1. Number of Paper

Year	Number of Paper
2014	1
2015	1
2016	4
2017	3
2018	6
2019	8
2020	12
2021	8
2022	17
2023	20
2024	18
2025	5
Total	103

Figure 1 visualizes the data from Table 1, illustrating the trend in research publications over time. The graph demonstrates a clear upward trajectory, with notable increases in 2020 and beyond. The data for 2023 is provisional as the year is not yet complete, meaning additional papers may still be included in the analysis.
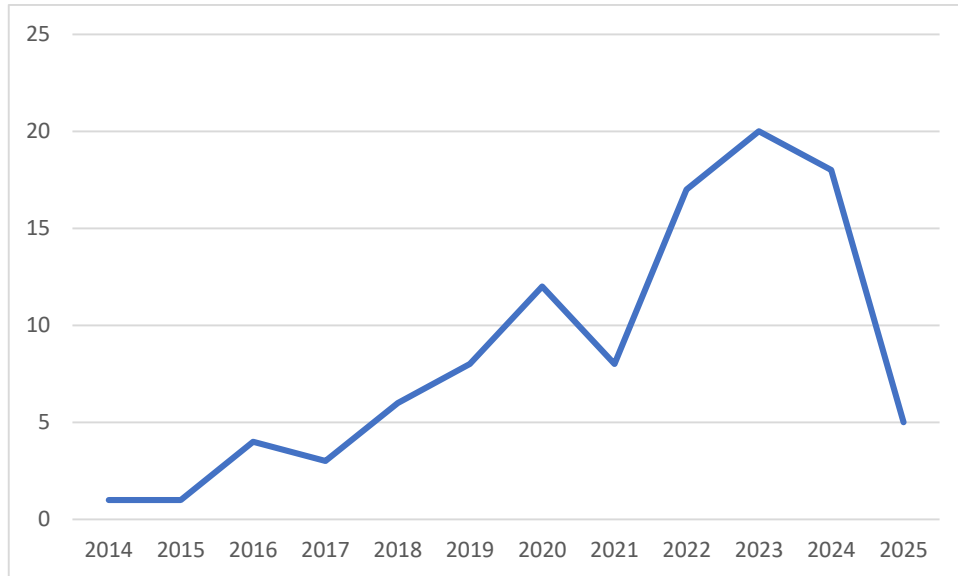
Figure 1. Number of Paper

This study intended to investigate halal pharmaceuticals in greater detail, sourced from the Google Scholar database. In this study, the co-authorship, co-occurrence, and citations were presented as three different features of the data analysis using VOSviewer. The explanation that follows shows the findings of the analysis that was done.

Co-Authorship

The study applied co-occurrence analysis and retrieved 148 keywords using the full counting approach, with a minimum threshold of two co-occurrences. The frequency of words used in articles is displayed using the co- occurrence analysis of keywords (Gaviria-Marin et al., 2018).

Figure 2. Co-Authorship

Figure 2 depicts the co-authorship network among researchers in the field of halal pharmaceuticals. The visualization highlighted key collaborations between scholars and identified influential authors who had contributed significantly to the body of knowledge. The network map revealed clusters of researchers working together. However, only a few authors are connected, highlighting the need for greater collaboration to enhance the quality of future research.

Co-Occurrence

Figure 3. Co-Accurrence (Keywords)

Figure 3 illustrates the co-occurrence of keywords within the analyzed publications, providing insights into the most frequently discussed topics in halal pharmaceuticals consumer behavior research. The visualization revealed key themes and research focal points, with certain keywords appearing more prominently, suggesting their centrality in the discourse. The clustering of keywords further indicated thematic groupings within the literature, reflecting different aspects of the research landscape.

Figure 4. Overlay Visualization Co-Accurance (Keywords)

Figure 4 presents an overlay visualization of keyword co-occurrence, demonstrating the evolution of research themes over time. The color gradient in the figure indicated the chronological development of key topics, with newer areas of interest emerging in recent years. This visualization helped identify shifts in scholarly focus, revealing how certain aspects of halal pharmaceuticals consumer behavior had gained prominence while others had become less relevant.

Figure 5. Density Visualization Co-Accurance (Keywords)

Figure 5 displays a density visualization of keyword co-occurrence, emphasizing the intensity of research focus on specific topics. The areas with higher density represented frequently occurring terms and well-explored themes, while less dense regions indicated research gaps or emerging areas.

Citation

The analysis identified the most influential articles on halal pharmaceuticals consumer behavior. Table 2 provides further detail on the top 10 most-cited on articles on halal pharmaceuticals.

Table 2. Top Citations

Ranking	Citation	Title	Author & Year
1	222	Halal industry: Key challenges and opportunities	(Elasrag, 2016)
2	219	Understanding "halal" and "halal certification &accreditation system"-a brief review	(Khan & Haleem, 2016)
3	126	Developing model of halal food purchase intention among indonesian non-muslim consumers: an explanatory sequential,mixed methods research.	(Purwanto et al., 2020)
4	101	Halal cosmetics: A review on ingredients, production, and testing methods	(Sugibayashi et al., 2019)
5	95	Research status in Halal: a review and bibliometric analysis	(Haleem et al., 2020)
6	88	The potential of ASEAN in halal certification implementation: A review	(Othman et al., 2016)
7	69	The application of molecular spectroscopy in combination with chemometrics for halal authentication analysis: A review	(Rohman & Windarsih, 2020)
8	69	A systematic review of halal supply chain research: to where shall we go?	(Indarti et al., 2020)
9	62	Halal pharmaceutical industry: opportunities and challenges	(Norazmi & Lim, 2015)
10	60	Islamic marketing: A literature review and research agenda	(Mamun et al., 2021

Table 2 lists the most cited publications in halal pharmaceuticals research, ranking them based on citation count. The highly cited papers indicated influential works that had significantly contributed to shaping the academic discourse on halal consumer behavior. The top-ranked study, *Halal Industry: Key Challenges and Opportunities* by Elasrag (2016), had received 222 citations, underscoring its impact on the field. Other notable works covered topics such as halal certification (Khan & Haleem, 2016) and purchase intention (Purwanto et al., 2020), reflecting the broad scope of research in this domain. The high citation counts suggested that these studies had provided foundational insights and were widely referenced in subsequent research.

Table 3. Top Authors

Author	Number of paper
Rahman, SA	3
Ikhwan, I	3

Table 3 identifies the most prolific authors in the field based on the number of papers they have published. Rahman, S.A., and Ikhwan, I. emerged as the most active contributors, each having authored three papers related to halal pharmaceuticals consumer behavior. The presence of these authors in multiple studies indicated their expertise and continued engagement in the field. This table provided useful information for future researchers seeking

to identify key experts and potential collaborators within the halal pharmaceutical research community.

4.   CONCLUSION

This study provides a comprehensive bibliometric analysis of research on halal pharmaceuticals consumer behavior, highlighting significant trends, influential authors, and key research themes. The findings indicate a growing scholarly interest in this field, as shown by the increasing number of publications over the years. The analysis of co-authorship networks reveals that while some researchers have established strong collaborations, there remains an opportunity for greater interdisciplinary cooperation to enhance research quality and depth.

Additionally, the co-occurrence of keywords suggests that topics such as halal certification, consumer trust, and regulatory compliance have been dominating the discourse, while emerging areas, such as digital marketing and supply chain transparency, offer promising directions for future research. The high citation rates of certain publications demonstrate their substantial influence on the academic landscape, serving as foundational studies for subsequent research. However, this bibliometric analysis also identifies gaps that require further exploration, particularly in understanding the psychological and cultural factors influencing consumer behavior in halal pharmaceuticals.

Future studies should consider integrating qualitative approaches, examining diverse consumer demographics, and exploring the impact of technological advancements on consumer engagement. By addressing these areas, researchers and industry practitioners can contribute to the development of a more robust and consumer-oriented halal pharmaceutical sector.

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