

LOGISTICS AND SUPPLY CHAIN MANAGEMENT IN HALAL PHARMACEUTICAL RESEARCH: A SYSTEMATIC LITERATURE REVIEW USING PRISMA

Fazera Mahadi^{*1}, Mohamed Syazwan Ab Talib²

^{1,2} UBD School of Business and Economics, Universiti Brunei Darussalam

^{*}22h1942@ubd.edu.bn

ABSTRACT

Halal food research has gained significant attention, overshadowing the exploration of halal pharmaceutical research. Nevertheless, the importance of addressing halal status concerns and ensuring the appropriate handling of halal pharmaceutical products is gradually rising. Consequently, the complexities of logistics, supply chain management, and transparency in the context of halal pharmaceuticals have become pertinent issues. Surprisingly, the existing literature on halal-related topics remains a 'grey area' when it comes to LSCM (LSCM) in the pharmaceutical sector. To address this gap, this paper aims to investigate the LSCM aspects of halal pharmaceutical research. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology were employed to systematically screen, review, and synthesise the literature on halal pharmaceutical research. Through this review, we aim to examine the current LSCM trends and the state of research in the field of halal pharmaceuticals. Despite some notable advancements, halal pharmaceutical research remains largely understudied. Moreover, there are significant gaps in the existing literature, particularly from an LSCM perspective, which hinders knowledge expansion and practical applications. By conducting a systematic review from the LSCM lens, this study aims to contribute valuable conceptual insights and practical implications that will serve as a foundation for future research in the field of halal pharmaceuticals.

Keywords: Halal Industry, Halal Pharmaceutical, Halal Logistics, Halal Supply Chain, Systematic Literature Review

1. Introduction

The concept of halal extends beyond product consumption, manufacturing, and service processes. It encompasses meticulous measures to ensure the quality and safety of products and services from sourcing to consumption (Che Man & Sazili, 2010; Nakyinsige *et al.*, 2012). Furthermore, the halal market is not confined to Muslim consumers or countries, but also presents opportunities in non-Muslim markets (Butt *et al.*, 2017; Nawawi *et al.*, 2019; Wilkins *et al.*, 2019). As a contemporary and effective business strategy, the incorporation of halal principles and practices has witnessed exponential growth over the years (Shah *et al.*, 2019; Zailani *et al.*, 2019; Tieman, 2020). Studies by Butt *et al.* (2017) and Zailani *et al.* (2019) have highlighted how businesses adopt halal strategies to remain competitive and penetrate diverse markets. Therefore, a comprehensive understanding of the halal concept is crucial for successful implementation and adoption by businesses.

Incorporating halal into the complex global logistics and supply chains poses challenges due to lengthy processes, potential cross-contamination, and varying standards and protocols, which can undermine the integrity of halal (Talib *et al.*, 2015; Ali & Suleiman, 2018; Talib *et al.*, 2020). Scholars have shown increased interest in halal LSCM (LSCM) research (Haleem *et al.*, 2020; Rusydiana *et al.*, 2023). However, existing literature primarily focuses on the halal food sector, while studies on halal pharmaceuticals are scarce (Rusydiana *et al.*, 2023). Despite this circumstance, global production and consumption of halal pharmaceuticals continue to grow, driven by the increasing awareness among Muslim

consumers about the halal status of their pharmaceutical products (Norazmi & Lim, 2015; Ngah *et al.*, 2020). Moreover, halal pharmaceutical research and its logistical requirements have received limited attention, remaining a 'grey area' in the field of halal LSCM. Controversies surrounding the diverse requirements, applications, usage, and interpretations of halal pharmaceuticals further complicate the industry and consumer markets (Norazmi & Lim, 2015; Ali *et al.*, 2018; Alserhan *et al.*, 2020; Alzeer & Hadeed, 2021).

In light of the aforementioned limitations and potentials, this paper aims to explore the LSCM aspects of existing halal pharmaceutical research. This exploration is essential to identify significant knowledge and practicality gaps in the halal pharmaceutical, logistics, and supply chain literature. Addressing these gaps will contribute to the development of relevant conceptual insights and practical implications, serving as a foundation for future research in halal pharmaceuticals. Therefore, the authors conducted a systematic literature review to achieve the above research objective and eventually provide solutions for more logistics and supply chain-related halal pharmaceutical research. The paper first explains the systematic literature review processes. It then discusses the findings and syntheses quantitative and qualitative information from the systematic review of selected literature on halal pharmaceuticals that discuss matters through the LSCM lens. Lastly, the paper reflects on the findings, addresses the limitations, and provides several courses of action for future research directions.

2. Systematic Literature Review

This paper applied a systematic literature review technique to review published halal pharmaceutical studies. Generally, a systematic review involves three stages: planning, conducting, and reporting the review (see Fig. 1). More specifically, the paper adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach. The PRISMA technique was utilised considering its clear-cut processes in identifying, selecting, appraising, and synthesising literature findings that may potentially “lead to more transparent, complete, and accurate reporting of systematic reviews, thus facilitating evidence-based decision making” (Page *et al.*, 2021, p. 7). The PRISMA technique is based on a sequence adapted from Keathley-Herring *et al.*, (2016) framework. The following subsections detail PRISMA stages and processes:

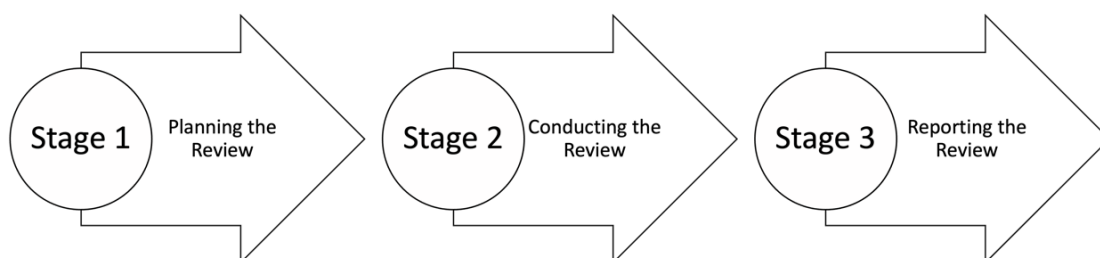


Fig. 1: Systematic Literature Review Stages
Source: Original

2.1 Planning the Review

2.1.1 Formulating Research Objectives and Questions

As mentioned in the introduction, the research objective is to explore LSCM in extant halal pharmaceutical research. Specifically, it intends to ascertain the underlying trends in halal pharmaceutical research from an LSCM context. Based on the objective, the study addresses the following research questions (RQ):

RQ1: What are the current trends in halal pharmaceutical research in LSCM?

RQ2: What is the current state of studies in halal pharmaceutical research from an LSCM perspective?

2.1.2 Data Source

Relevant literature was accessed and sourced from the Scopus and Google Scholar databases through an institutional subscription.

2.1.3 Search Strategy

The following search strings were used when searching for relevant literature in the Scopus and Google Scholar databases:

TITLE-ABS-KEY (“halal pharmaceutical”)

TITLE-ABS-KEY (“halal”) AND (“pharmaceutical” OR “pharmacy” OR “medicine” OR “drug”)

TITLE-ABS-KEY (“halal pharmaceutical”) AND (“Logistics” OR “halal logistics” OR “logistics management”)

TITLE-ABS-KEY (“halal pharmaceutical”) AND (“supply chain” OR “supply chain management” OR “SCM” OR “halal supply chain” OR “halal SCM”)

2.1.4 Inclusion Criteria

The inclusion criteria for this study are as follows:

- Publication year: Between the years 2017 and 2022
- Publication type: Academic journal articles and conference proceedings
- Publication language: English
- Studies specifically focusing on halal pharmaceuticals

Specific terms such as “halal pharmaceutical”, “halal pharmaceutical supply chain”, or “halal pharmaceutical research” must be specified in either the title, keywords or the abstract.

2.1.5 Exclusion Criteria

The exclusion criteria for this study are as follows:

- Any literature before the year 2017
- Book chapters, book series, editorials, and trade publications
- Publications that are not in English
- Publications that are not relevant in the halal pharmaceutical and LSCM
- Duplicated studies

2.2 Conducting the Review

Literature screening must be done using the PRISMA technique to conduct the review. Figure 2 depicts the PRISMA flowchart and outputs. Studies identified above were further refined based on the “title”, “abstract”, and “keywords”. Studies will be then further screened by reading the full text.

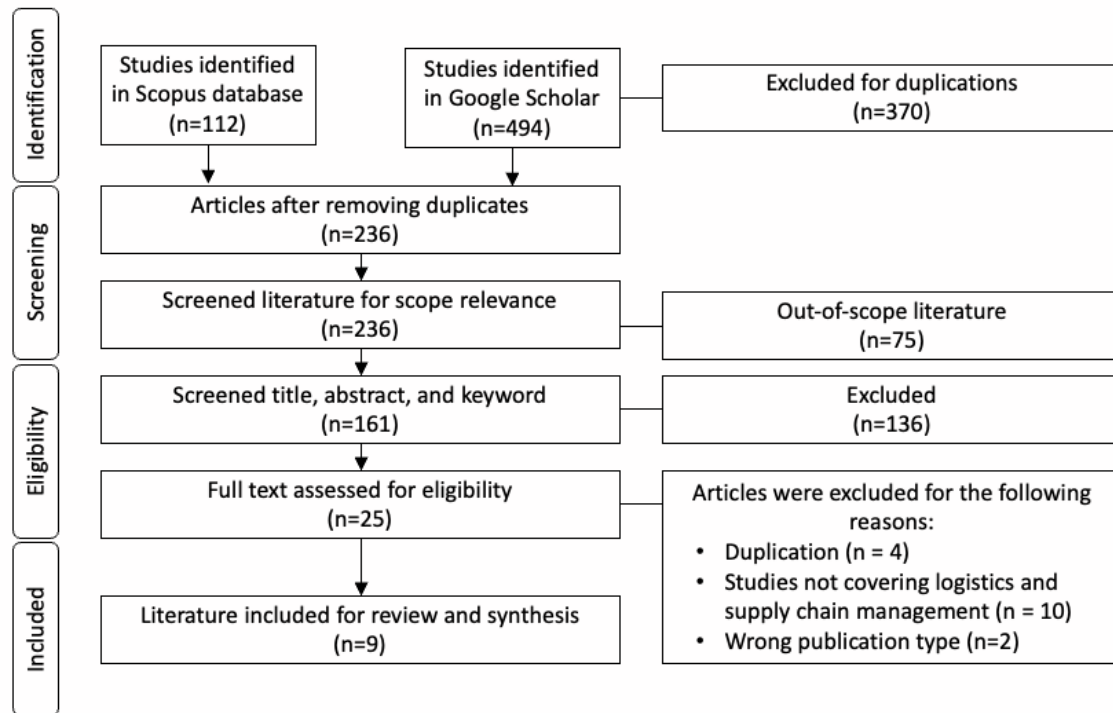


Fig. 2: PRISMA Flowchart and Output
Source: Original

2.3 Reporting the Review

The shortlisted studies derived from the review exercise were further analysed and discussed in the next section of this report. The selected literature was categorised and synthesised according to the publication trends, source, geographical locations, research methodology, theoretical perspectives, themes/factors derived from literature and summary of selected studies.

3. Results and Discussion

Based on the PRISMA approach, nine articles were selected for review and synthesis. Despite the small number of review papers, it is still sufficient to provide meaningful insights into the current halal pharmaceutical research in the LSCM context. According to Robinson and Lowe (2015), the small yield is typical as a systematic literature review usually produces a small number of papers after the layers of screening and filtering. A summary of the nine selected academic literature is presented in Table 1.

Subsequently, in this section, the authors will report the trends and synthesise findings from the selected nine reviewed academic literature (RQ1). Afterwards, a subsection highlights the current state of studies in halal pharmaceutical research from a LSCM perspective (RQ2).

3.1 Publication Year

All the reviewed articles were published between 2017 and 2022. The publication trend is shown in Figure 3. When writing this paper, one article was published in 2022, 2021, 2019, and 2017. Three articles were published in 2020, while two were in 2018. More papers were published in 2020, possibly because of the Malaysian Standards on Halal Pharmaceuticals (MS2424) revision in 2019. Hence, the revision garnered scholars' attention and focused on

halal pharmaceuticals – especially concerning the storing, transportation, and packaging of halal-certified pharmaceutical products. In general, the number of publications within the last five years indicates that LSCM in the halal pharmaceutical context is relatively recent, given that the logistical aspects, such as storage, transportation, and packaging, were only deemed vital for the integrity of halal pharmaceutical products since 2019. Hence, much more attention should be given to halal pharmaceutical products' logistics and supply chain elements. The authors argue that policymakers and practitioners should seize the importance of including halal LSCM in halal pharmaceutical distribution, given that there is rising awareness and potential in the halal markets.

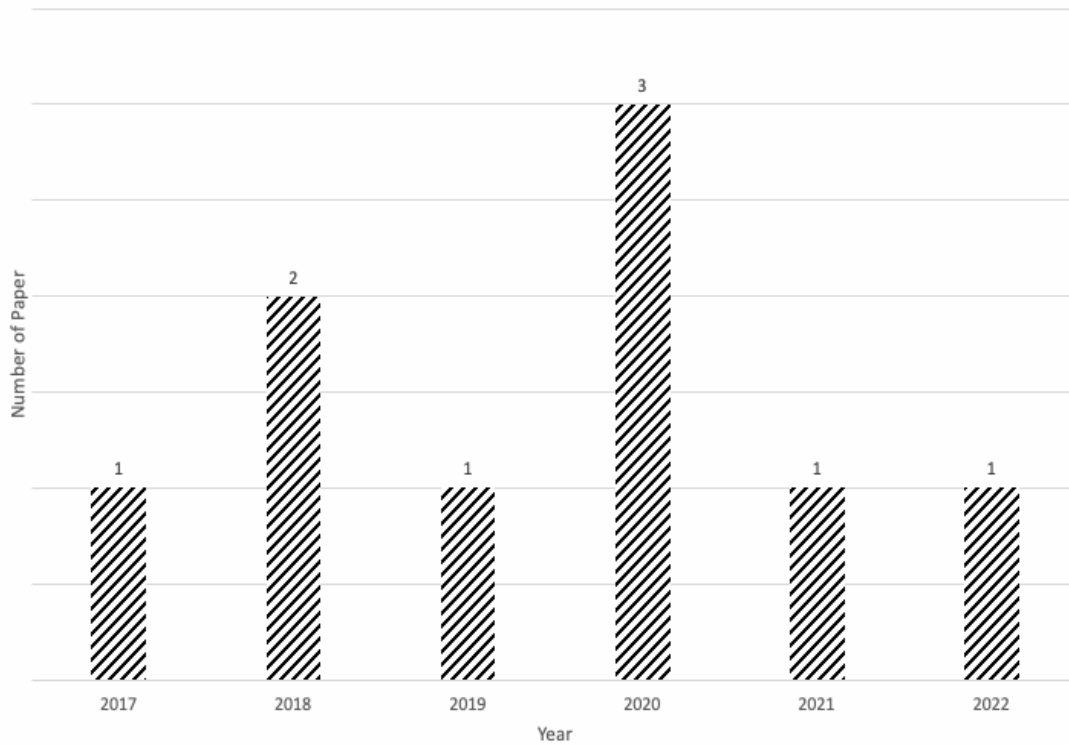


Fig.3: Number of Publications from 2017 to 2022

Source: Original

Table 1: Summary of Reviewed Articles

Authors (year)	Title	Source	Country	Methodology	Theory	Theme
Famiza <i>et al.</i> (2017)	Buying halal pharmaceutical products: Do consumers have imperfect knowledge?	Pertanika Journal of Social Sciences and Humanities	Malaysia	Quantitative survey	Not specified	Customer halal Knowledge/halal awareness/intention
Aigbogun <i>et al.</i> (2018)	Supply chain resilience and measurement dimensions: the case of halal pharmaceuticals in Malaysia	SHS Web of Conferences	Malaysia	Quantitative survey	Not specified	Supply chain resilience
Ngah & Thurasamy (2018)	Modelling the intention to adopt halal transportation among halal pharmaceutical and cosmetic manufacturers in Malaysia	Advanced Science Letters	Malaysia	Quantitative survey	Technology - Organisation-Environment (TOE) framework	Halal transportation
Ngah <i>et al.</i> (2019)	Modelling the adoption of halal warehousing services among halal pharmaceutical and cosmetic manufacturers	Journal of Sustainability Science and Management	Malaysia	Quantitative survey	Not specified	Halal warehousing
Noorliza (2020)	A sustainable model for halal pharmaceutical logistics	Journal of Islamic Marketing	Malaysia	Qualitative review	Not specified	Halal transportation
Ngah <i>et al.</i> (2020)	Halal transportation adoption among pharmaceuticals and cosmetics manufacturers	Journal of Islamic Marketing	Malaysia	Quantitative	TOE framework	Halal transportation
Sudarsono & Nugrohowati (2020)	Determinants of the Intention to Consume Halal Food, Cosmetics and Pharmaceutical Products	Journal of Asian Finance, Economics and Business	Indonesia	Quantitative survey	Not specified	Customer halal knowledge/halal awareness/intention
Kasri <i>et al.</i> , (2021)	Intention to consume halal pharmaceutical products: evidence from Indonesia	Journal of Islamic Marketing	Indonesia	Quantitative survey	Theory Planned of Behaviour	Customer halal knowledge/halal awareness/intention
Widyanto & Sitohang (2022)	Muslim millennial's purchase intention of halal-certified cosmetics and pharmaceutical products: the mediating effect of attitude	Journal of Islamic Marketing	Indonesia	Quantitative survey	Theory of Reasoned Action	Customer halal knowledge/halal awareness/intention

Source: Original

3.2 Publication Sources

The nine selected articles were published in five different academic journals. As shown in Figure 4, most reviewed articles were published in the *Journal of Islamic Marketing*. The remaining five articles are published in four other journals: the *Journal of Sustainable Science Management*, *Pertanika Journal of Social Sciences and Humanities*, *Advance Science Letters*, and the *Journal of Asian Finance, Economics, and Business*.

With four of the nine selected articles published in the *Journal of Islamic Marketing*, this review paper attests that it is among the leading academic journals in the halal LSCM domain (Rusydia *et al.*, 2023) and its fair coverage in the halal pharmaceutical field. Review findings of this present systematic review are consistent with that of Haleem *et al.* (2020) and Baran (2021), that the *Journal of Islamic Marketing* is one of the respected journals that houses high-quality peer-review scientific papers in the halal business and management domain.

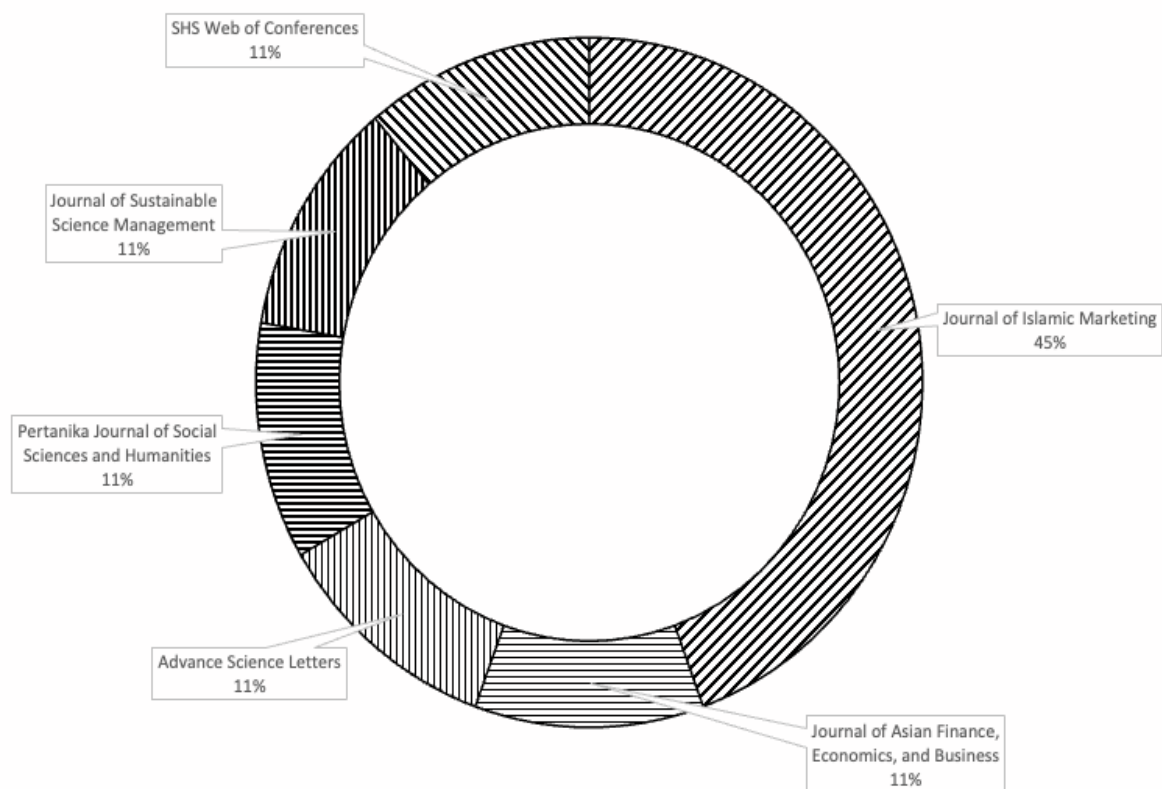


Fig.4: Publication Sources

Source: Original

3.3 Publication by Country

Regarding publication by country, the reviewed articles come from Malaysia and Indonesia (Figure 5). Six papers (Famiza *et al.*, 2017; Aigbogun *et al.*, 2018; Ngah & Thurasamy, 2018; Ngah *et al.*, 2019; Ngah *et al.*, 2020; Noorliza, 2020) and three papers (Sudarsono & Nugrohowati, 2020; Kasri *et al.*, 2021; Widyanto & Sitohang, 2022) were conducted in Malaysia and Indonesia respectively. These countries are among the leaders in halal pharmaceutical and halal LSCM research and have advanced halal business ecosystems (Baran, 2021; Haleem *et al.*, 2020; Rusydia *et al.*, 2023). According to Talib (2021), Malaysia and Indonesia are considered the driving force of the halal economy and other

countries should learn and observe. Even though halal pharmaceutical research within the business domain is still relatively new, seeing the two countries progressing in halal pharmaceutical logistics and supply chains is encouraging.

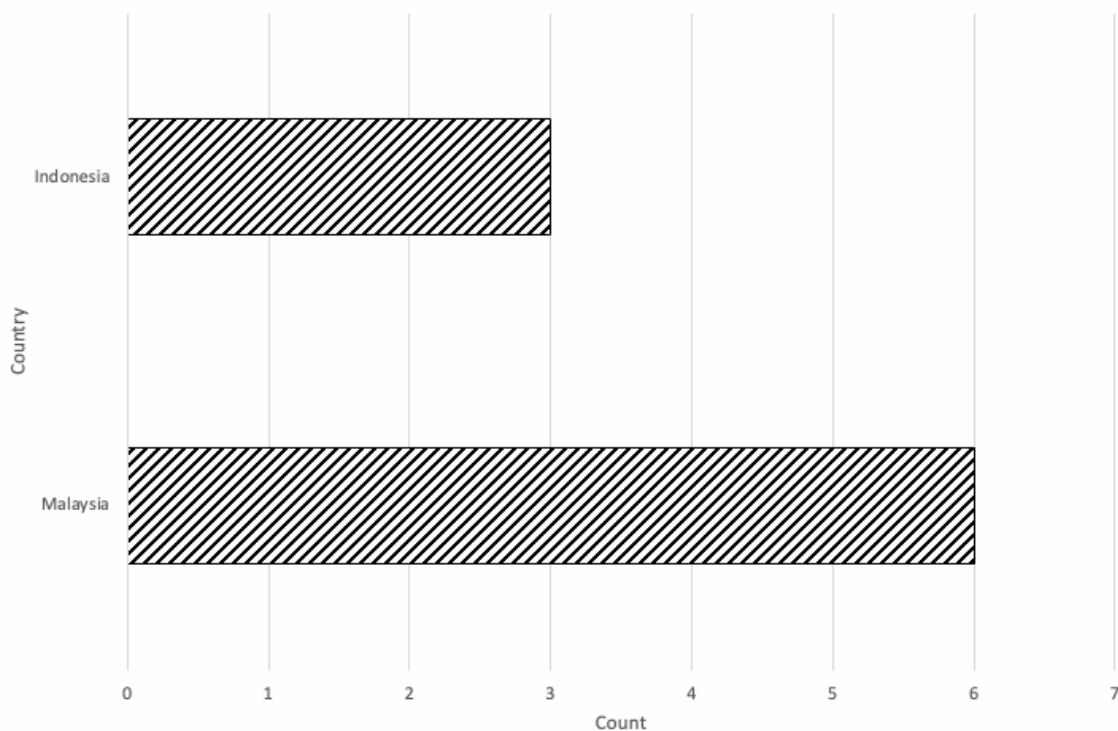


Fig.5: Publication by Country
Source: Original

3.4 Publication by Methodology

The systematic review findings indicate that all reviewed articles applied a single-method approach. The result supports evidence from Zhao *et al.*, (2020) that a single-method approach, either quantitative or qualitative, is prevalent in LSCM research. A closer look at the systematic literature review results shows that eight of the nine reviewed articles (Famiza *et al.*, 2017; Aigbogun *et al.*, 2018; Ngah & Thurasamy, 2018; Ngah *et al.*, 2019; Sudarsono & Nugrohowati, 2020; Ngah *et al.*, 2020; Kasri *et al.*, 2021; Widyanto & Sitohang, 2022) use quantitative approaches, while the one by Noorliza (2020) applied a qualitative method. The review finding concurs with Rusydiana *et al.* (2023) that the quantitative approach is widespread in halal LSCM research.

Additionally, the survey technique dominates the data collection approach of the eight quantitative articles. Moreover, data collection through survey questionnaires is the preferred practice. These results reflect those of Baran (2021), who also found that scholars widely use online or printed questionnaires for data collection in halal research. A summary of the publication by methodology is presented in Figure 6. Even though the quantitative approach is predominant in this review, it also shows that the qualitative approach can be implemented in halal pharmaceutical logistics and supply chain research. Perhaps mixed methodologies (combining quantitative and qualitative techniques) should also be implemented to gain more in-depth knowledge of halal LSCM in the halal pharmaceutical context.

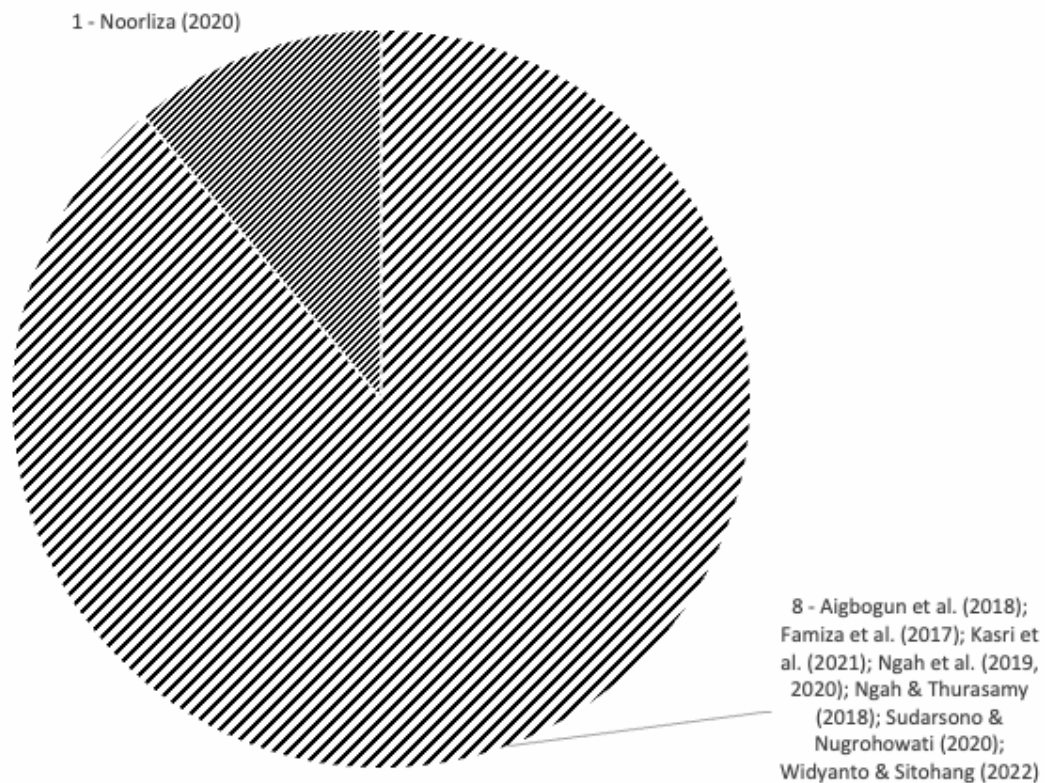


Fig.6: Publication by Methodology
Source: Original

3.5 Publication by Theory

Four articles applied a theoretical foundation to their research based on the nine reviewed articles. Specifically, Kasri *et al.*, (2021) and Widyanto & Sitohang (2022) used the Theory of planned behaviour and the Theory of Reasoned Action, respectively. Meanwhile, Ngah & Thurasamy (2018) and Ngah *et al.*, (2020) both applied the Technology-Organisation-Environment (TOE) framework. This observation contradicts the methodological findings in **Error! Reference source not found.** whereby most studies used quantitative methodologies. Fundamentally, a quantitative approach is expected to involve theory applications to support the studies further – which is not the case for this study. An explanation behind the diverging views could be drawn from Karia (2022), who argues that halal LSCM scholars lack theoretical application and require more theory-based research and findings. Therefore, more halal pharmaceutical LSCM research should integrate theoretical applications in future studies so that the practice may provide a more deduced and in-depth understanding of the domain.

3.6 Extracted Themes

Three themes were identified from the systematic literature review: the consumer role, halal transportation and warehousing practices, and supply chain vulnerability. The first factor is the role of supply chain stakeholders and their influences. From the review, four papers focused on consumer knowledge and purchase intention. In addition, three out of four studies were conducted in Indonesia (Kasri *et al.*, 2021; Sudarsono & Nugrohowati, 2020; Widyanto & Sitohang, 2022), while only one study was conducted in Malaysia (Famiza *et al.*, 2017). In these four studies, the scholars explored religiosity, knowledge, and attitudes on consumer

intention to purchase halal pharmaceutical products. The studies found that religiosity and knowledge influence consumers' attitudes toward halal pharmaceutical products.

The second factor is halal logistics practices, particularly in halal transportation and warehousing. Three studies focused on halal transportation, and only one study focused on halal warehousing. All four studies were conducted in Malaysia (Aigbogun *et al.*, 2018; Ngah & Thurasamy, 2018; Ngah *et al.*, 2019; Ngah *et al.*, 2020). The studies examined factors that influenced the adoption of halal warehousing and halal transportation in the halal pharmaceutical industry context. Most studies in halal transportation and warehousing were dominated by Ngah and colleagues (Ngah & Thurasamy, 2018; Ngah *et al.*, 2019; Ngah *et al.*, 2020;), where the scholar conducted two studies on halal transportation in 2018 and 2020. Additionally, the scholar conducted one survey on halal warehousing in 2019. To date, only one study by Noorliza (2020) conducted sustainable halal transportation in the pharmaceutical industry.

The third factor of supply chain vulnerability can cause supply chain disruptions. Aigbogun *et al.*, (2018) conducted a quantitative survey involving more than a hundred halal pharmaceutical manufacturing companies in Malaysia. They revealed that supply chain capabilities and vulnerabilities are two leading instigators of supply chain resilience. The result suggests that psychometric factors of supply chain resilience dimensions (vulnerabilities and capabilities) in the halal pharmaceutical context are reliable and valid. The author mentioned that vulnerabilities are fundamental factors that make a business organisation susceptible to disruptions, while capabilities enable a business to anticipate and overcome disruptions. Furthermore, Aigbogun *et al.*, (2018) stated that an increased level of capabilities concerning mitigating vulnerabilities in the supply chain is paramount to pursuing resilience in the supply chain. Collectively, the supply chain vulnerability and the issues surrounding the halal pharmaceutical sector (Norazmi & Lim, 2015) have indeed intensified the halal LSCM involvement.

Although various factors could influence halal pharmaceutical adoption practice from an LSCM context, the extant literature in the field remains scarce. The authors argue that many factors that could potentially impact the halal pharmaceutical LSCM must be investigated. Therefore, more research is needed to explore the upstream side of the supply chain instead of just focusing on the downstream.

4. Conclusion

In conclusion, LSCM in halal pharmaceuticals remains understudied on a global scale, as evidenced by the limited number of available studies in this context. This paper was aimed at exploring the current trends and state of LSCM research in the field of halal pharmaceuticals through a systematic literature review using the PRISMA methodology. Nine English articles were selected and reviewed from the online Scopus database and Google Scholar, enabling the visualisation of trends in year sources, countries, methodologies, theories, and thematic areas related to halal pharmaceuticals.

The results of the systematic review revealed that much of the research was conducted in 2020, suggesting the possibility of revising the leading MS2424 halal pharmaceutical standards to influence the research landscape. It was also observed that a significant proportion of the reviewed articles originated from the *Journal of Islamic Marketing*, renowned for its specialised focus on halal LSCM.

Moreover, the predominant research methodology employed in most studies was quantitative surveys, with questionnaires being the most popular data collection tool. However, there is a need for further development in terms of theoretical frameworks applied

in halal pharmaceutical logistics and supply chain research. Despite the adoption of quantitative approaches, most studies did not specify any theoretical foundations. This can be attributed to the unique nature of halal pharmaceuticals, which may require a standalone theoretical framework tailored to its specificities.

Lastly, this paper highlighted the themes extracted from the systematic literature review findings, providing valuable insights into the status of halal pharmaceuticals. Overall, while there has been progress in the field of halal pharmaceutical research, the current state of the study reveals significant knowledge gaps and practical limitations that warrant further exploration and investigation.

4.1 Research Contributions

The findings of this review make significant contributions to the field of halal pharmaceuticals from the perspective of LSCM. Firstly, this study provides valuable insights into the current trends in the field by systematically reviewing existing literature in the domain of halal pharmaceuticals. By adopting this approach, a more nuanced understanding of the LSCM gaps in the halal pharmaceutical field has been achieved.

Secondly, this study contributes to and expands the body of knowledge on halal pharmaceuticals, logistics, and supply chain management. By integrating these interconnected domains, this paper builds upon existing literature and sheds light on overlooked trends and themes within the context of halal pharmaceuticals from an LSCM perspective.

Thirdly, the study offers practical implications for research scholars by suggesting emerging trends and themes that can enhance the understanding and application of LSCM in the context of halal pharmaceuticals. The collective findings of this study advance the state-of-the-art in halal pharmaceuticals and halal LSCM, thus setting the stage for future research endeavours.

In summary, the present study significantly contributes to the body of knowledge in the field of halal pharmaceuticals by providing novel insights, expanding the inclusion of LSCM, and highlighting relevant trends for further exploration. These contributions have the potential to advance the field and serve as a valuable resource for informing future research and practice in halal pharmaceuticals.

4.2 Limitations and Future Directions

This review paper is not without limitations. Firstly, it is important to note that the analysis and discussion presented in this paper are based solely on the contents of the selected articles. Therefore, caution should be exercised in generalising the findings beyond the scope of this study. Furthermore, this paper relied on two databases, namely Scopus and Google Scholar. In future research, it is recommended to explore additional databases to construct more comprehensive arguments and identify high-quality papers. Including articles from different databases may contribute to bridging the knowledge and practicality gap in the field.

Secondly, the quality of studies sourced from Google Scholar could be questionable, potentially introducing a limitation to the review. Some of the studies cited in this paper have received less than five citations. However, the author posits that it is important to include studies focusing on halal pharmaceutical research, even if they have a low citation count. Therefore, it is suggested that a meta-analysis be conducted in the future to further consolidate the findings.

Despite these limitations, this systematic review paper successfully addresses the two research questions concerning the current trends and state of halal pharmaceutical research. The findings from the systematic literature review reveal a compelling interest in halal pharmaceutical research, particularly from the LSCM perspective. This highlights the existence of a knowledge and practicality gap in the field. Overall, this paper can be regarded as a pioneering effort in exploring the current trends and state of halal pharmaceutical research from an LSCM standpoint. It provides relevant theoretical insights that serve as a foundation for future avenues in halal pharmaceutical research.

References

- Aigbogun, O., Ghazali, Z., & Razali, R. (2018). Supply chain resilience and measurement dimensions: The case of halal pharmaceuticals in Malaysia. *SHS Web of Conferences*, 56, 1–8. <https://doi.org/10.1051/shsconf/20185605001>
- Ali, E., Sultana, S., Hamid, S. B. A., Hossain, M., Yehya, W. A., Kader, A., & Bhargava, S. K. (2018). Gelatin controversies in food, pharmaceuticals, and personal care products: Authentication methods, current status, and future challenges. *Critical Reviews in Food Science and Nutrition*, 58(9), 1495–1511. <https://doi.org/10.1080/10408398.2016.1264361>
- Ali, M. H., & Suleiman, N. (2018). Eleven shades of food integrity: A halal supply chain perspective. *Trends in Food Science & Technology*, 71, 216–224. <https://doi.org/10.1016/j.tifs.2017.11.016>
- Alserhan, B. A., Bayirli, M., & Zakzouk, F. (2020). Awareness towards Halal pharmaceuticals: an analysis of pharmacists' views. *International Journal of Islamic Marketing and Branding*, 5(1), 43. <https://doi.org/10.1504/IJIMB.2020.109065>
- Alzeer, J., & Hadeed, K. A. (2021). Halal Certification of Food, Nutraceuticals, and Pharmaceuticals in the Arab World. In *Handbook of Healthcare in the Arab World* (pp. 765–787). Springer International Publishing. https://doi.org/10.1007/978-3-030-36811-1_36
- Baran, T. (2021). A literature review and classification of the studies on “halal” in Islamic business journals (2010-2018). *Journal of Islamic Marketing*, 12(5), 1012–1024. <https://doi.org/10.1108/JIMA-10-2019-0206>
- Butt, M. M., Rose, S., Wilkins, S., & Ul Haq, J. (2017). MNCs and religious influences in global markets. *International Marketing Review*, 34(6), 885–908. <https://doi.org/10.1108/IMR-12-2015-0277>
- Che Man, Y. B., & Sazili, A. Q. (2010). Food Production from the Halal Perspective. In I. Guerrero-Legarreta & Y. H. Hui (Eds.), *Handbook of Poultry Science and Technology* (Vol. 1, pp. 183–215). John Wiley & Sons, Inc. <https://doi.org/10.1002/9780470504451.ch11>
- Famiza, N., Samsinar, N., Kursimah, H., & Firdaus, R. (2017). Halal Pharmaceutical Products: Do Consumers Have Imperfect Knowledge? *Pertanika Journal of Social Sciences & Humanities*, 25(S), 153–164.
- Haleem, A., Khan, M. I., Khan, S., & Jami, A. R. (2020). Research status in Halal: a review and bibliometric analysis. *Modern Supply Chain Research and Applications*, 2(1), 23–41. <https://doi.org/10.1108/MSCRA-06-2019-0014>
- Karia, N. (2022). Halal logistics: practices, integration and performance of logistics service providers. *Journal of Islamic Marketing*, 13(1), 100–118. <https://doi.org/10.1108/JIMA-08-2018-0132>

- Kasri, R. A., Ahsan, A., Widiatmoko, D., & Hati, S. R. H. (2021). Intention to consume halal pharmaceutical products: evidence from Indonesia. *Journal of Islamic Marketing*, 14(3), 735–756. <https://doi.org/10.1108/JIMA-06-2021-0192>
- Keathley-Herring, H., van Aken, E., Gonzalez-Aleu, F., Deschamps, F., Letens, G., & Orlandini, P. C. (2016). Assessing the maturity of a research area: bibliometric review and proposed framework. In *Scientometrics* (Vol. 109, Issue 2, pp. 927–951). Springer Netherlands. <https://doi.org/10.1007/s11192-016-2096-x>
- Nakyinsige, K., Man, Y. B. C., & Sazili, A. Q. (2012). Halal authenticity issues in meat and meat products. *Meat Science*, 91(3), 207–214. <https://doi.org/10.1016/j.meatsci.2012.02.015>
- Nawawi, M. S. A. M., Abu-Hussin, M. F., Faid, M. S., Pauzi, N., Man, S., & Sabri, N. M. (2019). The emergence of halal food industry in non-Muslim countries: a case study of Thailand. *Journal of Islamic Marketing*, 11(4), 917–931. <https://doi.org/10.1108/JIMA-05-2018-0082>
- Ngah, A. H., Ramayah, T., Ali, M. H., & Khan, M. I. (2020). Halal transportation adoption among pharmaceuticals and cosmetics manufacturers. *Journal of Islamic Marketing*, 11(6), 1619–1639. <https://doi.org/10.1108/JIMA-10-2018-0193>
- Ngah, A. H., & Thurasamy, R. (2018). Modelling the Intention to Adopt Halal Transportation Among Halal Pharmaceutical and Cosmetic Manufacturers in Malaysia. *Advanced Science Letters*, 24(1), 205–207. <https://doi.org/10.1166/asl.2018.11960>
- Ngah, A. H., Thurasamy, R., Aziz, N. A., Ali, H., & Khan, M. I. (2019). Modelling the adoption of halal warehousing services among halal pharmaceutical and cosmetic manufacturers. *Journal of Sustainability Science and Management*, 14(6), 103–116.
- Noorliza, K. (2020). A sustainable model for halal pharmaceutical logistics. *International Journal of Islamic Marketing and Branding*, 5(3), 181. <https://doi.org/10.1504/IJIMB.2020.113150>
- Norazmi, M. N., & Lim, L. S. (2015). Halal pharmaceutical industry: opportunities and challenges. *Trends in Pharmacological Sciences*, 36(8), 496–497. <https://doi.org/10.1016/j.tips.2015.06.006>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, 88. <https://doi.org/10.1016/j.ijssu.2021.105906>
- Robinson, P., & Lowe, J. (2015). Literature reviews vs systematic reviews. *Australian and New Zealand Journal of Public Health*, 39(2), 103–103. <https://doi.org/10.1111/1753-6405.12393>
- Rusydia, A. S., Irfany, M. I., As-Salafiyah, A., & Tieman, M. (2023). Halal supply chain: a bibliometric analysis. *Journal of Islamic Marketing, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/JIMA-01-2022-0009>
- Shah, S. A., Azhar, S. M., & Bhutto, N. A. (2019). Halal marketing: a marketing strategy perspective. *Journal of Islamic Marketing*, 11(6), 1641–1655. <https://doi.org/10.1108/JIMA-11-2018-0211>
- Sudarsono, H., & Nugrohowati, R. N. I. (2020). Determinants of the Intention to Consume Halal Food, Cosmetics and Pharmaceutical Products. *The Journal of Asian Finance, Economics and Business*, 7(10), 831–841. <https://doi.org/10.13106/jafeb.2020.vol7.no10.831>

- Talib, M. S. A. (2021). Identifying halal logistics constraints in Brunei Darussalam. *Journal of Islamic Marketing*, 12(6), 1145–1158. <https://doi.org/10.1108/JIMA-09-2019-0189>
- Talib, M. S. A., Hamid, A. B. A., & Zulfakar, M. H. (2015). Halal supply chain critical success factors: a literature review. *Journal of Islamic Marketing*, 6(1), 44–71. <https://doi.org/10.1108/JIMA-07-2013-0049>
- Talib, M. S. A., Pang, L. L., & Ngah, A. H. (2020). The role of government in promoting Halal logistics: a systematic literature review. *Journal of Islamic Marketing*, 12(9), 1682–1708. <https://doi.org/10.1108/JIMA-05-2020-0124>
- Tieman, M. (2020). Measuring corporate halal reputation. *Journal of Islamic Marketing*, 11(3), 591–601. <https://doi.org/10.1108/JIMA-05-2018-0095>
- Widyanto, H. A., & Sitohang, I. A. T. (2022). Muslim millennial's purchase intention of halal-certified cosmetics and pharmaceutical products: the mediating effect of attitude. *Journal of Islamic Marketing*, 13(6), 1373–1394. <https://doi.org/10.1108/JIMA-04-2020-0117>
- Wilkins, S., Butt, M. M., Shams, F., & Pérez, A. (2019). The acceptance of halal food in non-Muslim countries: Effects of religious identity, national identification, consumer ethnocentrism and consumer cosmopolitanism. *Journal of Islamic Marketing*, 10(4), 1308–1331. <https://doi.org/10.1108/JIMA-11-2017-0132>
- Zailani, S., Iranmanesh, M., Jafarzadeh, S., & Foroughi, B. (2019). The influence of halal orientation strategy on financial performance of halal food firms: Halal culture as a moderator. *Journal of Islamic Marketing*, 11(1), 31–49. <https://doi.org/10.1108/JIMA-01-2018-0023>
- Zhao, G., Liu, S., Lopez, C., Chen, H., Lu, H., Mangla, S. K., & Elgueta, S. (2020). Risk analysis of the agri-food supply chain: A multi-method approach. *International Journal of Production Research*, 58(16), 4851–4876. <https://doi.org/10.1080/00207543.2020.1725684>