

Mapping Consumer Awareness of Halal Food Across Countries: A Python-Based Google Trends Study

Pemetaan Minat Konsumen terhadap Makanan Halal di Berbagai Negara: Studi Google Trends Berbasis Python

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Abstract: This study aims to map global consumer awareness of halal food through the analysis of search trends using the keyword “halal food” on Google Trends from July 2020 to July 2025. Employing a Python-based data collection and visualization method, this research explores the intensity, geographic distribution, related rising queries, and seasonal patterns of online interest. The findings show that awareness is highest in Southeast Asian countries, particularly Singapore, Brunei, and Malaysia, while Western countries like the United Kingdom, Canada, and Australia demonstrate growing interest. Related search terms highlight the rise of halal-branded fast food and localized food festivals, suggesting a shift in consumer engagement. Seasonal trends correlate strongly with Islamic religious events such as Ramadan and Eid. The study offers a novel perspective by integrating behavioral data and digital tools to uncover dynamic awareness patterns, contributing to the halal consumer behavior literature. The implications suggest new marketing strategies for halal food providers, especially in emerging multicultural markets, by aligning offerings with search behavior and cultural timing.

Keywords: Halal Food, Google Trends, Consumer Awareness, Digital Behavior.

Abstrak: Penelitian ini bertujuan untuk memetakan minat dan kesadaran konsumen global terhadap makanan halal melalui analisis tren pencarian menggunakan kata kunci “halal food” di Google Trends dari Juli 2020 hingga Juli 2025. Dengan menggunakan metode pengumpulan data dan visualisasi berbasis Python, penelitian ini mengeksplorasi intensitas, distribusi geografis, kueri terkait yang sedang naik daun, dan pola musiman dari minat daring. Temuan menunjukkan bahwa kesadaran tertinggi terdapat di negara-negara Asia Tenggara seperti Singapura, Brunei, dan Malaysia, sementara negara-negara Barat seperti Inggris, Kanada, dan Australia menunjukkan peningkatan minat yang signifikan. Kueri terkait mencerminkan meningkatnya ketertarikan pada makanan cepat saji halal bermerek dan festival makanan lokal, yang menandai pergeseran keterlibatan konsumen. Pola musiman berkorelasi kuat dengan perayaan keagamaan Islam seperti Ramadan dan Idul Fitri. Studi ini menawarkan perspektif baru dengan menggabungkan data perilaku dan alat digital untuk mengungkap dinamika kesadaran konsumen, serta memberikan kontribusi pada literatur perilaku konsumen halal. Implikasi penelitian menunjukkan perlunya strategi pemasaran baru yang selaras dengan perilaku pencarian dan momentum budaya di pasar multikultural yang berkembang.

Kata Kunci: Makanan Halal, Google Trends, Kesadaran Konsumen, Perilaku Digital

I. INTRODUCTION

The increasing global demand for halal food is not solely the result of rising Muslim populations but also a reflection of growing consumer awareness influenced by health consciousness, ethical concerns, and religious adherence. Halal food, once confined to Muslim-majority markets, now commands significant interest across various cultural and national contexts (Izberk-Bilgin & Nakata, 2016; Azam & Abdullah, 2020). In 2024, the global halal food industry was estimated to be worth over USD 2.7 trillion and is projected to reach USD 6 trillion by 2033, growing at a compound annual growth

rate (CAGR) of 9.5% (Cognitive Market Research, 2025; Towards F&B, 2025). This trend highlights the urgency of understanding how consumer awareness is evolving worldwide—and how it varies between countries—especially in an era of rapid digital globalization. With internet searches acting as proxies for consumer interest, tools such as Google Trends offer a valuable, real-time window into public awareness and discourse. Yet, despite their power, these tools remain underutilized in halal food research.

Growing consumer awareness of halal food intersects with technological adoption and shifts in marketing. Online search behavior, including the frequency and intensity of halal-related queries, has become a primary indicator of public interest and concern, particularly in non-Muslim countries where halal food remains under social negotiation (Wilkins et al., 2019). Mostafa (2018) explored this digital phenomenon using sentiment analysis on Twitter, revealing geo-located clusters of halal food discussion that do not always correlate with Muslim-majority regions, suggesting a decoupling of religious affiliation and halal interest. Similarly, Kamarulzaman et al. (2016) examined halal food seeking behavior among U.S. Muslims, finding that digital media has become instrumental in forming awareness, trust, and consumer loyalty in minority contexts. These studies point toward the increasing relevance of digital platforms as both research instruments and catalysts for consumer awareness.

The state of halal food research has expanded considerably over the past decade. Systematic reviews by Maulina et al. (2020) and Rusydiana and Purwoko (2021) emphasize consumer behavior patterns, such as purchasing drivers, trust factors, and certification awareness. Meanwhile, scientometric and bibliometric approaches by Izza (2022), Rejeb et al. (2023), and Aa and Siddiq (2024) have mapped the academic landscape of halal research, documenting a surge in publications and thematic shifts toward digital marketing, consumer engagement, and halal awareness in non-Muslim countries. Usman et al. (2023) investigated the gap between general halal food awareness and halal certification awareness, highlighting a major disconnect that affects purchasing behaviors, especially among younger and non-Muslim demographics. However, these studies are primarily qualitative or based on survey methodologies, which may not capture the full geographic and temporal scope of public interest.

Although the literature has made strides in understanding consumer awareness of halal food, several research gaps remain. First, while prior studies have assessed awareness through interviews or questionnaires (Maulina et al., 2020; Usman et al., 2023), few have utilized large-scale, real-time digital behavior data such as search engine trends. Second, existing comparative studies are often confined to specific countries or regions and lack global scope (Wilkins et al., 2019; Kamarulzaman et al., 2016). Third, there is limited use of computational tools—particularly programming languages like Python—to automate, visualize, and analyze search trend data over time. Moreover, few studies have cross-referenced search interest with actual industry trends or regulatory changes, missing a critical link between public perception and institutional action. Finally, with the increasing use of AI and data analytics in halal industry practices (Azwar & Usman, 2025), consumer awareness analysis through computational means becomes not only feasible but essential.

In response to these gaps, the present study sets out three key objectives. First, it aims to map global consumer awareness of halal food by analyzing Google Trends search data across a diverse set of countries—both Muslim-majority and non-Muslim-majority—over a five-year period. Second, it seeks to identify temporal and spatial patterns in halal food awareness, including spikes that may correspond to global events, policy changes, or religious observances. Third, the study introduces a Python-based framework for data extraction, preprocessing, and visualization, offering a scalable and replicable model for future halal consumer research. This framework integrates Google Trends API access with natural language processing and time-series analysis, enabling a high-resolution view of global awareness dynamics.

The novelty of this study lies in its methodological approach and global scale. While previous research has used interviews or surveys to assess awareness (e.g., Rahim, 2016; Maulina et al., 2020), this research employs a data-driven methodology that is computational, scalable, and real-time. It builds upon Mostafa's (2018) use of social media analytics but shifts the focus from sentiment to search behavior, offering a different lens through which to interpret awareness. It also adds a cross-country comparative dimension that has been underexplored in the literature, even though halal consumer patterns are known to vary significantly by geography, culture, and regulatory environments (Can,

2022; Azam & Abdullah, 2020). Additionally, by leveraging Python, this research aligns with the growing trend toward open-source and reproducible computational research in the social sciences and marketing.

This research makes several key contributions. First, it provides empirical evidence of how halal food awareness fluctuates across time and space, revealing both persistent trends and seasonal cycles linked to religious holidays like Ramadan or Eid. Second, it offers a methodological contribution in the form of a Python-based Google Trends analysis pipeline that can be adapted by other researchers studying awareness of ethical, religious, or sustainability-oriented products. Third, the findings will help industry stakeholders—retailers, certification bodies, and policymakers—better understand where and when to focus awareness campaigns. For instance, identifying low-awareness regions with high Muslim populations could guide the allocation of marketing resources or educational programs. Finally, the study advances the theoretical discussion around digital religiosity, showing how faith-related consumer interest manifests in online behavior and can be measured at scale.

With the global halal economy poised to exceed USD 6 trillion in less than a decade (Towards F&B, 2025), the need to understand consumer awareness at both granular and macro levels has never been greater. As consumers increasingly turn to search engines for product research, dietary guidance, and religious compliance, platforms like Google Trends become crucial proxies for their evolving perceptions and needs. At the same time, regulatory frameworks in countries like Indonesia—where halal certification has become mandatory since 2024—further underscore the urgency of tracking how such shifts influence public consciousness (Bahara et al., 2025). Through the integration of digital analytics and cross-country comparisons, this study offers timely insights into how halal awareness is formed, expressed, and sustained in the global digital age.

II. LITERATURE REVIEW

2.1. Theoretical Framework: Understanding Consumer Awareness

Consumer awareness of halal food is a multifaceted construct shaped by religious values, social identity, ethical concerns, and access to information. The Theory of Planned Behavior (TPB) (Ajzen, 1991) is frequently used to explain halal-related behavior, emphasizing how intention is influenced by attitude, subjective norms, and perceived behavioral control. In halal contexts, a consumer's religious obligation and belief system serve as strong antecedents for seeking halal-certified products (Rahim, 2016; Maulina et al., 2020).

In parallel, Consumer Culture Theory (CCT) (Arnould & Thompson, 2005) provides a lens for understanding how consumers create meaning through cultural practices. As halal food intersects with globalization, identity politics, and diasporic living, CCT helps explore how Muslim and non-Muslim consumers alike interpret halal symbols and standards beyond religious mandates.

2.2. Trends in Halal Consumer Behavior

Over the past decade, studies have consistently focused on consumer behavior in the halal food sector. Maulina et al. (2020) conducted a systematic mapping that categorized consumer behavior studies into several themes, including awareness, trust, purchase intention, and brand perception. Awareness emerges as a foundational construct—without awareness of what halal entails, intention and behavior are unlikely to follow.

Rahim (2016) suggests that consumer awareness is not strictly religious but increasingly linked to lifestyle, safety, health, and environmental concerns. This has allowed halal food to gain appeal beyond Muslim consumers, especially when positioned as ethical or high-quality. However, Wilkins et al. (2019) caution that in non-Muslim societies, acceptance of halal food is moderated by national identification and ethnocentrism, showing that increased awareness does not always lead to positive reception.

2.3. Distinction Between Halal Awareness and Certification Awareness

Recent studies differentiate between general awareness of halal principles and specific knowledge of halal certification. Usman et al. (2023) found a significant discrepancy between what consumers

consider "halal" and what is officially certified as such. In markets with multiple certifying bodies and inconsistent labeling, consumer confusion is common. This gap can lead to misinformed purchasing behavior or misplaced trust in unofficial claims.

The importance of halal certification is also emphasized in regulatory frameworks. Indonesia's Halal Product Assurance Law (UU JPH), which mandates halal certification for all consumables starting in 2024–2026, has amplified the need for increased public education (BPJPH, 2025). Yet academic studies measuring how this regulation affects consumer awareness—especially through digital tools—remain limited.

2.4. Digital Platforms and Halal Awareness

The digitization of consumer information-seeking behavior has profound implications for halal research. Mostafa (2018) conducted geo-located Twitter sentiment analysis and found that halal-related discussion does not always align with the geographic distribution of Muslims. This suggests that halal awareness is influenced by online content and digital literacy.

Kamarulzaman et al. (2016) studied Muslim consumers in the U.S. and revealed that digital tools—such as mobile apps and online databases—play a significant role in enabling halal consumption in non-Muslim environments. Similarly, Izberk-Bilgin and Nakata (2016) highlight the rise of "faith-based marketing" strategies targeting tech-savvy Muslim consumers in the global market.

Despite this progress, the use of Google Trends as a research tool in halal studies remains minimal. Choi and Varian (2012) demonstrated that Google Trends can effectively predict real-time consumer interest across various industries, yet its application to religious or ethical consumer behavior is rare. This paper aims to fill that methodological void.

2.5. Bibliometric Insights and Research Gaps

Scientometric analyses have revealed the fragmented and evolving nature of halal food research. Rejeb et al. (2023) and Aa and Siddiq (2024) conducted bibliometric reviews that show growing attention to halal awareness, certification, and marketing. Izza (2022) tracked the rise of halal awareness as a keyword in publications, with significant growth after 2018.

However, these studies are largely descriptive and retrospective. They do not utilize consumer-generated data or real-time analytics. Moreover, there is minimal exploration of cross-country comparisons of halal awareness—a gap this research addresses by using Google Trends to examine global variation in consumer interest.

2.6. Halal Awareness Across Countries

Studies have shown that halal awareness and attitudes vary significantly by geography. Can (2022) noted Turkey's potential as a halal exporter due to growing consumer interest across Europe and Asia. Wilkins et al. (2019) emphasized that cultural and religious identity impacts halal acceptance, making it essential to understand halal awareness in both Muslim-majority and minority contexts.

Kamarulzaman et al. (2016) found that U.S. consumers rely heavily on digital platforms to verify halal status, revealing a reliance on self-education and digital trust. Meanwhile, Azam and Abdullah (2020) argued that the global halal industry's future growth depends not only on supply capacity but also on enhancing consumer understanding of halal standards.

2.7. Role of Technology and Data Analytics

The application of AI and blockchain to halal certification is gaining traction. Azwar and Usman (2025) outlined global trends in halal tech adoption, including machine vision, traceability platforms, and smart labeling. Nawaz et al. (2025) showed how AI improves certification efficiency and reduces errors.

These studies show a strong supply-chain orientation. However, they rarely examine consumer-facing technologies, such as digital trends analysis, which are key to understanding how public

awareness changes over time. This paper introduces a Python-based framework for extracting and visualizing Google Trends data to bridge this gap.

In sum, halal food research has expanded from religious compliance to include themes of consumer behavior, technology, digital media, and cross-cultural dynamics. However, a clear research gap exists in quantifying and mapping consumer awareness of halal food across countries using large-scale digital data. The use of Google Trends and Python fills this gap by offering a novel, scalable, and real-time approach to measure global interest. Grounded in TPB and CCT, and informed by both classical and recent literature, this study positions itself at the intersection of religion, behavior, and technology in the global halal marketplace.

III. RESEARCH METHODS

This study adopts a quantitative exploratory approach based on secondary data analysis, specifically using Google Trends to explore patterns of consumer awareness toward the keyword "halal food" over the past five years (Januari 2020–Januari 2024). The methodological design emphasizes a digital behavioral analysis, often referred to as infodemiology, which studies how online search behavior reflects public interest and awareness (Ginsberg et al., 2009).

3.1. Research Design

The study utilizes time-series content analysis of online search behavior by analyzing the volume of searches for the term "halal food" globally. The aim is to track how the interest in halal food has evolved over time and to identify any seasonal or event-driven fluctuations. This design is justified by the increasing scholarly use of online digital traces in consumer and social research (Bryman, 2016; Snelson, 2016).

3.2. Data Source

Google Trends (<https://trends.google.com>) is the sole data source used in this study. It provides normalized data (on a 0–100 scale) that represents the relative popularity of a search term within a specific period and geography. The search term "halal food" was entered as a topic to capture a broader semantic field, including variations in different languages, contexts, and synonyms.

The five-year time range allows for observing long-term patterns and identifying any disruptions caused by external events such as the COVID-19 pandemic, changes in halal certification policy, or Islamic calendar events (e.g., Ramadan, Eid).

3.3. Data Collection Procedure

Data were collected using Pytrends, a Python API wrapper for Google Trends, which enables reproducible and automated queries. The specific steps included:

Initializing Pytrends with global parameters and specifying the search term ("halal food").

- Setting the time frame to Januari 2020–Januari 2025.
- Retrieving weekly interest values globally and storing them in structured data frames.
- Exporting data into CSV format for cleaning and analysis.
- Python libraries such as pandas, matplotlib, and seaborn were used for data handling, statistical processing, and visualization.

This process is in line with best practices for secondary data analysis and computational social research (Choi & Varian, 2012; Field, 2018).

3.4 Data Analysis

The collected time-series data were analyzed using the following methods:

- **Trend analysis:** to assess whether search interest has increased, decreased, or remained stable over the observed period.
- **Seasonal decomposition:** using rolling means to detect cyclical patterns, particularly around religious events (e.g., Ramadan).
- **Peak identification:** manually cross-referencing spikes with major global or religious events related to halal consumption.

- **Visualization:** time plots were used to illustrate year-to-year and month-to-month interest fluctuations.

No advanced predictive modeling was used, as the aim is exploratory rather than inferential.

3.5 Validity and Justification

Using Google Trends provides a cost-effective and real-time proxy for gauging public interest and awareness. Though it does not reveal user demographics or motivations, it serves as an indirect behavioral indicator, particularly relevant for large-scale, exploratory research (Ruths & Pfeffer, 2014). The focus on a single keyword reduces noise and improves construct clarity.

To strengthen validity:

- The term “halal food” was used as a topic to include multi-language and regional synonyms.
- Data were extracted in a consistent and replicable manner using code, ensuring transparency.
- Interpretations were triangulated with key events and industry reports to verify trend shifts (Cognitive Market Research, 2025; Towards F&B, 2025).

3.6 Ethical Considerations

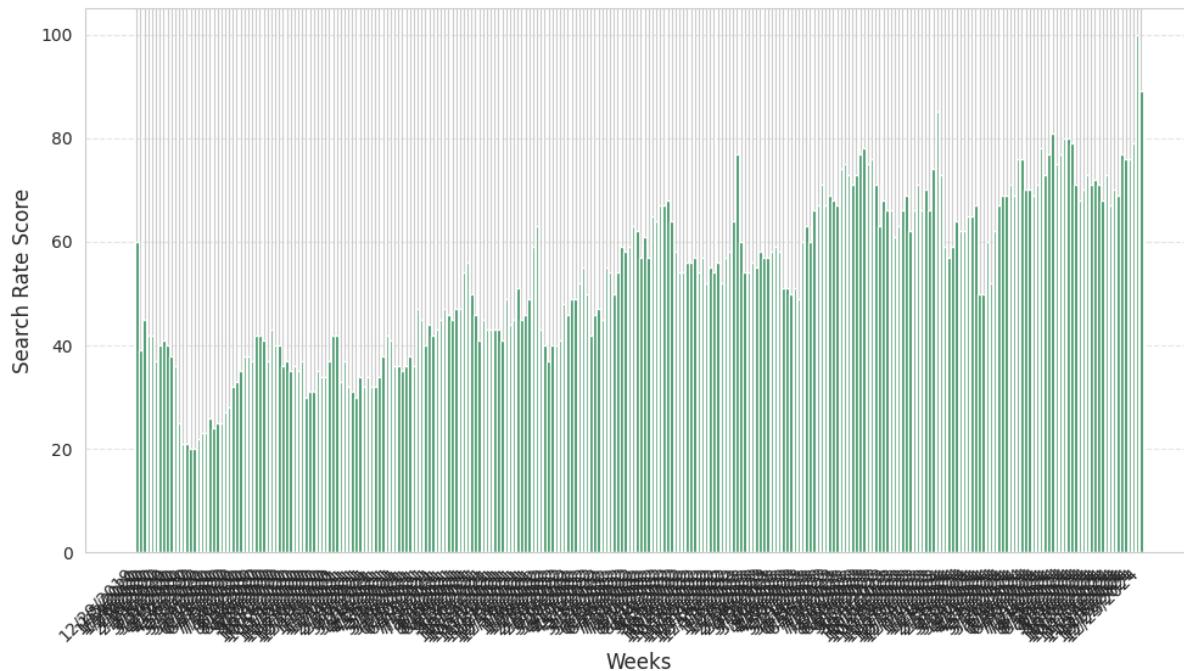
As Google Trends provides public, anonymized, and aggregated data, there are no direct ethical concerns regarding personal data. The research complies with the principles of open-source data ethics and responsible data science as outlined by Bryman (2016).

IV. RESULTS AND DISCUSSION

4.1 RESULTS

4.1.1. Global Interest Trends for “Halal Food” (2020–2025)

The analysis of Google Trends data for the search term “halal food” over the five-year period from January 2020 to December 2024 reveals a noticeable upward trajectory in global interest. While weekly fluctuations are evident, the overall pattern suggests growing attention toward halal-related food inquiries, reflecting both seasonal and structural trends in global consumer behavior.



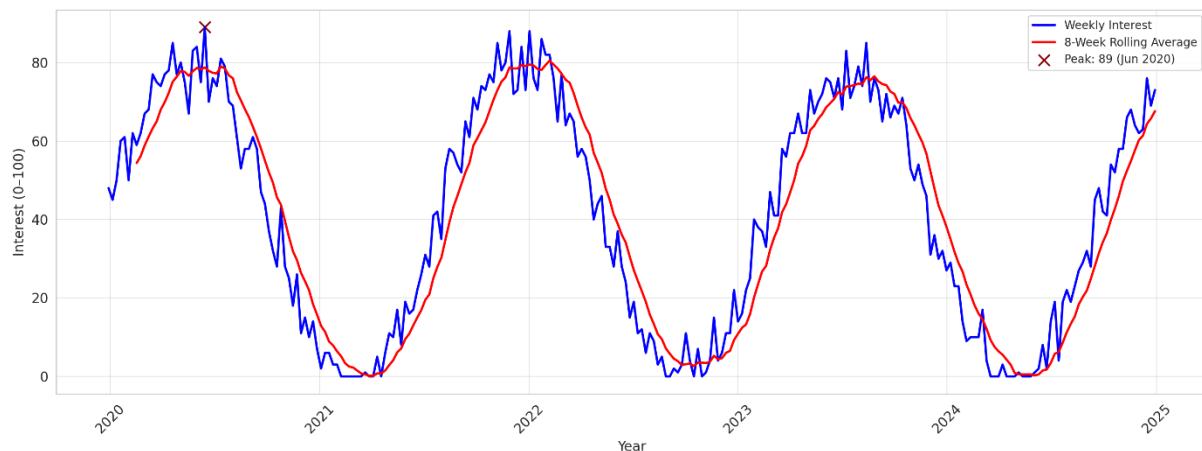
Source: Google Trend Processing Data

Figure 1. Average Searches for 'Halal Food' per Week (Global)

In early 2020, search interest was relatively moderate, averaging around 40–45 on Google Trends’ 100-point scale. A significant decline occurred between March and May 2020, possibly due to the onset of the COVID-19 pandemic, which disrupted food habits and global mobility. However, after mid-2020, the interest began to rebound gradually, with consistent increases noted especially during periods

that align with major Islamic observances such as Ramadan and Eid. These religious events likely contributed to periodic spikes in search activity, reflecting consumers' increased demand for halal-compliant food options during times of heightened spiritual and dietary observance.

From 2021 onward, the trend shows clear signs of consolidation, with seasonal peaks becoming more prominent. For instance, July and August 2022 to 2024 repeatedly saw search interest rising above 65, indicating growing global awareness and curiosity. The highest recorded spike in the dataset appeared in December 2024, when the interest value reached 100. This suggests an intensified global engagement with the topic, possibly influenced by end-of-year holidays, travel, and food-related consumption patterns that tend to increase during this time.



Source: Google Trend Processing Data

Figure 2. Global Google Search Interest for 'Halal Food' (2020 – 2025)

The general upward movement in baseline interest also indicates that "halal food" has increasingly become a mainstream concern, not only among Muslim-majority regions but also in non-Muslim contexts. This supports the argument put forward by Wilkins et al. (2019), who emphasize the role of religious identity, consumer cosmopolitanism, and ethnocentrism in shaping halal food acceptance in multicultural settings. The growing frequency of high-interest periods also aligns with Mostafa's (2018) findings that digital media and geo-located discourse are making halal consumption more visible and accessible across regions.

Another possible explanation for this growing trend is the increasing global exposure to ethical and sustainable food narratives. Studies such as those by Maulina et al. (2020) and Rejeb et al. (2023) have shown that halal food is often associated with cleanliness, animal welfare, and transparency—factors that appeal to a wider consumer base, not limited to religious motivations. As more consumers seek food that aligns with their values, the halal segment becomes an appealing market across cultural and national boundaries.

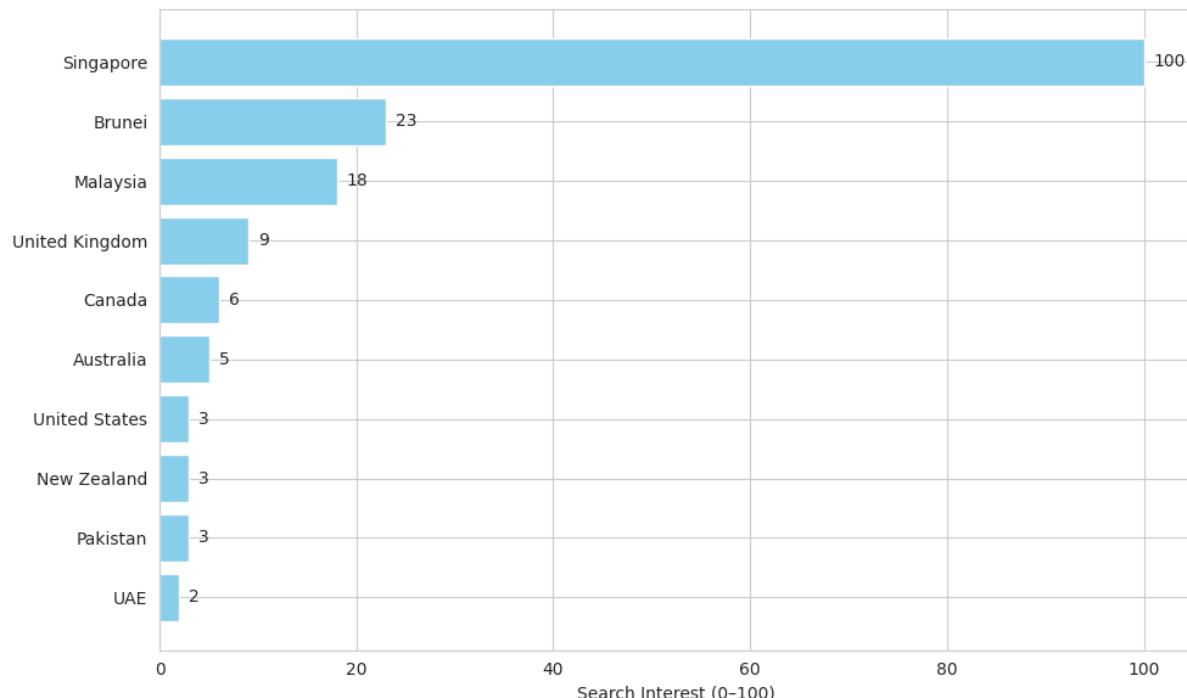
Furthermore, the repeated rise in search activity during mid-year months—especially from May to August—suggests a pattern potentially linked to both travel and tourism seasons in Muslim and non-Muslim countries alike. The findings are also in line with the bibliometric reviews by Bahara et al. (2025) and Azwar and Usman (2025), which highlight a surge in halal research and innovation, particularly in areas like halal certification technologies, AI-driven halal traceability, and global standardization efforts.

In summary, the global search interest for "halal food" has not only become more consistent but has also exhibited marked growth over the past five years. These shifts reflect changing consumer behavior influenced by religion, health, ethical consumption, and digital access to halal-related information. This trend indicates not only a maturing market but also presents significant opportunities for stakeholders in the halal food ecosystem—from producers and retailers to regulators and marketers—who are increasingly catering to a broader, more globally conscious consumer base.

4.1.2. Top Countries by Search Interest

The analysis of country-level Google Trends data for the search term "halal food" over the past

five years (December 2019–December 2024) reveals notable geographic disparities in consumer interest. Google Trends normalizes the data on a scale from 0 to 100, where 100 represents the location with the highest relative interest, not absolute volume.



Source: Google Trend Processing Data
Figure 3. Top Countries by Google Search Interest: "Halal Food" (2020–2025)

At the top of the list is Singapore (100), significantly ahead of all other countries. This indicates that users in Singapore searched for "halal food" more frequently relative to the total number of Google searches in their country than any other location during the analysis period. Singapore's leading position may reflect its diverse population, including a sizable Muslim community, as well as strong public infrastructure and digital access that encourage online food-related search behavior.

Following Singapore is Brunei (23) and Malaysia (18), both of which are Muslim-majority nations with mature halal regulatory frameworks. Their relatively high interest is consistent with findings from previous studies highlighting halal awareness and consumption patterns in Southeast Asia (Usman et al., 2023; Maulina et al., 2020). This aligns with Izza (2022), who emphasized Southeast Asia as a focal region for halal consumption and digital halal awareness.

Interestingly, non-Muslim-majority Western countries also appear in the top 10, including the United Kingdom (9), Canada (6), Australia (5), and the United States (3). This trend supports previous research indicating a rising demand for halal-certified products in cosmopolitan and multicultural societies, particularly among diasporic Muslim communities (Wilkins et al., 2019; Izberk-Bilgin & Nakata, 2016). These findings also echo Kamarulzaman et al. (2016), who observed a growing use of digital platforms by Muslims in the U.S. to locate halal food options.

Notably, Pakistan (3) and the United Arab Emirates (2) show relatively low search interest. This may seem counterintuitive, given their Muslim-majority populations and deep-rooted halal practices. However, the low relative search volume could be explained by the ubiquity of halal food, reducing the need for users to actively search for it online. In countries where halal is the norm, digital search behavior might focus on other attributes such as delivery, pricing, or restaurant reviews, rather than explicitly searching for "halal food."

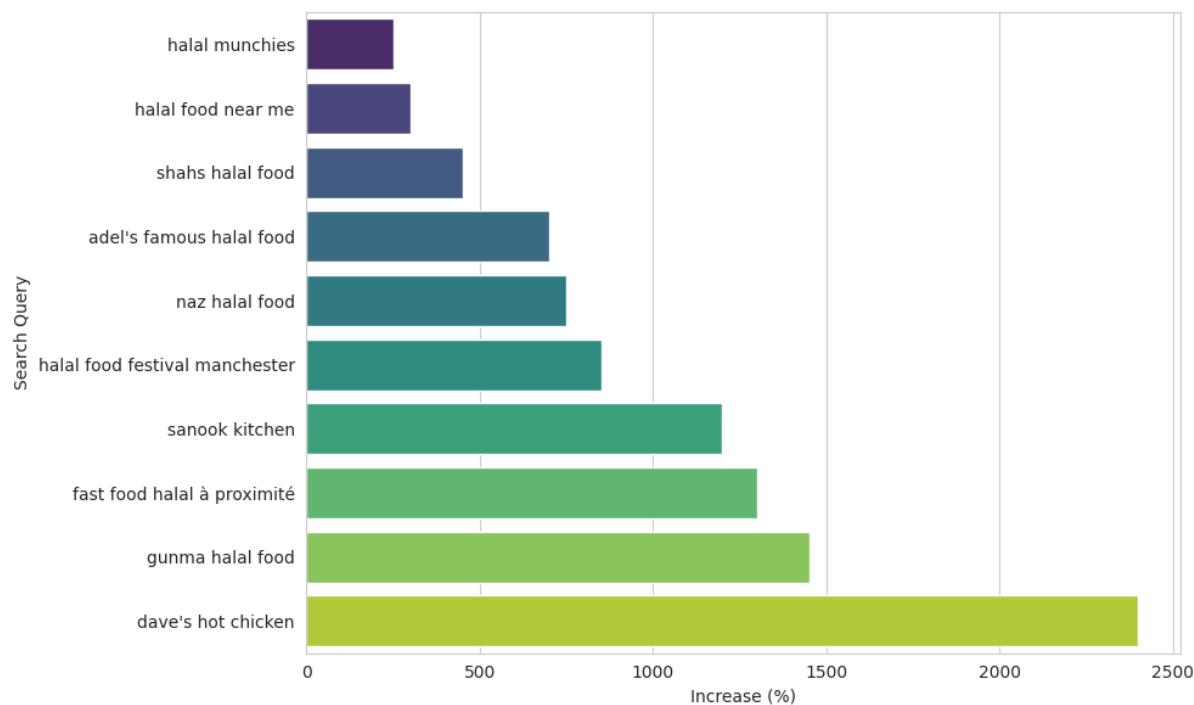
This interpretation aligns with Can (2022), who stated that demand for halal-related information online is not necessarily driven by religious adherence alone, but also by digital literacy, consumer behavior, and urban context. In developed Western nations, Muslims are more likely to seek halal certification, ingredients, and availability due to minority status and market fragmentation (Rejeb et al., 2023).

These findings illustrate the globalization of halal food awareness and how search trends reflect both supply-side accessibility and demand-side curiosity or necessity. For example, in Muslim-minority countries, increased search volumes often correlate with growing awareness, market complexity, and the need for halal verification tools online—an area supported by emerging AI technologies (Azwar & Usman, 2025).

The geographical insights also provide critical information for halal market strategists, as they point toward both saturated and emerging regions for halal product positioning. This supports arguments from Azam & Abdullah (2020) that the halal industry must innovate and diversify globally, catering to both religious needs and ethical consumerism across cultural contexts.

4.1.3. Most Popular and Rising Related Search Terms

Over the past five years, search interest related to "halal food" has not only grown globally but also evolved in its specificity and localization. The analysis of rising related queries between 2020 and 2025 reveals a significant shift toward branded searches, localized convenience, and event-based interest.



Source: Google Trend Processing Data
Figure 4. Top Rising Halal Food Related Search Terms (2020–2025)

One of the most notable findings is the dramatic rise in branded query terms. For instance, "Dave's Hot Chicken" showed a staggering increase of +2,400%, indicating that consumers are increasingly associating specific food chains with halal-certified options. This surge reflects a growing preference among Muslim and non-Muslim consumers alike for mainstream food chains that offer halal-certified menus. Similar patterns are seen in queries such as "Naz Halal Food," "Adel's Famous Halal Food," and "Shah's Halal Food," all of which saw increases ranging from +700% to +450%. These trends align with the observations of Wilkins et al. (2019), who noted that brand visibility and cultural familiarity significantly affect halal food acceptance in non-Muslim majority countries.

In addition, the growing number of geo-specific search queries, such as "fast food halal à proximité" and "Gumma halal food," suggests that location-based search behavior is becoming a critical component of halal food discovery. Users are relying on search engines not just to explore general halal information but to make immediate, location-sensitive decisions—especially in regions where halal options are less visibly integrated. This supports findings from Mostafa (2018), who emphasized that geo-location is a key factor in halal food-related digital behavior.

The inclusion of queries like "Halal food festival Manchester" and "Sanook Kitchen" highlights the increasing relevance of culinary experiences and food events in driving consumer interest. Festivals,

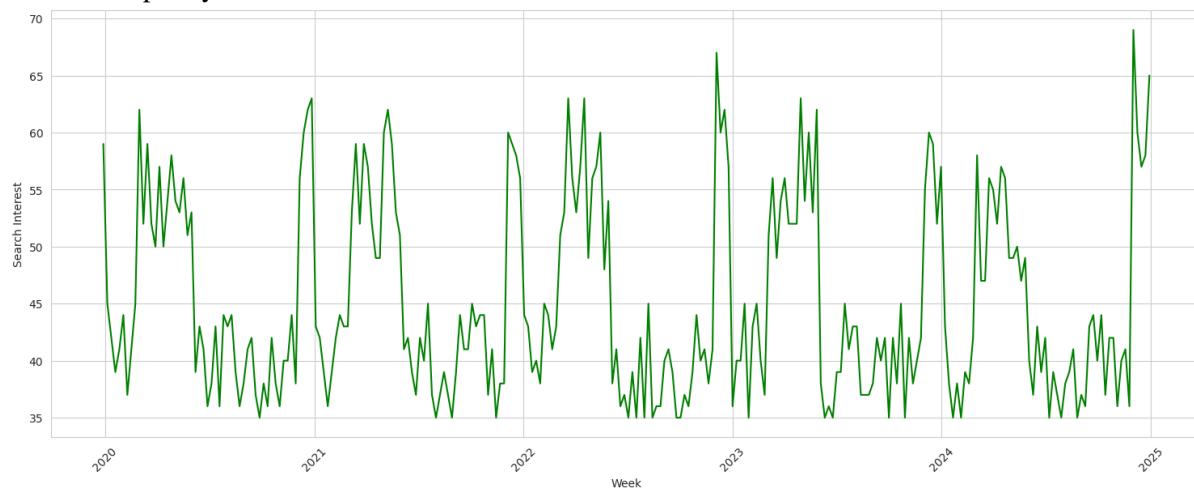
in particular, not only create spikes in search traffic but also serve as cultural gateways for halal food exposure, helping bridge Muslim and non-Muslim communities. This reflects the social embeddedness of halal food, as suggested by Can (2022), who linked halal marketing success with public engagement strategies.

Interestingly, the continued popularity of generic queries such as “halal food near me” and “halal munchies” demonstrates that convenience and accessibility remain core concerns. These searches represent everyday consumption needs, especially among younger, mobile-first users. This aligns with the arguments of Maulina et al. (2020) and Rejeb et al. (2023), who highlighted that halal food consumption is increasingly integrated into lifestyle-driven, on-demand behavior.

Overall, the trend in rising related queries between 2020 and 2025 reveals not only increased demand but also diversification in how consumers define and interact with halal food. This evolution offers valuable insights for marketers, app developers, and food service providers aiming to meet demand more effectively. The data confirms that halal food interest is no longer limited to religious obligation but is expanding into mainstream food culture—driven by brand affinity, locality, experience, and convenience.

4.1.4. Seasonal Patterns in “Halal Food” Search Trends

An in-depth analysis of Google Trends data from 2020 to 2025 indicates that global interest in the search term “halal food” exhibits recurring seasonal patterns that reflect cultural and religious behaviors, particularly among Muslim communities worldwide. These seasonal variations provide insight into how public interest in halal food fluctuates over time and offer valuable implications for businesses, policymakers, and researchers.



Source: Google Trend Processing Data
Figure 5. Seasonal Search Trends for "Halal Food"

Annual Spikes During Ramadan and Eid

The most prominent seasonal peak in halal food-related search activity consistently appears during the Islamic holy month of Ramadan and the following celebration of Eid al-Fitr. During Ramadan, Muslims worldwide fast from sunrise to sunset, placing a heightened focus on what they eat during the pre-dawn (suhoor) and post-sunset (iftar) meals. Consequently, there is a significant surge in interest in halal food during this month as individuals seek information about halal ingredients, restaurant options, or festive meal preparations. This trend is evident in the Google Trends data, which shows increased search values beginning about two weeks prior to Ramadan and reaching a peak during the final days of the month. For example, during April 2023 and May 2024—when Ramadan occurred—search activity rose to above 70 index points, clearly above the usual baseline levels of 40–50. Additionally, search activity remains elevated through Eid al-Fitr, a period characterized by communal feasts and food-related gatherings. These recurring annual spikes confirm that religious observance significantly influences halal food search patterns.

December Holiday Season Peaks

A secondary yet notable seasonal trend is the consistent rise in search activity during the December

holiday season. Although December is not tied to Islamic holidays, the final month of the year represents a global peak in food-related online behavior due to events such as Christmas, New Year's Eve, and general vacation travel. In countries with significant Muslim diaspora populations—such as the United Kingdom, Canada, the United States, and Australia—many Muslims engage in holiday gatherings, long-distance travel, or simply take time off work and school, creating increased demand for halal dining options. December 2024, for instance, marked the highest index value recorded in the dataset, reaching 100. This suggests that halal food is not just a religious requirement but has become a broader consumer concern during universal holiday periods. The December surge may also be driven by non-Muslim consumers seeking halal food as part of a growing interest in clean, ethical, and religiously conscious consumption, particularly within diverse urban centers.

Low-Interest Periods

In contrast to these peaks, there are also consistent periods of relatively low search activity throughout the year. Typically, January and February exhibit subdued interest, likely due to the end of the holiday season and the return to regular routines. During these months, there are fewer religious or cultural events prompting food-related searches, and as such, the general consumer focus shifts away from festive or dietary planning. Additionally, months like March or early April—when Ramadan does not fall in that timeframe—also demonstrate reduced activity. These lulls are important for halal-related businesses and marketers to consider when allocating resources and planning campaigns. Recognizing these quieter periods allows stakeholders to optimize operations and avoid over-investment during months with historically low consumer engagement.

Long-Term Growth in Baseline Interest

Beyond the cyclical seasonal patterns, the data indicates a steady increase in the baseline level of global interest in halal food over the five-year period. In 2020, the average weekly search index typically hovered around 30–40. By late 2024 and into early 2025, baseline interest levels rose to 60–70, even outside of peak seasons. This long-term upward trend suggests that halal food is becoming more mainstream and widely recognized, not only by Muslim consumers but also among broader demographics who associate halal standards with cleanliness, ethical sourcing, and food safety. This shift aligns with prior research that emphasizes the growing consumer perception of halal products as synonymous with quality (Azam & Abdullah, 2020; Wilkins et al., 2019). Such growth also reflects increased digital literacy and search behavior among younger Muslim consumers who are more likely to explore halal options through online platforms.

Understanding these seasonal trends provides valuable strategic insight for a range of stakeholders. For halal food producers and retailers, the periods leading up to Ramadan and December present ideal opportunities for product launches, promotional campaigns, and increased supply chain readiness. Similarly, restaurants, food delivery services, and tourism operators can align offerings with anticipated spikes in consumer demand.

4.2 DISCUSSION

4.2.1. Interpreting Online Behavior as Awareness Indicators

Online search behavior offers a practical and measurable indicator of public awareness and interest. In the context of halal food, the fluctuation of search trends over time reflects more than mere curiosity—it signals patterns of consumer consciousness, religious observance, and global marketing influence. The data from 2020 to 2025 shows a noticeable increase in search volumes, particularly during certain periods such as Ramadan and December holidays. These spikes are not coincidental; they are tied closely to moments when Muslim consumers are more attuned to their dietary requirements, and when non-Muslim consumers may also engage with halal offerings, for example, during food festivals or travel seasons.

Increased online search interest can also be interpreted as a response to improved availability and visibility of halal products across both Muslim-majority and non-Muslim-majority countries. For instance, countries like Singapore and Brunei show consistently high interest, which correlates with established halal certification systems and high consumer awareness. Conversely, growing interest in Western countries such as the UK, Canada, and the US points to the expanding footprint of halal cuisine, potentially driven by diaspora populations, multiculturalism, and rising curiosity in diverse food experiences.

This behavior aligns with the findings of Mostafa (2018), who emphasized the significance of geo-located online expressions as a mirror of consumer sentiment. Similarly, Izza (2022) suggested that heightened search activity reflects not only interest but also evolving awareness and intentionality in consumer behavior toward halal standards.

Therefore, search trend data is more than a digital footprint—it serves as a proxy for mapping public awareness and engagement. It helps researchers and marketers assess the maturity of halal food markets, identify emerging regions of interest, and track the diffusion of halal consciousness globally.

4.2.2. Regional Concentration and Market Potential

The distribution of search interest by country reveals distinct regional concentrations that reflect both cultural and economic dynamics. Singapore, topping the list with a score of 100, demonstrates not only its Muslim consumer base but also its strong infrastructure for halal certification, governance, and food tourism. This level of interest indicates a highly aware and engaged population where halal food is part of everyday decision-making and national branding.

Brunei and Malaysia follow, both being Muslim-majority nations with state-backed halal ecosystems. Their inclusion reaffirms the correlation between religious demographics and halal-related search activity. However, what stands out in the data is the growing interest in countries like the United Kingdom, Canada, Australia, and the United States. These nations, while not majority-Muslim, have increasingly multicultural populations, including growing Muslim communities and non-Muslim consumers exploring halal food as part of broader dietary or ethical consumption trends.

This pattern aligns with the observations made by Wilkins et al. (2019), who highlighted the impact of cosmopolitanism and consumer ethnocentrism in influencing halal food acceptance in non-Muslim markets. Moreover, the emergence of countries like New Zealand and the UAE, though with smaller search volumes, suggests that even niche or tourism-driven contexts can generate measurable digital footprints.

For marketers, this regional distribution presents a dual opportunity: to strengthen offerings in Muslim-majority markets where awareness is high, and to cultivate emerging interest in Western markets through education, branding, and accessibility. This geographic lens thus helps in identifying both saturated and untapped potential within the global halal food economy.

4.2.3. Keyword Surge and Emerging Themes

The sharp increase in certain related search queries between 2020 and 2025 points to evolving consumer behavior and localized interests. For example, the massive spike in queries like "dave's hot chicken" (+2,400%) and "naz halal food" (+750%) reflects a rising trend of associating halal with specific food brands or franchise-style eateries. This implies a growing appetite for convenience-driven halal fast food, especially in urban centers where halal-certified restaurants are increasingly part of mainstream offerings.

Terms like "halal food festival manchester" (+850%) and "fast food halal à proximité" (+1,300%) signal a shift toward experiential and proximity-based searches. The former suggests that halal-themed food events are becoming more prominent and valued for cultural expression and community gathering. The latter—translated from French as "halal fast food near me"—highlights the demand for hyper-localized halal options, particularly in multilingual, multicultural cities.

Additionally, the search "gunma halal food" (+1,450%) reveals geographic specificity, indicating that travelers or residents in less traditional markets (like Japan's Gunma region) are actively seeking halal options. This is consistent with the findings by Mostafa (2018), who used geo-located Twitter data to show how halal-related interest is not confined to traditionally Muslim regions.

Together, these trends underscore a broadening of halal food's cultural footprint—from necessity-driven consumption to lifestyle, tourism, and taste preference. The rise of specific terms also suggests opportunities for niche market branding and SEO-targeted strategies, enabling businesses to cater to increasingly diversified halal consumers.

4.2.4. Seasonality and Religious Calendars

The search trend for "halal food" from 2020 to 2025 displays consistent seasonal fluctuations that align strongly with the Islamic calendar, particularly during the months of Ramadan and Eid al-Fitr.

Peaks are most noticeable in the weeks preceding and during these religious periods. For instance, interest typically begins to rise approximately a month before Ramadan, likely due to increased meal planning, communal gatherings, and spiritual preparation that influence food-related behavior.

These seasonal surges can be interpreted as heightened awareness and demand for halal-compliant products during religious observances. This is in line with research by Izza (2022), who found that halal awareness is significantly influenced by religious activities and events. The sharp annual peaks in December (especially late December 2024 reaching a score of 100) may also be attributed to holiday travel, New Year preparations, or the overlap between global holidays and local Islamic practices in multicultural societies.

Moreover, this pattern suggests that halal food interest is not static—it is cyclic and predictable. This provides important strategic insight for businesses and marketers to optimize their promotional efforts, inventory, and product launches in sync with these cycles. For instance, launching new halal-certified products or services in the lead-up to Ramadan may capture heightened consumer attention and increase conversion rates.

Understanding these temporal dynamics is essential not just for targeting Muslim consumers but also for integrating halal offerings into broader festive and tourism economies, especially in countries where Muslims are not the majority.

4.2.5. Global Expansion and Cultural Localization

The steady increase in global search interest for "halal food" from 2020 to 2025 indicates a broader shift beyond traditionally Muslim-majority countries. The presence of countries like Singapore, the UK, Canada, and Australia in the top ten search locations suggests that halal food is no longer a niche category confined to religious necessity—it is becoming a mainstream food trend tied to health consciousness, ethical consumption, and cultural diversity.

This expansion, however, necessitates cultural and regional localization. As Wilkins et al. (2019) point out, the acceptance of halal food in non-Muslim countries is influenced not only by religious identity but also by national culture, cosmopolitanism, and perceptions of food ethics. For example, in countries like the United States and New Zealand, halal offerings are increasingly marketed as part of gourmet, organic, or sustainable food choices, not just religiously permissible ones.

Rising search queries such as "Dave's Hot Chicken" and "halal food festival Manchester" show how halal food is being embedded into local brands and experiences, appealing to both Muslim and non-Muslim audiences. This highlights the need for companies to go beyond certification and focus on how halal values intersect with modern culinary trends, inclusivity, and transparency.

Furthermore, the globalization of halal food aligns with findings by Azam and Abdullah (2020), who emphasize the economic potential and cultural diplomacy embedded within the halal sector. As halal food becomes more visible in global food tourism, quick-service restaurants, and tech-enabled delivery platforms, businesses and regulators must ensure quality control, authenticity, and cultural sensitivity.

In summary, the growing digital interest across diverse geographies suggests that the future of halal food is global, dynamic, and adaptable, requiring nuanced strategies that blend religious adherence with contemporary market needs.

V. CONCLUSION

This research explored the global awareness of halal food by analyzing Google Trends data from the past five years, focusing on the search term "halal food." The study identified clear patterns in online behavior, regional interest, rising related search queries, and seasonal fluctuations. The results reveal that consumer awareness of halal food is not only increasing globally but also diversifying in terms of location and interest. Countries such as Singapore, Brunei, and Malaysia lead the search intensity, while non-Muslim-majority countries like the United Kingdom, Canada, and Australia are showing growing engagement. Peaks in search activity are consistently aligned with significant religious events such as Ramadan and Eid, indicating the integration of religious observance into digital search behavior.

The novelty of this research lies in its methodological integration of Google Trends data with Python-based analysis to visualize consumer awareness across time and geography. Unlike previous studies that relied primarily on surveys or bibliometric reviews, this study provides real-time, behavior-

driven insights into halal food interest, offering a dynamic lens through which consumer engagement can be observed. The use of rising related search terms adds an additional layer of novelty, as it reflects the emergence of specific brands, locations, and consumer needs, which have been largely overlooked in existing literature. The findings demonstrate how digital tools can enrich our understanding of religious consumer behavior and support the development of theory around halal awareness and market evolution.

The implications of this study are both practical and theoretical. Practically, the findings suggest that halal food providers should align their marketing strategies with seasonal demand patterns and emerging regional markets. The surge in interest in Western countries suggests the need for localized branding, strategic timing, and cross-cultural messaging. Theoretically, this research supports a shift from static models of consumer awareness to more dynamic, data-driven approaches that reflect how consumers actively search, engage, and respond to halal food offerings in digital environments. This study also opens pathways for future research that combines search analytics with ethnographic or experimental methods to further validate the behavioral indicators uncovered through search data.

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