

# Analyzing Consumer Online Shopping Behavior Trends in the Context of the COVID-19 Pandemic Using Bibliometric Analysis

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## ABSTRACT

Online shopping is extremely popular and gradually replacing traditional shopping. Online markets are increasingly appearing and becoming very popular after the COVID-19 pandemic phenomenon worldwide. This article focuses on changes in customers' online shopping behavior amid the COVID-19 pandemic. We conduct systematic scientific analysis and visualization of 407 Scopus-indexed articles from 2019 to 2024. The five-year timeframe strikes a balance between capturing meaningful trends and practicality in data collection and analysis considering the context of the COVID pandemic. N-gram analysis identifies the terms to show the development trends of online shopping consumer behavior over the years. Based on prominent keywords, top authors, institutions, journals in the field, top author keywords, co-author networks, co-keywords, and top articles are also analyzed. The relations among top keywords, top authors and top journals are conducted by the Sankey diagram analysis. The research conducts document-term-matrix (DTM) analysis to identify seven key clusters, research hotspots, and emerging trends in the bibliometric network. This study can guide further research when artificial intelligence technology integrated into internet and mobile platforms is growing strongly. The obtained research results can serve policymakers, researchers, and practitioners to apply high technology to increase consumer experience in online shopping behavior.

**Keywords:** *bibliometric analysis, consumer behaviour, COVID-19, e-business, online shopping, retail operation*

## 1. INTRODUCTION

Online shopping has become popular in recent years, especially after the blockade due to the COVID pandemic

(Donthu & Gustafsson, 2020). Online shopping brings 24/7 convenience availability, without crowding. We can shop at any time of the day and night with no restrictions on opening hours. Online shopping helps save time and effort on travel (Singh, 2018). Online shopping allows buyers to choose from a wide range of different products that a physical store is limited to displaying products, helping shoppers to easily compare prices between retailers and find sellers with good prices (Hsiao, 2009; Huang & Benyoucef, 2017). Based on online platforms, buyers can view customer feedback as well as buyer ratings to help make shopping decisions more reliable. Online shopping helps retailers use algorithms to recommend products based on personal preferences, purchase history or purchase experience history.

With the development of internet technology and the increased convenience of using the internet, online shopping has taken up a significant portion of commerce, i.e. transactions between buying and selling (Alhaimer, 2022; Prasertwit *et al.*, 2024). Although research in the field of online shopping is increasing, locating this field is still a challenge for researchers, because of the ambiguity of this field (Hooi Ting *et al.*, 2011). Some researchers believe that online shopping is a commercial field, sometimes part of the technology, operations, or management field (Theodorou *et al.*, 2023). Therefore, many online shopping studies have appeared in many journals and publications depending on the research perspective and level of expertise and choice of the researcher. Online shopping is a multidisciplinary research field, so it is difficult to predict which journal is the best reference for the field. For young researchers, this is challenging to explore troubles (Kalıpcı *et al.*, 2024).

There have been very few review publications researching online shopping in recent years, especially after the COVID-19 pandemic period. Previous studies on online shopping have not yet covered the full scope of this topic in the context of the COVID pandemic (Israfilov *et al.*, 2023; Li *et al.*, 2023; Usman, 2024). In addition, more research is

needed to explore new concepts and frameworks in the field of online shopping when artificial intelligence technology integrated on internet and mobile platforms is growing strongly (Aggarwal, 2023; Singh, 2018). To address these research gaps, we used both quantitative and qualitative methods to comprehensively analyze the existing literature and build a picture for future research (Alhaimer, 2022). This is considered the first systematic study looking at the overview of online shopping considering the context of the COVID pandemic in considering artificial intelligence technology integrated on internet and mobile platform. Our research includes the most updated achievements to support practitioners, policymakers, educators and researchers.

Customer behavior with online shopping has recently attracted significant attention following the COVID pandemic period, a time when shopping was largely online-based (Tran, 2021; Vázquez-Martínez *et al.*, 2021). Shopping behavior changes are constantly evolving as well as consumer needs and preferences to protect health (Kim, 2020). With the development of technology and the increasing focus on health, where offline sales channels carry many health risks for customers, consumers are becoming more aware of the role of online shopping, and the tendency to move towards this sales channel (Desai *et al.*, 2022; Pantano *et al.*, 2020). Therefore, online shopping is an important sales platform on which users make wise decisions. However, despite the many advantages that online shopping brings, not all users accept this platform. Various factors such as age, gender, education, income and cultural background can influence the way users shop (Alalwan, 2020; Fatema & Siddiqui, 2021; Priya & Bose, 2021). Therefore, this research needs analysis to understand user behavior by shopping online during the COVID pandemic.

This research aims to explore different aspects of user behavior related to online shopping in different aspects and analyze users' attitudes, perceptions and decision-making processes when online shopping. Looking at bibliometric analysis will find out what factors determine online purchases. Technology requirements, internet platforms, or user habits affect online purchasing behavior (Chakraborty *et al.*, 2022; Pandey & Parmar, 2019). The study also investigates any changes in user behavior over years to respond to changes in user needs over time and to devise marketing strategies that are relevant to the market.

Bibliometric analysis aims to study research trends, patterns and relationships in the field of online shopping customer behavior (Martínez-López *et al.*, 2018; Pahari *et al.*, 2024). It involves analyzing bibliographic data to identify key research, famous authors, and informative publications (Dixit & Prasad, 2025). In recent years, bibliometric analysis has become popular as a tool for mapping the research landscape in various disciplines (Dominko *et al.*, 2023; Hiatt *et al.*, 2024; Sharma *et al.*, 2023). This study aims to conduct a bibliometric analysis of research related to user behavior by shopping online (Ur Rehman *et al.*, 2024). Based on the analysis and extraction of features of published and cited journals, the study gains insights into trends, developments and impacts of research in this field. Through this comprehensive analysis, researchers can identify key themes, influential authors, prominent publications, and existing trends and research gaps. Thus, it enables researchers to make informed decisions, guide future

research, and develop strategies to better understand and serve consumer shopping preferences and behaviors, products and services.

The study applies bibliometric analysis combining qualitative and quantitative approaches to study and evaluate scientific literature. It involves examining various characteristics and attributes of scholarly publications to understand trends, patterns, and impacts on online shopping customer behaviors. The research goal is to answer the following questions:

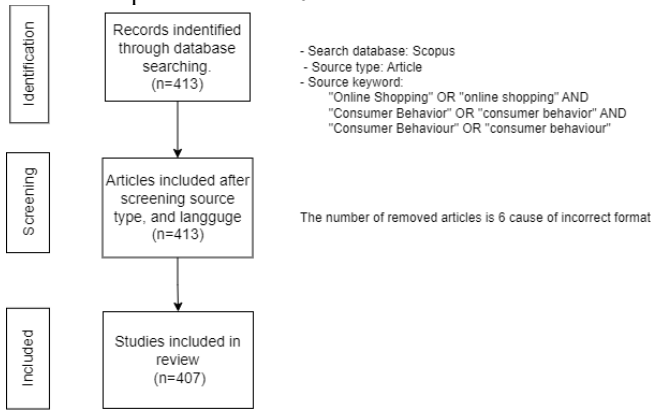
- **RQ1:** What are the publishing trends, top authors, journals, affiliated countries, institutes, top international collaboration, universities and articles that influence customer behaviors in online shopping?
- **RQ2:** What are the prominent keywords used in this context over years?
- **RQ3:** What important research trends and topics have had an impact on the field during the COVID period?

In this study, the article is presented according to the following structure. Section 2 details the evaluation method used in this study. Section 3 analyses the productivity of online shopping customer behavior research output and its impact, publication trends, and citation patterns (RQ1) to assess the academic influence of this field. In section 4, we construct a comprehensive science map that elucidates the landscape of academic research on online shopping customer behavior during the COVID-19 pandemic. This map not only provides a nuanced understanding of current knowledge but also guides future research directions and collaborations in this area (RQ1 and RQ2). In section 5, we delve into the main themes that have emerged in the field (RQ2) identified through the analysis of the main themes of scholars' research keywords over years (RQ3). We analyze the focus in recent post-COVID trends (RQ3) in section 6. Finally, section 7 presents the discussions and conclusions of the study.

## 2. METHODOLOGY & MATERIAL

The review is conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, which provides a comprehensive guide to performing a systematic review and meta-analysis in a transparent and comprehensive manner (Hutton *et al.*, 2015; Mohiuddin *et al.*, 2024). The protocol aims to improve the transparency and quality of reporting in these types of studies, making it easier for readers to understand the methodology and findings (Hutton *et al.*, 2015). Figure 1 presents the system of processes performed for the article selection procedure. These articles are searched from the Scopus database (Elsevier, n.d.). We limit the search to documents written in English and articles only to ensure the selected articles are of high quality. The research is conducted using keywords such as online shopping and customer behavior to retrieve all related articles. We preprocess data before being bibliometrically surveyed based on the PyBibx package by the Python programming language (Valdecy, n.d.). By leveraging the PyBibX package, we can develop tools to efficiently conduct comprehensive bibliometric analyses. We extract, manipulate, and analyze bibliographic information, gain insights into research trends, and identify key contributors in

the field of study. A total three steps are conducted to achieve a clean dataset. (1) Download data of articles on the Scopus online data platform with 40 information fields described in



**Figure 1** Steps for the literature search and selection process

Table 1. (2) We check and filter articles on the exported file. (3) A Bibtext (.bib) file format is used to embed dataset files into processing stages.

The data extracted from the SCOPUS database consists of 40 fields such as keyword, author, title, abstract, etc. as shown in Table 1. There are 413 articles. After preprocessing the erroneous articles, there are 407 articles left. There are 6 articles with incorrect format. The cause of the error includes incorrect document structure and initial fields. For example, all information fields are merged in one column, information fields are mixed, and documents lack the necessary fields for

analysis. We manually delete these documents from the database so that the information extraction is corrected.

The general information about the input data used for analysis is shown in Table 2. Our research found 407 articles related to online shopping and customer behavior from 2019 to 2024. We chose a period of five years from the COVID-19 event. Five years typically provides enough time to observe changes and developments in a particular field or topic. It strikes a balance between capturing short-term fluctuations and identifying longer-term trends. Analyzing trends over five years allows for a more robust statistical analysis. It reduces the impact of short-term anomalies or fluctuations that might skew the data if observed over shorter or longer periods. Over five years, there can be significant advances in technology, shifts in societal attitudes, and changes in funding priorities. All articles are written in English. The dataset encompasses research activities spanning from 2019 to 2024, involving a total of 70 countries and 626 institutions. Across 184 sources, 407 documents have been published, supported by a substantial reference base of 26044. The research output includes 1419 distinct author keywords, highlighting the diverse range of topics covered. Among the documents, 31 are single-authored, while a significant majority of 376 are multi-authored, reflecting the collaborative nature of contemporary research. A total of 1145 authors have contributed to these publications, which have collectively garnered 6519 citations, underscoring the impact and reach of the research within the academic community.

**Table 1** The 40 fields extracted from the SCOPUS database

No.	Field name	No.	Field name	No.	Field name	No.	Field name
1.	Authors	11.	Page end	21.	References	31.	ISBN
2.	Author full names	12.	Page count	22.	Correspondence Address	32.	CODEN
3.	Author(s) ID	13.	Cited by	23.	Editors	33.	PubMed ID
4.	Title	14.	DOI	24.	Publisher	34.	Language of Original Document
5.	Year	15.	Link	25.	Sponsors	35.	Abbreviated Source Title
6.	Source title	16.	Affiliations	26.	Conference name	36.	Document Type
7.	Volume	17.	Authors with affiliations	27.	Conference date	37.	Publication Stage
8.	Issue	18.	Abstract	28.	Conference location	38.	Open Access
9.	Art. No.	19.	Author Keywords	29.	Conference code	39.	Source
10.	Page start	20.	Index Keywords	30.	ISSN	40.	EID

**Table 2** General information

Main information	Results
Timespan	2019-2024
Total Number of Countries	70
Total Number of Institutions	626
Total Number of Sources	184
Total Number of References	26044
Total Number of Documents,	407
Total Number of Authors Keywords	1419
Total Single-Authored Document	31
Total Multi-Authored Documents	376
Total Number of Authors	1145
Total Number of Citations	6519

related to publications, authors, institutions, citations, and countries that are the most influential in the online shopping customer behavior field (Aksnes *et al.*, 2019). The primary goals of performance analysis are to measure research performance, identify influential works, and understand the contributions (Huang & Benyoucef, 2017). We implement various quantitative metrics to analyze publications and citations in online shopping customer behavior. Indicators such as total publication and total citations are used to measure the author's contribution and the author's scientific influence. Other indicators such as documents per year, citations per year, top author, and top publications are used to measure the influence of research. Performance analysis helps stakeholders, researchers, institutions, and funding agencies, to gauge the effectiveness and impact of research activities and make informed decisions about future research directions. It provides a quantitative foundation for assessing

### 3. PERFORMANCE ANALYSIS

The performance analysis evaluates the productivity and impact of research outputs (Bota-Avram, 2023). It involves quantitative assessment of various indicators

the contributions and significance of different aspects of the academic landscape.

### 3.1 Documents and Citations Over the Year

The documents and citations over each year indicator is a key metric in bibliometric analysis. It tracks the number of research documents published and the number of citations those documents receive over a year (Liu *et al.*, 2021). This analysis provides insights into the research activity and its impact over time.

Examining Figure 2, we observe that the highest number of documents was published in 2022, coinciding with the outbreak of the COVID-19 pandemic. These documents primarily focus on user shopping behavior in the context of the pandemic. In contrast, the number of documents on this topic was significantly lower in 2019, although the number of citations was quite high. This surge in publications indicates that the field is relatively new and is gaining momentum. The decreasing trend in citations suggests that this is an emerging topic that is capturing the interest of contemporary researchers and is likely to continue developing in the future. In 2019-2020, the number of documents and citations increased, reflecting growing research output and impact. While the number of documents published remained high, citations started to decline, indicating a lag in citation accumulation in the COVID-19 pandemic in 2021-2022. In 2023-2024, both documents and citations have seen a decrease, suggesting a shift in research trends. This data indicates the dynamic nature of research output and its impact over time, with fluctuations that may be influenced by various external factors such as research funding, global events, or shifts in research priorities.

### 3.2 Top Authors

In this field of online shopping customer behavior, there are many outstanding authors and many collaborations between authors. Table 3 provides a comprehensive overview of the top ten authors in this field. The author Jungkun Park from Hanyang University Korea leads in the number of articles with five publications and has accumulated 44 citations, followed by Yiran Li and Raquel Gurrea with four publications each, and the others with three each. Raquel Gurrea has the highest citation count at 279,

indicating significant impact and recognition in the academic community. Carlos Orús also has a notable citation count of 245. The affiliations are predominantly educational institutions, with a few research institutes, highlighting the academic and research focus of these authors across a diverse set of countries, including Korea, China, Spain, Saudi Arabia, and India. The varying citation counts reflect the differing impacts and recognition of their research contributions within the academic community.

Figure 3 analyzes connections between top authors which involves examining collaborations and co-authorship relationships within the scholarly community. The connections reveal two distinct groups: a larger left group with three clusters and a smaller, simpler right group. In the left group, central authors like Park J. and Zhang X. act as key nodes, connecting various authors within their respective clusters. Park J. interacts with authors such as Kim D., Hong E., and others, while Zhang X. links with Ding X., Wang L., and more. Gurrea R. stands out as the central author in the right group, with connections to authors like Ibáñez-Sánchez S. and Flavián C. Interestingly, Flavián C. is linked to both Gurrea R. and another author of the same name. Central authors like Park J., Zhang X., and Gurrea R. play pivotal roles, in expanding collaboration networks due to their numerous existing connections.

### 3.3 Top Journals

Among the total of 184 journal sources, there are a number of outstanding, interesting and leading journals in the field of online shopping and customer behavior. Table 4 below shows the top 10 most published journals in this field.

Journal of Retailing and Consumer Services is the source with the highest number of publications (59) and also has a very high total number of citations (2120). This shows it is a highly influential journal and is cited by many studies in the field of online shopping consumer behavior. The International Journal of Retail & Distribution Management has 11 publications and 120 citations, indicating that this journal focuses on research on retail and distribution management, and also receives quite a lot of attention from the academic community.

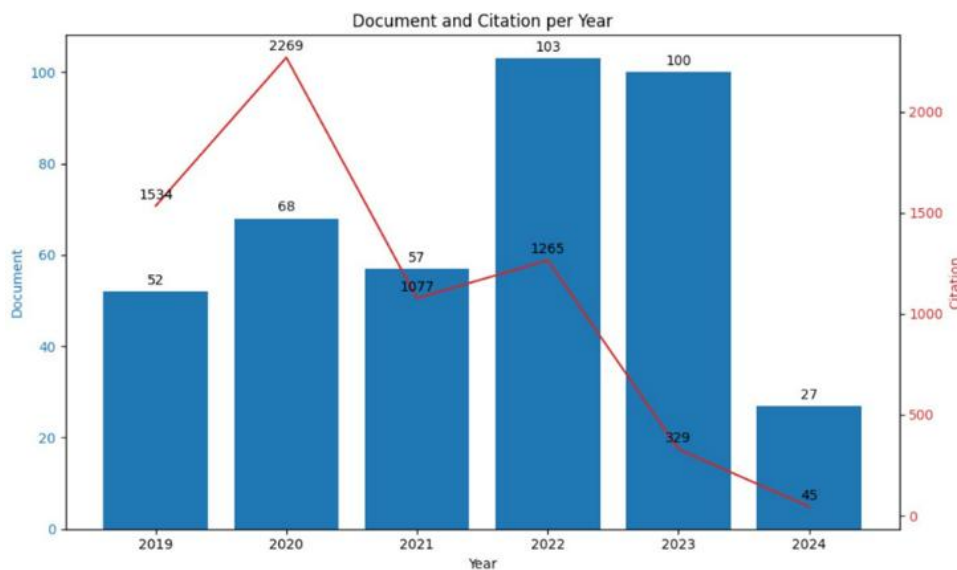


Figure 2 Number of documents and citations over the year

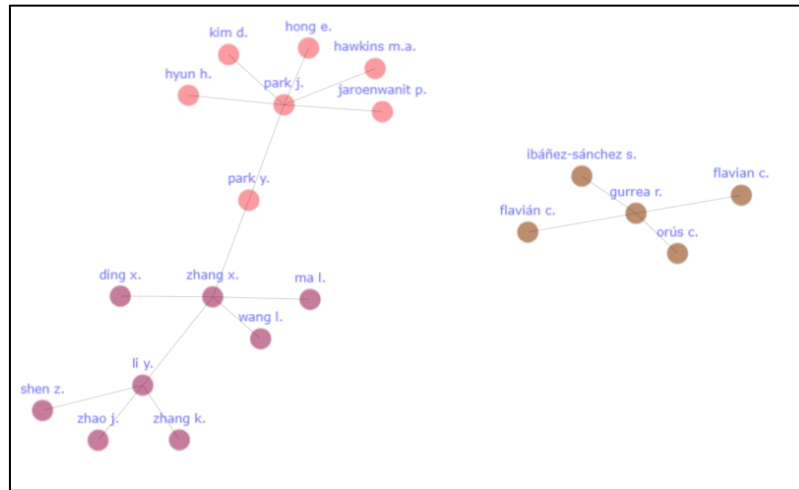


Figure 3 Connections between top authors.

Table 3 Top authors with affiliations.

Authors	No. of Documents	Affiliation	Affiliation type	Country	Citation
Jungkun Park	5	Hanyang University	Education	Korea	44
Yiran Li	4	Zhejiang University of Technology	Education	China	25
Raquel Gurree	4	University of Zaragoza	Education	Spain	279
Xin Zhang	3	Shandong University of Finance and Economics	Education	China	40
Shaili Vadera	3	Prince Mohammad University	Education	Saudi Arabia	13
Shekhar Singh	3	Jaypee University of Engineering and Technology   JUET	Education	India	27
Carlos Orús	3	University of Zaragoza	Education	Spain	245
Thamaraiselvan Natarajan	3	National Institute of Technology Tiruchirappalli	Research institute	India	20
Rambabu Lavuri	3	Indian Institute of Management	Research institute	India	42
Avinash Kumar	3	Indian Institute of Management Ranchi	Research institute	India	20

Journal of Cogent Business and Management and Journal of Business Research are sources with a significant presence with relatively high numbers of publications and citations. They contribute to general business and management studies. The International Journal of Recent Technology and Engineering has 9 publications and 28 citations, indicating interest in technology and engineering aspects related to retail and consumption. Asia Pacific Journal of Marketing and Logistics has 7 publications and 150 citations, emphasizing research on marketing and logistics in the Asia-Pacific region. Electronic Commerce Research and Applications has 6 publications and 58 citations, indicating a focus on research on e-commerce and related applications. Global Business and Economics Review has 5 publications and 60 citations, showing interest in aspects of global business and economics. International Journal of Electronic Marketing and Retailing has 5 publications and 23 citations, indicating a focus on electronic marketing and retailing. The Journal of Research in Interactive Marketing has 5 publications and 145 citations, reflecting interest in interactive marketing and new approaches in the field. Table 4 shows the diversity of topics. These resources cover a wide range of fields such as retail, consumer services, management, business, technology, e-commerce, marketing, logistics, and economics. Table 4 also shows the academic influence. Some journals such as the Journal of Retailing and Consumer Services and the Journal of Business Research have great academic influence, as demonstrated by high citation counts. Table 4 also shows

focusing on retail and e-commerce. Many sources focus on aspects of retail and e-commerce, reflecting the growing importance of these fields in modern research trends. The studies in the dataset are primarily published in reputable journals and are diverse in subject matter, with a strong focus on retail, consumer services, and e-commerce. These journals play an important role in developing and spreading knowledge in related shopping online fields.

### 3.4 Top Institutions

The above institutions play an important role in researching and understanding consumer online shopping behavior amid the COVID-19 pandemic. Table 5 outlines the performance of various institutions based on their total documents, total citations, and average citation scores. Among the top institutions, the Department of Economics and Management at the University of Parma in Italy stands out with 11 documents and 55 citations, averaging 5 citations per document. Following closely is the Department of Marketing at Nova Southeastern University in the United States, although with a lower citation count and average. Notably, the Department of Marketing at the University of Zaragoza in Spain demonstrates a remarkable performance, with 6 documents but an impressive total citation counts of 211, resulting in an average citation score of 35.17, indicating high impact and recognition within the academic community. The Anderson School of Management at the University of California, Los Angeles also showcases strong performance with a relatively high average citation score of

7.29, reflecting its significant contribution to scholarly discourse. Additionally, institutions like the Vellore Institute of Technology in India and the Institute of Retail Management at the University of St. Gallen in Switzerland exhibit noteworthy citation counts, suggesting their

significant influence in their respective fields. These top institutions illustrate a diverse range of research contributions and impact levels within the academic landscape.

**Table 4** Top journals.

Source	Publication	Total citation
Journal of Retailing and Consumer Services	59	2120
International Journal of Retail & Distribution Management	11	120
Cogent Business and Management	9	25
International Journal of Recent Technology and Engineering	9	28
Asia Pacific Journal of Marketing and Logistics	7	150
Electronic Commerce Research and Applications	6	58
Journal of Business Research	6	699
Global Business and Economics Review	5	60
International Journal of Electronic Marketing and Retailing	5	23
Journal of Research in Interactive Marketing	5	145

**Table 5** Top 10 leading institutions in the field of online shopping customer behavior.

Institutions	Total Documents	Total Citation	Average Citation
Department of Economics and Management, University of Parma, Parma, Italy	11	55	5.00
Department of Marketing, Nova Southeastern University, Fort Lauderdale, FL, United States	9	5	0.56
Anderson School of Management, University of California, Los Angeles, 90095, CA, United States	7	51	7.29
Vellore Institute of Technology, Chennai, India	6	86	14.33
School of Business Administration in Karvina, Department of Business Economics and Management, Czech Republic	6	10	1.67
Department of Marketing, University of Zaragoza, Gran Vía, Zaragoza, Spain	6	211	35.17
Bina nusantara university, Jakarta, Indonesia	5	2	0.40
Ball State University, United States	5	1	0.20
Bina Nusantara University, Indonesia	5	27	5.40
Institute of Retail Management (IRM-HSG), University of St. Gallen (HSG), St. Gallen, Switzerland	5	27	5.40

### 3.5 Top Country

Among the countries analyzed in Table 6, India emerges as the leader in terms of the sheer volume of research documents, boasting 179 documents. Impressively, these publications have garnered a total of 1038 citations, underscoring the significant impact of Indian research contributions in the academic sphere. Meanwhile, China follows closely behind with 125 documents and 655 citations, reflecting the country's substantial presence in the global research landscape. Additionally, Malaysia, with 66 documents and 327 citations, demonstrates its noteworthy contribution to scholarly discourse. However, when considering the total citation count, India stands out with the highest number of citations, indicating the widespread influence and relevance of Indian research outputs. Notably, while Germany only contributes 31 documents, its citation count is remarkably high at 668, highlighting the quality and impact of German research publications. Similarly, Spain, with 42 documents and 541 citations, showcases a commendable citation rate relative to its document count, emphasizing the significance of Spanish research contributions in the academic community.

**Table 6** Top countries in total documents.

No.	Country	Total Document	Total citation
1	India	179	1038
2	China	125	655
3	Malaysia	66	327
4	United Kingdom	47	378
5	Viet Nam	46	169
6	Spain	42	541
7	Indonesia	38	73
8	South Korea	38	150
9	Germany	31	668
10	Italy	29	311
11	France	25	143
12	Australia	24	364
13	Pakistan	22	224
14	Iran	22	163
15	Taiwan	19	194

Asian countries such as India, China, Malaysia, Vietnam, Indonesia, South Korea, and Taiwan are on the list, showing great interest in research on consumer and online shopping behavior in this area. European countries such as the UK, Spain, Germany, Italy, and France also contributed

significantly to research, showing that this field has widespread global interest. The number of documents and citations shows the importance of research on consumer behavior and online shopping in the context of the COVID-19 pandemic. Countries with large economies and strong technological development such as India, China, the UK, and Germany have made major contributions, showing the importance of research to better understand behavioral change and the application of digital solutions in retail. This summary reflects research contributions from different countries in the field of online shopping and consumer behavior, especially in the context of the COVID-19 pandemic. The high number of documents and citations from countries such as India, China, Germany, and Spain indicate the great interest and influence of these studies. This can guide researchers and stakeholders in identifying trends and developing strategies in the online retail industry.

### 3.6 Top Global Research Collaboration Network

Figure 4 shows the map of international cooperation. India leads in fostering international cooperation networks, evident from its 18 cooperative links, which signify the nation's concerted efforts to bolster its research and development capabilities. These collaborative endeavors not only aim to expand India's influence in the global research landscape but also serve as a means to strengthen diplomatic ties with partner nations. Meanwhile, the United Kingdom, ranking second with 16 cooperative links, maintains its prominent role in the international research community. This position is likely sustained by the UK's renowned universities and research institutions, coupled with its proactive stance in promoting international collaboration. China, with 14 cooperative links, demonstrates rapid advancements in research and technology, leveraging international partnerships to sustain its development trajectory by accessing essential resources and knowledge. These countries underscore the importance of international cooperation in driving scientific progress and innovation on a global scale. In short, international cooperation not only brings direct benefits to participating countries but also contributes to sustainable development and solving global problems. The cooperation map shows the activeness of countries such as India, the United Kingdom and China in building and expanding their cooperation networks.

### 3.7 Top Citation

Top citation refers to a citation that is highly significant or influential within a particular field of study. In academic research, citations are references to previously published work within scholarly literature. When a paper receives a large number of citations from other researchers, it is considered to have a high citation count, indicating its impact and importance within the field.

In the Table 7, the low number of citations in this context can be explained by the fact that the citation analysis is based on a 407-article dataset. This means the citations are calculated solely within the scope of these 407 articles, and the focus is on the number of citations each article receives within this set. From this dataset, the top 10 most cited articles are selected, and these are identified as the articles with the highest citation counts among the dataset. Once these top articles are chosen, their citation trends are analyzed to highlight the key papers that have had the

greatest influence or recognition within the field. By examining how the citations of these top articles evolve over time, study can identify emerging research trends or shifts in the academic focus. There are two highest cited documents (10 times each). These documents are very influential in understanding the impact of COVID-19 on consumer behavior and applying PLS-SEM in research. per authored by Sheth, titled "Impact of COVID-19 on consumer behavior: will the old habits return or die?", was published in the Journal of Business Research in the year 2020. In this paper, Sheth examines the profound impact of the COVID-19 pandemic on consumer behavior, questioning whether the pre-pandemic consumer habits will revert to normal or be permanently altered. The author delves into how the pandemic has disrupted traditional consumer behaviors and preferences, leading to significant shifts in purchasing patterns, consumption habits, and brand choices. Through an analysis of these changes, the paper explores the potential long-term implications for businesses and marketers. It provides valuable insights into the evolving landscape of consumer behavior in response to the pandemic and the challenges and opportunities it presents for businesses in adapting their strategies to meet the changing needs and preferences of consumers.

The second highest cited paper authored by Hair, Risher, Sarstedt, and Ringle, titled "When to use and how to report the results of PLS-SEM," was published in the European Business Review in 2019. In this paper, the authors provide guidance on the appropriate use and reporting of Partial Least Squares Structural Equation Modeling (PLS-SEM), a statistical technique widely used in business research for analyzing complex relationships among variables. The paper discusses the circumstances under which PLS-SEM is suitable for research, as well as best practices for reporting the results of PLS-SEM analyses. It covers topics such as model specification, assessment of measurement and structural models, and interpretation of findings. By offering practical advice and recommendations, the paper aims to enhance the rigor and transparency of PLS-SEM research in the business literature. Briefly, it serves as a valuable resource for researchers seeking to employ PLS-SEM methodology effectively in their studies and ensure the quality of their reporting.

Overall, based on the provided top 10 citations, there are eight key points in research trends related to consumer behavior and retailing, particularly in the context of the COVID-19 pandemic. (1) The first key point is mentioned to impact of COVID-19 impact of COVID-19 on consumer behavior. Several studies focus on understanding how the COVID-19 pandemic has influenced consumer behavior, including changes in shopping preferences and habits. (2) The second key point is mentioned to digital transformation in retailing which the impact of digital transformation on the retail value chain is a significant area of research, exploring how technological advancements shape various aspects of retail operations and consumer interactions. (3) The third key point is E-service quality and online shopping which research examines the influence of e-service quality and customer satisfaction on online shopping behavior, highlighting the importance of digital platforms and experiences in shaping consumer decisions. (4) The fourth key point is grocery shopping preferences during the

pandemic which studies investigate shifts in grocery shopping preferences and behaviors during the COVID-19 pandemic, reflecting changes in consumer priorities and concerns. (5) The fifth key point is retail experiences and customer journey management which understanding retail experiences and managing the customer journey remain essential topics, emphasizing the importance of providing seamless and engaging interactions across different touchpoints. (6) The sixth key point is private label marketing which the research explores strategies for marketing private labels in-store, applying theories such as cue utilization theory to understand consumer responses and optimize marketing efforts. (7) The seventh key point is

competitive dynamics in retailing amid sting the pandemic, in which retailers face challenges and opportunities, analyzing their ups and downs and strategies for competing effectively in turbulent environments. (8) The final key point is PLS-SEM reporting guidelines which methodological considerations are also addressed, with guidance on when to use and how to report results from Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. These research trends collectively reflect the evolving landscape of consumer behavior, retailing, and the impact of external factors such as the COVID-19 pandemic and digital transformation.

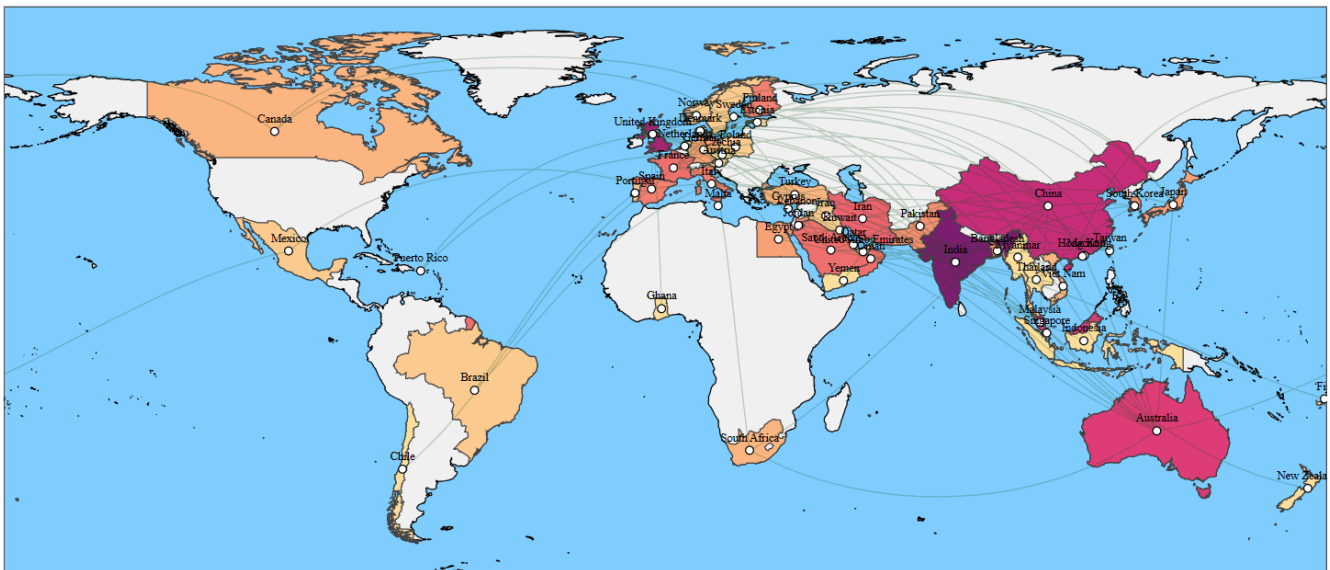


Figure 4 Cooperation between countries around the world.

Table 7 Top 10 articles cited in the last 5 years (2019-2024)

Documents	Total citation
Sheth J., Impact of COVID-19 on consumer behavior: will the old habits return or die?, <i>J. Bus. Res.</i> , 117, pp. 280-283, (2020)	10
Hair J. F., Risher J. J., Sarstedt M., Ringle C. M., When to use and how to report the results of PLS-SEM, <i>European Business Review</i> , 31, 1, pp. 2-24, (2019)	10
Rita P., Oliveira T., Farisa A., The impact of e-service quality and customer satisfaction on customer behavior in online shopping, <i>Heliyon</i> , 5, 10, (2019)	8
Grashuis J., Skevas T., Segovia M.S., Grocery shopping preferences during the COVID-19 pandemic, <i>Sustainability</i> , 12, 13, (2020)	6
Reinartz W., Wiegand N., Imschloss M., The impact of digital transformation on the retailing value chain, <i>International Journal of Research in Marketing</i> , 36, 3, pp. 350-366, (2019)	5
Driediger F., Bhatiasevi V., Online grocery shopping in Thailand: Consumer acceptance and usage behavior, <i>Journal of Retailing and Consumer Services</i> , 48, pp. 224-237, (2019)	5
Roggeveen A.L., Sethuraman R., How the COVID-19 pandemic may change the world of retailing, <i>Journal of Retailing</i> , 96, 2, pp. 169-171,(2020)	4
Pantano E., Pizzi G., Scarpi D., Dennis C., Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak, <i>Journal of Business Research</i> , 116, pp. 209-213, (2020)	4
Mishra S., Malhotra G., Saxena G., In-store marketing of private labels: applying cue utilisation theory, <i>International Journal of Retail and Distribution Management</i> , 49, 1, pp. 145-163, (2020)	4
Grewal D., Roggeveen A.L., Understanding retail experiences and customer journey management, <i>Journal of Retailing</i> , 96, 1, pp. 3-8, (2020)	4

#### 4. SCIENCE MAPPING

Science mapping provides an overview of relationships between different research authors, journals, and keywords.

It helps to identify key themes in the online shopping behavior of customers. The paper analyzes the relationship between the three key top-3s including top-3 journals, top-3 authors and top-3 author keywords using the Sankey diagram

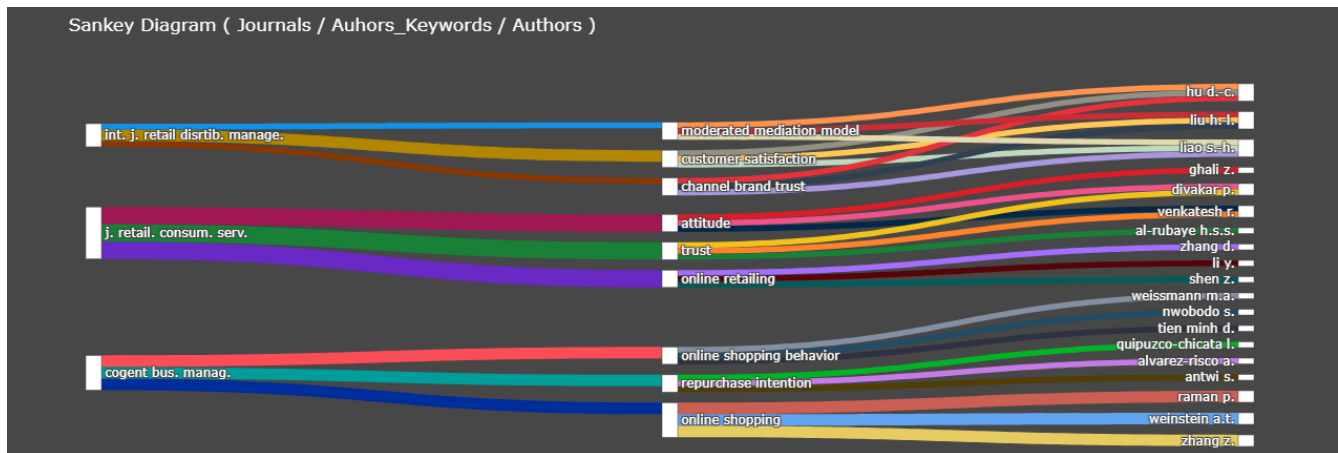
as shown in figure 5. The width of the arrow is proportional to the influence. The figure analyzes three main factors including the author's keywords which authors are used the most, journals which are the most influential, and keywords which are used the most. Three-plot mapping is helpful for quickly visualizing the journal that publishes more papers and frequently used keywords on online shopping customers' behaviors.

The vertical white axis on the left is where journals are published. Top-3 journals listed in order include the *j. retail. consum. serv.* (Journal of Retailing and Consumer Service), *cogent bus. manag.* (Cogent Business Management), and *int. j. retail distrib. manage.* (International Journal of Retail Distribution Management). The bars of different colors first start from the journals and move to the keywords. The width of these color bars indicates the number of articles passing from this journal to the corresponding keywords. The connection weights provide insight into how often certain articles are covered in specific journals and by particular keywords. The middle vertical axis is the author's keywords. This is the topic or research area that these articles focus on. Top-3 keywords corresponding to three journals listed include moderated mediation model, customer satisfaction, channel brand trust, attitude, trust, customer satisfaction, repurchase intention, online shopping behavior, and online shopping. The second color bar is where the color continues to move from the keywords to the authors. This shows which author wrote an article about which keyword. The rightmost vertical axis represents the top-3 authors of

each article. Authors listed include zhang d., shen z., divakar p. and so on.

The figure illustrates that the journal of *j. retail. consum. serv.* exhibits a strong focus on keywords such as online retailing, attitude, and trust, all with a connection weight of 3, indicating these topics are central to its published research. Similarly, journal of *int. j. retail distrib. manage.* is more focused on customer satisfaction and channel brand trust, with connection weights of 2 and 1, respectively, suggesting these areas are explored but to a lesser extent. The figure also highlights authors' contributions, showing, for example, that Divakar p. has contributed to research on attitude and trust, each with a connection weight of 1, implying a smaller but consistent involvement with these topics. Keywords like online shopping behavior and repurchase intention are connected to multiple authors, showing diverse academic interest in these areas.

Overall, the dataset contains articles focusing on a variety of research topics, reflecting the diversity of research fields in retailing, consumer behavior, online customer experience, and e-commerce. The graph shows the collaboration between authors from different articles, especially in popular keywords like customer satisfaction, online shopping behavior, and online shopping. The *j. retail. consum. serv.* is the journal with the largest number of articles, showing that it is an important source for research in the field of retail and consumption.



**Figure 5** The Sankey Diagram provides an insight into the relationship between journals, research keyword, and authors in the fields of online shopping

## 5. KEYWORD ANALYSIS

Figure 6 shows the keyword frequencies from 2019 to 2024 revealing eight major themes that have shaped the evolution of online shopping and consumer behavior, especially in response to the COVID-19 pandemic. The first major theme presents online shopping and e-commerce that remain the overarching focus of the field, with the frequency of related keywords reflecting the rapid growth and transformation of digital commerce platforms. The second theme mentions to consumer behavior. As digital platforms gained prominence, there was a steady rise in the interest around consumer behavior, highlighting how shoppers interact with online platforms, their preferences, decision-making processes, and overall experiences. The third major

theme presents trust and loyalty emerged as essential themes, particularly in digital transactions, where trust became the foundation for consumer confidence and long-term retention. The fourth major theme relates to purchase intention and satisfaction that influence buying decisions and post-purchase satisfaction, which are crucial for sustained engagement and loyalty in a competitive online environment. The fifth major theme shows customer experience gained traction, reflecting an increased focus on balancing both utilitarian and hedonic benefits. As consumers demanded more personalized and seamless shopping journeys, retailers began to invest in improving the overall shopping experience. The sixth theme related to channel dynamics, including webrooming, showrooming, and omnichannel strategies, revealed how consumers adapted to interacting

with both online and offline shopping channels, a trend further accelerated by the pandemic. The seventh theme shows that the COVID-19 impact was a pivotal theme during this period, driving a significant shift towards online shopping as the pandemic forced consumers to rely more heavily on digital platforms. The surge in interest surrounding COVID-19 highlighted how the pandemic reshaped consumer priorities, pushing businesses to adopt digital-first strategies rapidly. Finally, retailing strategies adapted to these digital shifts, particularly in the context of the pandemic, as retailers found new ways to connect with consumers and maintain engagement. These themes collectively paint a picture of a rapidly changing landscape where digital commerce is increasingly central to consumer behavior, driven by the need for convenience, trust, and seamless experiences.

The trend analysis in the figure 6 reveals a dynamic evolution shaped by the COVID-19 pandemic. In 2019, the pre-COVID period focused on foundational exploration of consumer preferences in evolving online shopping. During this time, research primarily focused on understanding basic consumer behavior and how it influenced e-commerce. Research on consumer behavior explored factors like convenience, trust, and satisfaction, which were key drivers of purchasing decision. The impact of COVID was not yet a significant theme, so the market was largely characterized by pre-COVID growth phase with expectations of continued digital adoption and evolving preferences in consumer interactions with technology. Gender differences in shopping behavior were explored, along with the concept of channel dynamics, where consumers research products online before purchasing in-store, driven by a desire for convenience and confidence in their choice. Convenience of e-commerce platforms were also crucial elements shaping behavior.

In 2020, the early COVID shift to retail adaptation and trust was transformative, as the pandemic forced both retailers and consumers to rapidly pivot towards digital platforms. With physical stores closing and social distancing measures in place, the demand for online shopping surged, pushing retailers to quickly enhance their e-commerce capabilities. This shift highlighted the necessity for retailers to provide convenient, safe, and trustworthy online shopping experiences. Trust became a cornerstone for consumer confidence, as shoppers prioritized platforms that ensured secure transactions, contactless payment options, and transparent health protocols. The need for a seamless omnichannel experience also grew, as consumers wanted the flexibility to research online and purchase either digitally. The 2020 year marked a rapid and forced shift to digital-first strategies, where trust in the retailer's ability to provide a consistent and reliable service across online and offline channels were crucial to retaining customers during the early stages of the pandemic.

In 2021, the pandemic accelerated shifts in purchase intention as consumers increasingly turned to online shopping due to ongoing in-person retail restrictions. Customer satisfaction and the usability of online platforms

became key, with consumers demanding easier navigation, seamless purchasing, and efficient delivery. Retailers responded by enhancing website usability, mobile optimization, and checkout processes to meet the growing demand for convenience. Trust remained central, with consumers prioritizing platforms offering secure transactions and transparent communication. As purchase intention surged, retailers had to adapt quickly to meet evolving consumer needs in the digital space.

In 2022, the focus shifted towards customer experience and value as consumers prioritized not only convenience but also emotional satisfaction. With the ongoing impact of COVID-19, consumers sought more personalized, rewarding shopping experiences. Retailers enhanced customer experience by offering personalized services, fast delivery, and seamless interactions, while customer value was defined by both functional benefits and emotional fulfillment. The demand for transparency, sustainability, and personalized recommendations grew, and customer satisfaction became key to retaining loyalty. The pandemic continued to influence these shifts, emphasizing the need for online shopping experiences that catered to both practical and emotional needs.

In 2023, peak adaptation occurred across all themes, with e-commerce reaching new heights and consumers expecting seamless, personalized shopping experiences. Consumer behavior shifted toward greater demand for convenience, trust, and customized recommendations. Retailers responded by enhancing user experience and optimizing mobile platforms. Purchase intention remained strong as consumers sought both functional and emotional satisfaction. Customer satisfaction peaked, with brands focusing on loyalty programs, transparent communication, and reliable support.

In 2024, the refinement of trust and satisfaction continued to be central to consumer behavior. With online shopping fully integrated into daily life, consumers became more selective, prioritizing platforms offering secure transactions, reliable service, and personalized experiences. Trust expanded to include transparency in product sourcing, ethical practices, and clear communication. Customer satisfaction was enhanced through personalization and loyalty programs tailored to individual preferences. This shift led to greater purchase intention, as brands fostering a sense of belonging and value were better able to retain customer loyalty and gain a competitive edge in the digital marketplace.

In the overall trend, online shopping and e-commerce have always topped the list throughout the years, showing the strong and continuous growth of online shopping and e-commerce. Paying attention to consumer behavior is also a prominent trend, appearing regularly over the years. From 2021, the impact of COVID-19 has begun to appear and strongly influence research trends, especially in 2022 and 2023. Factors related to customer experience and satisfaction are also of interest, especially in recent years. In 2024, study maintains a focus on online shopping, trust, and customer experience.

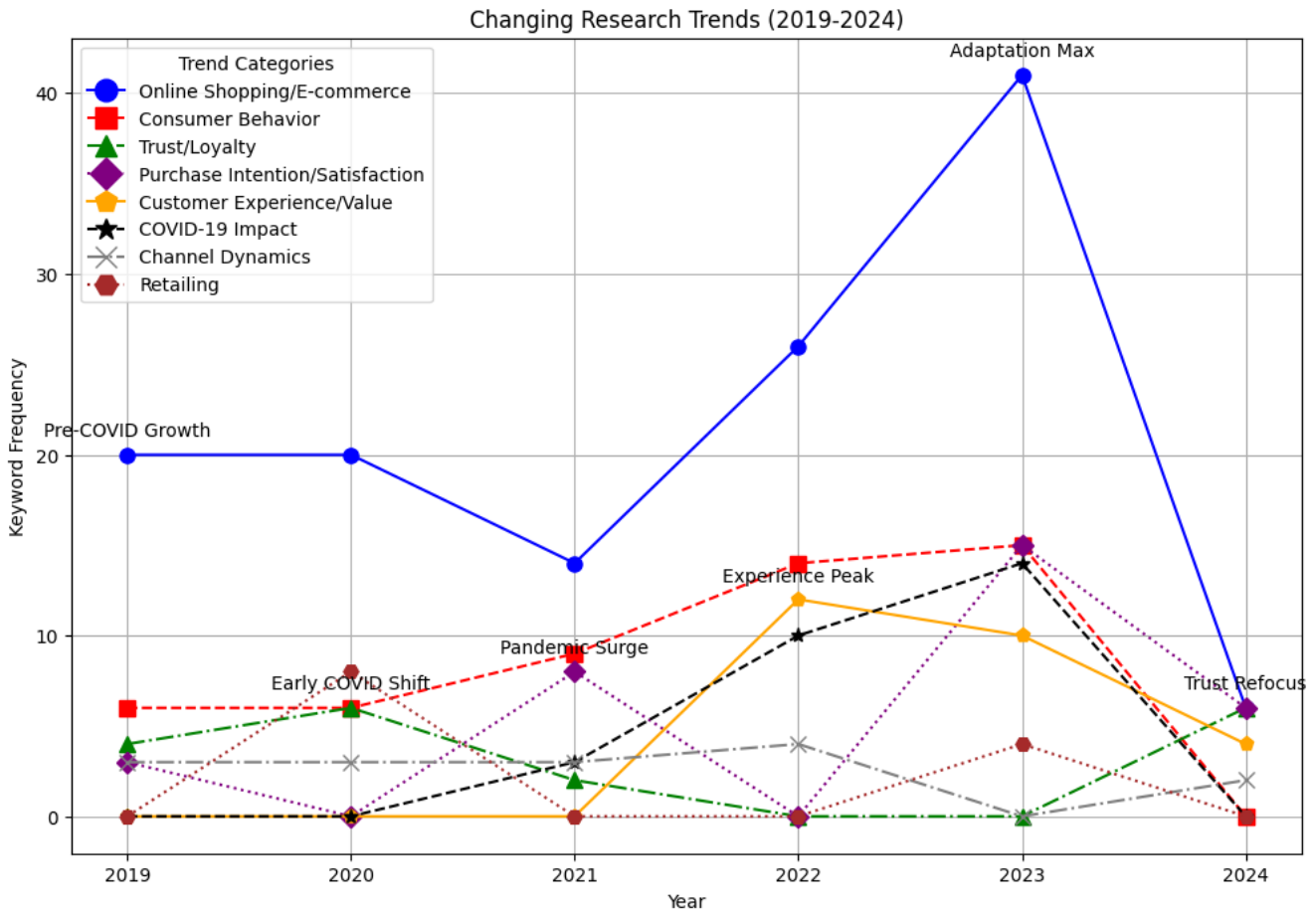


Figure 6 Top different keywords with ngrams = 2 used by authors over the years.

Table 8 Seven clusters are investigated for research domains.

Cluster 1 (n=32)		Cluster 2 (n=73)		Cluster 3 (n=36)		Cluster 4 (n=71)		Cluster 5 (n=74)		Cluster 6 (n=62)		Cluster 7 (n=50)	
Keyword	Freq.	Keyword	Freq.	Keyword	Freq.	Keyword	Freq.	Keyword	Freq.	Keyword	Freq.	Keyword	Freq.
omnichannel	6	online	30	COVID 19	34	online	17	online	17	online	27	online	13
retailing		shopping		shopping		shopping		shopping		shopping		shopping	
retail	4	shopping	7	online	13	consumer	6	customer	13	purchase	8	consumer	10
operations		behavior		shopping		behavior		satisfaction		intention		behavior	
supply chain	3	behavior	7	19	11	cross	5	customer	11	online	5	online	7
		online		pandemic		channel		experience		online		consumer	
store	3	consumer	6	19	5	grocery	4	customer	8	shopping	5	consumer	7
technology		behavior		commerce		retailing		loyalty		perceived		behavior	
pickup	2	impulsive	6	theory of	5	multichannel	4	service	8	perceived	5	commerce	6
service		buying				shopping		quality		risk		online	
service	2	purchase	6	19	4	in store	3	loyalty	7	online	5	sentiment	5
quality		intention		customer				customer		grocery		analysis	
fashion	2	customer	5	consumer	4	consumer	3	consumer	5	ease of	5	machine	4
retailing		behavior		behavior		behavior		behavior		of use		learning	
online	2	decision	4	consumer	4	online	3	word of	5	of use	5	latent	3
service		making		behavior		grocery						dirichlet	
shopping	2	shopping	4	behavior	4	multichannel	3	of mouth	5	online	4	dirichlet	3
behavior		motivation		COVID		marketing				customer		allocation	
fast fashion	2	impulse	4	shopping	4	strategy	3	satisfaction	4	customer	4	customer	3
		buying		behavior		online		customer		experience		experience	
in store	2	structural	4	behavior	3	need for	3	loyalty	4	grocery	4	marketing	3
		equation		COVID				online		shopping		online	

## 6. NETWORK ANALYSIS

We investigate the thematic structure of the research domain. We conducted a cluster algorithm with a Document-Term Matrix (DTM) involving a process where each document is represented as a vector based on the frequency of author keywords. This matrix captures the relationship between documents and the terms they contain. The cluster algorithm then operates on this matrix to group similar documents together based on their keywords. Each cluster represents a group of documents that share similar characteristics.

Once the clustering is completed, each document is assigned a label corresponding to the cluster it belongs to. These labels provide insights into the underlying structure and themes present in the document collection. We then analyze and interpret these clusters to gain a deeper understanding of the topics covered in the documents and identify patterns or trends within the data. The dataset is conducted to 7 clusters with the following topics as shown in Table 8.

*Cluster 1: Omnichannel retailing and various aspects of retail operations in this environment.*

Current research in the retail sector reveals a significant trend towards omnichannel retailing, emphasizing the integration of various sales and communication channels to create a cohesive customer experience. Studies show that advancements in store technology and the optimization of retail operations are crucial for implementing effective omnichannel strategies. This includes the adoption of advanced inventory management systems, digital payment solutions, and in-store digital tools to enhance the shopping experience. Additionally, the rise of pickup services and efficient logistics has become a focal point, with retailers striving to streamline order fulfillment processes and provide flexible, convenient options for customers. The integration of logistics services, including same-day delivery and real-time tracking, is crucial in meeting consumer expectations for speed and reliability. In short, this cluster highlights the importance of a seamless blend of online and offline channels, supported by robust technological infrastructure and efficient logistics, to improve customer satisfaction and maintain competitive advantage in the evolving retail landscape.

*Cluster 2: Factors affecting consumer shopping behavior and purchasing decisions*

The research trend within the cluster centers on consumer shopping behavior, with a specific emphasis on investigating and analyzing the factors that influence consumers' purchasing decisions. Keywords such as shopping behavior, impulsive buying, consumer behavior, purchase intention, decision making, shopping intention, structural equation, buying behavior, and cart abandonment indicate a concerted effort to explore the intricacies of consumer behavior in the context of retail environments. Scholars in this cluster likely delve into various aspects of consumer psychology, economic factors, marketing strategies, and technological advancements to unravel the complexities of consumer decision-making processes. Moreover, the inclusion of terms like structural equation suggests a quantitative approach, possibly involving

statistical modeling to understand the relationships between different variables influencing consumer behavior. Additionally, the focus on cart abandonment signifies an interest in investigating online shopping behaviors and the reasons behind consumers abandoning their virtual shopping carts. In the main, this research trend aims to provide valuable insights into consumer behavior to inform marketing strategies, improve customer experiences, and optimize retail operations.

*Cluster 3: The impact of the COVID-19 pandemic on consumer behavior and shopping activities*

The research trend in the given document cluster centers on examining the impact of the COVID-19 pandemic on consumer behavior and shopping activities. Key terms such as COVID 19, 19 pandemic, consumer behavior, 19 commerce, shopping pandemic, last mile, fear of, and grocery shopping indicate a focus on understanding how the pandemic has altered shopping habits and preferences. Studies likely explore shifts towards online shopping, changes in grocery buying patterns, increased emphasis on last-mile delivery solutions, and the psychological impacts of fear and uncertainty on consumer choices. This research trend aims to shed light on the long-term effects of the pandemic on commerce and consumer habits, providing insights into new shopping behaviors and the evolving retail landscape.

*Cluster 4: Consumer behavior in the context of multi-channel shopping*

The research trend in this cluster appears to focus on consumer behavior in the realm of multichannel shopping. Keywords like consumer behavior, multichannel shopping, multichannel marketing, grocery retailing, in-store, shopping webrooming, offline to online, customer engagement, and digital transformation suggest an in-depth examination of how consumers interact with various shopping channels, both online and offline. The documents likely explore how retailers manage and enhance the multichannel shopping experience, addressing the challenges and opportunities in seamlessly integrating these channels. This research aims to understand consumer preferences for different shopping methods, strategies for boosting customer engagement across all platforms, and the impact of digital transformation on the retail industry. It highlights the evolving dynamics of modern retail practices as they adapt to the growing trend of multichannel shopping.

*Cluster 5: Customer satisfaction and loyalty in the fashion retail sector*

Recent research in the fashion retailing sector highlights a growing emphasis on interconnected themes such as customer satisfaction, customer experience, service quality, and customer loyalty. These studies underline the critical role of service quality in shaping consumer behavior, with high service standards fostering positive word of mouth and enhancing customer retention. Social media's pervasive influence is particularly noteworthy, serving as both a platform for brand engagement and a conduit for consumer feedback, which directly impacts customer satisfaction and loyalty. This digital shift has prompted fashion retailers to prioritize personalized, seamless customer experiences across online and offline channels. As a result, the fashion

retail industry is increasingly focused on leveraging data analytics to understand and anticipate consumer behavior, ensuring that their strategies are aligned with the evolving expectations of a digitally-savvy customer base. This convergence of factors underscores the dynamic nature of fashion retailing, where maintaining high service quality and leveraging social media are paramount for sustaining competitive advantage and fostering long-term customer relationships.

#### *Cluster 6: Customers' shopping intention and consumption behavior*

The research trend in this document cluster appears to focus on purchase intention, and consumer behavior. Keywords such as purchase intention, perceived risk, ease of use, intention shopping, grocery shopping, customer experiment, convenience customer, consumer behavior, planned behavior, hedonic value, and utilitarian value suggest an exploration of the factors influencing customers' purchase decisions. The documents likely delve into how perceived risk, convenience, and perceived value, both hedonic and utilitarian, affect purchase intentions. This research trend involves examining these factors through customer experiments and models of planned behavior to provide a comprehensive understanding of the psychological and practical considerations driving consumer actions. By analyzing these influences, the studies aim to offer insights for enhancing marketing strategies and improving customer satisfaction in various shopping contexts, particularly grocery shopping.

#### *Cluster 7: Analyzing consumer behavior using big data and machine learning technologies.*

Keywords such as consumer behavior, sentiment analysis, machine learning, latent Dirichlet allocation, text mining, big data, deep learning, and digital content indicate a focus on leveraging advanced technologies to analyze and understand consumer behavior on shopping and e-commerce platforms. The documents likely discuss how these cutting-edge methods are employed to process and interpret vast amounts of data, extracting meaningful insights about consumer sentiments, preferences, and purchasing patterns. By utilizing techniques like sentiment analysis, topic modeling, and deep learning, this research trend aims to enhance the understanding of consumer behavior, offering valuable information for improving customer engagement and optimizing marketing strategies in the digital marketplace.

## 7. CONCLUSION AND DISCUSSION

The bibliometric approach indicated that consumer behavior has become an emerging research area in the context of online shopping with the impact of the COVID-19 pandemic in the last five years based on the number of articles and citations. It includes factors related to customer experience and satisfaction, service quality, customer value, purchase intention, and shopping decisions. Specific types of shopping such as online shopping for consumer goods are also mentioned.

Keywords such as COVID-19, COVID pandemic, and online grocery shopping appear frequently in various articles

and journals, showing a strong interest in online shopping behavior in the context of the COVID-19 pandemic scene. This reflects a clear change in consumer shopping habits from in-person shopping to online shopping. The analysis of keywords revealed customer satisfaction and online customer experience related to articles from the best Journal of Retailing and Consumer Service that shows the importance of studying customer experience and satisfaction in the online shopping environment. This is an important factor in maintaining and attracting customers in the context of fierce competition on e-commerce platforms. Keywords such as attitude, loyalty, and consumer behavior show that there are many studies focusing on factors that influence online consumer behavior. Understanding these factors helps businesses and researchers devise marketing strategies and service improvements that increase loyalty and attract consumers. The Sankey diagram shows the collaboration between authors and the diversity in research topics. This demonstrates that the study of online shopping behaviour in the context of the COVID-19 pandemic is approached from many different perspectives, including psychology, economics, and management. This collaboration could lead to new and more comprehensive findings about consumer behaviour. The Journal of Retailing and Consumer Service is the journal with the most articles, showing that this is an important source for research related to online shopping. This can help researchers and practitioners know which journals to follow to stay up to date with the latest information and trends in the field.

The analysis of seven clusters and keywords across the year provides a comprehensive overview of the various topics and research interests of online shopping. Identifying each analysis and keyword trends over the years helps researchers better understand popular topics and research trends over time and in recent years. This helps the researcher identify gaps in the COVID-19 and current landscape. An in-depth analysis of these trends serves as a foundation for future research, helping to solve the problem of introducing new technology into the retailing models, related to the development of a sustainable, convenient retail industry. These benefits satisfy the diverse needs of customer behavior and public health promoting sustainability and health for the future.

The pandemic has significantly accelerated the shift towards online shopping, altering consumer habits and preferences. Understanding these changes helps retailers and businesses adapt their strategies to meet the new demands and expectations of consumers. It also provides insights into the factors driving online purchasing decisions, such as convenience, safety, and the availability of a wider range of products. Furthermore, analyzing these behaviors can reveal emerging trends and technologies that are shaping the future of e-commerce. In general, such analysis is essential for developing effective marketing strategies, improving customer engagement, and ensuring business resilience in a rapidly changing digital landscape. This study is useful for researchers and businesses who want to better understand consumer behavior and factors influencing online shopping.

## ACKNOWLEDGMENTS

We would like to express our sincere gratitude to the editors and anonymous reviewers of Operations and Supply Chain

Management for their valuable comments and suggestions that greatly enhanced the quality of this paper. This research is funded by University of Economics and Law, Viet Nam National University Ho Chi Minh City and HCMC University of Technology and Education, Ho Chi Minh City, Vietnam.

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