

# MAPPING CONSUMER BEHAVIOR RESEARCH: A VOSVIEWER-BASED BIBLIOMETRIC ANALYSIS

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## ABSTRACT

**Purpose:** This study aims to provide a comprehensive overview of consumer behavior research, which refers to the broad study of the way individuals or groups behave to satisfy a particular need. This study identifies key trends, influential contributors, and collaboration networks. It highlights significant growth, interdisciplinary themes, and the importance of international collaborations in advancing the field.

**Objective:** It aims to highlight and visualize the major trends, leading contributors and distinct thematic aspects using of Vosviewer software to find out the implicit gap leading to further required exploration.

**Research Methodology:** A total of 774 papers were retrieved from the Scopus database, published between 2015 and 2024. The analysis was conducted using the VOSviewer software used as a visualization tool to create bibliometric maps and networks.

**Findings:** This bibliometric review research offers an in-depth analysis of the consumer behaviour research arena. Making use of sophisticated bibliometric methods, the research focuses on the most prominent works, authors, organizations, and countries that are engaged in a particular discipline. Key variations and patterns have been identified in the analysis, which include frequently used phrases and collaboration networks.

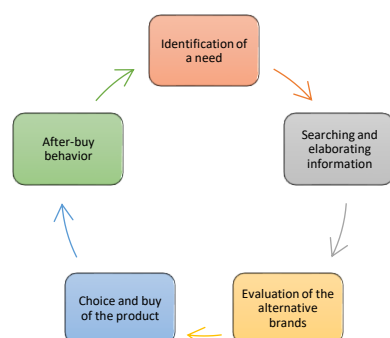
**Implications:** With every aspect considered, this bibliometric assessment reveals illuminating insights into the growth and current state of consumer behaviour research studies, and it also provides an authoritative basis for potential areas of study and policy ramifications.

**Keywords:** Bibliometric Analysis, Consumer behaviour, Network Mapping, Visualization Mapping.

## 1. INTRODUCTION

The consumer is the one who actually makes use of the good or service, and consumer behaviour represents the practice of utilizing and appraising products and services in addition to collecting and organizing data compelling towards a buying decision. All the research on consumer behaviour involves numerous dimensions which concentrate on the answers to where, when, and why the products are purchased. Essentially, it relies on the consumer's psyche. It attempts an effort to figure out how buyers arrive at choices both independently and in groups. As a way to understand what each individual customer prefers, it looks into their psychological and behavioural traits. Considering customers as the sole target audience, a business actually exists for customer satisfaction which proves to be the basic mainstay of studies on consumer behaviour. Furthermore, executives who exhibit a broader comprehension of consumer behaviour are going to be equipped with discern emerging possibilities and further may capitalize that information to execute market

segmentation more effectively (Mehta, S & et al. 2020). Contemporary feedback of consumer habits also known as consumer behaviour across multiple fronts (involvement, customization, consumption; Chandra et al., (2022); Lim & Rasul, (2022); Ciasullo et al., (2022); Lim, Rasul, Kumar, & Ala, (2022) are easily accessible, however there are relatively just a few cutting-edge reviews of consumer behaviour are available. And undoubtedly numerous marketing scholars have provided the initial drive to explore consumer behaviour since they have examined into how social psychology might assist to uncover the exact motivations underlying consumers' actions and transactions. Marketing pros may further evidence that it is a cornerstone in identifying emerging markets for establishing a niche to position their items underneath through an understanding of consumer behaviour. Siomkos (2002) asserts that there are five steps associated with the process of determining a purchase, as mentioned in Figure 1:

**Figure 1: Process of Purchase given by Siomkos (2002)**

Source: Author

While making buying decisions, instead of taking the price alone into account, Indian consumers presently ask for better price-to-quality ratios while weighing factors like quantity, excellence, accessibility, validity, and innovation (Kacen et al., 2012 & Kinney et al., 2012). By stimulating impulsive buying, it strengthens the consumer's perception of the goods and also reinforces the association between the consumers and the retailers (Jones et al., 2003). Three traits associated with quick decision maker consumers have been highlighted in Baumgartner's (2002) research: consumer experiencing, purchase involvement, and impulsive behaviour. Prior research has acknowledged the impulsive characteristics of procurement (Rook and Fisher, 1995). Since the consumerism (Pieters, 2013), shopping delight inclination [Beatty and Ferrell, (1998); Badgaiyan and Verma, (2014) and impulsive purchasing propensity [Amos et al. (2014); Badgaiyan and Verma, (2014); Dhaundiyal and Coughlan, (2016) are attributes of consumers that have been associated with impulsive buying, this particular study drove all these aspects into account in this research framework that has been put forth.

## 1.2 Problems of the Study

Research incorporating secondary data poses an assortment of challenges for researchers. Amongst them, the problems on which the study stumbled include the following:

- i. Sourcing adequate research from underdeveloped countries proved troublesome because of their under-representation, pointing to imbalanced inclusive global collaboration in the domain of consumer behaviour.
- ii. With the Co-occurrence analysis of consumer behaviour, the study is hindered by the use of keywords that are inconsistent and overlap, making it difficult to identify emerging and distinct trends.
- iii. Because of the overemphasis on older and highly cited papers, this study may cause us to overlook those studies of consumer behaviour which are newer ones despite having greater innovative insight.

- iv. With the visual representation of numerous clusters, this study highlights those one which are lacking interconnection, indicating restricted cross-disciplinary flow of knowledge of consumer behaviour.
- v. Various narrow sets of the under-explored themes were also centered around leaving few critical themes significantly unexplored, such as ethical and cultural aspects of consumer behaviour.

## 1.3 Research Question

1. What are the major trends and themes in the literature of consumer behaviour.
2. What are the most influential documents, authors and countries contributing to a particular field?
3. What are the probable research themes and gaps that are unexplored?
4. What is the most occurring keyword, and do they frame any cluster framing key themes related to the topic?
5. In what way are researchers and concerned institutions collaborating globally on the theme of consumer behaviour?

## 2. RESEARCH METHODOLOGY

### 2.1 Materials and Methods

#### 2.1.1 Data Collection

This study steered a bibliometric analysis, A form of meta-analytical methodology that measures the degree to which an article is referenced throughout other papers, highlighting significant directions of exploration for a particular topic (Batistić, S. & van der Laken, P., 2019). It allows researchers and scholars to explore a field's comprehensive organizational framework (Zupic, I. & Cater, T., 2015) for the structural analysis of consumer behaviour using the prestigious and worthy Scopus database. A total of 774 papers were finally retrieved from the database, which were published between 2015 and 2024. Numerous filters have been applied for accessing the related final database.

#### 2.1.2 Data Analysis

The data was analysed using VOSviewer software (van Eck & Waltman, 2010) to create bibliometric maps and networks. The analysis was conducted from all five aspects: co-authorship on basis of authors/countries/organisation, co-occurrence of keywords, co-citation of authors/organisation/sources/countries, citation of documents/authors/countries, and bibliographic coupling with sources/organisation/authors and so on.

#### i) Co-Authorship Analysis

The co-authorship analysis is conducted to identify the relationships between authors about the collaborative nature in the field of consumer behaviour research, highlighting the network of researchers working together across various institutions and countries. Overall, co-

authorship analysis underscores the importance of teamwork and global cooperation in driving forward this particular field of consumer behaviour research.

### ii) Co-Occurrence of Keywords

To determine the associations between terms, a co-occurrence assessment of keywords has been done. The co-occurrence of analysis of keywords pays focus on significant concepts and trends throughout overall research database on consumer behaviour. It depicts how terms such as "consumer behaviour" and "consumer preferences" are frequently clustering together and also suggesting the most prominent research fields as well as trendy topics. The research presented here contributes in distinguishing the intellectual landscape of the field and points out previously unexplored areas.

### iii) Co-Citation

Co-citation analytics measures the extent to which both papers are cited in tandem, revealing their impact and conceptual connections that exist in between. It showcases significant study patterns along with fundamental core and also acknowledges notable contributions as well as their connections with each other. This methodology indicates the way different publications boost the field's evolution, assisting in the visualization of the cognitive landscape.

### iv) Citation of Documents/Authors/Countries

In order to identify the most frequently cited documents, authors, and countries, a citation analysis of the papers, authors, and countries is carried out. Citation analysis analyses the noteworthy articles and authors through tracking the number along with their references to specific publications. It highlights how findings from studies influence the advancement of the discipline once after pinpointing significant contributions and emerging patterns. This evaluation may further assist in assessing the relevance and impact caused by research conducted in particular academia.

### v) Bibliographic Coupling with Sources

Bibliographic coupling estimates how theoretically similar two publications appear simply by comparing the number of citations they share in common. It uncovers related findings from the research database and indicates the extent to which multiple studies are related by the way of having references in identical sources. Across a field, this assessment exposes research networks and theme clusters.

## 3. DATA ANALYSIS AND RESULTS

Here are some thoughts about the data analysis in the research paper:

### 3.1 Strengths

- **Extensive analysis:** The paper presents a comprehensive bibliometric analysis of 774 consumer behavior papers published between 2014 and 2024. It offers an in-depth overview of

the current state of research in this particular field. This analysis highlights key trends and developments in consumer behavior studies under deep rooted way.

- **Versatile approach:** The analysis is conducted from broad range of aspects: co-authorship, co-occurrence of keywords, co-citation, citation, and bibliographic coupling from view point of different unit of analysis offering a rich and versatile understanding of the research landscape.
- **Tools of visualized presentation:** The paper uses visualization tools such as VOSviewer to create bibliometric maps and networks, making it easier to identify patterns and relationships and also the extent of this relationship to some level.

### 3.2 Weaknesses

- **Limited scope:** Use of the filter of period of 2014-2024 detracts from the result of the study. To get a clear and broad overview, limiting the search could paralyse the degree and magnitude of validity as well as the reliability of the result.
- **Threshold values:** In an attempt to weed out less important authors and documents, the research paper applies criterion values, which include a certain number of authors, requisite number of citations, and so on, which may disregard the contribution of those who fall under the shortage of these criteria.

Numerous previous studies focusing severely on consumer behaviour configurations [Loxton, M. et al (2020); Eger, L et. al (2021)], categories [Papista, E & et al. (2018); Henzen, R (2019)], progressions [Karaman, D. & Yıldız, A., 2022]; Sahelices-Pinto, C (2019)], and consequences Shahid, S & et al. (2022); Vichiengior, T & et al. (2019) are available in academia. However, consumer behavioural research, networking and mapping have received very little consideration, and much more is still required, and this study is an attempt to overcome that gap.

## 4. MAPPING ANALYSIS

For the study purpose, VOSviewer software has been applied (Gázquez-Abad, Martínez-López, Lammers, & Miranda, 2020; Merigó, & Ruiz-Real, 2019; Merigó, Shukla) to execute an exhaustive mapping analysis for the study resulting for an accurate portrayal of the relationships and overlaps among significant dataset in our database. For the analysis, this study comes across several clusters, each of which is designated a particular topic within the subject matter of the study. A few significant concepts are highlighted in the network visualization, along with their relevance and relationships to other ideas. The importance of these significant phrases and their bearing on the field of research has also been demonstrated by this mapping. Density of the display further helps to pinpoint the most researched areas by illuminating spots with considerable amounts of research engagement.

Furthermore, the overlay visualization depicts the study subjects' longitudinal evolution, emphasizing innovative patterns and shifts over time. Using the analysis of bibliometric coupling, we have been capable to identify the significant publications that offer a substantial contribution to the subject, enabling a foundation for further study. The term "clustering" enables to explore niches and novel fields for research by enabling to recognize the connections and proximities between distinct concepts at more fundamental level. The citation analysis additionally brought out numerous noteworthy writers' and landmark works' accomplishments contributed towards a particular area of study. All things taken into account, the VOSviewer analysis offers fascinating details about the state of the field, enhances our knowledge of current trends and directs our course of action for further studies.

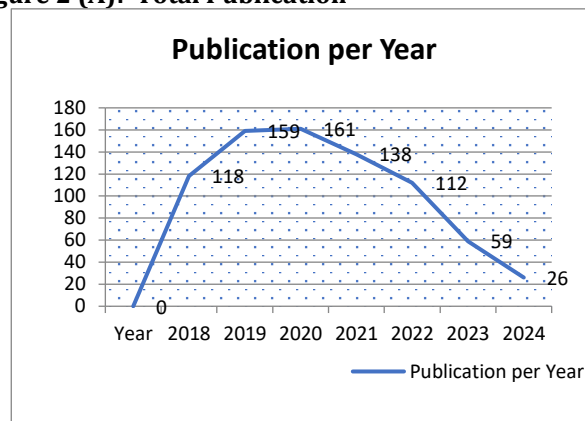
Using VOSviewer, the study offers a mapping analysis of consumer behaviour articles in this part, targeting five key domains. At first, it looks into data concerning authors and co-authors, emphasizing networks of collaboration. In order to uncover theme trends, the study next looks at the co-occurrences of all phrases, including author keywords and index keywords. Thirdly, while trying to recognize noteworthy contributions, all documents, countries, and authors having substantial citation counts are taken under consideration. Furthermore, for the purpose to better understand the mutual dependence of research outcomes, this study examines into bibliographic coupling with sources. Lastly, co-citation is analysed with referenced authors in an effort to pinpoint key contributions and notable individuals in the field. This comprehensive review provides an intricate perspective on the current situation of consumer behaviour studies.

#### 4.1. Analytical Discussion

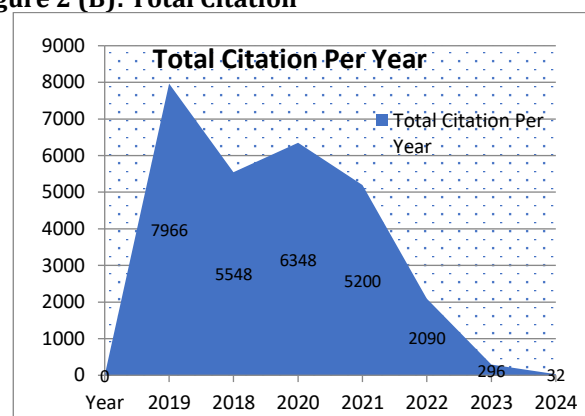
The visual presentation of publication per year and total citation per year has been of Consumer behaviour from the Scopus database for the years 2014–2024, is shown in Figures 2(A) and 2(B). The year-wise publications analysis, as given in chart (a), reveals the distribution of publications over the recent years. In 2020, there were 161 publications with 6348 citations, reflecting a peak in research publication impact. The year 2019 also saw significant publication activity with 159 publications and so on. As given in chart (b), all publications included in studies have amassed a maximum of 7,966 citations to date, highlighting their impacts. Moving to 2021 and 2018, there are 112 and 118 publications with 5200 and 5548 citations, respectively, indicating sustained interest and research output. In 2023, the publications count is 59, having 296 citations, only due to the short span of time, showing a slight decline but still maintaining substantial academic engagement. And up to mid-2024, there are a total of 26 publications with at least citations of 32 citations only within the particular database. This reflects ongoing research activities and contributions to the domain. This

analysis demonstrates the fluctuating yet strong publication trends in consumer behaviour research over these years, highlighting the evolving focus and influence within the field.

**Figure 2 (A): Total Publication**



**Figure 2 (B): Total Citation**

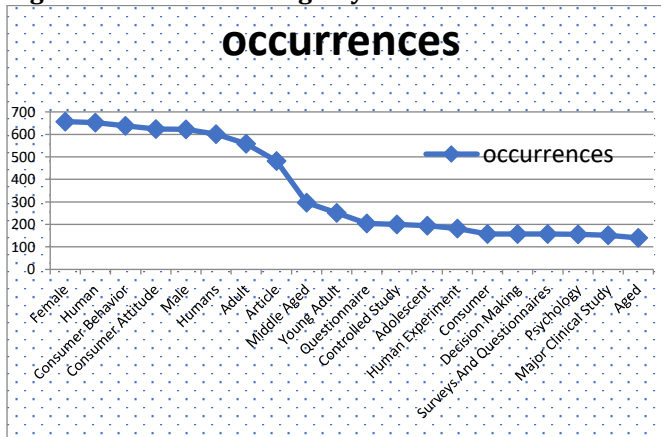


**Table: 1- List of Sources with the number of documents published within (2015-24)**

Source	Documents
International Journal of Environmental Research and Public Health	110
Nutrients	109
Plos One	108
Appetite	54
Meat Science	19
Journal of the Academy of Nutrition and Dietetics	17
Food Research International	14
Journal of Dairy Science	12
Sustainability (Switzerland)	11
Tobacco Control	11

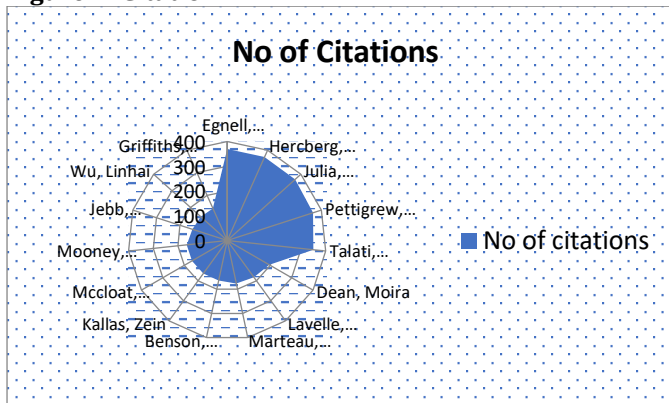
The mapping analysis includes a review of key sources in consumer behavior research. Leading journals having more than 100 documents are the *International Journal of Environmental Research and Public Health* with 110 documents, *Nutrients* with 109, and *PLOS ONE* with 108. Whereas all others included in the table have their share of participation, with fewer than 100 documents.



**Figure 3: Most-Occurring Keywords**

Source: Vosviewer

The organizational contribution to consumer behavior research is marked by the significant output from various leading institutions worldwide. As shown in **Table 4**, universities and research centres in Australia, such as the School of Psychology, Curtin University and the School of Health Science, University of Newcastle, the Faculty of Health and Medicine, etc., have made substantial contributions, driving forward innovative studies and theories. In the United Kingdom, institutions like the Manchester Metropolitan University and the University of Oxford, etc., are notable for their prolific research output.

**Figure 4: Citation****Table 2: Authors with Citation**

S.No.	Author	Citations
1	Egnell, Manon	370
2	Hercberg, Serge	370
3	Julia, Chantal	370
4	Pettigrew, Simone	364
5	Talati, Zenobia	350
6	Dean, Moira	196
7	Lavelle, Fiona	183
8	Marteau, Theresa M.	177
9	Benson, Tony	164
10	Kallas, Zein	164
11	McCloat, Amanda	164
12	Mooney, Elaine	164

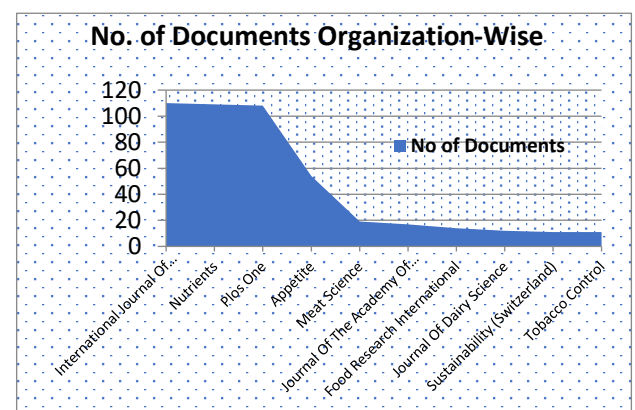
13	Jebb, Susan A.	147
14	Wu, Linhai	143
15	Griffiths, Mark D.	142

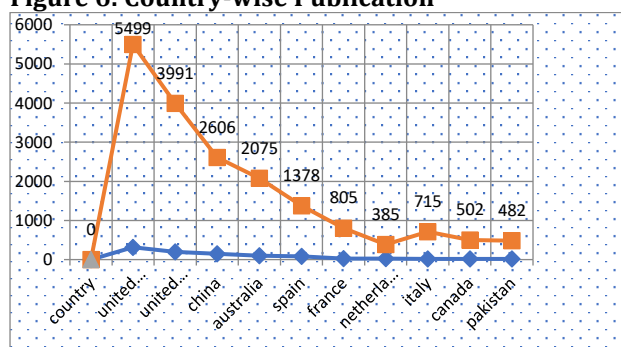
China's leading universities, including Zhejiang University, Renmin University of China and Jiaxing University have rapidly increased their contributions, reflecting the country's growing emphasis on this field. Institutions from United States, such as the University of Nebraska and the University of Georgia Etc. are also key players, actively publishing influential research. Canadian universities, such as the University of Waterloo, have also made notable contributions. Apart from them, Institutions from Ireland, Taiwan have also provided significant insights. These organizations play a critical role in advancing consumer behavior research, fostering international collaboration, and developing new frameworks and methodologies.

Table 2 summarises the citation impact of prominent authors in the field of consumer behavior research. Leading the list are Egnell, Manon, Hercberg, Serge, and Julia, Chantal, each with 370 citations, indicating their significant contributions. Simone Pettigrew follows closely with 364 citations, and Zenobia Talati has garnered 350 citations and so on. This table reflects their influential work in the domain. This data highlights the key researchers driving the field forward.

**Table 3: Publication Output Country-Wise**

S.No.	Country	Documents
1	United States	315
2	United Kingdom	196
3	China	147
4	Australia	102
5	Spain	86
6	France	24
7	Netherlands	23
8	Italy	21
9	Canada	20
10	Pakistan	17

**Figure 5: Documents Published by Top Sources During 2015-24**

**Figure 6: Country-wise Publication**

Source: Vosviewer

Table 3 provides an overview of the publication output in consumer behavior research by country. The United States leads with a substantial 315 documents, showcasing its dominant role in the field. The United Kingdom follows with 196 publications, indicating its strong research presence in the given domain after the US. China also contributes significantly with 147 documents, reflecting its growing influence. Australia, with 102 publications, demonstrates active engagement in this research arena. Spain, having 86 documents, also plays a notable role similarly. This distribution underscores the global nature of consumer behavior research and the diverse contributions from various countries.

**Table 4: Organizational Documents with Maximum Citation Links**

Organization	Documents	Citations
School of Psychology, Curtin University, Australia	5	303
Department of Home Economics, St. Angela's College, Ireland	3	164
Priority Research Centre for Physical Activity and Nutrition, The University of Newcastle, Australia	4	104
School of Health Sciences, Faculty of Health and Medicine, Australia	4	104
Manchester Fashion Institute, Manchester Metropolitan University, Manchester, United Kingdom	3	90
Center for Environmental Toxin and Emerging-Contaminant Research, Taiwan	4	84
Department of Business Administration, Cheng Shiu University, Taiwan	4	84
Faculty of Public Health and Policy, London School of Hygiene and Tropical	3	84

Medicine, London, United Kingdom		
Super Micro Mass Research and Technology Centre, Taiwan	4	84
School of Management, Zhejiang University, Hangzhou, China	3	69
Department of Psychology, University of Waterloo, Canada	3	67
Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, United Kingdom	3	62
Department of Agricultural Economics, University of Nebraska, United States	3	58
Carolina Population Center, United States	3	48
Ontario Institute for Cancer Research, Toronto, ON, Canada	3	44
School of Public Health and Health Systems, University of Waterloo, Canada	3	44
Department of Agricultural Economics, Purdue University, West Lafayette, IN, United States	3	43
Department of Agricultural and Applied Economics, University of Georgia, United States	3	38
Institute of Food and Nutrition Development, Ministry of Agriculture and Rural Affairs, China	4	24
School of Business, Renmin University of China, China	3	15
Department of Accounting, Jiaxing University, China	4	10

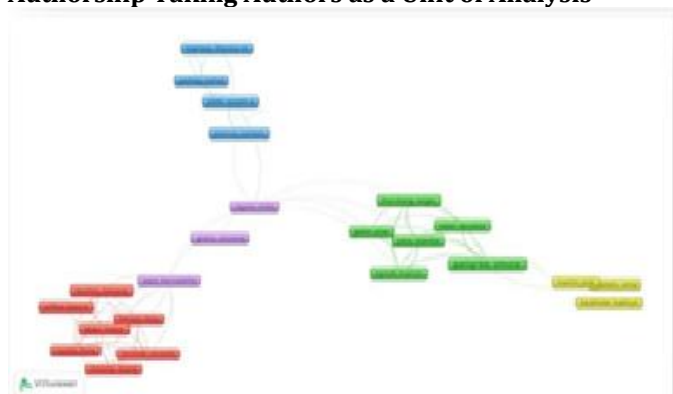
## 4.2. Co-authorship

### 4.2.1. Co-Authorship and Author

Figure 7 presents the VOSviewer analysis of consumer behaviour research from the Scopus database for 2014–2024. The analysis uses five color-coded clusters (Red, Green, Blue, Purple, and Yellow) to illustrate the relationships among various topics identified in the research. VOSviewer employs network visualization, overlay visualization, and density visualization to map bibliometric data. To analyse co-authorship, the study set a threshold of a maximum of 25 authors per document, with a minimum of 3 documents and 10 citations per author. Out of 3,421 authors, 75 met these criteria, indicating their

relevance in the network. The total strength of co-authorship links for these 75 authors will be computed, and the author with the highest link strength will be identified as the most connected within the network. The largest connected component within the five clusters consists of 26 items. This group represents the most interconnected set of topics or authors, highlighting the core network within the broader bibliometric analysis. The network map features 26 prominent sources across 5 clusters, with 69 links and total link strength of 183.

**Figure 7: Visual Networking Map Based on Co-Authorship Taking Authors as a Unit of Analysis**



Source: Vosviewer

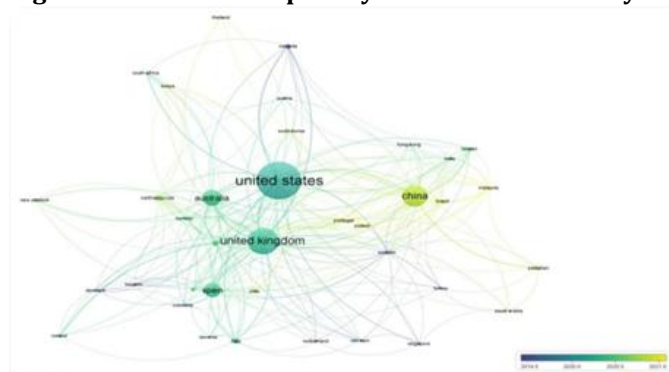
#### 4.2.2 Co-Authorship and Countries

The analysis of co-authors and countries uses a maximum of 25 countries per document and excludes documents co-authored by more than 25 organizations for the overlay visualization. It includes only countries with a minimum of 5 documents and 50 citations. Out of 94 countries, 37 meet these criteria, and the largest connected component consists of 36 items across 6 clusters, indicating that 1 network object is isolated. The total co-authorship link strength for these 37 countries will be calculated to identify the most connected one. The mapping of **figure-8** showcases 36 key sources across 6 clusters, with 243 links and a cumulative link strength of 644. This network highlights the substantial interconnections and significant influence of these sources in the bibliographic coupling analysis. The visualization effectively illustrates their central roles within the research landscape.

#### 4.3 Citation

Bibliometric analysis of the citations and publications, and the VOSviewer application showcases the most-cited articles and exhibits the citation networks in sketch aesthetic (Alonso, J. M., 2018). The top 100 most cited articles in the field of Consumer behaviour were listed in *Table S1*. The mean citation count of the top 100 most cited articles was 64.60 (range, 36–318). Most of the papers (34) were published in 2019 and in year 2018(20), 2020(22), 2021(19) almost same number of papers were published year after included in top 100 papers.

**Figure 8: Co-Authorship analysis on Unit of Country**

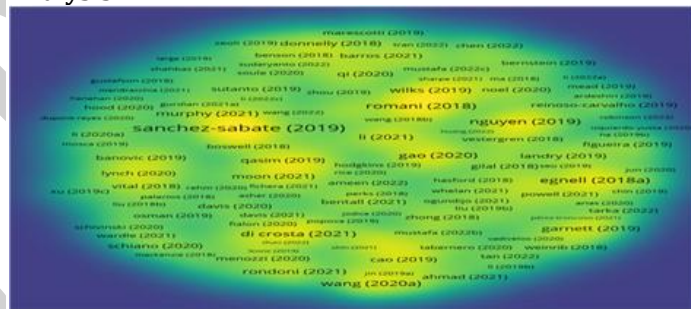


Source: Vosviewer

#### 4.3.1 Citation and Documents

In the citation analysis, documents with a minimum of 5 citations were considered. Out of 773 documents, 560 met this threshold, as shown in **Figure-9**. For each of these 560 documents, the number of citation links will be calculated, and with the highest number of links will be selected. Tabular presentation has been provided in the Table.

**Figure 9: Citation Analysis with Documents as a Unit of Analysis**



Source: Vosviewer

#### 4.3.2 Citation and Source

The analysis of citations and sources considers a minimum of 3 documents and 15 citations per source. Out of 198 sources, 35 meet these criteria. The largest connected component includes all 33 items, indicating that 2 sources are unconnected. The total link strength for these sources is calculated, with the most connected source being selected (**Table 5**).

**Table 5: Top Publication Sources with Maximum Citation**

Source	Documents	Citations	Total Link Strength
International Journal of Environmental Research and Public Health	110	2406	1
Nutrients	109	1700	9
Plos One	108	1581	3

Appetite	54	1509	7
Meat Science	19	511	3
Journal of the Academy of Nutrition and Dietetics	17	193	0
Food Research International	14	329	2
Journal Of Dairy Science	12	258	0
Sustainability (Switzerland)	11	168	0
Tobacco Control	11	297	0
Frontiers In Psychology	10	170	0
Journal Of Food Science	10	88	0
Journal of the Science of Food and Agriculture	8	77	2
Scientific Reports	8	123	0
Addictive Behaviors	7	167	1
Foods	7	72	0
Journal Of Behavioral Addictions	6	219	4
Health And Social Care in the Community	5	27	0
American Journal of Health Behavior	4	45	1

Source: Vosviewer

#### 4.3.3 Citation and Author

In the citation analysis, this study applies a filter of a maximum of 25 authors per document, requiring each author to have at least 3 documents and 10 citations. Out of 3,421 authors, 75 met these criteria, and mostly linked Authors have been visualized in Figure 10. The analysis has to calculate the total strength of citation links for these 15 authors, with the association strength to identify the most influential ones. Consequently, the top 18 authors have been displayed, as illustrated in Table 6.

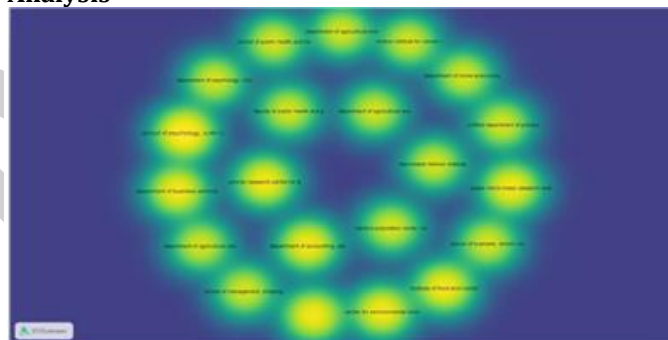
Author	Documents	Citations
Ammerman, Alice S.	4	59
Arslain, Kristina	3	40
Backholer, Kathryn	3	35
Benson, Tony	3	164
Brand, Matthias	3	61
Bucher, Tamara	5	105
Chang, Min-Yen	4	10
Chen, Han-Shen	4	10
Chen, Qian	3	15
Chen, Xiujuan	3	93
Collins, Clare E.	3	53

Dean, Moira	5	196
Devine, Amanda	4	55
Drake, M.A.	4	129
Egan, Bernadette	4	95
Egnell, Manon	6	370
Ellison, Brenna	4	79
Epstein, Leonard H.	3	89

#### 4.3.4 Citation and Organization

In analyzing co-authors and countries with the association method of networking, a maximum of 25 organizations per document was used, and documents with more than 25 organizations were excluded for the overlay visualization. Each country required a minimum of 3 documents and 10 citations. Out of 2,406 organizations, 22 met these criteria as displayed in the overlay visualization of **Figure 10**. The total strength of citation links for these 22 organizations will be calculated, and the organization with the highest link strength will be selected.

**Figure 10: Citation Analysis Taking Author as a Unit of Analysis**



Source: Vosviewer

#### 4.3.5 Citation and Country

In the citation analysis, a maximum of 25 countries per document was included, excluding those with more. Each country required at least 3 documents and 10 citations. While using fractionalization method for mapping out all 94 countries, 48 met the criteria, whereas only 26 formed the largest connected component, and 22 remained isolated. The most connected countries, totalling 26, have been selected, as shown in Figure 11. The mapping reveals 26 key sources organized into 4 clusters, showcasing a well-established network with 65 links and a cumulative link strength of 98. This underscores the significant interconnections and influential roles of these sources in the Citation analysis.

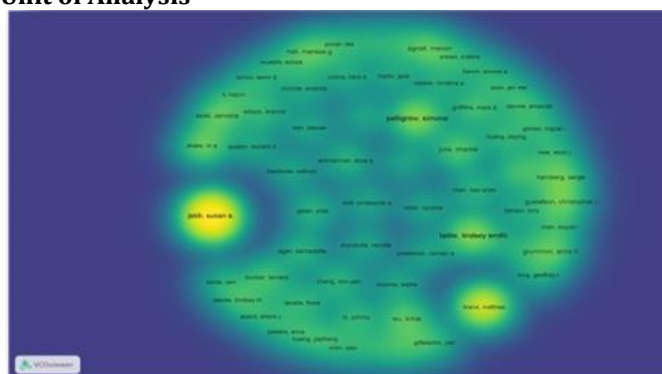
**Table 7: Country Having the Maximum Citation and Documents**

Country	Citations	Documents	Total Link Strength
United States	5499	315	25
United Kingdom	3991	196	34
China	2606	147	13
Australia	2075	102	20



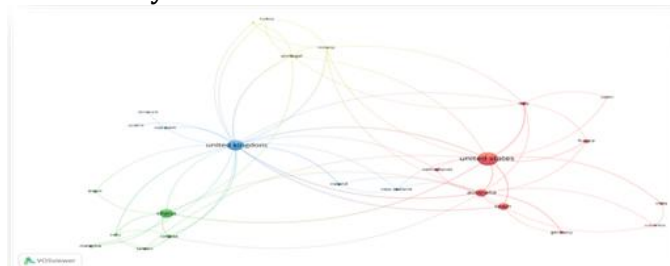
Spain	1378	86	11
France	805	24	4
Netherlands	385	23	3
Italy	715	21	9
Canada	502	20	7
Pakistan	482	17	0
Germany	298	15	4
Taiwan	190	15	5
Portugal	230	14	9
Brazil	292	13	2
Malaysia	190	12	4
New Zealand	256	12	4
South Korea	208	12	0
Chile	397	11	3
Ireland	317	11	5
Viet Nam	370	11	2
India	159	9	6

**Figure 11: Citation analysis, Taking Organisation as a Unit of Analysis**



Source: Vosviewer

**Figure 12: Citation Analysis Taking the Country as a Unit of Analysis**



Source: Vosviewer

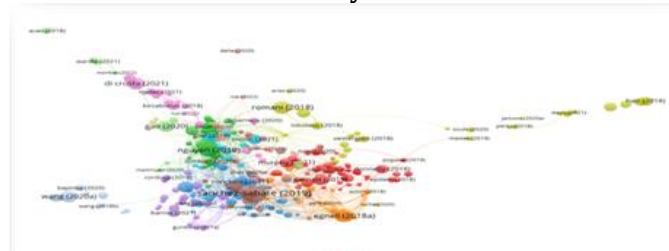
## 4.4 Bibliographic Coupling

### 4.4.1 Bibliographic Coupling and Documents

In the citation analysis, a maximum of 25 countries per document was included, excluding those with more. Each country required at least 3 documents and 10 citations. Of the 94 countries, 48 met the criteria, with 26 forming the largest connected component and 22 remaining isolated. The most connected countries will be selected, as shown in **Figure 13**. The mapping features 575 key sources distributed across 15 clusters, demonstrating a robust network with 5,740 links and a cumulative link strength of 8,337. This highlights the strong

interconnections and influential contributions of these sources in the bibliographic coupling analysis.

**Figure 13: Bibliographic Coupling Analysis Taking Documents as a Unit of Analysis**



Source: Vosviewer

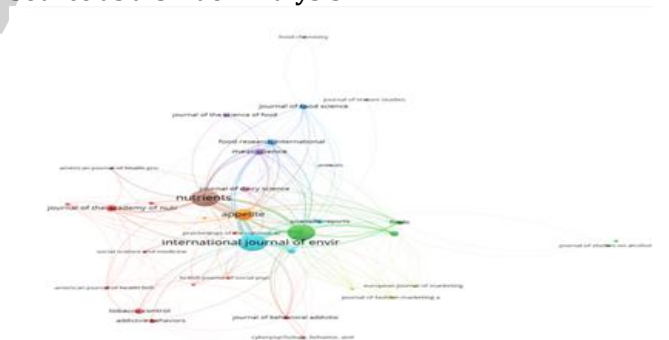
### 4.4.2 Bibliographic Coupling and Source

In the bibliographic coupling analysis, sources are required to have at least 3 documents and 15 citations. Out of 198 sources, 35 met these criteria as shown in Figure 14. For these 35 sources, the total strength of bibliographic coupling links is calculated to identify the most connected sources. The mapping includes 10 selected sources across 8 clusters, with a total of 209 links and a combined link strength of 5,310.

### 4.4.3 Bibliographic Coupling and Author

There are many ways to analyze data between Bibliographic Coupling and Author; more than 25 authors per document have been ignored rest are included while preparing the network visualization map. An author with a minimum of 3 documents, with a minimum of 10 citations by the author, has been taken as the inclusion criterion. The given overlay visualization mapping of Figure 13 has 12 clusters, which explore a total link of 1097 with a total link strength of 25384. Table 8 is the tabular presentation of given top 25 authors to understand the mapping easily.

**Figure 14: Bibliographic Coupling Mapping Taking Source as a Unit of Analysis**



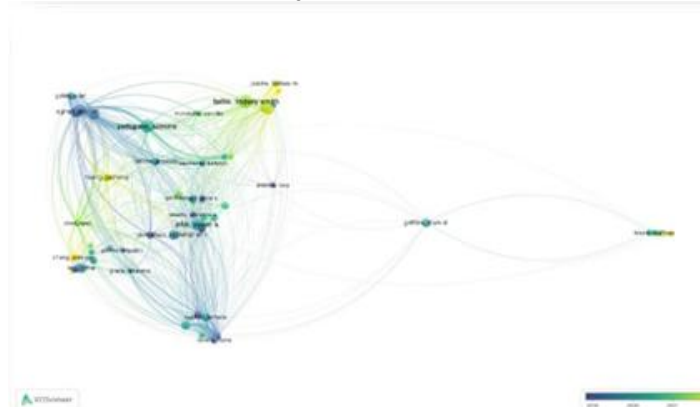
Source: Vosviewer

### 4.4.4 Country-Wise Citation

The citation analysis includes a maximum of 25 authors per document and excludes those with more than 25. Each country needs at least 3 documents and 20 citations. Out of 94 countries, 48 meet these criteria, as shown in Figure 16. The network visualization displays these 48 countries across 8 clusters, with a total of 904 links

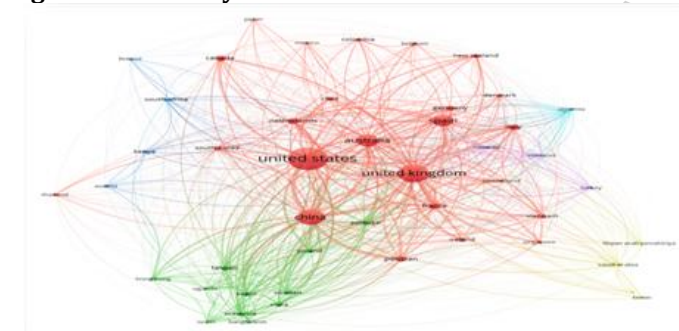
and a link strength of 76,522. Table 5 may be taken as a reference displayed earlier, as well as Figure 10 features the top 10 organizations, including their documents, citations and link strength.

**Figure 15: Bibliographic Coupling Mapping with Author as a Unit of Analysis**



Source: Vosviewer

**Figure 16: Country-Wise Citation**



Source: Vosviewer

#### 4.4.5 Organizations Working in the Field

**Table 8: Organizational Data**

Organization	Documents	Citations
School Of Psychology, Curtin University, Kent St, Bentley, 6102, WA, Australia	5	303
Department Of Home Economics, St. Angela's College, Sligo, F91 C634, Ireland	3	164
Priority Research Centre for Physical Activity and Nutrition, The University of Newcastle, Callaghan, 2308, NSW, Australia	4	104
School Of Health Sciences, Faculty of Health and Medicine, The University of Newcastle, Callaghan, 2308, NSW, Australia	4	104
Manchester Fashion Institute, Manchester	3	90

Metropolitan University, Manchester, United Kingdom		
Centre for Environmental Toxin and Emerging-Contaminant Research, Cheng Shiu University, Kaohsiung, 83347, Taiwan	4	84
Department of Business Administration, Cheng Shiu University, Kaohsiung, 83347, Taiwan	4	84
Faculty Of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, United Kingdom	3	84
Super Micro Mass Research and Technology Center, Cheng Shiu University, Kaohsiung, 83347, Taiwan	4	84
School Of Management, Zhejiang University, Hangzhou, China	3	69

Source: Vosviewer

#### 4.5 Co-Occurrence

Keyword occurrence is the primary concern of the bibliometric assessment of phrases in articles based on how consumers behave. The keyword occurrence can be observed by nodal dimension, whereas co-occurrence within the identical articles is depicted by curved surfaces. Under this mapping analysis, greater overlap rates appear in shortened spaces within nodes, and that is why the review proves crucial for knowledge extraction, as it illuminates the conceptual framework of the study and enhances appreciation of the primary concerns and ramifications of the research affecting consumer behavior.

##### 4.5.1 Co-Occurrence and All Keywords

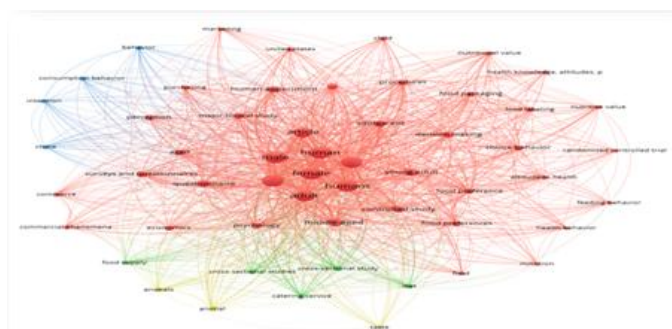
As depicted in Figure 11, the analysis requires a minimum of 50 occurrences for keyword selection. Out of 5,539 keywords, 55 met the threshold. For these 55 keywords, analysis of Figure 17 displays 4 Clusters comprising 1,477 links with a total link strength of 74,079. Table 9 highlights that "Female" is the most frequently co-occurring keyword, with 657 occurrences and a total link strength of 10,784. Following "Female," keywords like "Human," "Consumer Behavior," and "Consumer Attitude" are among the most frequent, with 653, 638, and 624 occurrences, respectively.

**Table 9: Top Keywords with Maximum Occurrence and Total Link Strength**

Keyword	Occurrences	Total Link Strength
Female	657	10784
Human	653	10763
Consumer Behaviour	638	10217
Consumer Attitude	624	10361

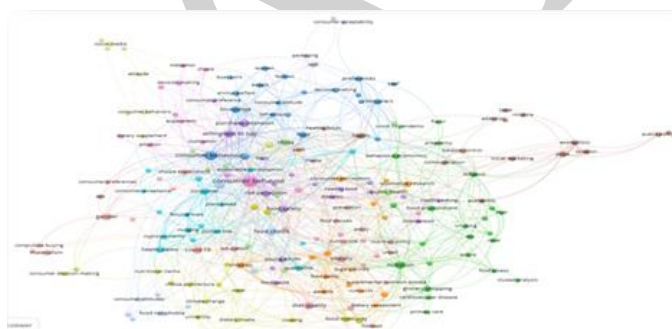
Male	623	10312
Humans	601	10107
Adult	558	9483
Article	482	8423
Middle Aged	297	5442
Young Adult	251	4475
Questionnaire	205	3847
Controlled Study	200	3690
Adolescent	195	3605
Human Experiment	182	3200
Consumer	158	2980
Decision Making	158	2989
Surveys And Questionnaires	158	2979
Psychology	156	2880
Major Clinical Study	152	2815
Aged	140	2599
Food Preference	137	2875
Food Preferences	131	2750
Procedures	118	2232
Economics	107	2069
Choice Behaviour	104	2196
Perception	104	1849

**Figure 17: All Keywords Mapping**



Source: Vosviewer

**Figure 18: Author Keywords**



Source: Vosviewer

## 4.6. Co-Citation

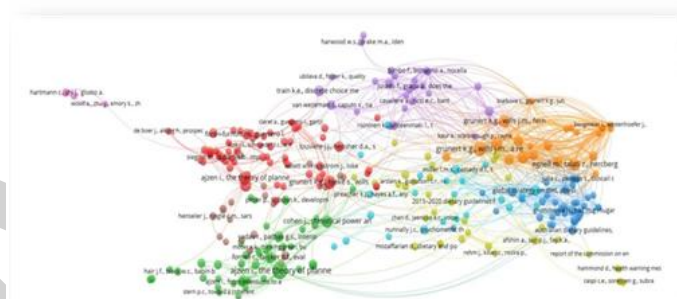
Figure 20 exhibits the nodes attached to each reference, with the dimensions of the node denoting the total citations. Interactions throughout nodes signify co-citation associations; broader linkages correspond to greater citations. After determining the precise positions

and colouring of the nodes, referrals have been arranged into three clusters, which relate to three distinct assigned colours clusters.

### 4.6.1. CO-Citation and Cited References

Figure 20, created with VOSviewer, illustrates the reference co-citation network. We have applied a minimum threshold of 3 citations per author after using the fractionalization method for networking visualization, resulting in only 284 out of 40,350 authors meeting the criterion. The total strength of co-citation links for these 284 authors will be computed, with the most connected authors being selected for further analysis.

**Figure 20: Co-Citation Mapping with Cited References as a Unit of Analysis**

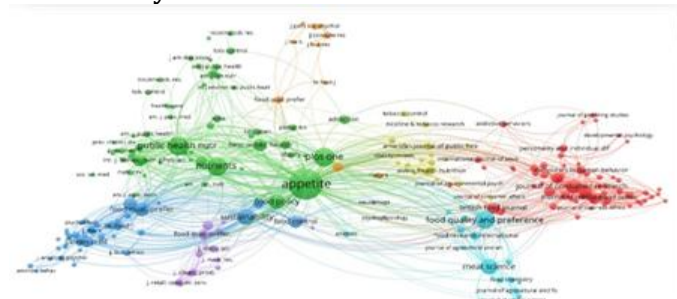


Source: Vosviewer

### 4.6.2 Co-Citation and Cited Source & Cited Authors

The analysis of co-citation and cited sources utilizes a minimum threshold of 20 citations per source using the association method of network visualization. From a total of 224 sources, 48 meet this criterion, and these sources are further grouped into 7 clusters. The network comprises in Figure 21, 8,694 links, reflecting the relationships between sources, with a total link strength of 145,617. This visualization highlights the key sources and their interconnectedness within the citation network. Out of 70,348 authors, 54 meet this criterion. The resulting visualization displays 48 items across 4 colour-coded clusters, featuring 1,198 links and a total link strength of 27,699 in Figure 22. This highlights the most significant authors and their citation relationships within the network.

**Figure 21: Co-Citation Mapping with Cited Source as a Unit of Analysis**



Source: Vosviewer



**Figure 22: Co-Citation Mapping with Cited Authors as a Unit of Analysis**



## 5. INTERPRETATION

Based on the bibliometric analysis of 774 papers on consumer behaviour published between 2014 and 2024, and after exhaustively examining the study concluded that Cheng Shiu University, the Centre for Environmental Toxin and Emerging-Contaminant Research, Kaohsiung, 83347 and the Taiwan organization have collaborated on the greatest number of articles on organizational grounds. Nevertheless, the United States and the United Kingdom are the two nations with the most papers that have collaborated with other nations on a similar subject. The bibliometric review's frequent usage of the terms "Female," "Human," "Consumer Behaviour," as well as "Consumer Attitude", demonstrates an intense interest amongst scholars in comprehending the gender-specific elements of consuming. The growing recognition of "Female" and "Human" underscores an upsurge in preference for unique, socio-psychological facets transforming consumers' decision making. Throughout the larger paradigms of behavioural economics along with human-centred marketing, this evolution exhibits an explicit scholarly transition closer to exploring discrete cognitive and temperamental distinctions, especially among female customers. The pertinent work has been published frequently and referenced in the International Journal of Environmental Research and Public Health. When it comes to particular countries, the USA of America and the UK continue to be at the highest position of the list, acquiring the largest number of citations per nation. On the contrary, Curtin University's School of Psychology in Australia garnered the largest number of citations as an institution.

Considering an emphasis on gender orientation, psychological sciences, and access to technology, the United States, United Kingdom, China, Australia, and Spain are indeed contributing significantly to the discipline of consumer behaviour analysis. Their work reveals an assortment of methodological opinions, spanning from sustainability and mobile commerce to feminist theory and behavioural economics. By putting emphasis on systematically relevant consumer insights configured within worldwide theories and expanding patterns like technological advancement and sustainability, nation states outside of the leading five might enhance their effect. Collaboration across borders and the implementation of cutting-edge analytical techniques are

going to boost the research's excellence and exposure even further.

## 6 FUTURE DIRECTIONS

A constantly changing subject of study, consumer behaviour is crucial to ensuring the development of effective advertising strategies. Ongoing research in this arena assists businesses in adjusting to changing consumer preferences and behaviour as market trends evolve and new consumer insights occur. Diverse effects on consumer behaviour can be seen when looking at the UK, China, Malaysia, Pakistan, India, and other countries. The aforementioned contributions demonstrate the diverse regional impacts and importance of consumer behaviour in various geographic zones. Through co-occurrence analysis, important concepts and keywords—such as the connection between female, human, consumer behaviour, and consumer attitudes—are found, distinguishing them to be critical topics within the subject. Additionally, this bibliometric study shows which subjects have been well researched and where further studies may be conducted.

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