TRENDS PUBLICATION ONLINE IMPULSE BUYING 2014-2023 ON WEB OF SCIENCE (WOS)

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ABSTRACT

Buying behavior has occurred for a long time, but now impulse buying has shifted to online platforms because of the convenience it offers. This research aims to determine the development of impulse buying publications carried out on online platforms. Researchers used quantitative methods with bibliometric analysis. Data was obtained from the Web of Science (WoS) database using the keywords impulse buying and online based on topic. Then the search results are exported in BibTex format and analyzed using the biblioshiny web interface from R Studio software. The research results obtained 234 documents in the limited period of 2014-2023 from two types of documents, articles and conference papers. The analysis results show that impulse buying publications on online platforms are growing worldwide and are related to other fields, not only economics. The significant development is mainly from authors and countries that have the densest population because impulse buying online affects the high level of consumption in these countries.

Keywords: *Impulse Buying; Online; Bibliometric Analysis; Biblioshiny; Web of Science (WoS)*

1. PENDAHULUAN

Online impulse buying are increasingly occurring as online shopping behavior changes to meet needs. People tend to spend more time on online platforms because they are easily accessible, and provide relevant, accurate and detailed information about the products they need. This is because the shopping experience via e-commerce is also enjoyable and satisfying (Anshu et al., 2022). Then further strengthened by various attractive offers on online platforms which encourage higher buying interest (Gulfraz et al., 2022). Online impulse buying relates to the activities, processes, and behaviors of individuals seeking to gain satisfaction through purchases. Impulse buying on online platforms is difficult to understand due to its complexity and multidimensionality, which can lead to dilemmas and negative consequences for someone. Therefore, a comprehensive understanding of online impulse buying through a multidimensional analysis is needed to explain the various aspects and effects of online impulse buying.

Rook in Akram, Hui, Khan et al., (2018) said that impulse buying behavior is related to purchases made suddenly, accompanied by strong feelings of joy and excitement. In the impulse buying process, consumers tend to make purchases without planning and cannot avoid them (Solomon et al., 2019). So impulse buying can be defined as unexpected buying behavior and is followed by positive emotions that cannot be avoided. Online impulse purchases are increasingly common and have a significant impact on people's behavior and product development. In recent years, research on impulse buying has increased worldwide (Um et al., in Feng et al., 2023). Research conducted by Chan et al., (2017) shows out of all online purchasing transactions in the world, it was found that 40% were impulse buying. Carter (2018) stated that as many as 80% of teenagers in the United States of America (USA) make online impulse buying. Meanwhile, United Kingdom (UK) consumers spend

around 1 million pounds sterling a month on impulse buying (Bushi, 2020). Often unplanned purchases consist of products that have never been owned, giving rise to the desire to shop for pleasure alone. Impulse buying is an irrational behavior that results from a sudden urge to buy without a specific purchase plan and long-term consideration (Darmawan & Gatheru, 2021).

Some studies use quantitative research methods, such as the study conducted by Ranasari & Fajrianthi (2021) on the relationship between impulse buying and hedonism motivation. Ranasari & Fajrianthi (2021) stated that there is a link between the effects of impulse buying and hedonistic purchasing intentions. High hedonic shopping motivation tends to have strong positive emotions to fulfill expectations of enjoyment and pleasure, which will then increase the desire for impulsive purchases (Kholis et al., 2023). The emotional state of consumers, especially positive emotions can lead to impulse buying (Sun et al., 2021). Çakanlar & Nguyen (2019) also stated that impulse buying is influenced more by emotions than by cognitive factors. Consumers with weak self-control tend to make reckless and unplanned purchases (Iyer et al., 2020). Various attractive offers on online platforms in the form of cashback programs, product bundling, free vouchers, and promotions at special events increase unplanned purchases (Padmasari & Widyastuti, 2022).

Research using bibliometric methods on the topic of online impulse buying has never been done before. Bibliometrics can be used to determine topics that are widely discussed, distribution, and research trends so that it can be possible to provide real-time analysis of developments (Jin et al., 2023). Bibliometrics has a role in evaluating the results of scientific research, producing mapping of scientific fields, reviewing science and technology, as an indicator in providing more competitive advantages, and making strategic plans for the future (Tupan et al., 2018). Based on the Web of Science (WoS) database, research related to online impulse buying has increased from 2014 to 2023. Database WoS covers more than 10,000 journals and consists of seven different citation databases that contain information collected from various journals, conferences, papers, books, and book series (Tupan et al., 2018). WoS is an online platform containing a database of bibliographic information and information analysis resources for the evaluation and analysis of research results, especially in the social sciences (Moreno-Guerrero et al., 2020).

It is very interesting to follow the development of research and its trends. Based on Sun & Xia (2018) utilized VosViewer for bibliometric analysis, which visualized keyword occurrence patterns, document citations, co-citation relationships, and bibliographies. However, a more detailed explanation and visualization are needed for online impulse buying research. Su & Lee (2010) and Turek (2022) proposed the utilization of Biblioshiny in bibliometric analysis although Biblioshiny is not commonly used. As for some recent studies combining VosViewer and Biblioshiny, such as Gao et al., (2022). This study aims to determine the development of publications related to impulse buying behavior on online platforms so that in the current study, the research questions are formulated as follows: RQ1. How will research on online impulse buying evolve between 2014 and 2023?

To answer this question, this study should consider the evolution of scientific publications related to online impulse buying, not just the growth in the number of publications. It is important to consider factors such as author, source, country, and document.

RQ2. How are research studies in the field of online impulse buying interconnected?

To answer this question, this research uses the highest word frequency and conceptual structure to determine how closely related the keywords are to each other. This helps to understand whether a given keyword is relevant or not. However, to make the analysis more complete, intellectual and social structures also need to be taken into account.

Analysis using bibliometrics provides valuable insight into the historical development, current status, and future of the field, allowing researchers to identify gaps in the literature and develop studies that contribute to this research. It is hoped that this study can contribute to the development of science and provide a basis for future research. This research provides a comprehensive quantitative overview of the current state of the field of online impulse buying.

2. METODE

This research uses a bibliometric analysis method for document publications related to online impulse buying, then visualized with Biblioshiny in the bibliometrix package in R Studio software. Bibliometric analysis can be used to find networks between document publications with each other through the author, the author's institution, the author's place of origin, and so on, then the results obtained are in the form of map or graph visualization with the help of computer programs.
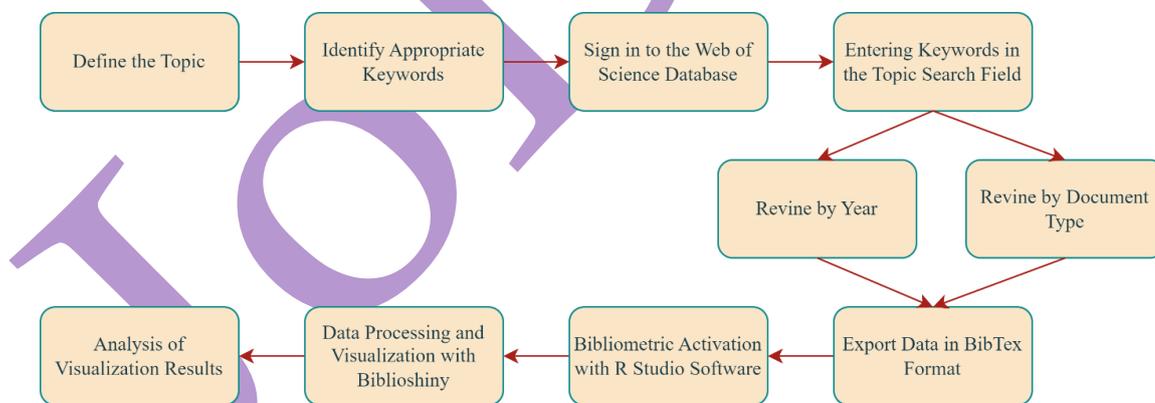

Figure 1. Flowchart of Research Methods with Bibliometrics

Figure 1 shows a flowchart of the overall flow used in research using bibliometric methods. Starting from determining the topic, searching for and collecting appropriate documents, to the process of analyzing the results of the documents that have been obtained. In the initial stage, the researcher determined the topic to be discussed, namely related to online impulse buying behavior as a lifestyle in the current era. Searching for topics about lifestyle is because shopping behavior is often done without the basis of need but rather desire, especially in the current era which makes it easy to shop online. From this topic, keywords will be obtained that will be used in WoS database searches.

First, the researcher logs in with an account that has been registered in the WoS database, then enters keywords by determining the search field, namely topic. After that, the overall data was obtained, but the researchers filtered it using year and document type. This is because we want to get more relevant documents so we can find out the development of publications related to online impulse buying. Then the data obtained is exported from the content record based on full records and cited references in BibTex format and files saved in (.bib) format. Data in BibTex format will be analyzed using the bibliometric method in R Studio software which is assisted by data processing and visualization with the Biblioshiny web interface.
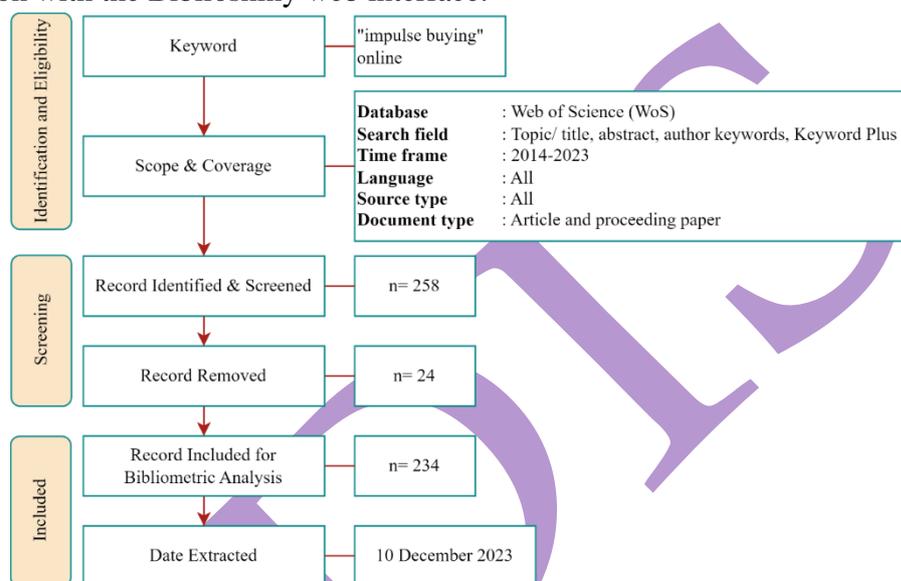

Figure 2. Data Retrieval Flowchart in WoS

This research uses 2 keywords obtained from previously determined topics. The keywords used are impulse buying and online as shown in the flowchart in Figure 2. The keyword impulse buying is given double quotation marks or double quotes to become " impulse buying " so that the words in it appear simultaneously, so they are not separated by one word. Figure 2 explains data related to online impulse buying obtained from a collection of publications from collections indexed by WoS. Retrieve data from WoS using 2 rows with boolean AND, then search for appropriate documents using the search field topic to search for keywords in the title, abstract, author's keywords, plus keywords so that you get the search string TS=("impulse buying") AND TS=(online) and you also get 258 documents. In order to obtain appropriate bibliometric analysis results, researchers limited data collection to the publication year range 2014-2023 and the document types of articles and proceeding papers, then obtained 234 final documents for analysis. The resulting search string is (TS=("impulse buying") AND TS=(online)) AND (PY==("2023" OR "2021" OR "2022" OR "2020" OR "2019" OR "2018" OR "2017" OR "2016" OR "2015" OR "2014") AND DT==("ARTICLE" OR "PROCEEDINGS PAPER")).

Researchers analyzed the development of impulse buying on online platforms using the Biblioshiny web interface with 3 analysis matrices, namely based on source, author, document and also equipped with three knowledge structures including conceptual structure, intellectual structure and social structure. The bibliometric analysis will involve

analyzing annual scientific production, most relevant sources, most relevant authors, scientific production of country, highest frequency words (tree map, wordcloud), conceptual structure (co-occurrence network, factorial analysis), intellectual structure (co-citation network), and social structure (collaboration network, country collaboration network). The analysis contributes to a systematic understanding of academic articles related to online impulse buying. The impact and productivity of academic research in this area will be assessed and the most common themes of online impulse buying will be identified.

3. HASIL DAN PEMBAHASAN
3.1 Hasil
Main Information

A detailed explanation in Table 1 relates to the development of online impulse buying from WoS scientific publications which are processed using Biblioshiny for bibliometric analysis. Table 1 explains the main information regarding main data, document content, author collaboration, and document type. Table 1 shows that the data obtained covers the time period between 2014 and 2023, resulting in 234 documents from 151 journal sources written by 599 authors. The average publication on the topic of online impulse buying is 20.23 documents per year with an average citation of 18.85 per document and an average document age of 2.88 citations per year. The author's keywords produced 840 keywords, while the plus keywords identified 549 keywords. It is also known that these documents are classified into the document type article (185 documents), article; early access (12 documents) and proceeding papers (37 documents).

Table 1. Main Information

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2014:2023
Sources (Journals, Books, etc)	151
Documents	234
Annual Growth Rate %	20.23
Document Average Age	2.88
Average citations per doc	18.85
References	10569
DOCUMENT CONTENTS	
Keywords Plus (ID)	549
Author's Keywords (DE)	840
AUTHORS	
Authors	599
Authors of single-authored docs	20
AUTHORS COLLABORATION	
Single-authored docs	21
Co-Authors per Doc	3.02
International co-authorships %	24.79
DOCUMENT TYPES	
article	185
article; early access	12
proceedings paper	37

Source: Web Interface Biblioshiny

Annual Scientific Production

Over the past 10 years, a total of 234 documents have been published on the topic of online impulse buying. Figure 3 shows the amount of annual production from 2014 to 2023

and research developments can be seen from this graph. From 2019 to 2022 it shows a very significant increase until it peaks in 2022 with more than 50 documents. Meanwhile, in 2014-2016 there was a significant increase of 15 documents. After that, in 2016-2018 document production tended to decline, compared to the previous year where there was an increase. The resulting document production is stuck in the range of 10-20 documents. Until 2022 there was a significant increase and in 2023 research related to online impulse buying decreased again, only producing 42 documents, although the number of publications was not below that of 2021 publications.
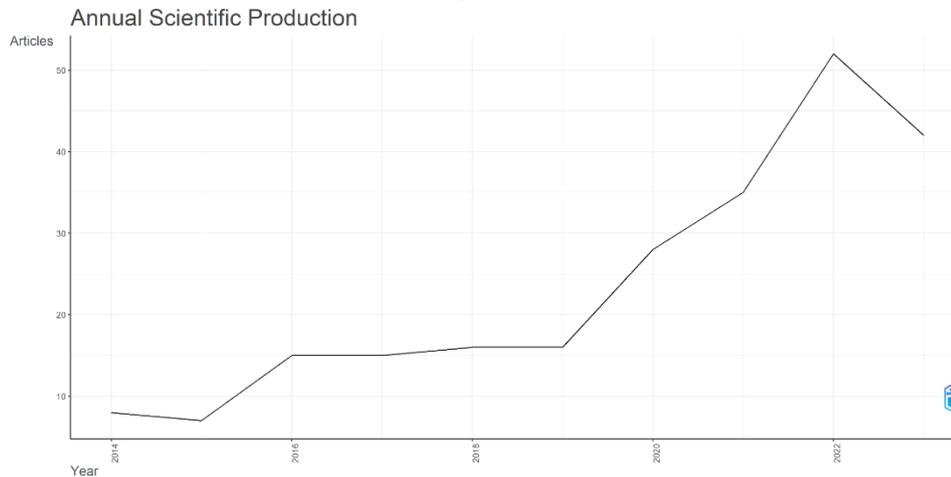

Figure 3. Annual Scientific Production
Source: Biblioshiny Web Interface

Most Relevant Sources

The most relevant source can be seen from the number of journals publishing documents related to online impulse buying. Table 2 shows the top 10 most relevant journal sources. Asia Pacific Journal of Marketing and Logistics is the most relevant journal source which has published 8 articles. Then followed by the Journal of Retailing and Consumer Services which is in second place with a narrow margin of 7 articles, while in third place are Frontiers in Psychology and International Journal of Information Management each with 6 articles. In fourth place there are 2 journals with each journal publishing 5 articles and in sixth place there are 3 journals with the publication of 3 articles in each journal. Interestingly, journals that publish online impulse buying are not limited to economic subjects but also cover social subjects.

Table 2. Most Relevant Sources

Sources	Articles
ASIA PACIFIC JOURNAL OF MARKETING AND LOGISTICS	8
JOURNAL OF RETAILING AND CONSUMER SERVICES	7
FRONTIERS IN PSYCHOLOGY	6
INTERNATIONAL JOURNAL OF INFORMATION MANAGEMENT	6
SUSTAINABILITY	6
COMPUTERS IN HUMAN BEHAVIOR	5
INTERNET RESEARCH	5
INNOVATIVE MARKETING	4
JOURNAL OF BUSINESS RESEARCH	4
JOURNAL OF CONSUMER BEHAVIOUR	4

Source: Web Interface Biblioshiny

Most Relevant Authors

The most relevant authors can be seen from the number of written documents related to online impulse buying. Figure 4 describes the 10 most relevant authors. In the first graph, the most relevant author in first position is Akram U, who produced 7 documents. In the second to fourth positions there is more than 1 author. In second place there are 2 authors, namely Hui P and Khan MK, with 6 documents each published. In third position there are 4 authors, namely Chen Y, Gan CL, Lee YY, and Li Y with 4 publications each. Meanwhile, in fourth position there are 3 authors, namely Akram Z, Chen WK, and Lee H with 3 publications each.
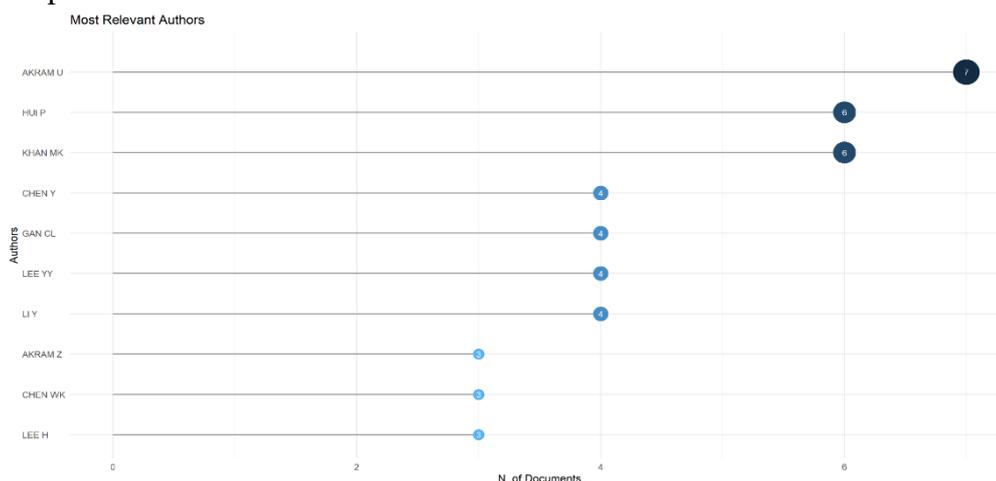

Figure 4. Most Relevant Authors
Source: Biblioshiny Web Interface

Scientific Production of Country

It was found that as many as 46 countries contributed to the production of scientific publications related to online impulse buying. In Figure 5, it is known that the darker the blue, the more documents published regarding online impulse buying. It is known that China is the main country that publishes the most documents in the darkest blue color. In Table 3 it is also clearly known that the 10 countries contributed from the number of published articles to there are two types of collaboration from the country of publication authors, namely Single Country Publication (SCP) and Multiple Country Publication (MCP). Table 3 shows that the author country in the first position is China with 85 publications, of which 68 were written by fellow Chinese and 17 were written in collaboration with other countries. Followed by India and the United States with 20 publications each, and Indonesia with 18 publications. SCP and MCP can be seen in Table 3 below. It was found that the country with the largest population in the world is in the top 4 in terms of publications that show the high level of consumption in the country due to impulse buying on online platforms.
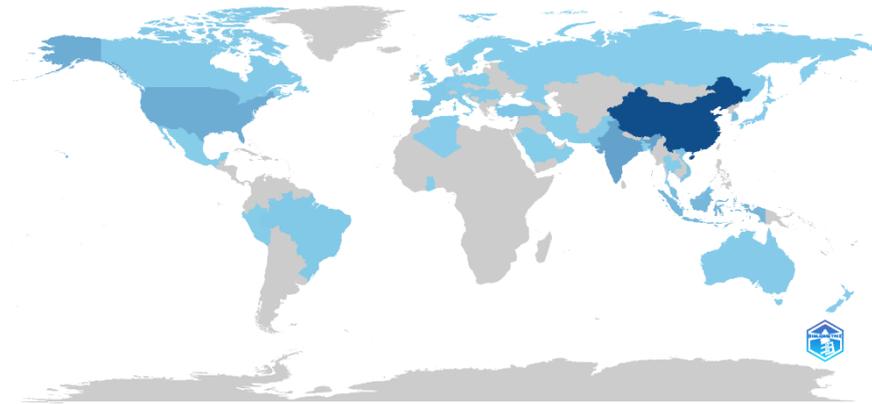
Country Scientific Production

Figure 5. Country Scientific Production
Source: Biblioshiny Web Interface

Table 3. Corresponding Author Countries

Country	Articles	SCP	MCP	Freq	ICP_Ratio
CHINA	85	68	17	0.363	0.2
INDIA	20	19	1	0.085	0.05
USA	20	13	7	0.085	0.35
INDONESIA	18	17	1	0.077	0.056
MALAYSIA	11	9	2	0.047	0.182
KOREA	9	6	3	0.038	0.333
TURKEY	8	8	0	0.034	0
VIETNAM	6	4	2	0.026	0.333
PORTUGAL	5	3	2	0.021	0.4
SPAIN	5	4	1	0.021	0.2

Source: Biblioshiny Web Interface

Highest Frequency Words

The words that appear most often about online impulse buying can be analyzed using treemap and wordcloud. Figure 6 shows a tree map analysis of 50 main keywords related to online impulse buying. Keyword analysis with a treemap provides a clear reflection of the condition of the online impulse buying topic because it is accompanied by the level of frequency. Figure 6 shows that the word model with the highest proportion, namely 9%, appeared 70 times, followed by behavior with 53 with a proportion of 7%, the word impact with 45 with a proportion of 6%, purchase with 40 with a proportion of 5%, and online with 37 with a proportion of 5%. Apart from that, the word internet in the turquoise column shows a direct correlation to the causes of online impulse buying. Meanwhile, Figure 7 is a wordcloud visualization, the higher the word frequency, the bigger the word. The most dominant word is "model", as shown in Figure 6.

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Figure 6. Treemap
Source: Biblioshiny Web Interface

Figure 7. Wordcloud
Source: Biblioshiny Web Interface

Conceptual Structure

The visualization of the conceptual structure of the co-occurrence network and factorial analysis. Figure 8, classified into 5 clusters, namely blue, red, purple, green, orange and brown, will give rise to many keywords related to scientific publications about online impulse buying. In the first position there is a blue cluster, the relationship between words is very close to the keywords that are most discussed, namely model, behavior, impact, purchasing, online, so you can see these words as a domain for the development of other words. Then there are also developments in other clusters that are interconnected with each other, even though they are far apart. Likewise in Figure 9, showing the relationship between words regarding the discussion of impulse buying online which is marked by getting closer to the 0 line, the relationship between 1 word and another word is getting closer. Examples such as behavior, models, impact, and self-control. This indicates widespread discussion regarding online impulse buying.

Figure 8. Co-occurrence Network
Source: Biblioshiny Web Interface

Figure 9. Factorial Analysis
Source: Biblioshiny Web Interface

Intellectual Structure

The intellectual development of structures related to online impulse buying can be seen in the author's quotation network relationships. Figure 10 shows the citation network which contains 2 clusters in red and blue. The most written authors are in the central position with a larger round shape, namely in the red cluster. It can be seen that the relationship distance is not too close to the author on the edge, indicating that the author's publications are not widely cited. From Figure 10 it can be seen that Beatty, Verhagen, and Rook are the 3 most cited authors.

Figure 10. Co-citation Network
Source: Biblioshiny Web Interface

Social Structure

Collaboration of author networks and country maps can explain the social structure of online scientific publication impulse buying. In Figure 11 there are several authors who have network collaborations. The bigger the author's name or circle, the author dominates the research carried out collaboratively. Network collaboration is also demonstrated by a chain of relationships between authors and each other. The gray color in Figure 11 shows Akram U dominates when conducting collaborative research with Tanveer Y, Hasnim M, Hui P, Akram Z, and Khan MK. Meanwhile, the red color shows Li Y as a collaborating author with other authors such as Zhang J, Chen M, Liu Q, Liu H, and Zafar AU.
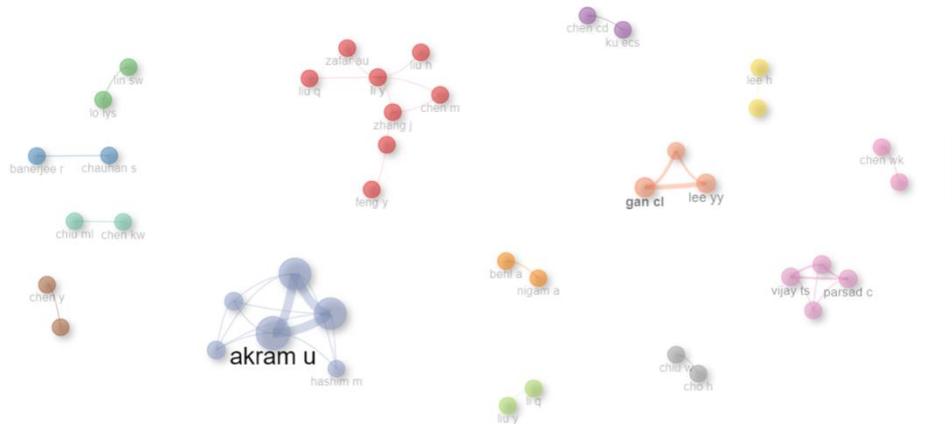

Figure 11. Collaboration Network
Source: Biblioshiny Web Interface

Figure 12 shows a collaborative map of countries that contributed to the topic of online impulse buying. In Figure 12, China is the center of a country that has network collaboration with other countries. Although other countries also collaborate, the spread of collaboration from China is very even. The top 10 countries obtained from Table 4 are accompanied by the highest frequency. It can be seen that China and Canada have the highest frequency of collaboration, namely 2 and 5/10 countries collaborate with China. So it can be concluded that China is a country with a social structure that often collaborates with other countries.
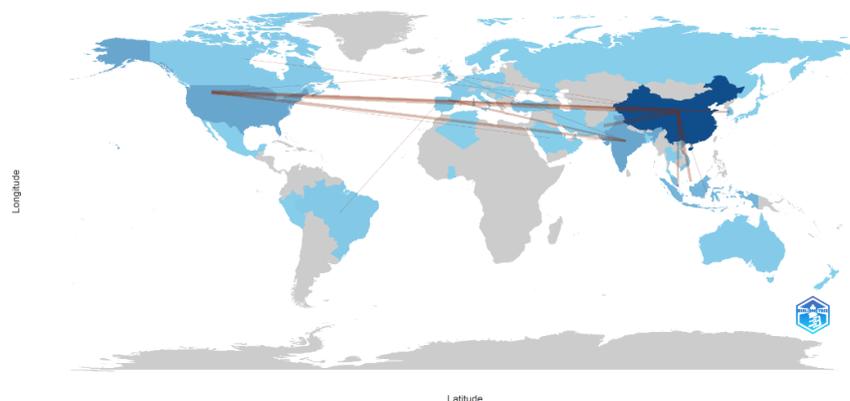

Figure 12. Country Collaboration Map
Source: Biblioshiny Web Interface

Table 4. Country Collaboration

From	To	Frequency
AUSTRALIA	JAPAN	1
AUSTRALIA	SINGAPORE	1
BRAZIL	PERU	1
CANADA	IRAN	1
CANADA	UNITED KINGDOM	1
CHINA	AUSTRALIA	1
CHINA	CANADA	2
CHINA	FRANCE	1
CHINA	GHANA	1
CHINA	INDIA	1

Source: Biblioshiny Web Interface

3.2 Pembahasan

Publications on impulse buying behavior on online platforms are growing rapidly, based on the graph of annual publication growth which continues to rise from 2014 to 2023, although there is a slight decline in 2023. There were 234 scientific publications with the keyword online impulse buying in that time period. which only uses two types of documents, namely articles and proceedings papers. This shows that impulse buying behavior on online platforms has an impact on life, resulting in the emergence of various studies.

The most relevant source regarding online impulse buying comes from the Asia Pacific Journal of Marketing and Logistics and the most relevant author is Akram U with 7 documents. One of the documents entitled How Website Quality Affects Online Impulse buying: Moderating Effects of Sales Promotion and Credit Card Use (Akram, Hui, Kaleem Khan, et al., 2018) is known to be published by a journal which is the most relevant source of online topics impulse buying. This shows that there is a connection between the most relevant sources and authors. This article has been quoted 318 times and is the most popular article during the time Akram U wrote. The article discusses the influence of website quality in China on online impulse buying behavior which can be strengthened through sales promotions and the use of credit cards. The results show that website quality has a significant positive impact on online impulse buying behavior (Akram, et al., 2018). In addition, sales promotions and credit card use function as triggers in website quality and online impulse buying, so it can be said that these two factors can increase the tendency to impulse buy with high website quality.

Regarding the country with the most publications related to online impulse buying from the 4 most populous countries in the world, namely China which reached 85 documents, followed by India, USA and Indonesia. This could be because the large population in a country will increase consumer behavior. Scientific publications have also had a big influence on the development of impulse buying research on online platforms, providing knowledge for everyone regarding the problems that occur. The words that are often discussed in online impulse buying are model, behavior, impact, purchase, and online so that the domain of this topic shows that online impulse buying relates to other fields besides economics such as psychology that bring about various impacts in behavior. Writing scientific documents cannot be separated from previous research citations, giving

rise to relationships between authors based on the most cited citations, namely Betty, Verhagen, and Rook who have the highest citation frequency. The authors in this research collaborate with each other which creates a social structure that is also related to the author's country of origin. Akram U and Li Y are the authors who frequently collaborate and the country China collaborates with the most.

4. KESIMPULAN

This research provides an overview regarding the development of publications on impulse buying behavior on online platforms by analyzing documents from the Web of Science database. Analysis is carried out from sources, authors, documents equipped with three knowledge structures, namely conceptual structure, intellectual structure and social structure. The results of the analysis show that impulse buying publications on online platforms are growing throughout the world, especially from writers and countries that have the densest populations because online impulse buying influences the high level of consumption in these countries. From the analysis, we obtained 234 documents in the form of articles and proceeding papers related to online impulse buying in the 2014-2023 period. It can be seen the development of publications and the influence of online impulse buying.

The most talked about words in online impulse buying are model, behavior, influence, purchase, and online, indicating that online impulse buying is relevant to fields other than economics, such as psychologists. Source scientific literature regarding online impulse buying is the Asia Pacific Journal of Marketing and Logistics, while the most relevant and collaborative author is Akram U. There is also Beatty as the most cited author. The country that publishes the most about online impulse buying comes from China, which is also the country that collaborates the most with other countries. As is known, China is known as one of the countries with rapid progress in the economic sector. Apart from that, 2022 will be the peak of research development on impulse buying behavior on online platforms during the period 2014 to 2023.

Suggestions for further research are because there are several limitations in conducting this research regarding online impulse buying. The database used for bibliometric analysis can consider other databases such as Scopus or a combination of the two to increase the accuracy of the analysis results. Then you can expand the scope of research, such as the number of years or types of documents used regarding the development of impulse buying on online platforms.

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