

Article

Consumer behavior in the shadow of COVID-19 and mental health: A bibliometric analysis of international scientific literature in Web of Science and Scopus

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Abstract: The aim of this study was to make a quantitative contribution to the impact of COVID-19 and Mental on consumer behavior. For this purpose, the data in the Scopus and WoS databases until 5 February 2024 were examined using bibliometric analysis. The data obtained within the scope of this study were classified and analyzed using the VOSviewer program developed for scientific mapping analysis. In the evaluations, 180 studies in the Web of Science database and 371 documents in the Scopus database were identified, and when duplicate studies were combined, 426 studies were included in the analysis. According to the results of the analysis, the journal with the highest number of publications is “Journal of Retailing and Consumer Services”; the organization with the highest number of publications is “Department of management sciences, University of Okara” and “North-West University”; the authors with the highest number of publications and citations are “Wang, Xueqin” and “Yuen, Kum Fai”; and the most cited studies are “Laato et al.” and “Goolsbee and Syverson”. This study provides a comprehensive analysis of the studies on the impact of COVID-19 and mental factors on consumer behavior and makes a qualified contribution to the literature with an important opening.

Keywords: COVID-19; mental health; bibliometric analysis; document analysis

1. Introduction

It is essential for a healthy and sustainable human life to reveal the effects of epidemics, which have the power to visibly change the level of life of the individual, on the future vision of societies (Vazquez-Marin et al., 2023). COVID-19 has caused fundamental changes in consumer behavior, economies, and businesses, and its effects have been deeply felt globally (Herindar and Rusydiana, 2022). The COVID-19 pandemic continues to maintain its place on the agenda with its effects on individual life as one of the current epidemics of the modern world, which has negatively affected the lives of around 700 million individuals and resulted in more than 6 million deaths (Novelli, 2024). The measures taken by the countries, which had to face the developments in the fields of social and health, especially economic, in terms of its unpredictable effects, in the face of the COVID-19 pandemic, one of the most traumatic events after the Second World War (Di Maria et al., 2021), had permanent consequences on the basic elements of individual life, such as restricting the social life of the individual and changing the consumption and work culture (Ferreira et al., 2022). The COVID-19 pandemic, which spread from Wuhan, China, to other countries in

December 2019 with the effect of the communication opportunities of today's modern world, turned the individual's perception of life upside down in an intense and complex information bombardment (Aljanabi, 2021). In addition to the physical health of individuals and communities exposed to depression between the equations of uncertainty, fear, and hope by reducing socialization and restricting physical activities, their mental health has also been negatively affected (Do Bú et al., 2020). In the early stages of the pandemic, contradictory statements made through official channels regarding the COVID-19 pandemic were insufficient to address the social, emotional, and psychological information concerns of individuals (Torales et al., 2020). In this context, the dilemmas that individuals face between virtual and augmented reality and real life in the context of burnout, anxiety, and dissatisfaction (Hoff, 2021), which are emotionally caused by excessive fear and uncertainty, have brought about differentiation in some behavioral patterns of individuals and societies. Differentiation of job satisfaction in business life practices (Zanabazar et al., 2022), following various methods such as working from home or working part-time (Vyas and Butakhieo, 2021), changing business principles (Stalmachova et al., 2021), differentiation of consumption habits (Xiong et al., 2021), increased hoarding within the scope of food security (Dickinson, 2020), restriction of rituals such as weddings and funerals (Imber-Black, 2020), the transformation of entertainment culture into a natural part of the life of the individual who becomes lonely through technology (Candiotto, 2022; Zhang et al., 2022), interaction of emotions and thoughts through virtual platforms (Gvirtz et al., 2023), meeting shopping needs for food and similar items with home delivery through virtual platforms (Alaimo et al., 2020; Roni et al., 2022), and increasing awareness of individual abilities due to the pandemic conditions that individuals are exposed to (Teo et al., 2021) are the effects of the COVID-19 pandemic on the consumption and consumer behavior of individuals and societies (Sheth, 2020).

Since 2020, when the COVID-19 pandemic made its impact feel globally, the number of COVID-19-focused studies has increased. This increase was realized in interdisciplinary and multidisciplinary studies (Pluto Labs, 2024). The number of COVID-19 pandemic-focused studies between 2020 and 2023 is approximately 3 million. In 2021, the highest number of studies was conducted. Of the studies conducted between 2020 and 2023, 26.2% were on Coronavirus disease, 25.7% on medicine, 18% on diseases, 17% on infectious diseases, and 13.3% on pandemic (Pluto Labs, 2024). The diversity of research is important for understanding the effects of COVID-19 and developing solutions. Considering that the number of studies on the COVID-19 pandemic, which has left significant social, emotional, and psychological effects on individual and community life, is over 411 thousand only in PubMed (2024), this study aims to provide an overview of interdisciplinary fields (Snyder, 2019) in the context of revealing the current study trends on consumer behavior in the shadow of COVID-19 and mental health with a holistic perspective through the Web of Science and Scopus databases. In the last decade, the number of articles based on bibliometric analysis has increased exponentially in many fields (Cardador et al., 2023). These studies are very important in terms of identifying gaps in the literature and the intensity of interest. Although there is a significant increase in the number of studies in the field of COVID-19, a literature review on the impact of COVID-19 and Mental elements on consumer behavior has not been included in the literature to the best of our

knowledge. The aim of this study is to present the data on the impact of COVID-19 and Mental elements on consumer behavior with quantitative methods and to reveal the literature interest in the relationship between two separate disciplines, health and commerce. In this direction, content analysis was conducted by examining the studies containing the words “COVID-19” and “Consumer Behavior” in the WoS and Scopus Databases in the period until 6 February 2024 and at the same time containing any of the various expressions covering the concept of “mental health” (“Mental; anxiety; depression; Fear; Emotion; Stress; Psychological; Psychology; Psychology; Panic”).

2. Literature review

Many systematic studies have revealed the effects of the COVID-19 pandemic on the consumption behavior of individuals and societies. Bibliometric studies to reveal the explanatory power and consequences of changes in individuals’ psychological, social and economic behavior patterns on changes in consumer behavior are important in understanding the global effects of COVID-19 on consumer behavior in the context of digital transformation and developing possible strategies for the future (Cruz-Cárdenas et al., 2021). Due to its importance, the issue has been addressed in the literature from various perspectives. Literature analysis studies on the issues addressed in the literature can basically be grouped under two headings. The first of these is “COVID-19 and Consumer Behavior” and the second group is “COVID-19 and Mental Health”. Before going into detailed literature analysis, some examples of previous studies on the subject are presented in the table below (**Table 1**).

In studies that bibliometrically analyze the effects of the COVID-19 pandemic on consumer behavior, it is seen that social media and technology-oriented factors play an important role in shaping consumer behavior with the measures taken by governments within the scope of the global effects of digital transformation. The scope of studies on the consumption preferences and habits of individuals and societies includes topics such as food consumption, green consumer behavior, price, quality, and service components. It is a common result emphasized in the aforementioned literature studies that the increase in the speed of information flow through social media during the pandemic period and the confusion of information scope lead individuals and societies to security concerns and panic behavior. It is recommended that future studies examine different dimensions of the changes in consumer behavior of the COVID-19 pandemic.

Table 1. Short summary of literature studies.

Group	Author(s)	Method	Sample	Purpose	Findings
COVID-19 and Consumer Behavior	Cruz-Cárdenas et al. (2021)	Systematic literature review, descriptive analysis	70 studies in the Scopus database	Determining the effects of COVID-19 on consumer behavior	Government action and external factors, such as technology and social media, played a major role in shaping consumer behavior. It is stated that the way for companies to understand the change in consumer behavior well and develop appropriate marketing strategies in this context is to consider digital transformation within the business processes.
COVID-19 and Consumer Behavior	Suryadi (2023)	Bibliometric analysis	34 studies in the Scopus database	Individuals have been affected by the COVID-19 pandemic (2020–2022) analysis of changes in health-oriented consumption behavior	Consumer behavior can differ depending on many factors such as individuals' lifestyle, purchasing behavior, and health awareness
COVID-19 and Consumer Behavior	Franco and Silva Franco (2022)	Bibliometric analysis	25 studies in WOS and Scopus database	The impact of the COVID-19 pandemic on food consumer behavior in Brazil	The main factors influencing food consumer behavior were the effectiveness of vaccination efforts, work-from-home practices, and supermarkets that respected health safety and allowed contactless shopping. In parallel with confidence in the effectiveness of vaccines, the willingness to consume ready-to-eat food has increased. It has been emphasized that consumers prefer supermarkets where they believe they can obtain different products together and according to their health conditions contactless. In the context of the COVID-19 pandemic, it was pointed out that the environmental awareness of food consumers has increased, the sense of social responsibility has come to the fore, and sustainable consumption has started to gain importance.
COVID-19 and Consumer Behavior	Dash (2023)	Bibliometric analysis	79 studies in the WOS database	Examination of panic buying behaviors during the COVID-19 pandemic (2020–2022)	Consumers' panic buying behavior mostly increased in the first year of the pandemic and decreased in the following year
COVID-19 and Consumer Behavior	Karaman and Sarikan (2022)	Bibliometric analysis	642 studies in the WOS database	The analysis of trends and developments in consumer behavior during the COVID-19 period	It was evaluated that the studies were grouped in the context of green consumer behavior, consumer participation behavior and effective service quality, the studies focused on the impact of competitive advantage and COVID-19 pandemic on consumer behavior came to the fore in terms of citation and the keywords "impact, consumer behavior and model" were frequently used throughout the relevant studies.

Table 1. (Continued).

Group	Author(s)	Method	Sample	Purpose	Findings
COVID-19 and Consumer Behavior	Veiga and Diogo (2022)	Systematic literature review	102 studies in the WOS database	Examination and evaluation of studies with a consumer behavior perspective within the scope of the COVID-19 pandemic and identification of important research gaps for future research	The main topics were classified as environmental factors, social media, consumer behavior, business strategies, personal and psychological characteristics, purchase process, and panic shopping. Within the framework of the topics classified under 6 main headings, suggestions for possible research directions for researchers are presented in the study. (Under personal and psychological characteristics, studies are recommended to determine how consumer behavior is affected by gender, employment, family size, location, and generations. It is suggested to determine the emergence of brands for gender and sexual orientation diversity during the COVID-19 pandemic and to study the clustering of policies that improve the consumer's environment in the context of environmental factors. In the context of business strategies, studies are recommended to determine the ability to generate tangible and measurable benefits from investments and effective marketing strategies. It is recommended that studies be conducted to determine the level of use of digital tools and platforms used in the context of panic buying and to determine the relationship between the level of sales. For the purchase process, research is recommended to determine the impact of price and quality on consumer decision making. For the social media field, it is recommended to conduct studies that determine the capacity of macro influencers to interact and access in the post-pandemic period and map the emergence of the marketplace in social networks during the COVID-19 pandemic.)
COVID-19 and Mental Health	Berezka et al. (2021)	Bibliometric analysis	110 studies in the Scopus database	Examining the fear and trust effects of the COVID-19 pandemic on consumer behavior in the spring of 2020 using the keywords trust, COVID-19, coronavirus and consumer	The relevant article data were subjected to five different classifications within the scope of data storage and privacy, sharing economy, mobile marketing and technology adoption, loyalty, satisfaction, and brand attitude. The results of the study showed that there are differences in the level of consumer trust and fear in BRICS countries and that fear is one of the factors changing consumer behavior in Russia
COVID-19 and Mental Health	Kolesnyk (2021)	Bibliometric analysis	1007 studies in the Scopus database	Determine the essence of research in the pandemic impact on consumer behavior	Based on the lack of sufficient studies on the impact of changes in consumer demand on economic and social goals in the COVID-19 pandemic, it has been determined that there are deficiencies in determining the impact of changes in consumer demand.
COVID-19 and Mental Health	Memon et al. (2022)	Bibliometric analysis	2190 studies in the Scopus database	Understand the impact of COVID-19 on consumer behavior	It was found that the concepts of pandemic, social media, consumer behavior, social distance, and quarantine were frequently used together in the context of the main theme. The findings of this study show that the pandemic has significant implications in terms of changing consumer behavior patterns. Particular attention was paid to the role of social platforms in the dissemination of information. The study also highlighted the need for further studies to reveal the impact of quarantine practices on consumer preferences and habits.

3. Method

When a problem is identified by researchers on any subject, the relevant problems are examined using appropriate tools or methods (Labuschagne, 2003). Researchers may prefer qualitative or quantitative analysis in accordance with their intended use. While quantitative analysis quantifies by measuring the degree of the characteristics of phenomena, qualitative analysis examines the nature and status of the characteristics of phenomena in terms of processes and meanings. Document analysis, a qualitative analysis method, is a systematic method used to analyze and evaluate various types of written and electronic documents (Bowen, 2009). Document analysis provides users with the opportunity to make sense of the content of related studies, make inquiries, monitor changes over time, and verify the information integrated from different sources. Thus, by using data sources, the data contained in the relevant documents are compiled in a reliable and verifiable manner (Nowell et al., 2017), examined, systematized, and synthesized (Dalglish et al., 2021). The bibliometric analysis method was used in this study. In the bibliometric analysis method, mathematical and statistical methods (Folkers, 2013) are used to examine the characteristics, distribution, interactions, and developments of the studies in the relevant field (Donthu et al., 2021), while the effectiveness of the studies can also be determined (Ekinici and Bilginer Özsaatci, 2023). This analysis method is mostly used to determine the density, trends, and diffusion trends of publications in a particular subject or discipline, and which countries or institutions are prominent in this field. Thus, monitoring the development of literature and research models becomes more systematic (Roy and Basak, 2013). Bibliometric analysis provides a more rational basis for researchers to understand the developments in the literature, to follow the developments in the field of study, and to determine research directions in terms of possible future studies (Donthu et al., 2021). In other words, researchers can comprehensively understand their field of study, identify emerging trends, and evaluate the quality and impact of published (de Oliveira et al., 2019).

Bibliometric analysis uses scientific articles as the basic unit of measurement and focuses on items such as publications, authors, references, and citations. Units are created by aggregating specific sets of items, such as journals, subject categories, institutions, and countries. Bibliometric studies use various factors such as “number of publications, number of co-authors, number of citations, journal titles, authors, institutions, references, document type, title, terms, keywords, abstract, subject headings and acknowledgments” (Glänzel, 2003; Talan, 2021). The results of bibliometric analysis may differ depending on the databases used (Mongeon and Paul-Hus, 2016). Data up to 5 February 2024 were considered in the study. In the study, various words representing Mental Health were used with the word “COVID-19” and “Consumer Behavior”. These words are: “Emotional”; “Mental”; “anxiety”; “depression”; “Fear”; “Emotion”; “Stress”; “Psychological”; “Psychology” and “Panic”. Queries for related words were made separately in both Scopus and WoS Database. The findings were merged into a single file. Data scanning was performed on the merged file, and edits were made. Sample corrections are as follows: Duplicate studies were eliminated and different types of expressions of the same author were merged. In this study, data elements consisting of “author, title, abstract, institution,

country, journal, keywords and references” (Kazak, 2023b; Karataş et al., 2024) were used. The data were obtained from the WoS and Scopus databases, which are the main sources of citation data and whose scope is mostly focused on journals and articles (Mongeon and Paul-Hus, 2016). There were 180 studies in the Web of Science database and 371 documents in the Scopus database. When duplicate studies found in both databases are combined, there are 426 studies. Of these studies, 387 were scientific journal articles, 15 were books and book chapters, and 24 were conference papers. In the bibliometric analysis using the VOSviewer (Version 1.6.18) program, the data were classified, analyzed, and presented in a certain order using the visual mapping method (Kazak, 2023b).

4. Results

The findings obtained accurately and reliably in accordance with the scope of the research are presented below. The findings are visualized and presented in tables and graphs.

4.1. The most used keywords in the studies

Co-word analysis, introduced by Callon et al. (1983), is used to perform content analysis of sample publications based on keywords and is frequently used in literature research (Rocio et al., 2023). Within the scope of this study, the most used keywords were analyzed first. The most used keywords are presented in **Table 2**.

Table 2. Distribution of most commonly used keywords in studies included in Web of Science and Scopus.

Keyword	Occurrences	Total Link Strength	Keyword	Occurrences	Total Link Strength
COVID-19	192	1172	Consumption Behavior	50	351
Consumer Behavior	170	1150	Epidemiology	43	579
Human	93	1145	Sars-Cov-2	42	503
Humans	91	1127	Epidemic	30	266
Pandemic	90	951	Middle Aged	30	445
Consumer Attitude	86	1084	Questionnaire	30	448
Psychology	64	714	Panic Buying	29	179
Article	63	858	Aged	26	395
Coronavirus Disease 2019	62	844	Surveys And Questionnaires	23	356
Male	61	864	Anxiety	22	248
Pandemics	61	780	Perception	21	260
Female	60	854	Controlled Study	20	310
Adult	59	826	Young Adult	20	297

Because of the bibliometric analysis in **Table 2** to determine the most frequently used keywords in the studies, 26 keywords were found to be the most repeated (the minimum number of occurrences of a keyword was considered to be 20). According to the network graph analysis results in **Figures 1** and **2**, COVID-19 (n : 192, total link strength: 1172) and consumer behavior (n : 170, total link strength: 1150) are the first two most repeated keywords. COVID-19 is followed by the keywords Consumer

Behavior and Human. If we interpret the data in the table in terms of matching keywords with keywords used in other publications, we see that the least used keywords are “panic buying”, “anxiety”; “perception”. **Figures 1** and **2** show the relationship network graph of the two most repeated keywords (COVID-19 and Consumer behavior) with other keywords.

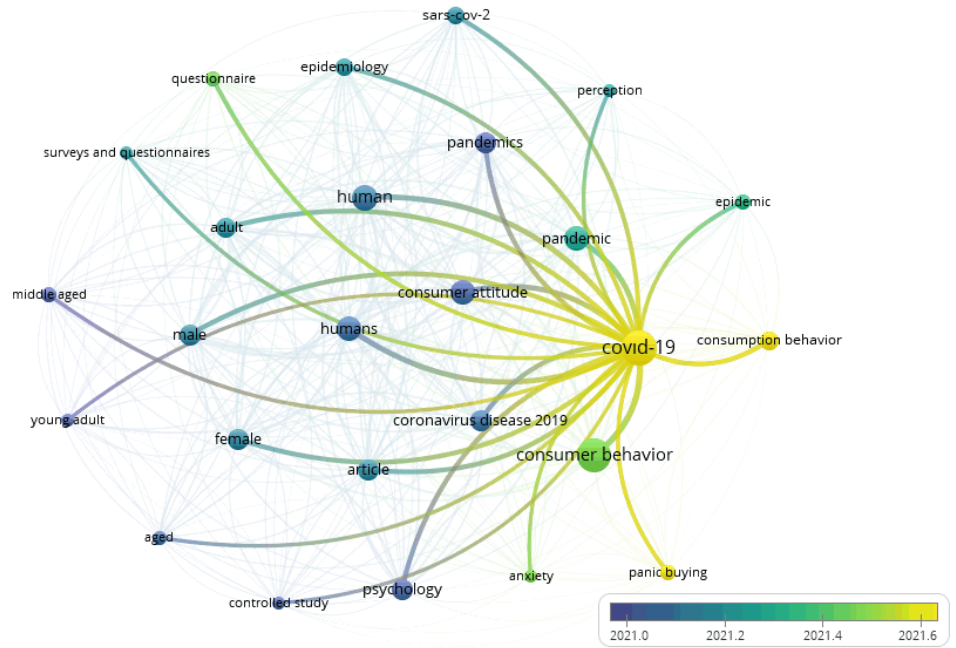


Figure 1. Bibliometric analysis of the “COVID-19” keyword.

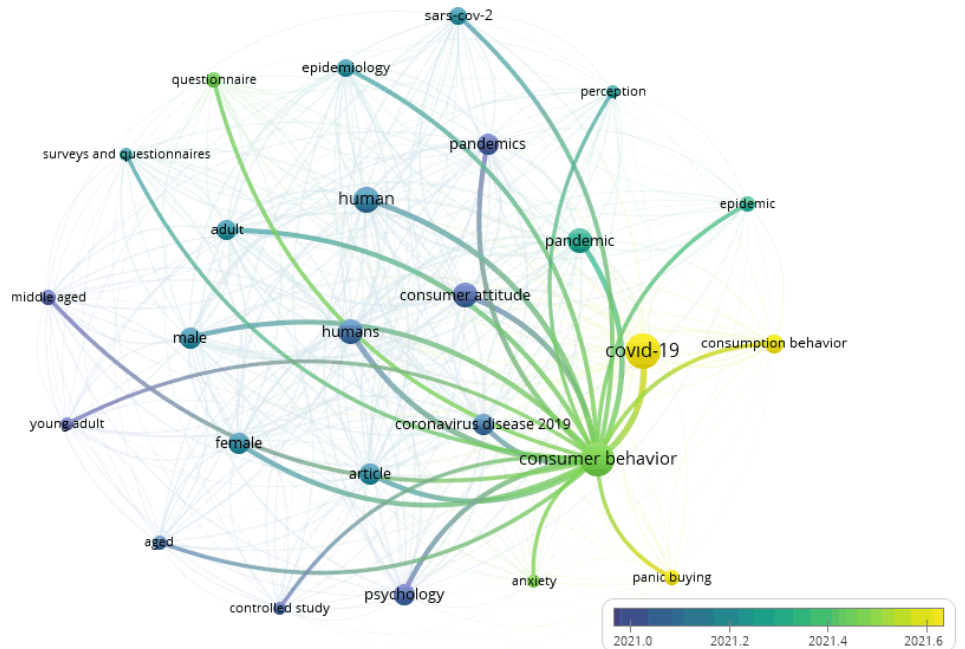


Figure 2. Bibliometric analysis of the “Consumer Behavior” keyword.

In **Figures 1** and **2**, studies on COVID-19 appear as the most recent studies. Subsequently, other current keywords were identified as words such as “consumption behavior”, “panic buying” in yellow and “anxiety”; “questionnaire”; “epidemic” in

green.

4.2. Bibliometric analysis of the authors

Among the authors with publications in the relevant scope, those with at least two publications and four connection strengths were identified, as shown in the table below (Table 3).

Table 3. Analysis of the authors.

Author	Documents	Total Link Strength	Author	Documents	Total Link Strength
Wang, Xueqin	4	9	Yusop, Nurhafizah Moziyana Mohd	2	6
Yuen, Kum Fai	4	9	Li, Xue	2	5
Lins, Samuel	4	7	Wong, Yiik Diew	2	5
Akhtar, Naeem	4	6	Ahire, Kailas D.	2	4
Chen, Tinggui	3	8	Allahyari, Mohammad Sadegh	2	4
Aquino, Sibebe	3	7	Bedin, Tiago Soares	2	4
Zhao, Taiyang	3	4	Ben Hassen, Tarek	2	4
Cannito, Loreta	2	8	Chiu, Weisheng	2	4
Ceccato, Irene	2	8	Cho, Heetae	2	4
Cong, Guodong	2	8	De Guimaraes, Julio Cesar Ferro	2	4
Di Crosta, Adolfo	2	8	El Bilali, Hamid	2	4
Fu, Peihua	2	8	Kim, Jiyoung	2	4
Jing, Bailu	2	8	Lang, Chunmin	2	4
Palumbo, Riccardo	2	8	Liu, Chuanlan	2	4
Palumbo, Rocco	2	8	Liu, Yanfeng	2	4
Yang, Jianjun	2	8	Ma, Fei	2	4
Ahmad, Siti Rohaidah	2	6	Min, Jihye	2	4
Amran, Mohd Fahmi Mohamad	2	6	Oh, Ga-Eun	2	4
Costa, Icaro Moreira	2	6	Xia, Sibebe	2	4
Koch, Rita	2	6	Yang, Kiseol	2	4
Nizam, Nurul Natasha Awinda Mohammad	2	6	Iqbal Siddiqi, Umar	2	4

Table 3 shows the distribution of authors in terms of the number of articles with a minimum of two and the link strength with a minimum of four. The authors with four articles and the highest link strength are Wang, Xueqin and Yuen, Kum Fai. As can be seen from the data in the table, authors with different levels of link strength contributed to more than one article.

In the analysis of the co-authorship links of the authors, as shown in **Figure 3**, six related authors and six author clusters are included in the co-authorship map.

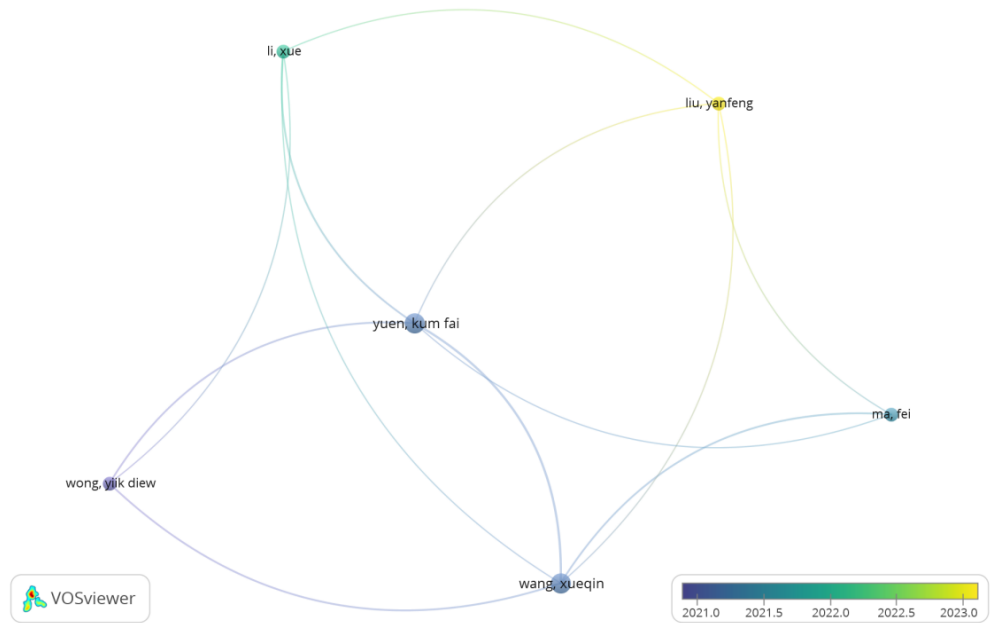


Figure 3. Co-authorship networks.

When at least five link strengths are selected, the grouping of authors is as shown in **Figure 4**.

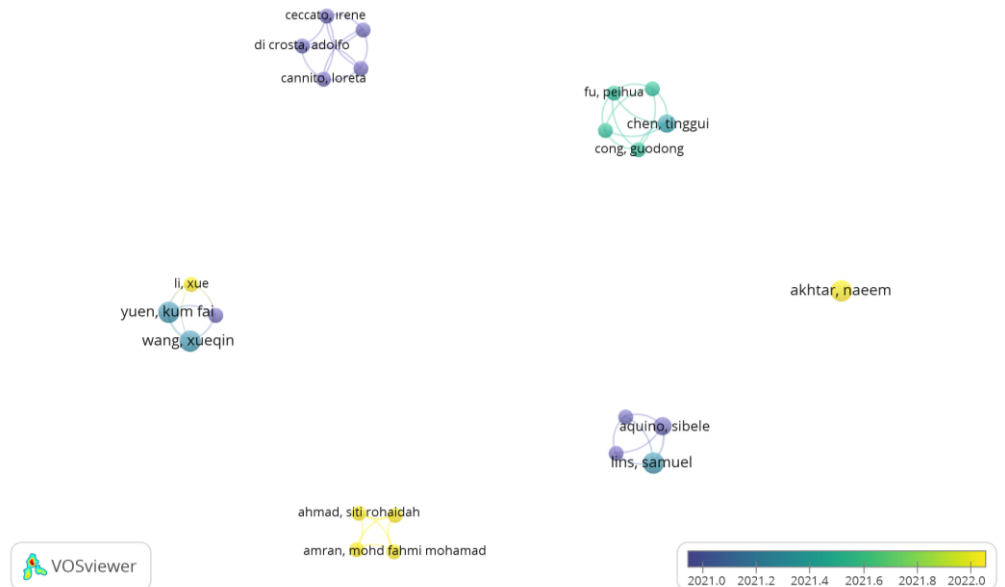


Figure 4. Co-authorship networks.

4.3. The most cited publications

In this section, the most cited publications are analyzed. For this purpose, publications with at least 50 citations were considered. **Table 4** shows the most cited publications from the studies in the WoS and Scopus databases (provided that the studies with a minimum of 50 citations). The highest total number of citations in WoS belongs to Laato et al. (2020) with 423 and in Scopus, the article titled “Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach” belongs to Laato et al. (2020) with 477.

Table 4. Most cited publications (50 or more).

(Scopus) Document	Citations
Laato et al. (2020)	477
Vanapalli et al. (2021)	392
Goolsbee and Syverson (2021)	291
Yuen et al. (2020)	282
Eger et al. (2021)	258
Parashar and Hait (2021)	210
Loxton et al. (2020)	208
Poelman et al. (2021)	198
Prentice et al. (2020)	149
Song et al. (2021)	129
Kim et al. (2022)	128
Di Crosta et al. (2021)	126
Billore and Anisimova (2021)	117
Elshami et al. (2021)	117
Cruz-Cárdenas et al. (2021b)	110
Murphy et al. (2021)	95
Akhtar et al. (2020)	90
Philippe et al. (2021)	88
Hakim et al. (2021)	85
Romeo-Arroyo et al. (2020)	83
Moon et al. (2021)	80
Lins and Aquino (2020)	79
Taylor (2021)	76
Qi et al. (2020)	71
Lehberger et al. (2021)	69
Bentall et al. (2021)	66
Hesham et al. (2021)	57
Du et al. (2020)	56
Sun et al. (2021)	54
Leung et al. (2021)	53
Lyons et al. (2021)	53
de Oliveira et al. (2021)	53
Aebli et al. (2022)	51
(Wos) Document	Citations
Laato et al. (2020)	423
Goolsbee and Syverson (2021)	330
Hassan and Soliman (2021)	127
Di Crosta et al. (2021)	95
Cruz-Cárdenas et al. (2021b)	84
Akhtar et al. (2020)	82
Romeo-Arroyo et al. (2020)	69
Lins and Aquino (2020)	61

As can be seen in **Table 4**, there are differences between publications in WoS and Scopus databases. In the context of the methodological features of the databases, there are different citation numbers due to the fact that they monitor different publications and use different metrics. The five most cited publications in the Scopus database are Laato et al. (2020), Vanapalli et al. (2021), Goolsbee and Syverson (2021), Yuen et al. (2020) and Eger et al. (2021). Again, the five most cited studies in the WOS database are Laato et al. (2020), Goolsbee and Syverson (2021), Hassan and Soliman (2021), Di Crosta et al. (2021), Cruz-Cárdenas et al. (2021).

4.4. Citation analysis by publications

Table 5 in this section contains data on the classification of publications in terms of a source containing a minimum of 3 documents and having at least 2 citations.

Table 5. Citation analysis by publications.

Source (Scopus)	Documents	Citations
Journal Of Retailing and Consumer Services	10	947
International Journal of Environmental Research and Public Health	26	833
Appetite	4	374
Plos One	14	342
Nutrients	6	248
Journal Of Risk and Financial Management	3	212
Sustainability (Switzerland)	15	163
Technological Forecasting and Social Change	3	123
Heliyon	3	83
Foods	4	55
Journal Of Consumer Behaviour	3	48
Frontiers In Psychology	8	47
Energies	3	44
Current Psychology	4	39
Frontiers In Public Health	3	35
British Food Journal	3	25
Behavioral Sciences	3	20
Social Behavior and Personality	3	14
Journal Of Consumer Marketing	3	6
Revista Brasileira De Marketing	3	6
Lecture Notes in Networks and Systems	5	4
Source (WoS)	Documents	Citations
Journal Of Retailing and Consumer Services	10	537
Sustainability	12	98
International Journal of Environmental Research and Public Health	7	72
Journal Of Consumer Affairs	4	51
Frontiers In Psychology	8	45
International Journal of Hospitality Management	3	42

Table 5. (Continued).

Source (WoS)	Documents	Citations
Journal Of Hospitality and Tourism Management	3	37
International Journal of Emerging Markets	3	21
Current Psychology	3	19
Social Behavior and Personality	3	12
Journal Of Consumer Marketing	3	9
Journal Of Islamic Marketing	3	6
Revista Brasileira De Marketing	3	5

As can be seen from the table data, the first two journals with the highest number of articles and citations in Scopus are “Journal of Retailing and Consumer Services” and “International Journal of Environmental Research and Public Health”. In the WoS database, the journal “Journal of Retailing and Consumer Services”, which is also ranked first in Scopus, has the highest number of articles, but the number of citations is lower than in Scopus. According to Scopus data, the highest number of articles is in the International Journal of Environmental Research and Public Health (26) and the highest number of citations is in the Journal of Retailing and Consumer Services (947). According to WoS data, the highest number of citations is in the Journal of Retailing and Consumer Services (537) and the highest number of articles is in Sustainability (12).

Figure 5 shows the links between publications (the largest set of linked items consists of 3 items).



Figure 5. Linkages between scientific publications.

4.5. Organization citation analysis

At this stage, **Table 6** presents the number of articles and citations at the organization level. The analysis was carried out under the condition that the minimum number of articles an organization can have is 2 and that it contains at least 10 citations.

Table 6. Citation analysis by organizations.

Organization (Scopus)	Documents	Citations
Department of Management Sciences, University of Okara, Okara, Pakistan	3	98
Business School, Jilin University, Changchun, 130012, China	2	81
School of Philosophy and Sociology, Jilin University, Changchun, 130012, China	2	81
School of Civil and Environmental Engineering, Nanyang Technological University, Singapore	3	77
School of Statistics and Mathematics, Zhejiang Gongshang University, Hangzhou, China	2	20
School of Tourism and Urban-Rural Planning, Zhejiang Gongshang University, Hangzhou, China	2	20
Faculty of Psychology and Education Sciences of The University of Porto, Alfredo Allen St, Porto, 4200-135, Portugal	2	14
Pontifical Catholic University of Rio De Janeiro, Marquês De São Vicente St, 225, Gávea, Rio De Janeiro, 22541-041, Brazil	2	14
University of Fortaleza, Washington Soares Av., 1321, Edson Queiroz, Fortaleza, 60811-905, Brazil	2	14
Organization (Wos)	Documents	Citations
North-West Univ	5	484
Univ Stavanger	4	435
Lut Univ	2	423
Univ Turku	2	423
Univ Okara	4	121
Pontifical Catholic Univ Rio De Janeiro	4	74
Univ Porto	4	74
Louisiana State Univ	2	72
Univ Padua	3	65
Prague Univ Econ and Business	2	32
Univ Putra Malaysia	2	32
Univ Turin	3	30
USCI Univ	3	22
Szechenyi Istvan Univ	2	21
Islamic Azad Univ	3	21
Nanyang Technol Univ	2	20
Qatar Univ	2	20
Nicolaus Copernicus Univ Torun	2	18
Jiangsu Univ	2	17
Kyung Hee Univ	2	17
Shandong Univ	2	17
Univ North Texas	3	17
Bucharest Univ Econ Studies	3	14
Amity Univ	2	13
Sunway Univ	3	13
Chung Ang Univ	2	12
Pukyong Natl Univ	2	12
Univ Fortaleza	2	12
Univ Tennessee	2	11

The table above presents the distribution of articles and citations across various academic institutions. The names of the Scopus and WoS comprehensive institutions indicate a geographical distribution covering countries such as Pakistan, China, Singapore, Portugal, Brazil, United States, Italy, Malaysia, and Qatar. Organizations such as Department of Management Sciences, University of Okara, Okara, Pakistan (Scopus) and North-West Univ (WoS) have the highest number of citations and the highest number of articles. When the top three organizations are evaluated, the most cited institutions in the Scopus database are “Department of Management Sciences, University of Okara”, “Business School, Jilin University” and “School of Philosophy And Sociology, Jilin University”, and in the WoS database, “North-West University”, “University of Stavanger”, “LUT University (Lappeenranta-Lahti University of Technology LUT)”.

The link between the institutions according to the data from the Wos database is shown in **Figure 6**.

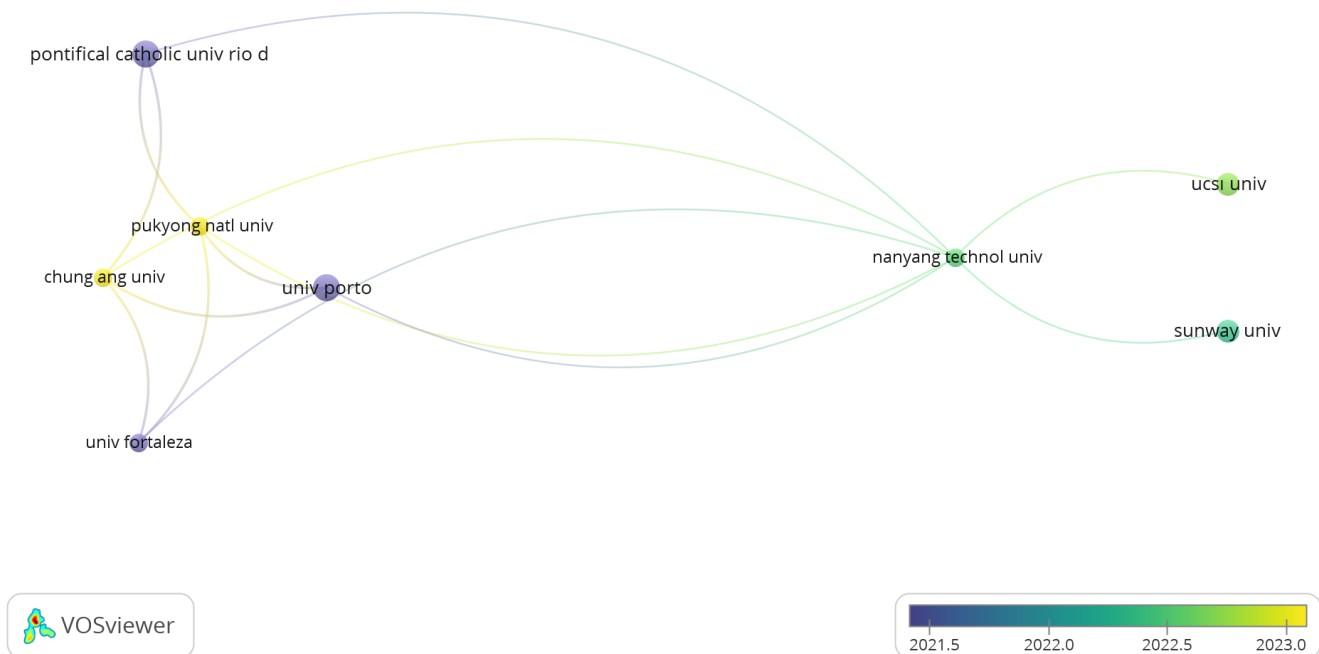


Figure 6. Relationship-connection network between organizations.

When **Figure 6** is evaluated, it is seen that there is a relationship between eight organizations. It is seen that the most recent studies from these organizations are “Pukyong National University (PKNU)” and “Chung-Ang University” shown in yellow.

5. Evaluation and conclusion

The COVID-19 outbreak, which emerged in Wuhan, China at the end of 2019 and affected the whole world in a very short time and was declared as a public health emergency of international importance by the World Health Organization (WHO) in early 2020, draws attention as an important crisis that has an impact on many areas of the world (Kazak, 2023a). Undoubtedly, this crisis was not limited to the field of health, but also had a significant impact on world trade and consumer behavior. The impact

of the COVID-19 pandemic on trade has caused a synergistic effect together with its impact on mental health. Within the scope of this study, a literature analysis of studies addressing all these aspects of the event has been conducted. Within the scope of the study, taking into account the data until 5 February 2024, various words representing Mental Health were used together with the word “COVID-19” and “Consumer Behavior”. These words are: “Emotional”; “Mental”; “anxiety”; “depression”; “Fear”; “Emotion”; “Stress”; “Psychological”; “Psychology” and “Panic”. Queries for the related words were made separately in both Scopus and WoS Database. The findings obtained were merged into a single file. Data scanning was performed on the merged file and necessary edits were made. Sample corrections are as follows: Duplicate studies were eliminated and different types of expressions of the same author were merged. In the data search, 180 studies were found in the Web of Science database and 371 documents in the Scopus database. When duplicate studies found in both databases were combined, a total of 426 studies were found. Of these studies, 387 were scientific journal articles, 15 were books and book chapters, and 24 were conference papers. In the bibliometric analysis using VOSviewer (Version 1.6.18) program, the data were classified, analyzed, and presented in a certain order by visual mapping method.

In the analyzes, the most used word analysis was performed first. Accordingly, it was determined that COVID-19 (n : 192, Total Link Strength: 1172) and consumer behaviors (n : 170, Total Link Strength: 1150) were the first two most repeated keywords. Along with these two keywords, the keywords with the most recent usage were determined as “consumer behavior”, “panic buying”, “anxiety”, “questionnaire”, “epidemic”. Secondly, authors with at least two publications and four link strengths were identified and these authors were identified as “Wang, Xueqin” and “Yuen, Kum Fai”. Thirdly, the most cited publications were evaluated. Accordingly, the five most cited publications in the Scopus database are Laato et al. (2020), Vanapalli et al. (2021), Goolsbee and Syverson (2021), Yuen et al. (2020) and Eger et al. (2021). Again, the five most cited studies in the WOS database are Laato et al. (2020), Goolsbee and Syverson (2021), Hassan and Soliman (2021), Di Crosta et al. (2021), Cruz-Cárdenas et al. (2021). Fourthly, the journals with the highest number of articles and citations were evaluated. Accordingly, the first five journals with the highest number of articles and citations in Scopus are “Journal of Retailing and Consumer Services”, “International Journal of Environmental Research and Public Health”, “Appetite”, “Plos One”, “Nutrients”. In the WoS database, the top five journals with the highest number of articles and citations are “Journal of Retailing and Consumer Services”, “Sustainability”, “International Journal of Environmental Research and Public Health”, “Journal of Consumer Affairs”, “Frontiers in Psychology”. The Journal of Retailing and Consumer Services, which ranks first in Scopus, has the highest number of articles, but the number of citations is lower than Scopus. According to Scopus data, the highest number of articles is in the International Journal of Environmental Research and Public Health (26) and the highest number of citations is in the Journal of Retailing and Consumer Services (947). According to WoS data, the highest number of citations is in the Journal of Retailing and Consumer Services (537) and the highest number of articles is in Sustainability (12). Fifth, the distribution of publications in terms of organizations was examined. In the analysis, it was seen that the studies had

a geographical distribution covering countries such as Pakistan, China, Singapore, Portugal, Brazil, United States of America, Italy, Malaysia, and Qatar. The most cited institutions in the Scopus database are “Department of management sciences, University of Okara”, “Business school, Jilin university” and “School of philosophy and sociology, Jilin university”, while in the WoS database, “North-West univ.”, “Univ Stavanger” and “Lut univ.” are identified.

In the light of the evaluations made, the impact of “COVID-19” and “Mental Health” factors on commercial activities and consumer behavior has been addressed in many studies in the literature. This study presents a comprehensive analysis of the literature studies based on the importance of the subject and makes a qualified contribution to the literature with an important opening. The results of this study have major ramifications for many different research, practice, and society stakeholders. From a research standpoint, especially in terms of knowledge of the long-term psychological repercussions of the COVID-19 epidemic on consumer behavior, this study reveals important gaps in the body of current literature. These revelations open the path for next studies aimed at investigating the junction between public health emergencies and consumer decision-making, with special attention to the psychological processes influencing consumer behavior in times of world uncertainty. Furthermore, emphasized in the paper is the need of including mental health issues into consumer behavior models, which has been mainly disregarded in earlier research.

Practically speaking, the research gives companies and legislators important data. Knowing the connection between mental health and consumer behavior would enable companies create more sensitive to consumers’ emotional states based marketing plans. These insights can help policymakers design public health campaigns addressing the psychological and financial effects of pandemics, so strengthening consumer markets and communities and so contributing to more resilient economies. The report also emphasizes the importance of companies using a more all-encompassing strategy for consumer behavior that takes mental health as a major determinant of purchase choices.

At last, this study has significant society consequences. The results imply that the COVID-19 epidemic has seriously impacted consumer mental health in addition to upsetting world markets. This twin effect emphasizes the need of treating mental health as a society concern closely connected to consumer confidence and economic stability. By stressing these links, the research helps to clarify how world events could influence society views and actions, so providing insightful information for next crisis management and recovery projects. Future studies ought to seek to investigate the complex interactions among mental health, consumer behavior, and world events. Deeper understanding of how consumer behavior changes in response to extended psychological pressures might come from longitudinal studies. Comparative research in several cultural settings also help to clarify how cultural elements affect the interaction between consumer behavior and mental health. Along with broadening the body of knowledge now in use, these prospective study areas will offer practical insights to companies, legislators, and society at large.

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writing-original drafting, HK and AK; writing-review and editing, MCY and OO; visualization, HK and MCY; supervision, OO; project management, HK and OO. All authors have read and accepted the published version of the manuscript.

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References

- Aebli, A., Volgger, M., & Taplin, R. (2021). A two-dimensional approach to travel motivation in the context of the COVID-19 pandemic. *Current Issues in Tourism*, 25(1), 60–75. <https://doi.org/10.1080/13683500.2021.1906631>
- Akhtar, N., Nadeem Akhtar, M., Usman, M., et al. (2020). COVID-19 restrictions and consumers' psychological reactance toward offline shopping freedom restoration. *The Service Industries Journal*, 40(13–14), 891–913. <https://doi.org/10.1080/02642069.2020.1790535>
- Alaimo, L. S., Fiore, M., & Galati, A. (2020). How the COVID-19 Pandemic Is Changing Online Food Shopping Human Behaviour in Italy. *Sustainability*, 12(22), 9594. <https://doi.org/10.3390/su12229594>
- Aljanabi, A. R. A. (2021). The impact of economic policy uncertainty, news framing and information overload on panic buying behavior in the time of COVID-19: a conceptual exploration. *International Journal of Emerging Markets*, 18(7), 1614–1631. <https://doi.org/10.1108/ijoem-10-2020-1181>
- Bentall, R. P., Lloyd, A., Bennett, K., et al. (2021). Pandemic buying: Testing a psychological model of over-purchasing and panic buying using data from the United Kingdom and the Republic of Ireland during the early phase of the COVID-19 pandemic. *PLOS ONE*, 16(1), e0246339. <https://doi.org/10.1371/journal.pone.0246339>
- Berezka, S., Rebiagina, V., & Muravskaia, S. (2021). Changes in consumer behavior in the BRICS countries during the COVID-19 pandemic: The role of trust and anxiety. *BRICS Journal of Economics*, 2(1), 53–73. <https://doi.org/10.38050/2712-7508-2021-29>
- Billore, S., & Anisimova, T. (2021). Panic buying research: A systematic literature review and future research agenda. *International Journal of Consumer Studies*, 45(4), 777–804. <https://doi.org/10.1111/ijcs.12669>
- Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2), 27–40. <https://doi.org/10.3316/qrij0902027>
- Callon, M., Courtial, J.-P., Turner, W. A., et al. (1983). From translations to problematic networks: An introduction to co-word analysis. *Social Science Information*, 22(2), 191–235. <https://doi.org/10.1177/053901883022002003>
- Candiotto, L. (2022). Extended loneliness. When hyperconnectivity makes us feel alone. *Ethics and Information Technology*, 24(4). <https://doi.org/10.1007/s10676-022-09669-4>
- Cardador, J. J. O., Pérez-Gálvez, J. C., Gomez-Casero, G., et al. (2023). Tourist ethnocentrism: A bibliometric analysis based on Web of Science (WoS). *Family and Consumer Sciences Research Journal*, 52(1), 38–52. <https://doi.org/10.1111/fcsr.12488>
- Cruz-Cárdenas, J., Zabelina, E., Guadalupe-Lanas, J., et al. (2021). COVID-19, consumer behavior, technology, and society: A literature review and bibliometric analysis. *Technological Forecasting and Social Change*, 173, 121179. <https://doi.org/10.1016/j.techfore.2021.121179>
- Dalglish, S. L., Khalid, H., & McMahon, S. A. (2020). Document analysis in health policy research: the READ approach. *Health Policy and Planning*, 35(10), 1424–1431. <https://doi.org/10.1093/heapol/czaa064>
- Dash, G. (2023). A Bibliometric Analysis of Panic-Buying Behavior during a Pandemic: Insights from COVID-19 and Recommendations. *Sustainability*, 15(2), 1352. <https://doi.org/10.3390/su15021352>
- de Oliveira, O. J., da Silva, F. F., Juliani, F., et al. (2019). Bibliometric Method for Mapping the State-of-the-Art and Identifying Research Gaps and Trends in Literature: An Essential Instrument to Support the Development of Scientific Projects. Available online: <https://www.intechopen.com/chapters/69867> (accessed on 3 May 2024).
- Di Crosta, A., Ceccato, I., Marchetti, D., et al. (2021). Psychological factors and consumer behavior during the COVID-19 pandemic. *PLOS ONE*, 16(8), e0256095. <https://doi.org/10.1371/journal.pone.0256095>
- Di Maria, E., Simoni, M., Pedeliento, G., et al. (2021). The long COVID effect in marketing and consumer research. *Italian Journal of Marketing*, 2021(4), 297–303. <https://doi.org/10.1007/s43039-021-00041-w>
- Do Bú, E. A., Alexandre, M. E. S. de, Bezerra, V. A. dos S., SÁ-Serafim, R. C. da N., et al. (2020). Representations and social anchoring of the novel coronavirus and COVID-19 treatment by Brazilians (Portuguese). *Estudos de Psicologia (Campinas)*, 37. <https://doi.org/10.1590/1982-0275202037e200073>

- Donthu, N., Kumar, S., Mukherjee, D., et al. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Du, H., Yang, J., King, R. B., et al. (2020). COVID-19 Increases Online Searches for Emotional and Health-Related Terms. *Applied Psychology: Health and Well-Being*, 12(4), 1039–1053. <https://doi.org/10.1111/aphw.12237>
- Eger, L., Komárková, L., Egerová, D., et al. (2021). The effect of COVID-19 on consumer shopping behaviour: Generational cohort perspective. *Journal of Retailing and Consumer Services*, 61, 102542. <https://doi.org/10.1016/j.jretconser.2021.102542>
- Ekinci, G., & Bilginer Özsaatci, F. G. (2023). Bibliometric Analysis of Publications on Artificial Intelligence and Marketing (Turkish). *Sosyoekonomi*, 31(56), 369–388. <https://doi.org/10.17233/sosyoekonomi.2023.02.17>
- Elshami, W., Taha, M. H., Abuzaid, M., et al. (2021). Satisfaction with online learning in the new normal: perspective of students and faculty at medical and health sciences colleges. *Medical Education Online*, 26(1). <https://doi.org/10.1080/10872981.2021.1920090>
- Ferreira, A. V. C., de Araújo, L. F., & De Sousa Barros Neto, R. N. (2022). Social Representations of COVID-19 Among Brazilian Elderly Women: A Structural Approach. *LIBERABIT. Revista Peruana de Psicología*, 28(2), e617. <https://doi.org/10.24265/liberabit.2022.v.28n2.617>
- Folkers, T. (2013). Bibliometrics. Available online: https://www.researchgate.net/publication/258023097_Bibliometrics (accessed on 2 March 2024).
- Franco, A. C., & Silva Franco, L. (2022). The COVID-19 Pandemic and its Implications for Food Consumer Behavior: A Bibliometric Analysis of Institutionally Affiliated Research in Brazil. *Innovar*, 32(86), 13–25. <https://doi.org/10.15446/innovar.v32n86.104658>
- Glänzel, W. (2003). BIBLIOMETRICS AS A RESEARCH FIELD A course on theory and application of bibliometric indicators. Available online: <https://www.semanticscholar.org/paper/BIBLIOMETRICS-AS-A-RESEARCH-FIELD-A-course-on-and-Gl%C3%A4nz%20el/4c0a6c1c7642c1ecc9cbbc8423b3020b155a3c16> (accessed on 3 May 2024).
- Goolsbee, A., & Syverson, C. (2021). Fear, lockdown, and diversion: Comparing drivers of pandemic economic decline 2020. *Journal of Public Economics*, 193, 104311. <https://doi.org/10.1016/j.jpubeco.2020.104311>
- Gvirts, H., Ehrenfeld, L., Sharma, M., et al. (2023). Virtual social interactions during the COVID-19 pandemic: the effect of interpersonal motor synchrony on social interactions in the virtual space. *Scientific Reports*, 13(1). <https://doi.org/10.1038/s41598-023-37218-6>
- Hakim, M. P., Zanetta, L. D., & da Cunha, D. T. (2021). Should I stay, or should I go? Consumers' perceived risk and intention to visit restaurants during the COVID-19 pandemic in Brazil. *Food Research International*, 141, 110152. <https://doi.org/10.1016/j.foodres.2021.110152>
- Hassan, S. B., & Soliman, M. (2021). COVID-19 and repeat visitation: Assessing the role of destination social responsibility, destination reputation, holidaymakers' trust and fear arousal. *Journal of Destination Marketing & Management*, 19, 100495. <https://doi.org/10.1016/j.jdmm.2020.100495>
- Herindar, E., & Rusydiana, A. (2022). The Impact of COVID-19 on Islamic Economics & Finance Industry: A Bibliometric Analysis. Available online: <https://www.semanticscholar.org/paper/The-Impact-of-COVID-19-on-Islamic-Economics-%26-A-Herindar-Rusydiana/07247e587efae52e628741c907624f2a116d343d> (accessed on 3 May 2024).
- Hesham, F., Riadh, H., & Sihem, N. K. (2021). What Have We Learned about the Effects of the COVID-19 Pandemic on Consumer Behavior? *Sustainability*, 13(8), 4304. <https://doi.org/10.3390/su13084304>
- Hoff, T. (2021). COVID-19 and The Study of Professionals and Professional Work. *Journal of Management Studies*, 58(5), 1395–1399. <https://doi.org/10.1111/joms.12694>
- Imber-Black, E. (2020). Rituals in the Time of COVID-19: Imagination, Responsiveness, and the Human Spirit. *Family Process*, 59(3), 912–921. <https://doi.org/10.1111/famp.12581>
- Karaman, D., & Sarikan, M. (2022). Bibliometric Analysis of Consumer Behaviour Research Conducted During the COVID-19 Pandemic Period. *Alanya Akademik Bakış*, 6(3), 2943–2959. <https://doi.org/10.29023/alanyaakademik.1141274>
- Karataş, A. R., Kazak, H., Akcan, A. T., et al. (2024). A bibliometric mapping analysis of the literature on patent analysis. *World Patent Information*, 77, 102266. <https://doi.org/10.1016/j.wpi.2024.102266>
- Kazak, H. (2023). Causality Change Between BIST 100 Index and USD, Gold, and BITCOIN Before and After the COVID-19 Pandemic: A Historical Analysis with a Fourier Function on Türkiye. *Fiscaoeconomia*, 7(3), 1813–1836. <https://doi.org/10.25295/fsecon.1261953>

- Kazak, H. (2023). Is Islamic financial management getting enough attention? A bibliometric analysis. *Journal of Islamic Accounting and Business Research*, 15(7), 1156–1177. <https://doi.org/10.1108/jiabr-02-2023-0068>
- Kim, J., Yang, K., Min, J., et al. (2021). Hope, fear, and consumer behavioral change amid COVID-19: Application of protection motivation theory. *International Journal of Consumer Studies*, 46(2), 558–574. <https://doi.org/10.1111/ijcs.12700>
- Kolesnyk, D. (2021). Peculiarities of consumer behavior in COVID-19 conditions: bibliometric analysis. *Visnik Sums'kogo Deržavnogo Universitetu*, 2021(4), 174–181. <https://doi.org/10.21272/1817-9215.2021.4-21>
- Laato, S., Islam, A. K. M. N., Farooq, A., et al. (2020). Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. *Journal of Retailing and Consumer Services*, 57, 102224. <https://doi.org/10.1016/j.jretconser.2020.102224>
- Labuschagne, A. (2015). Qualitative Research - Airy Fairy or Fundamental? The Qualitative Report. <https://doi.org/10.46743/2160-3715/2003.1901>
- Lehberger, M., Kleih, A.-K., & Sparke, K. (2021). Panic buying in times of coronavirus (COVID-19): Extending the theory of planned behavior to understand the stockpiling of nonperishable food in Germany. *Appetite*, 161, 105118. <https://doi.org/10.1016/j.appet.2021.105118>
- Leung, J., Chung, J. Y. C., Tisdale, C., et al. (2021). Anxiety and Panic Buying Behaviour during COVID-19 Pandemic—A Qualitative Analysis of Toilet Paper Hoarding Contents on Twitter. *International Journal of Environmental Research and Public Health*, 18(3), 1127. <https://doi.org/10.3390/ijerph18031127>
- Lins, S., & Aquino, S. (2020). Development and initial psychometric properties of a panic buying scale during COVID-19 pandemic. *Heliyon*, 6(9), e04746. <https://doi.org/10.1016/j.heliyon.2020.e04746>
- Loxton, M., Truskett, R., Scarf, B., et al. (2020). Consumer Behaviour during Crises: Preliminary Research on How Coronavirus Has Manifested Consumer Panic Buying, Herd Mentality, Changing Discretionary Spending and the Role of the Media in Influencing Behaviour. *Journal of Risk and Financial Management*, 13(8), 166. <https://doi.org/10.3390/jrfm13080166>
- Lyons, V. H., Haviland, M. J., Azrael, D., et al. (2020). Firearm purchasing and storage during the COVID-19 pandemic. *Injury Prevention*, 27(1), 87–92. <https://doi.org/10.1136/injuryprev-2020-043872>
- Memon, Y. J., Naveed, S., & Nasrallah, J. A. (2022). COVID-19 and consumer behaviour: A bibliometric analysis. *Journal of Public Value and Administrative Insight*, 1, 62–76. <https://doi.org/10.31580/jpvai.v5i1.2427>
- Mongeon, P., & Paul-Hus, A. (2015). The journal coverage of Web of Science and Scopus: a comparative analysis. *Scientometrics*, 106(1), 213–228. <https://doi.org/10.1007/s11192-015-1765-5>
- Moon, J., Choe, Y., & Song, H. (2021). Determinants of Consumers' Online/Offline Shopping Behaviours during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 18(4), 1593. <https://doi.org/10.3390/ijerph18041593>
- Murphy, B., Benson, T., McCloat, A., et al. (2020). Changes in Consumers' Food Practices during the COVID-19 Lockdown, Implications for Diet Quality and the Food System: A Cross-Continental Comparison. *Nutrients*, 13(1), 20. <https://doi.org/10.3390/nu13010020>
- Novelli, G. (2024). Two Years of COVID: The Journey to Discover a New Disease. *COVID*, 4(1), 85–86. <https://doi.org/10.3390/COVID4010008>
- Nowell, L. S., Norris, J. M., White, D. E., et al. (2017). Thematic Analysis. *International Journal of Qualitative Methods*, 16(1), 160940691773384. <https://doi.org/10.1177/1609406917733847>
- Oliveira, W. Q. de, Azeredo, H. M. C. de, Neri-Numa, I. A., & Pastore, G. M. (2021). Food packaging wastes amid the COVID-19 pandemic: Trends and challenges. *Trends in Food Science & Technology*, 116, 1195–1199. <https://doi.org/10.1016/j.tifs.2021.05.027>
- Parashar, N., & Hait, S. (2021). Plastics in the time of COVID-19 pandemic: Protector or polluter? *Science of The Total Environment*, 759, 144274. <https://doi.org/10.1016/j.scitotenv.2020.144274>
- Philippe, K., Chabanet, C., Issanchou, S., et al. (2021). Child eating behaviors, parental feeding practices and food shopping motivations during the COVID-19 lockdown in France: (How) did they change? *Appetite*, 161, 105132. <https://doi.org/10.1016/j.appet.2021.105132>
- Pluto Labs. (2024). Search results for “COVID-19”. Available online: <https://www.scinapse.io/search?q=COVID-19> (accessed on 3 May 2024).
- Poelman, M. P., Gillebaart, M., Schlinkert, C., et al. (2021). Eating behavior and food purchases during the COVID-19 lockdown: A cross-sectional study among adults in the Netherlands. *Appetite*, 157, 105002. <https://doi.org/10.1016/j.appet.2020.105002>

- Prentice, C., Chen, J., & Stantic, B. (2020). Timed intervention in COVID-19 and panic buying. *Journal of Retailing and Consumer Services*, 57, 102203. <https://doi.org/10.1016/j.jretconser.2020.102203>
- Qi, X., Yu, H., & Ploeger, A. (2020). Exploring Influential Factors Including COVID-19 on Green Food Purchase Intentions and the Intention–Behaviour Gap: A Qualitative Study among Consumers in a Chinese Context. *International Journal of Environmental Research and Public Health*, 17(19), 7106. <https://doi.org/10.3390/ijerph17197106>
- Rocio, H. G., Jaime, O. C., & Cinta, P. C. (2023). The Role of Management in Sustainable Tourism: A Bibliometric Analysis Approach. *Sustainability*, 15(12), 9712. <https://doi.org/10.3390/su15129712>
- Romeo-Arroyo, E., Mora, M., & Vázquez-Araújo, L. (2020). Consumer behavior in confinement times: Food choice and cooking attitudes in Spain. *International Journal of Gastronomy and Food Science*, 21, 100226. <https://doi.org/10.1016/j.ijgfs.2020.100226>
- Roni, M., Mohamad, S. H., Borhanordin, A. H., et al. (2022). Online Food Shopping Motives during COVID-19 Pandemic for Improving Behavioural Intention: Conceptual Model and Propositions. *Webology*, 19(1), 2458–2474. <https://doi.org/10.14704/web/v19i1/web19165>
- Roy, S. B., & Basak, M. (2013). *Journal of Documentation: A Bibliometric Study*. Available online: <https://digitalcommons.unl.edu/libphilprac/945/> (accessed on 3 May 2024).
- Sheth, J. (2020). Impact of COVID-19 on consumer behavior: Will the old habits return or die? *Journal of Business Research*, 117, 280–283. <https://doi.org/10.1016/j.jbusres.2020.05.059>
- Song, S., Yao, X., & Wen, N. (2021). What motivates Chinese consumers to avoid information about the COVID-19 pandemic?: The perspective of the stimulus-organism-response model. *Information Processing & Management*, 58(1), 102407. <https://doi.org/10.1016/j.ipm.2020.102407>
- Stalmachova, K., Chinoracky, R., & Strenitzerova, M. (2021). Changes in Business Models Caused by Digital Transformation and the COVID-19 Pandemic and Possibilities of Their Measurement—Case Study. *Sustainability*, 14(1), 127. <https://doi.org/10.3390/su14010127>
- Sun, X., Su, W., Guo, X., et al. (2021). The Impact of Awe Induced by COVID-19 Pandemic on Green Consumption Behavior in China. *International Journal of Environmental Research and Public Health*, 18(2), 543. <https://doi.org/10.3390/ijerph18020543>
- Suryadi, N. (2023). Exploring Health Consumer Behavior During COVID-19: A Bibliometric Analysis. *Asia Pacific Journal of Management and Education*, 6(1). <https://doi.org/10.32535/apjme.v6i1.2216>
- Talan, T. (2021). Bibliometric Analysis of the Research on Seamless Learning. *International Journal of Technology in Education*, 428–442. <https://doi.org/10.46328/ijte.113>
- Taylor, S. (2021). Understanding and managing pandemic-related panic buying. *Journal of Anxiety Disorders*, 78, 102364. <https://doi.org/10.1016/j.janxdis.2021.102364>
- Teo, C. L., Chee, M. L., Koh, K. H., et al. (2021). COVID-19 awareness, knowledge and perception towards digital health in an urban multi-ethnic Asian population. *Scientific Reports*, 11(1). <https://doi.org/10.1038/s41598-021-90098-6>
- Torales, J., O’Higgins, M., Castaldelli-Maia, J. M., et al. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*, 66(4), 317–320. <https://doi.org/10.1177/0020764020915212>
- Vanapalli, K. R., Sharma, H. B., Ranjan, V. P., et al. (2021). Challenges and strategies for effective plastic waste management during and post COVID-19 pandemic. *Science of The Total Environment*, 750, 141514. <https://doi.org/10.1016/j.scitotenv.2020.141514>
- Vazquez-Marin, P., Cuadrado, F., & Lopez-Cobo, I. (2023). Connecting Sustainable Human Development and Positive Psychology through the Arts in Education: A Systematic Review. *Sustainability*, 15(3), 2076. <https://doi.org/10.3390/su15032076>
- Veiga, P. M., & Diogo, J. (2022). Consumer Behavior: A Literature Review of the Early Research on the COVID-19 Outbreak. Available online: <http://u3isjournal.isvoug.pt/index.php/ijmcnm/article/view/609> (accessed on 3 May 2024).
- Vyas, L., & Butakhieo, N. (2020). The impact of working from home during COVID-19 on work and life domains: an exploratory study on Hong Kong. *Policy Design and Practice*, 1–18. <https://doi.org/10.1080/25741292.2020.1863560>
- Xiong, J., Tang, Z., Zhu, Y., et al. (2021). Change of Consumption Behaviours in the Pandemic of COVID-19: Examining Residents’ Consumption Expenditure and Driving Determinants. *International Journal of Environmental Research and Public Health*, 18(17), 9209. <https://doi.org/10.3390/ijerph18179209>
- Yuen, K. F., Wang, X., Ma, F., et al. (2020). The Psychological Causes of Panic Buying Following a Health Crisis. *International*

Journal of Environmental Research and Public Health, 17(10), 3513. <https://doi.org/10.3390/ijerph17103513>

Zanabazar, A., Jigjiddor, S., & Jambal, T. (2022). The Impact of Work-related Stress on Job Satisfaction and Organizational Trust during COVID-19 Pandemic. *SHS Web of Conferences*, 135, 01019. <https://doi.org/10.1051/shsconf/202213501019>

Zhang, R., Ji, H., Pang, Y., et al. (2022). The impact of COVID-19 on cultural industries: An empirical research based on stock market returns. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.806045>