

Exploring Health Consumer Behavior During Covid-19: A Bibliometric Analysis

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ABSTRACT

For more than three decades, marketers' primary focus has been directed toward consumer behavior patterns. During COVID-19, marketing science experts have paid particular attention to the behavioral change in consumer buying-related health areas. By highlighting the research themes using bibliometric analysis and providing an agenda for future research, this study aims to analyze the trends in consumer behavior in the health aspect. The bibliographic information for 34 papers was gathered from Scopus, one of the most well-known academic indexing databases. The study used open-source software tools like VOS Viewer and NVIVO to conduct various bibliometric analyses. Based on our bibliometric analysis, this study was related to a number of themes of consumer behavior of health aspects, including consumer lifestyle, consumer buying behavior, consumer health awareness, health behavior, perceived health benefit, and consumer health risk. The results from co-authorship analysis indicate that there is no particular connection between the topic of consumer behavior on the health aspect that different authors explore since each research focuses on a specific topic. For research academics in the academic community, the analysis of scientific research will serve as a reference manual for understanding the theoretical underpinnings of research on consumer behavior, identifying knowledge gaps, and suggesting future research direction.

Keywords: Bibliometric, Consumer Behavior, Generation Z, Health Products

INTRODUCTION

The COVID-19 outbreak started at the end of December 2019, and it quickly expanded throughout the world. The death toll keeps increasing, and the number of verified COVID-19 cases globally has increased. The common way of life for labor, study, life work, and consumption has changed as a result of this global pandemic (Irawanto, Novianti, & Roz, 2021). For instance, consumers are becoming drawn to foods with good flavor, convenience, and health-improving qualities. Consumer food buying behavior is changing considerably over the world (Ali, Alam, & Ali, 2021). Consumers are now paying more attention to their health by consuming healthier food as they are more aware of the connection between diet and health. In recent years, there has been a major shift in consumer behavior toward the consumption of nutritious foods due to rising health awareness, lifestyle modifications, and knowledge of the advantages of such foods (Ali et al., 2021; Siuki & Webster, 2021). Consumers are now demanding healthier foods, supplements, and other related health products and services that can improve immunity and are more aware of their own immunity as a result of the continuous pandemic's growth and growing fear of illness. It is certain that the pandemic has caused individuals all over the world to start paying more attention to their own health issues and to the significance of eating healthy foods. There is an increasing number of people that concern to the health aspects in order to prevent diseases out of fear of COVID-19, and they are gradually persuaded by governments who are becoming more health conscious (Fairgrieve, Feldschreiber, Howells, & Pilgerstorfer, 2020). Many academics have previously employed the planned behavior theory, which was created based on the rational action theory put out by Ajzen (1985) in studies pertaining to consumption and health behaviors. This study lays a foundation for the theories for examining consumption and health behaviors with significant explanatory power, particularly when the general population has a solid competency to predict the adoption of medical services. The planned behavior theory conduct has a primary goal of clarifying the connection between personal beliefs and behavioral intentions. It highlights both the importance of individual attitudes and behaviors as well as the fact that behavioral intentions are the best predictors of actual conduct.

As the nation keeps working to curb the spread of COVID-19, Indonesia's consumers are more concerned about health and hygiene. This statement is based on the recent survey conducted by The Mobile Marketing Association. Based on the survey mentioned above, Indonesia's COVID-19-related water consumption increased by about 55%, the intensity of handwashing increased by about 85%, while there was also an increase in vitamin consumption and vegetable consumption by 46% and 47%, respectively. As a result, the Indonesian government prohibited activities throughout the nation under the "Large-Scale Social Restriction Policy," which was applied in many locations beginning in March 2020. This approach hindered communication and movement among people as well as harmed business operations. The transition to the online world, which is applied to working, studying, and religious activities, also had an impact on people's daily routines and physical activities. This demonstrates that people's top concerns nowadays are their health and safety (Fihartini, Helmi, Hassan, & Oesman, 2021). It is apparent that the pandemic results in pressure to improve healthcare and preventive measures and raise public awareness of health issues at the same time. Therefore, knowing the trend of consumer behavior related to health aspects is necessary. There are numerous publications available on this subject, so it is difficult for academics and practitioners to stay up to date. The knowledge that has been created must be combined into one document in order to enable a thorough grasp of the subject (Aria & Cuccurullo, 2017). By identifying regions that require more scientific effort, combining fragmented knowledge, and identifying the emergence of new themes, the mapping of the existing studies serves as a vital starting point for the creation of new research lines (Siuki &

Webster, 2021; Webster & Watson, 2002). This bibliometric method also allows us to provide the study domain direction, structure, and shape as it evolves and advances (Farrukh, Raza, Ansari, & Bhutta, 2021). We can also use bibliometric tools to assess publications and citations that scholars have used in their research. The purposes of this study are to recognize and analyze the influence, relationships, and prominent works in the field of consumer behavior related to health aspects during COVID-19.

LITERATURE REVIEW

Consumer Behavior

Heretofore, there have been numerous theories that have been developed to analyze consumer behavior. Consumers have always acted and conducted certain activities based on a particular stimulus. One of the theories that were used to analyze consumer behavior is the Planned Behavior Theory (TPB), which was developed from Rational Action Theory by Ajzen (1991). According to TPB, the consumer's intention to conduct certain behavior is determined by attitude, perceived behavioral control, and subjective norm (Ajzen, 1991). Attitude refers to the whole evaluation of a certain behavior, and perceived behavioral control refers to perception constraint pertaining to an individual's ability to do certain behavior (i.e., time, budget, and willingness). Meanwhile, subjective norm refers to social pressure that can motivate an individual to do or not to do certain behavior. Once those three factors can determine individual's intention to conduct certain behavior in terms of consumption, then it can influence consumers to purchase or use particular goods and services. This is also supported by Manongko, Indawati, Oroh, and Kaparang (2021) who found that consumer behavior determines the decision-making process in purchasing for each same consumer. However, several studies during the COVID-19 pandemic used TPB as a framework to analyze consumer behavior. For instance, a study conducted by Hung and Dung (2022) found that fear of COVID-19 as a psychological factor can influence consumers' attitudes and consumers' willingness to purchase healthy food, as well as influence consumers' perception that buying healthy food is a common behavior practiced by the majority of the other consumers. Another study conducted by Martinelli, De Canio, and Nardin (2021) also used the TPB framework to analyze consumer behavior and found that consumers are more attracted to shopping online out of fear of the spread of the pandemic.

Shifting Consumer Behavior Related to Health Aspects During Pandemic

The COVID-19 pandemic, which the SARS-CoV-2 virus has caused since the end of 2019, is a global phenomenon that is faced by most countries in the world. The virus, which transmits through respiratory droplets (droplets from the nose, mouth, and eyes), indirect contact with infected surfaces, direct contact with infected persons, and even airborne transmission, led to a massive expeditious transmission that infected a huge number of people with mild to severe symptoms, and even cause mortality (World Health Organization, 2020). This has caused society to change several behaviors and their way of life as a coping mechanism and self-protection from the virus. People tend to reduce or even avoid physical contact with other people and limit their daily mobility to avoid virus exposure. Learning, working, shopping, and other daily activities have switched to online mode to limit mass mobility and curb the further spread of the virus. On the other hand, the demand for the health products, such as personal protective equipment, test kit, face and surgical mask, hand sanitizers, and other related chemical products, ventilators, oxygen tubes, medicines, vaccines, as well as medical treatment by experts soars to the historical high (Fairgrieve et al., 2020).

The COVID-19 pandemic led to people's awareness of the importance of maintaining and improving their immune system to fight against the virus infection or the least extent, ease the symptoms of the infection. Therefore, the community has widely practiced

numerous efforts to improve the immune system. The common practices include conducting routine work out around the house, consuming healthy food consisting of vegetables and fruits while also reducing junk food intake, consuming multivitamin products, taking the proper time to rest, and reducing their stress level. Those shifts in behavior will definitely influence how and what type of goods and services are preferred by consumers. As an example, in a way to prevent diseases and maintain their health, consumers are now more aware and willing to consume what we called as functional foods. This refers to foods that provide additional health benefits over their nutritional value (i.e., those supplemented with additional substance, fiber, vitamins, and minerals, among others). By this definition, high-fiber grains, fruits, and vegetables are often thought to be functional foods as well (Papp-Bata & Szakály, 2020). This statement is also supported by an empirical study which found that psychological factors, such as fear of COVID-19, can affect people to buy healthy food, which sometimes is neglected by people due to their business in daily activity so that they forget the required nutritional intake for their body (Hung & Dung, 2022).

Consumer Online Health Information Search Behaviour During Pandemic

The emerging use of online platforms during the COVID-19 pandemic results in a common practice for people to use the internet to find health-related information. People will evaluate the information about health and health-related products on the internet based on credible sources, so e-health literacy for consumers has been increasing during the pandemic (Chang, Zhang, & Gwizdka, 2021). Even after the pandemic has receded, people are used to finding information about health on the internet, and their awareness of maintaining their health has improved as well. This phenomenon can be a strategy for goods and services on the health aspects to create marketing content consisting of information that is relevant for the consumers. Consumers will try to find various health information related to COVID-19, starting from the symptoms, virus transmission, prevention, medications, vitamins, or even direct consultation session with medical experts through the website or mobile application (Rutten et al., 2019). This is being practiced because these online activities are deemed to be safer compared to direct physical contact with other people. This new way of life can be sustained even after the pandemic has been relieved and results in Consumer Online Health Information Search behavior to improve. What needs to be taken into account is how the credibility of the information can be disseminated to the consumers by emphasizing the authors' and sources' credibilities and how this information can be transmitted through a website or online application in a way that secures the consumers' personal data (Afful-Dadzie & Afful-Dadzie, 2021).

RESEARCH METHOD

The bibliometric technique is now prominent to be used by business and management scholars for examining and assessing authors, works, journals, and nations (Wu, Lang, & Lim, 2019). A method for assessing and analyzing academic literature that has been published is called bibliometrics. Numerous bibliographic aspects are looked at, including the number of publications, major subject trends, citations, and also social networking (co-authorship). The researcher also viewed co-authors, co-occurrences, and citations while performing the study using the VOSviewer software. Additionally, Van Eck and Waltman (2010) stated that VOSviewer could be used to contrast and compare different products. For retrieving the results from the Scopus database, the researcher chooses research keywords using "consumer behavior, health, and Covid-19." Publish and Perish software was used in November 2022 to search the Scopus databases. Searches for "Journal" and "Proceeding" were done by researchers using only "title words" and "keywords." According to the findings, there were 34 articles during 2019 to 2022 that discussed consumer behavior related health aspects. The CSV formatted

results include other necessary data such as title, affiliation, summary, keywords, researcher name, references, and more. When retrieving and indexing articles, Scopus only chooses works from the “Journals” and “Proceedings” categories.

Additionally, all article metadata is further processed into an Excel file, saved as a CSV file, and used for the subsequent data analysis for accurate development. The acquired data will be stored in CSV format. The components of journal articles are checked first, and if any are lacking, the researcher will complete them. These components include the year of publication, volume, number of pages, and so on. To do bibliometric analysis and visualize the research network, VOSviewer software was employed. Data collection software called VOSviewer provides a variety of fascinating analyses, visualizations, and surveys to help you make the most of your data (Van Eck & Waltman, 2010). Based on co-citing, keyword attribution, and co-citations, VOSviewer also assigns publisher, author, and journal attributions. For additional tools, NVIVO software based on word cloud was used to see the most discussed keywords. As illustrated in Figure 1, this study used a five-step technique adapted from the results (Tranfield, Denyer, & Smart, 2003).

Figure 1. Stages of Data Selection

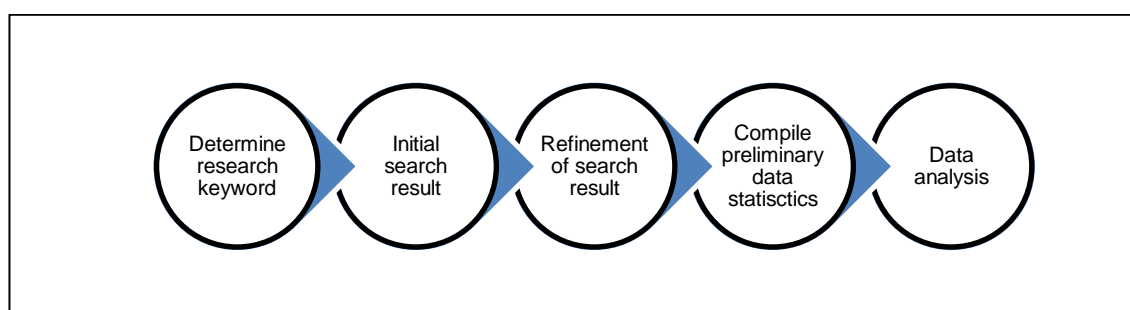
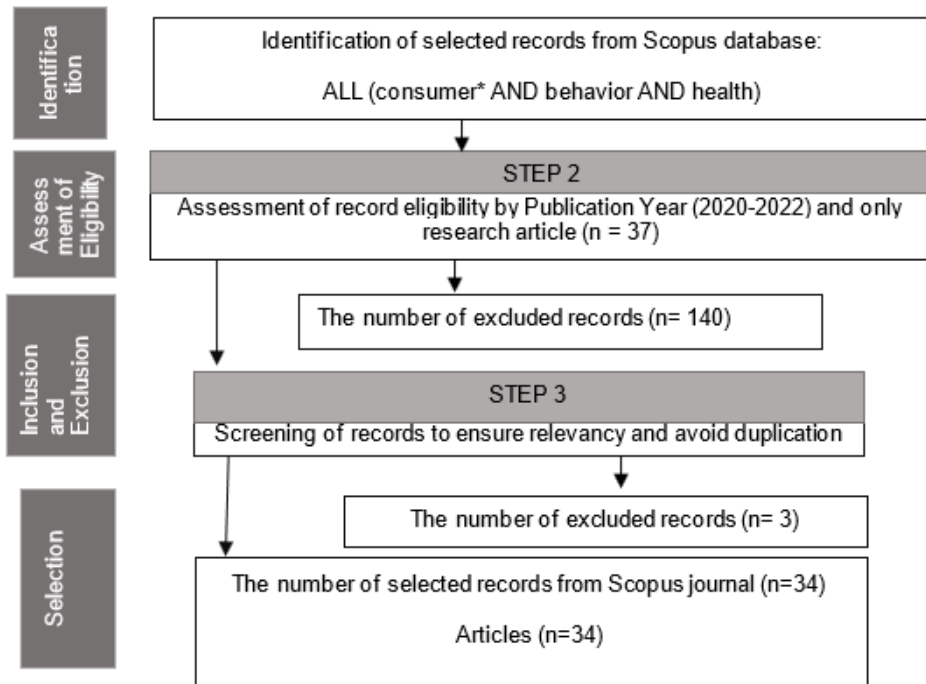


Table 1. Summary of The Articles Analyzed in This Research

Description	Results
Sources (Journals)	34
Period	2020 – 2022
Document type	Article / Proceeding
Cited/year	53
Cited/paper	3.12

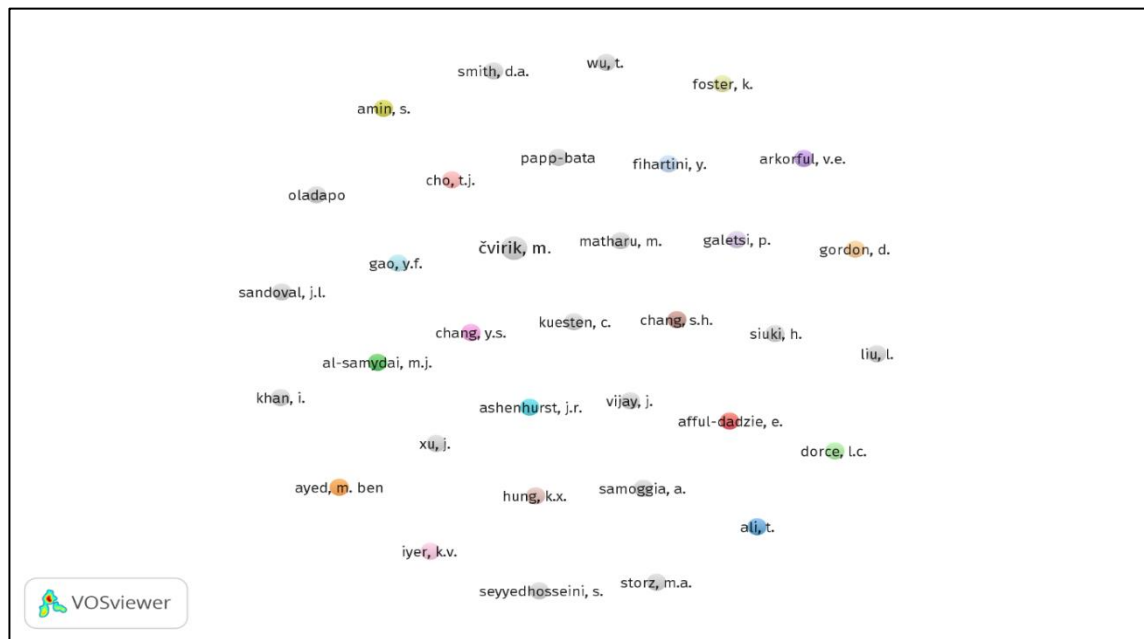
Figure 2. Stages and Selection Article Process



RESULTS

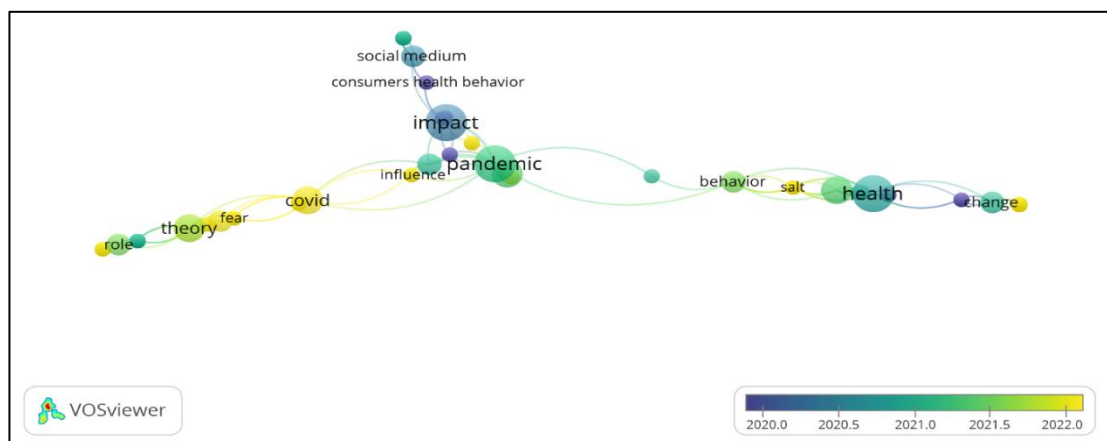
This research was conducted to analyze the literature related to keywords “consumer behavior” AND “health” AND “Covid-19” from Scopus databases journal and proceeding range from 2020 to 2022. Co-authorship, co-accuracy, and citations are among the three aspects examined. The VOSviewer software was used to perform the bibliometric analysis. The researcher employs the minimal occurrence limit 1 when providing co-authorship, co-occurrence, and citation data. Co-authorship data can be seen in Figure 3 below:

Figure 3. Co-Authorship Based on Author



According to Figure 3, it can be seen that there are 34 authors that their work related to consumer behavior and focus on health aspect during Covid-19 although there is no connected network.

Figure 4. Co-Occurrence Based on Keywords



As shown in Figure 4, research on health consumer behavior has broad keywords dominated by the terms health and pandemics related to Covid, consumer health behavior, behavior, change, theory, and fear. This can be used as a starting point for further research into various facets of consumer behavior in health aspects that are rarely used. It can be seen in Figure 4 that most keywords used in the Scopus database search engine are based on general and not too-specific keywords. To see the clear connection between keywords, NVIVO tools are used in the word cloud engine to see the most used keywords.

Figure 5. Word Cloud Based on Keywords



According to Figure 5, it can be seen that the most dominant research was about health related to consumer behavior, mostly used online shopping in food and many aspects. This finding is expected to be a reference in future research to raise topics related to other aspects of health awareness in individuals and shifting consumer behavior. Analysis of the most citation using the theme can be seen in Table 2. Researchers, especially those who are just starting out, can get a head start on their research by using the identification in the form of mapping in Figure 4. With the aid of this study, they can read articles about topics of interest when they come across them in a field of interest. For instance, if a researcher chooses cluster 1, the idea of consumer shopping behavior and sustainable product needs to be the beginning point for the starting idea of the literature. Additionally, scholars can use the reference manager to search for relevant literature using keywords from cluster 2, such as consumer health awareness, healthy behavior, and more. Themes clustering such as consumer lifestyle, consumer shopping behavior, consumer health awareness, health behavior, health benefit, and perceived health risk. Table 2 shows the categorization of each cluster.

Table 2. Keywords Cluster in Consumer Behavior Related to Health Aspects

Cluster	Concept Name
Cluster 1	Consumer shopping behavior, consumer lifestyle, emerging market, sentiment, sustainability, sustainable product, wellness food products
Cluster 2	Consumer health awareness, consumer e-health literature, content-based green, dairy product purchase, doctors via social media, healthy behavior, young consumer, lifestyle health product
Cluster 3	Consumer ethnocentrism, health crisis, online shopping, perceived health risk
Cluster 4	Consumer recipients, health care engagement, personalized genetic risk
Cluster 5	Consumer mobile health, consumer purchase intention, health foods

Cluster	Concept Name
Cluster 6	Consumer behavior, health behavior, knowledge, diet, negative emotion
Cluster 7	Health benefits, organic vegetable, consumer purchase behavior, sustainability benefit
Cluster 8	Consumer effectiveness, ecological food consumer, health consciousness, millennial
Cluster 9	Health consumer search, scientific product, covid, vaccine, convenience food trend

Table 3. Top 10 Scopus Journal Citation

No	Year	Author	Title	Journal	Cites
1	2021	Dorce, da Silva, Mauad, de Faria Domingues, & Borges	Extending the theory of planned behavior to understand consumer purchase behavior for organic vegetables in Brazil: The role of perceived health benefits, perceived sustainability benefits and perceived price	Food Quality and Preference	30
2	2021	Chang, Zhang, & Gwizdka	The effects of information source and e-Health literacy on consumer health information credibility evaluation behavior	Computers in Human Behavior	13
3	2020	Čvirik	Health conscious consumer behavior: the impact of pandemic on the case of Slovakia	Central European Business Review	8
4	2020	Cho, Kim, Kim, Park, & Rhee	Changes in consumers' food purchase and transport behaviors over a decade (2010 to 2019) following health and convenience food trends	International Journal of Environmental Research and Public Health	8
5	2020	Al-Samydai, Qrimea, Yousif, Al-Samydai, & Aldin	The impact of social media on consumers' health behavior towards choosing herbal cosmetics	Journal of Critical Reviews	7
6	2021	Fihartini et al.	Perceived health risk, online retail ethics, and consumer behavior within online shopping during the covid-19 pandemic	Innovative Marketing	5
7	2021	Ali et al.	Factors Affecting Consumers' Purchase Behaviour for Health and Wellness Food Products in an Emerging Market	Global Business Review	4

No	Year	Author	Title	Journal	Cites
8	2022	Xu, Wang, & Li	Impact of consumer health awareness on dairy product purchase behavior during the covid-19 pandemic	Sustainability (Switzerland)	3
9	2022	Storz, Müller, & Lombardo	Diet and consumer behavior in U.S. vegetarians: A national health and nutrition examination survey (NHANES) data report	International Journal of Environmental Research and Public Health	3
10	2021	Sandoval, Petrovic, Guessous, & Stringhini	Health insurance deductibles and health care-seeking behaviors in a consumer-driven health care system with universal coverage	JAMA network open	3

DISCUSSION

Changes in consumers' needs and preferences behavior brought on by occurrences of an environmental, social, biological, cognitive, or behavioral character are consistent with the literature already in existence. People's behavior of consumption habits changed as a result of COVID-19, and the need to heed the government's advice to avoid public places and limit physical contact in order to protect one's own and their families health and to avoid the disease from escalating further. This new consumer habits influence different life aspects, including but not limited to working, studying, shopping, and entertainment aspects. These relatively quick transformations have significant effects on manufacturers and retailers of consumer-packaged goods, one of them related to health aspects. This may be seen in their transition away from the traditional manner of buying goods and services, which includes physically going to stores, toward online information-seeking and purchases made through Internet-connected devices (Fihartini et al., 2021). Among others, healthy food and beverage products, medical devices, communication equipment, sporting apparel, cosmetics, household items, and educational materials were the most popular items purchased. Consumers are now paying more attention to their health by consuming healthier food as they are more aware of the connection between diet and health. Recent years have seen a major shift in consumer behavior toward the consumption of nutritious foods due to increased health awareness, lifestyle modifications, and knowledge of the advantages of such foods (Ali et al., 2021). It can be seen from Table 2 that there is a main cluster of studies mostly related to consumer behavior on health aspects which can be used for future research, such as wellness food products, consumer e-health literature, perceived health risk, ecological food consumers, and health consciousness.

Based on Table 3, it is apparent that the most cited research by Dorce et al., (2021) was ranked first with a total of 30 citations since it was first published in 2021, which describes consumer purchase behavior related to organic foods. Subsequently, the second most cited was by Chang et al. (2021), with 13 citations related to e-Health literacy on consumer behavior. Online platforms (social media, websites, and digital forums) provide various Online Health Information (OHI) needs to potential customers across the globe and in numerous languages that affect consumer behavior related to health products and services during Covid-19. Through these results, we can conclude that the dominant keywords related to consumer behavior in health aspects mostly used several keywords

such as consumer lifestyle, consumer shopping behavior, consumer health awareness, health behavior, health benefit, and perceived health risk.

The importance of these findings is essential for both practitioners and academics. The growing importance of this theme will be beneficial to future researchers that want to conduct research related to shifting consumer behavior in health aspects. Researchers might analyze to which extent practical difficulties are being addressed by academic research by identifying current research topics shifting consumer behavior related to health aspects (information, foods, lifestyle, diet, and many things). It is expected that academics would utilize this paper as a starting point for new projects with the goal of filling up the gaps in existing knowledge and generating new research projects. The study aids fellow researchers interested in this issue by suggesting several directions for potential future research topics, identifying the appropriate publications to consult, and assisting in selecting the journal for submission (Falagas, Pitsouni, Malietzis, & Pappas, 2008). The study can aid the editorial teams of journals in determining which areas have the most promise for future research growth.

CONCLUSION

Shifting in individual health awareness during Covid-19 makes the changing behavior of the consumer to spend their money. A bibliometrics study aims to identify the most prevalent research trends in a certain field or journal. It's a useful method for gathering information about a particular research field for a predetermined time period and helps readers find important information from many sources. The research on consumer behavior related to health aspects that have been published in various publications using the Scopus database will be the focus of this study from 2020 to 2022. The result from the bibliometric analysis found that there were several themes related to this study, such as consumer lifestyle, consumer shopping behavior, consumer health awareness, health behavior, health benefit, and perceived health risk. The results from this analysis also show several topics on changing consumer behavior on health aspects that have the potential for future research focusing on the post-COVID-19 era, such as healthy food products, consumer e-health literature, perceived health risk, ecological food consumer, and health consciousness.

LIMITATION

Nevertheless, we should also consider the limitations of this study. First, articles published in other databases were not included in the data collection; only articles from the Scopus database were included. It should be noted, nevertheless, that each database has its limitations. Future research may therefore broaden its database coverage. Second, even though the search terms used were thorough, they might not be all-inclusive. The majority of the studies that addressed the subject of this study, however, were probably found through the search. Thirdly, there is always going to be subjectivity in analysis, even if the authors of this work employed the analysis' aim in the manual article selection stage. Fourth, using the number of citations as the criterion for some analyses may not be completely accurate because there are many factors that influence a researcher's decision to cite a work in their paper, such as the reputation of the author or journal, editorial guidelines, or the authors' methodology. In general, this study hopes to provide fresh insights into consumer behavior and sustainability in e-commerce for researchers to consider when developing future research initiatives.

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DECLARATION OF CONFLICTING INTEREST

The authors declare no conflicting interests.

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