Article

Advertising during the COVID-19 Pandemic: Trends and Theoretical Developments

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Abstract: This study examines how the COVID-19 pandemic affected the trends and theoretical development of advertising research. By using appropriate keywords, this research selected 210 articles from the Web of Science database. We applied bibliometric analysis techniques and employed the VOS viewer to present visualizations. Our findings provide valuable insights into how the COVID-19 pandemic altered advertisers and researchers' perspectives on advertisement content and message strategies. We also explore the application of diversified theoretical lenses to our research on advertisements during the pandemic.

Keywords: COVID-19; advertisement; advertising; theories; message strategy; media

1. Introduction

The COVID-19 pandemic affected every aspect of human life around the globe, including critical business dimensions (World Health Organization 2022). In particular, the COVID-19 pandemic (hereafter referred to as 'the pandemic') put tremendous pressure on the advertising industry concerning media advertising expenditures (Vorhaus 2020). Advertising is a critical marketing communications activity, both for global and domestic businesses. Unforeseen global natural disasters will likely change how businesses advertise and formulate their advertising strategies. A significant number of studies have explored the effects of the pandemic on different aspects of advertising research (e.g., Park et al. 2022; Shoenberger et al. 2021; Demsar et al. 2021; Van Esch et al. 2021). Therefore, the need arises to synthesize the diverse literature and present a holistic overview of how advertising responded to the pandemic. Fulfilling this research gap is the primary aim of this bibliometric review-based study. Such an attempt to review the extensive advertising literature can be valuable for marketers, advertisers, entrepreneurs, and business managers to better understand how the COVID-19 pandemic affected advertising and form strategies for the future. Similarly, through this bibliometric review, researchers can learn about the theoretical development of research on advertising particularly during the pandemic.

Current bibliometric reviews classify COVID-19-related research trends and issues in the fields of business and management (Verma and Gustafsson 2020), business and economics (Alshater et al. 2021), marketing (Öztürk 2020), tourism (Utkarsh and Sigala 2021), consumer behavior, technology and society (Cruz-Cárdenas et al. 2021), and social science (Aristovnik et al. 2020). However, we could not find a bibliometric review of the literature on advertising trends and theories and how other vital advertising research dimensions evolved in the context of COVID-19. Hence, this study is a distinct attempt to synthesize the available advertising research performed during the first two years of the pandemic (i.e., 2020–2021). By using a bibliometric review process, this study looks at the pandemic-related literature on advertising and addresses the following research questions:

RQ1. What were the leading advertising research trend clusters that emerged during the COVID-19 pandemic?

RQ2. Which different theoretical lenses did researchers apply to conduct advertising research during the pandemic and how did they apply them?

RQ3: What are the advertising research-related lessons that the pandemic can provide practitioners/advertising managers?

RQ4: What are the future research opportunities in the area of pandemic-related advertising research?

We employed a bibliometric approach to address the research questions through a reliable, scientific, and data-driven process for analyzing the selected studies. This paper investigates 210 scientific studies published from 2020 to 2021. In addition to a co-citation analysis, this study employed a bibliographic coupling keyword analysis to recognize emerging research topics and reveal a picture of emerging research clusters in the advertising research field. A list of the leading publications and journals considered is also provided at the beginning of the results section (Section 3).

This study aims to contribute to the advertising literature in multiple ways. First, this paper identifies the key themes of advertising research during the pandemic. The findings of this study provide valuable insights into how different advertisement appeals and communication channels were used during the pandemic. Second, this study explores how researchers have applied different theories in the literature published on advertising during the pandemic. By understanding the application of these different theories, the bibliometric review contributes to the theoretical development of the field of advertising research during pandemics. Third, the paper offers some practical recommendations to practitioners and managers regarding advertising strategies to be used during and after a pandemic. Fourth, and finally, this bibliometric review makes suggestions for the future research agenda on pandemic-related advertising. Based on the findings of this review, we discuss these contributions in Section 4.1.

2. Advertising Research during Pandemics (before COVID-19)

Advertising campaigns can play a critical role during public health crises or pandemics (Bush and Boller 1991). Such campaigns can create public awareness about health crises and persuade people to take preventive measures to avoid health hazards (Jones et al. 2010). However, any misinformation through such campaigns may create public panic and thus generate undesired outcomes (Jones et al. 2010). Advertising campaigns (due to their significance) during pandemics attracted the attention of researchers in the past. Advertising effectiveness, media strategies, and/or message selection during pandemics (e.g., for AIDS, influenza, and avian influenza/bird flu) are some prominent areas of interest for researchers (Bush and Boller 1991; Godinho et al. 2016; Jones et al. 2010; Raymond et al. 1998).

Like the other pandemics in history, the COVID-19 pandemic also attracted the attention of researchers. Reviewing and synthesizing such research through this bibliometric review can help future researchers and practitioners understand the role of advertising during pandemics. Moreover, this review may have implications for future advertising strategies, message strategies, and media strategies for post pandemic times and during any unfortunate health crises or pandemics.

3. Methodology

The prime objective of literature reviews is to map and appraise the available literature and identify contributions and research gaps. It is vital to apply an iterative process and a structured methodology to conduct and achieve the targeted outcomes in literature reviews (Saunders and Rojon 2011). Furthermore, literature reviews provide robust results through a convergent repetitive process using pre-defined search keywords. A bibliometric review applies statistical tools to scrutinize published research, identify research trends, and tabulate citations based on the time (year), country, journal, method, and theory. Our study embraced stringent methodological steps to conduct the bibliometric review (Zupic

and Čater 2015). It analyzed various dimensions of the research on advertising during the pandemic, identifying leading articles, journals, keywords, and the papers with the most citations. Our bibliometric review also identified thematic clusters and theoretical frameworks that can help set the stage for future research studies.

A bibliometric analysis also provides visualization and mapping software for quantitative analyses (Cobo et al. 2013). We used VOSviewer (VOS stands for *visualization of similarity*), a software tool for constructing and visualizing bibliometric networks, to conduct the investigation. This software collects data and generates maps based on bibliographic coupling, co-authorship, citations, co-citations, and co-occurrences of keywords (Zhou et al. 2019). The VOSviewer carries out network analyses and provides valuable maps regarding the examined construct's scope and structure. It also identifies top research papers as well as provides geographic representations of the countries that are research leaders and key research clusters, among other information. This software provides more precision and less subjectivity to literature reviews (Zupic and Čater 2015).

Search Strategy

We searched and constructed our literature dataset from the Web of Science (WOS). Our dataset included articles written in the English language only. The prime objective of the study was to synthesize and categorize research that examined the impact of the COVID-19 pandemic on advertising from different perspectives. We initiated the collection of our dataset by inputting the key research terms sequentially into the topic field. First, we entered the two main keywords, "Advertisement" and "Advertise," into the topic field. We selected "All Years" in the timespan field and included the SCIEXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, and ESCI indexes in the search process. The date limit for searching the complete WOS core collection was set to 31 December 2021. Subsequently, we added the terms "COVID 19," "COVID," or "Pandemic" to ensure that we got a comprehensive list of relevant articles. The stepwise retrieval process resulted in 225 published studies. Next, we manually cleaned and refined the dataset based on language, relevance to the topic, and type of publication. Finally, we retrieved 210 studies to conduct the bibliometric analysis. This rigorous selection procedure ensured that each study included at least one of the chosen keywords in its title, keywords, or abstract. Figure 1 shows the data collection procedure for this study.
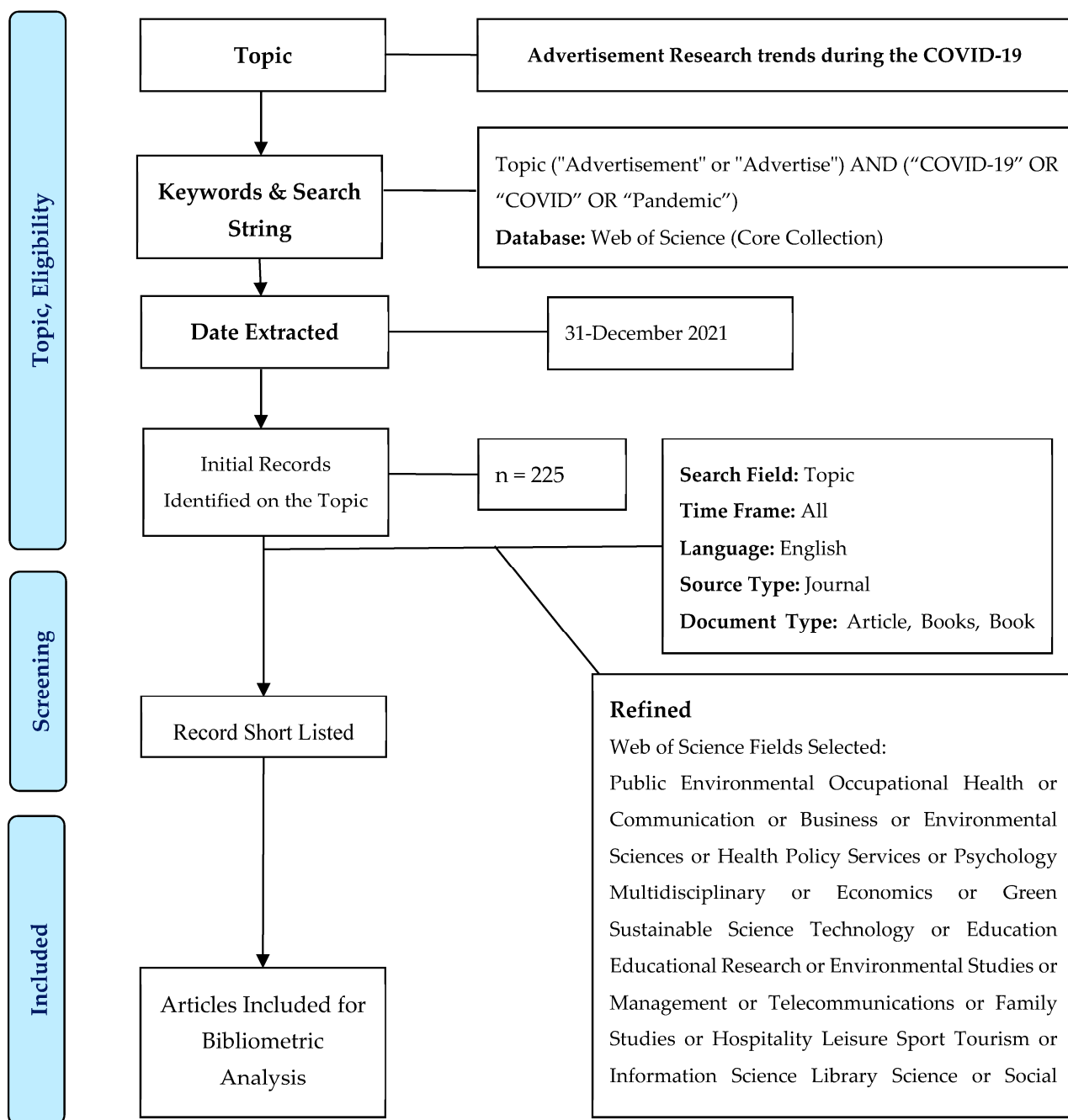
Figure 1. Flow diagram of the search strategy.

4. Results

4.1. Most-Cited Publications

We applied bibliometric coupling and retrieved the fourteen most-cited publications. The most-cited paper was by Ko et al. (2020b) and had a total link strength (TLS) of 17. This study recruited its participants through a Facebook advertisement to understand how the pandemic had affected their sex life. The survey also investigated an individual's satisfaction with their sex life based on different sexual parameters. The survey data were collected by utilizing Facebook's various tools, such as news feeds, which advertisers continuously update, and users' connections. This advertising strategy focused on targeting users' news feeds, a popular approach for accessing the right type of respondent during the COVID-19 pandemic. This advertisement approach successfully obtained relevant data

from sexual minorities, i.e., lesbian, bisexual, gay, and transgender (LBGT) individuals, without breaching their privacy. Similarly, Li et al. (2020) also underscored the efficacy of using social media as a prime research platform to collect data concerning the COVID-19 pandemic. These studies underscore the importance of digital platforms in providing vital information about key human behaviors in the countries that were affected by COVID-19. The fourteen (14) most-cited publications are illustrated in Table 1.

Table 1. Most-Cited Publications.

Title(s)	First Author (year)	TLS	TC	Avg. Norm Citation
Changes in Sex Life Among People in Taiwan During the COVID-19 Pandemic: The Roles of Risk Perception, General Anxiety, and Demographic Characteristics	Ko et al. (2020b)	17	15	1.77
Cognitive, Affective, And Behavioral Constructs of COVID-19 Health Beliefs: A Comparison Between Sexual Minority and Heterosexual Individuals in Taiwan	Ko et al. (2020a)	14	14	1.65
COVID-19-Related Factors Associated with Sleep Disturbance and Suicidal Thoughts Among the Taiwanese Public: A Facebook Survey	Li et al. (2020)	10	43	5.07
How to Improve Compliance with Protective Health Measures During the COVID-19 Outbreak: Testing A Moderated Mediation Model and Machine Learning Algorithms	Roma (2020)	7	43	5.07
Reduced Level of Physical Activity During COVID-19 Pandemic Is Associated with Depression and Anxiety Levels: An Internet-Based Survey	Puccinelli (2021)	6	21	7.00
Health Care Workers' Mental Health and Quality of Life During COVID-19: Results from A Mid-Pandemic, National Survey	Young (2021)	4	21	7.00
Trends and Predictors of COVID-19 Information Sources and Their Relationship with Knowledge and Beliefs Related to the Pandemic: Nationwide Cross-Sectional Study	Ali (2020)	4	41	4.83
Sex in the Time of COVID-19: Results of An Online Survey of Gay, Bisexual and Other Men Who Have Sex with Men's Experience of Sex and HIV Prevention During the Us COVID-19 Epidemic	Stephenson (2021)	3	45	15.00
Mental Health Needs Among Lesbian, Gay, Bisexual, And Transgender College Students During the COVID-19 Pandemic	Gonzales (2020)	3	50	5.89
Nudging to Reduce the Perceived Threat of Coronavirus	Kim (2020)	3	21	2.47
Online Social Endorsement and COVID-19 Vaccine Hesitancy in the United Kingdom	Chadwick (2021)	1	12	4.00
Exposure to Health Misinformation About COVID-19 and Increased Tobacco and Alcohol Use: A Population-Based Survey in Hong Kong	Luk (2021)	1	10	3.33
Business-To-Business Marketing Responses to COVID-19 Crisis: A Business Process Perspective	Kang (2021)	1	10	3.33
Regulation of COVID-19 Fake News Infodemic In China and India	Rodrigues (2020)	1	12	1.41

Note: TLS, Total Link Strength, TC, Total Citation.

4.2. Leading Journals

First, the authors applied the bibliographic coupling algorithm to classify the leading journals that published the highest number of research articles on advertising during the pandemic, i.e., those having the maximum number of total citations (TC) and average norm citations (ANCs). Based on the number of publications, the *International Journal of Environmental Research and Public Health* was the leading journal, with 21 publications and 170 citations. The *Journal of Advertising* ranked second with 12 publications and 30 citations. *Sustainability* was in third place, with seven (7) publications and just three citations. *BMC Public Health* (an open-access journal) and *Research in Social and Administrative Pharmacy*

(RSAP) were in the fourth and fifth positions. The top fifteen ranking journals and their number of publications are arranged in descending order in Table 2.

Table 2. Leading Journals.

Journals	Documents	Citations	Norm. Citations	Avg. Citations	Avg. Norm. Citations
International Journal of Environmental Research and Public Health	21	170	26.93	8.10	1.28
Journal of Advertising	12	30	5.47	2.50	0.46
Sustainability	7	3	0.78	0.43	0.11
BMC Public Health	3	27	9.00	9.00	3.00
Research in Social & Administrative Pharmacy (RSAP)	3	10	3.33	3.33	1.11
Profesional De La Informacion	3	7	1.04	2.33	0.35
Tripodos	3	4	0.47	1.33	0.16
Journal of Adolescent Health	2	52	6.56	26.00	3.28
Social Media + Society	2	12	4.00	6.00	2.00
Tobacco Control	2	10	3.33	5.00	1.67
Journal of Business Research	2	41	2.93	20.50	1.46
Media International Australia	2	14	2.08	7.00	1.04
International Journal for Equity in Health	2	5	1.67	2.50	0.83
Public Health	2	15	1.13	7.50	0.57
Digital Journalism	2	2	0.67	1.00	0.33

Note: TLS, Total Link Strength; TC, Total Citation.

BMC Public Health had three publications and 27 citations. *Journal of Adolescent Health* and *Journal of Business Research* had two publications each, with 52 and 41 citations, respectively. *Public Health* and *Media International Australia (MIA)* published two articles with 15 and 14 citations, respectively. Two Spanish journals were also in the top fifteen journals listed. *Profesional De La Informacion* had a Q3 citation index in the WOS and Q1 in Scopus, while *Tripodos*, another international Spanish academic journal, published English articles about the world of communication.

4.3. Thematic Clusters via Text Mining

We conducted a text mining analysis of the authors' keywords, the selected articles' titles, and their abstracts. This analysis provided the network and density visualization between our main constructs related to advertising and COVID-19. The network visualization diagram (see Figure 2) represents the items (i.e., constructs) by their labels and circles. The size of each label and circle defines a construct's significance (also referred to as an item's weight). A construct of higher significance will have a larger label and circle. In Figure 2, the labels of some items are not visible due to overlapping labels. Each item belongs to a cluster represented by a specific color. The lines between the items represent links, and their thickness represents the strength and quality of a connection.
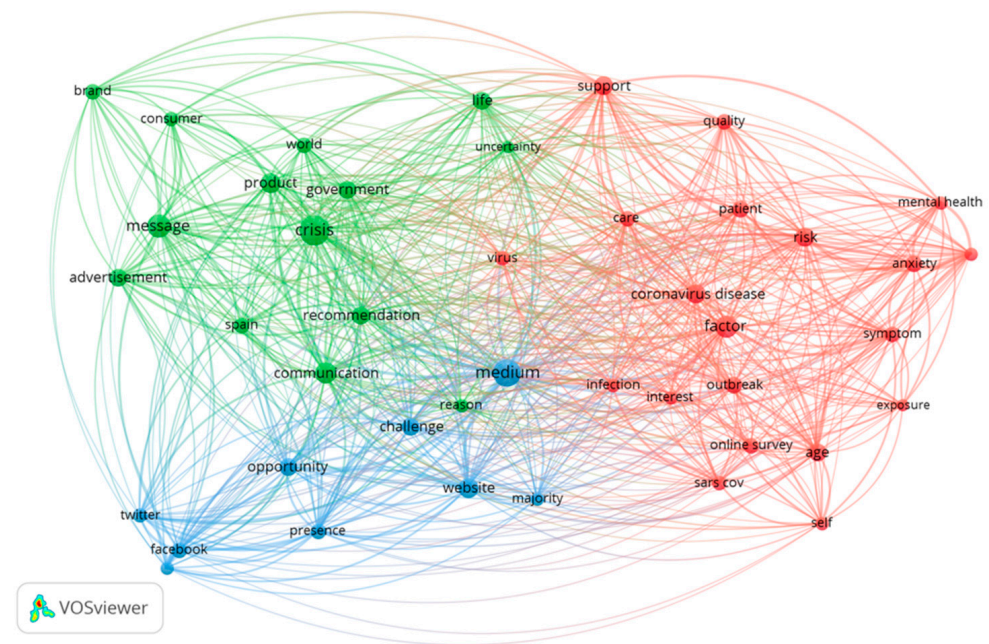
Figure 2. Network Visualization Based on Text Mining.

Three thematic clusters based on this network visualization, i.e., red, green, and blue, emerged (see Figure 2). The red thematic cluster (C1) includes public-health-related variables/keywords strongly connected with the COVID-19 pandemic. Age, depression, anxiety, mental health, care, and infection are the leading keywords in this cluster (see Table 3). Consequently, we classify C1 as the public health (PH) cluster. The green cluster (C2) includes keywords such as advertisement, brand, consumer, crisis, message, reason, spread, uncertainty, and virus. These keywords are closely associated with various advertising terms utilized during the pandemic to provide information about COVID-19, create public awareness, and lower overall public apprehension. C2 is the crisis information and stakeholder (CIS) cluster. The blue cluster (C3) comprises keywords that reflect the utilization of media and social media channels in advertising various messages during the pandemic. Communication, Facebook, Instagram, medium, opportunity, Twitter, and website are the leading keywords in this cluster. We categorize C3 as the communication channels (CC) cluster.

Table 3. Emerging Thematic Clusters.

C1—Public Health	C2—Crisis Information and Stakeholders	C3—Communication Channels
Age	Advertisement	Communication
Anxiety	Brand	Facebook
Care	Consumer	Instagram
Depression	Crisis	Medium
Exposure	Government	Opportunity
Infection	Importance	Presence
Life	Message	Twitter
Mental health	Product	
Outbreak	Reason	
Patient	Recommendation	
Quality	Spread	
Risk	Uncertainty	
Support	Virus	
Symptom		

Figure 3 is an overlay visualization that describes the focus of research topics from the outbreak of the COVID-19 pandemic to the end of 2021. The dark blue words represent the dominant words used by researchers in the initial phase of the pandemic. Terms such as 'communication,' 'recommendations,' 'support,' 'patient,' 'health,' 'care,' etc. demonstrate the high levels of global uncertainty that existed when enlightening the public on the pandemic. This cluster also evidences the lack of knowledge of advertising stakeholders and researchers in understanding the phenomenon. As time passed, words such as 'virus,' 'COVID virus disease,' 'outbreak,' 'government,' and 'website' showed an emerging clarity on the nature of the pandemic. Next, the advertising terms in the light- and dark-green-colored circles, such as 'crisis,' 'risk,' 'age,' 'challenge,' 'reason,' 'infection,' 'anxiety,' 'quality,' and 'life,' come into focus. This cluster displays the emerging advertising focus on giving a clear preventative message to the public and minimizing the rising number of fatalities. Indirectly, these terms reflect the mounting loss of human life globally and focus on ways to mitigate this.

Figure 3. Overlay Visualization Based on Text Mining.

The yellow advertising terms reflect the current/latest advertising research. Terms such as 'consumer,' 'mental health,' 'exposure,' 'Facebook,' 'Twitter,' 'advertisement,' 'majority,' 'symptom,' 'self,' and 'uncertainty' demonstrate a strong reliance on social media channels to communicate essential COVID-related advertising messages to those likely to have been most affected by the pandemic. Such a focus shows the maturity of advertising agencies in conveying the right messages. During this period, COVID-19 vaccinations were still in the development stages. Therefore, the term 'uncertainty' may indicate researchers' concerns about discerning the right treatment method.

4.4. Theoretical Clusters

To understand the contextual, practical, and theoretical implications of their work, researchers employed various theories to examine the different dimensions of advertising during the COVID-19 pandemic. The leading theories used were protection motivation theory, Taylor's six-segment message strategy, agenda setting theory, terror management theory, grounded theory, temporal self-regulation theory, and the theory of planned behav-

ior. An overview of the different theoretical clusters is shown in Figure 4 and Table 4. Out of the 210 studies, 15 explicitly applied theoretical lenses (see Table 5).

Figure 4. Theoretical Clusters.

Table 4. Theoretical lenses used for advertising research in the COVID-19 pandemic.

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
COVID-19	Advertisements	Anxiety	Communication	Adherence
Digital advertisement	Advertising	Cultural values	Grounded theory	Determinants
Fear appeals	Agenda setting theory	Death anxiety	Management	Efficacy
Health care worker	Cause-related marketing	Fear	Qualitative interviews	Extended theory
Intentions	COVID-19 pandemic	International advertising	Resident perceptions	Habit
Lessons	Health advertising	Life	Stakeholder engagement	Hand hygiene
Pandemic	Health communication	Materialism	Stakeholders	Healthy
Prevention behavior	Lockdown	Mortality silence	Sustainable tourism development	Intentions
Protection motivation theory (PMT)	Public service advertisement	Religion	Tourism recovery	Temporal self-regulation theory
Reliability	Simulacra	Self-esteem		Theory of planned behavior
Sars-CoV-2	Simulation	Terror management		
Taylor's six-segment message strategy wheel	Social responsibility	Terror management theory		
Vaccination	Speech acts	Worldwide defense		
Vaccine	Television			
	Visual communication			

Table 5. Studies and Their Theoretical Foundations.

First Author (Year)	Title	Theoretical Lens Applied
Akan (2021)	COVID-19 advertisements in Turkey: Use of informational and transformational message strategies	Taylor's six-segment message strategy wheel and narrative transportation theory
Blanco-Herrero et al. (2021)	Health advertising during the lockdown: a comparative analysis of commercial TV in Spain	Agenda setting theory
Garrett Rybak et al. (2021)	How restaurant protective ad messaging can increase patronage intentions during the COVID-19 pandemic: conditional serial mediation and COVID-19 consumer concern	Persuasion theory
Minton et al. (2022)	Death primes in advertisements: How international advertisers can ensure their message is effective	Terror management theory
Deveci and Cesur (2021)	Your doctor speaking: The representation of doctor characters in COVID-19 public service advertisements	Jean Baudrillard's simulation theory
Seyedabolghasemi et al. (2022)	Residents' perceptions of sustainable tourism destination recovery: The case of Northern Cyprus	Grounded theory
Lin et al. (2021)	Comparisons of motivation to receive COVID-19 vaccination and related factors between frontline physicians and nurses and the public in Taiwan: Applying the extended protection motivation theory	Extended protection motivation theory
Deng et al. (2022)	Global COVID-19 advertisements: Use of informational, transformational, and narrative advertising strategies	Taylor's six-segment message strategy wheel and narrative transportation theory
McLeod et al. (2020)	Fearful intimacies COVID-19 and the reshaping of human-microbial relations	Germ theory
Petrovici et al. (2020)	Social responsibility in Romanian advertising during a state of emergency	Speech acts theory
Chen et al. (2021)	Differences in the protection motivation theory constructs between people with various latent classes of motivation for vaccination and preventive behaviors against COVID-19 in Taiwan	Protection motivation theory
Liddelow et al. (2021)	Understanding the predictors of hand hygiene using aspects of the theory of planned behaviour and temporal self-regulation theory	Theory of planned behaviour and temporal self-regulation theory
Feres et al. (2021)	Faces, affections and intentionality: Semiolinguistic analysis of pandemic brands	Semiolinguistic theory of discourse analysis
Garaus and Garaus (2021)	The impact of the COVID-19 pandemic on consumers' intention to use shared-mobility services in German cities	Signaling theory

Cluster 1: Protection Motivation Theory

Protection motivation theory (PMT) and Taylor's six-segment message strategy wheel are part of the first cluster. PMT is a health psychology theoretical framework that aims to understand how humans process threats and select responses to deal with the risks that they bring (Tunner et al. 1989). Further, this theory suggests that providing coping response information to counter fear effectively stimulates the adoption of appropriate coping behaviors. Ezati Rad et al. (2021) suggest that by using PMT, each individual could appraise the perceived severity of the pandemic and then calculate their perceived vulnerability to the virus. Rybak et al. (2021) found that the way that protective measures for takeout and restaurant dining services were communicated at the height of the pandemic period was vital by applying PMT. Furthermore, research studies have suggested that advertisers portrayed protective messages as both primary advertising claims and voluntary disclosures footnoted at the bottom of an advertisement. PMT can also help explain the rationale for communicating useful consumer protection options for current and future pandemics.

Taylor's six-segment message strategy wheel is applied to develop a messaging strategy. This theoretical approach was often used to create and promote a communication strategy that curtailed the elements of fear and anxiety at the start of the COVID-19 pandemic. Tao Deng et al. (2022) applied this theory, along with narrative transportation theory, to understand and apply various global approaches to advertisement messaging (informational and transformational) during the COVID-19 pandemic. This study's findings reveal that a transformational advertising strategy focusing on social aspects produces far better results in curbing the community spread of the virus than an informational approach. Furthermore, advertisements that apply the narrative message approach, i.e., storytelling, music, and humor, to convince viewers generate a significant impact.

Cluster 2: Agenda Setting Theory

Agenda setting theory, also known as the agenda setting function of the mass media, is in the second cluster. This theory underscores that by choosing and displaying specific news, a new media channel can play a role in forming a campaign agenda on a certain subject. Viewers understand a particular issue depending on the level of information provided and its status in the news. Moreover, news media can strengthen or diminish the importance of a given subject by fluctuating the value given to the campaign. This theory was extensively applied in providing specific health information about the COVID-19 pandemic in health advertisements that were broadcast to the public (Dai et al. 2021). Blanco-Herrero et al. (2021) used agenda setting theory to inform their finding that the pandemic and resulting lockdowns significantly impacted health advertising. They found a significant difference between health advertisements before, during, and after the COVID-19 lockdowns. When the pandemic started, broadcasters and advertisers were not in a position to understand the situation. However, they adapted to the unexpected circumstances as the pandemic worsened and became more visible. Table 4. shows that agenda setting theory is mainly linked to COVID-19 via television advertisements. We may infer that researchers find television advertisements to be the main mediator between agenda setting and the COVID-19 pandemic.

Cluster 3: Terror Management Theory

Terror management theory, which is applied to explain anxiety about death, is in the third cluster. This theory postulates that humans are conscious that death is an uncontrollable, inevitable, and non-predictable fact (Greenberg et al. 1986). Therefore, when people are threatened with their own mortality, they tend to adopt meaningful worldviews that allow them to feel enduring self-worth to alleviate their anxiety. Research by Minton et al. (2022) applied terror management theory as a conceptual framework to show that mortality salience is ever-present in every consumer's life and became extremely important during the pandemic. Furthermore, this study identified how consumers' religious beliefs and geographic proximity influence their responses to death primes in advertisements. Additionally, during the pandemic, consumers were more likely to consider death-related products, such as life insurance.

Terror management theory describes how the fact of mortality is applied to mitigate death anxiety and affects consumption outcomes. Researchers also explored the role that images of death played in enhancing consumers to make pro-social decisions during the pandemic. For instance, utilizing the terror management theory, Minton et al. (2022) found that online advertisers made pandemic messaging more effective by incorporating the death prime factor. This fear of death factor influenced the public to take fundamental safety precautions and successfully implement mitigation strategies during the pandemic. Due to these behavioral changes, online advertising became the leading informational approach (Pyszczynski et al. 2020).

Cluster 4: Grounded Theory

The contributions in Cluster 4 use grounded theory (Glaser and Strauss 1967). Under this framework, social researchers apply an inductive approach to systematically collect

qualitative data. This approach enables researchers to conceptualize latent social patterns and structures in an area of research interest. During the pandemic, researchers applied grounded theory to understand various perceptions of focused advertising. Grounded theory provided the essential stakeholder engagement that was required during the COVID-19 pandemic to help restore daily activities associated with tourism, education, and organizational operations.

Cluster 5: Temporal Self-Regulation Theory

Temporal self-regulation and planned behavior theories are in cluster 5. Temporal self-regulation theory suggests that an individual's health behavior is regulated by their *intention strength*, *behavioral prepotency*, and *self-regulatory capacity* (Hall and Fong 2007). One's behavioral prepotency and *self-regulatory capacity* directly influence one's behavior and moderate the link between intention and behavior. In other words, the impact of one's intentions on one's behavioral performance is positively moderated by having behavioral prepotency and a strong self-regulatory capacity (Evans et al. 2017).

Cluster 6: Theory of Planned Behavior

Planned behavior is a psychological theory that links beliefs to behavior. This theory argues that three core components, namely, attitude, subjective norms, and perceived behavioral control, shape an individual's behavioral intentions. Researchers applied planned behavior and temporal self-regulation theories in tandem to find psychological predictors that resulted in COVID-19 prevention behaviors and habits, such as proper hand hygiene. Liddelow et al. (2021) applied planned behavior and temporal self-regulation theories to understand this phenomenon. Their study noted that in areas where hand hygiene is warranted, advertisers should formulate advertisement content with subjective norm messages together with environmental cues to increase proactive hand hygiene behavior.

5. Discussion and Research Contributions

During the pandemic, delivering honest, believable, timely, and effective messages to consumers became a paramount concern for the advertising industry. Nevertheless, broken global supply chains and business uncertainty made it hard for businesses to fulfil the commitments they made in their advertising messages. With growing global anxiety about COVID-19, consumer behavior changed in a short period of time and necessitated drastic changes in the field of advertising research. Governments and businesses gradually became dependent on digital and social media platforms to disseminate critical pandemic-related messages to a fear-ridden and locked-down public.

In analyzing a sample of over two hundred research publications, this study offers insight into how the pandemic created human anxieties that changed the advertising research field globally. Such public concerns were instrumental in changing the focus of advertising-related research during the peak pandemic period. Fear of death, COVID-19 treatments and remedies, depression, and other human health fears emerged as leading issues for advertising research during the pandemic. Providing credible and truthful messages was the dominant feature demanded by consumers in all COVID-19-related advertisements. For instance, the initial attempts by AstraZeneca to downplay the side effects of its vaccine is a good example of how trust was broken between pharmaceutical companies and global consumers.

This study identifies the advertising research trends and theoretical lenses utilized to investigate advertising aspects during the COVID-19 pandemic. In doing so, it identifies three thematic clusters through text mining. These clusters underscore that the impact of COVID-19 on advertising research has been multi-disciplinary and requires a holistic research approach. The first cluster (PH—public health) represents the concerns of advertisers and researchers for the health of their target public/audience. These public health areas are mainly related to the target audience's physical health (e.g., infection) and mental health (e.g., anxiety and depression). Advertisers have widely used health concerns through fear-based emotional/affective appeals in their marketing communica-

tions during the pandemic. Viewers observed a fair number of advertisements in different media motivating the public (including customers) to exercise precaution and minimize the risks associated with COVID-19. Some examples include advertisements highlighting the importance of care, quality, life, and support. Researchers have accordingly tried to address such health-related concerns in their studies.

The second thematic cluster (CIS—crisis information and stakeholders) reveals the concerns of advertisers in communicating the necessary crisis-related information to relevant stakeholder groups. Based on the leading keywords (see Figure 2), consumers and governments appear to be the most important stakeholders. Many governments opted to utilize active advertising to create awareness, minimize uncertainty, and control the spread of the COVID-19 virus during the pandemic (Jiménez-Sánchez et al. 2020; News Media Association 2020). Advertisements highlighting the importance of hand washing, taking care of one's hygiene, maintaining social distance, staying at home, and wearing face masks seem relevant to this second cluster. This cluster signals the usage of cognition- or information-based advertising appeals during the pandemic. Researchers made efforts to engage with such challenges of advertisers.

The third cluster (MC—media channels) represents the choices of advertisers and interests of researchers concerning media selection for communicating the advertising messages. The leading keywords show that social media dominated as the preferred advertising channel during the pandemic, with Facebook, Instagram, and Twitter emerging as key media communication vehicles. This cluster demonstrates that during the pandemic, increasing consumer usage of social media to inform decision making can motivate businesses to excessively use social media marketing (Mason et al. 2021). Our findings suggest that selecting suitable media platforms will have meaningful implications for advertising, especially in the post COVID era. Such insights are critical in formulating appropriate advertising strategies during pandemics, natural disasters, and other emergencies. The thematic analysis of these three clusters reveals advertisers' stronger reliance on affective and cognitive advertising appeals/messaging strategies. When advertisers use affective appeals, fear, care, and support are the dominant factors.

Another key objective of this bibliometric review is to summarize the theoretical deviations and adaptations applied to advertising research during the pandemic. The theoretical lenses used and their context connectivity along with relevant keywords are presented in Table 4. Theoretical frameworks, such as the theory of planned behavior, temporal self-regulation theory, terror management theory, agenda setting theory, and protection motivation theory, aided researchers in examining and understanding how advertising worked and/or what affected advertisements during the crucial time of the pandemic. Similarly, grounded theory allowed researchers to explore people's perceptions of the impact of COVID-19 (Seyedabolghasemi et al. 2022).

5.1. Research Contributions

This study makes the following contributions by using the bibliometric review technique. First, it identifies three thematic clusters in the research on advertising during the COVID-19 pandemic. These clusters are objectively identified through network visualization by text mining. Our findings provide useful insights into how different advertising appeals and message strategies were utilized in pandemic-related advertisements. The thematic analysis of the research conducted during the pandemic reveals that advertisers used both affective and cognitive advertising appeals/message strategies. This review also identifies social media usage as a key area of interest for advertising research during the pandemic. The selection of appropriate media may have meaningful implications for how to produce effective and trustworthy pandemic-related advertisements in the future.

Second, this study identifies the different theories researchers have used in the published literature on advertising during the pandemic. It also provides an understanding of how researchers extended the application of each identified theory (see Table 5) within such an unusual context and research setting. Thus, our review contributes towards a

better understanding of the theoretical development of our selected field of research (i.e., advertising during the pandemic).

Third, based on a bibliometric review of the shortlisted literature, this study provides useful recommendations for practitioners/managers and helps them better understand how the pandemic affected advertising. Such recommendations are related to two priority areas: (1) advertising in the post COVID era; and (2) advertising during any critical pandemic. For example, this review identifies some key tactical adjustments made by businesses to their advertising strategies during the COVID-19 pandemic. Our research also gives practitioners and businesses important insights into shifting global consumer behavior, advertising strategies, and brand-based promotional choices. Such dynamic insights can play a critical role in formulating business strategies to mitigate the damaging impacts of unpredicted circumstances on the advertising industry. Similarly, business firms can utilize the theoretical methods or theories highlighted in this bibliometric review to formulate advertisement strategies for consumer behavior impacted by pandemics.

Lastly, this bibliometric review presents an agenda for future research, particularly on pandemic-related advertising. This agenda may assist researchers in identifying priority areas for future research related to key themes, theories, and research settings.

5.2. Theoretical Contributions

Our bibliometric review has two major theoretical contributions. *First*, this review adds to the literature on advertising during pandemics or health crises by synthesizing the available literature through a bibliometric analysis. In this way, the key themes or trends of the advertising research conducted and published during COVID-19 pandemic are identified. This review also reports some key characteristics of the research on advertising during COVID-19, for example, the most-cited publications and leading journals. Secondly, this review identifies the theories that were used, tested, or elaborated in the literature on advertising during COVID-19. In this way, this review reports on the theoretical development of research on advertising during pandemics or health crises.

5.3. Managerial Implications

Our bibliometric review outlines salient trends in advertising observed during the COVID-19 pandemic. Accordingly, this study's findings provide managers with valuable insights into formulating advertising objectives and messaging strategies (i.e., cognitive, affective, and/or conative) when consumer markets face global health crises. Our findings are also helpful for managers who apply evidence-based management standards to understand new marketing requirements and organize advertising operations accordingly. This approach can be successful for managers in developing best practices for solving real-life business problems. The literature (e.g., Rousseau 2006) underscores that when business managers apply research-based principles, they successfully find solutions to real business problems. For example, when markets are exposed to health pandemics or natural disasters, our study recommends that advertising managers produce advertisements that cover the elements of fear, excitement, affection, and sympathy. Further, the contents of advertisements should be health and hygiene conscious.

The pandemic might have generated new consumer segments (Sheng et al. 2022) that behave differently when making decisions. Knowledge of their attitudes, intentions, and behaviors may serve as a competitive advantage for advertisers. However, gaining such knowledge may not be an easy task. Well-organized market research, using appropriate research methodologies and data analytics tools, and the development of rich databases can be key challenges for future advertisers.

Key advertisers including businesses and governments may learn important lessons from advertising during the pandemic. They should stay connected to their target audience through their advertisements in such critical times. They must keep their audience informed about the crisis and what preventive measures to take, but also communicate feelings of care, support, and social responsibility. Similarly, post pandemic or crisis-related advertisements

and other integrated marketing communications should help audiences get back to normal life in a smooth and pleasant way.

Advertisers must not underrate the significance of the mental health of their target market during any pandemic or physical health crisis. Creating awareness about any pandemic and its physical health hazards is important; however, the mental health hazards (e.g., anxiety and depression) associated with a pandemic should also be highlighted in advertising campaigns. Moreover, how to cope with mental health issues or hazards during a pandemic should be a key feature of pandemic-related advertising campaigns.

Advertising during pandemics may provide an opportunity for organizations and brands to develop their image of being 'socially responsible' and improve their social performance. Such social performance may enhance the corporate reputation that may further increase customer trust and customer loyalty (Ali et al. 2015).

Our review finds that when target markets (including the general public) and consumers face serious health challenges, social media platforms emerge as one of the most effective marketing communication channels. Our findings show that social media platforms may allow firms and governments to stay connected to their target audience. In this way, our review provides some important implications to help managers better plan their future advertising campaigns during the pandemic and in the post COVID era. However, any variations in the intensity of a pandemic or crisis may affect the advertising trends identified here and therefore also content-related managerial decisions.

5.4. Future Research Agenda

This section presents a prospective agenda for future research, based on the findings of this bibliometric review. In addition, some opportunities for future research arise from the methodological and scope-related limitations of this bibliometric review. These are briefly referred to in Section 4.4.

This review identifies three key clusters or trends in advertising research during the pandemic, i.e., public health, crisis information and stakeholders, and media channels for communication. Future researchers may particularly wish to focus on the usage and effectiveness of different cognitive and affective advertising appeals/messaging strategies, and/or the selection of media channels for communication.

Within the identified themes or clusters, this review presents a variety of keywords and variables (see Table 3) that may spark the interest of future researchers. The conceptualization/definition, social construction, measurement, and/or proposed usage of these variables/constructs in relation to expected antecedents and consequences may offer multiple research opportunities for future researchers.

This review has highlighted the different theories that researchers have used in their studies on advertising during the pandemic (see Table 5). Testing the assumptions, key aspects, and/or applications of these theories in the context of pandemic-related advertising could be of interest to future researchers. The application of such theories and/or other theoretical lenses may also help future researchers assess how post COVID advertising should be designed.

The pandemic has created some new consumer segments for marketers (Sheng et al. 2022). Understanding the beliefs, attitudes, intentions, behaviours, preferences, and/or decision-making processes of such new consumer segments might be important objectives for future researchers. Whether (and how) consumers in these segments behave differently in a post COVID environment may be another area of interest. Similarly, how marketers can respond to the (changing) needs of these customers by positioning, the marketing mix, communication, and/or branding strategies may raise critical questions for future researchers. It is also imperative to examine how the excessive reliance on digital and social media advertising may affect consumer privacy issues.

6. Limitations

Our study has some limitations. *First*, we used the Web of Science (WoS) database to identify and collect research articles. Our research findings would have more authority if we had also included articles from other databases, such as Scopus. Future researchers may consider including multiple databases in their bibliometric reviews. *Second*, this study applied bibliometric analysis techniques. However, this approach does have a few shortcomings. For instance, changing the keywords would alter the sample noise, including unrelated articles or excluding related articles. However, this limitation of our analysis has only a limited chance of creating errors in our study as it covers only a two-year period. *Finally*, this study does not outline the research methodologies and specific contexts applied in the selected studies. Future bibliometric studies may wish to include these areas. Nevertheless, this study provides a synthesized interpretation of the impact of the COVID-19 pandemic on advertising research.

7. Conclusions

Our study's goal was to better understand the impact of the COVID-19 pandemic on advertising research. By utilizing an appropriate database, data collection methods, and analytical tools, we met these research goals. Our analysis provides a well-organized overview of the vital thematic trends and theoretical frameworks used in advertising research during the COVID-19 pandemic. We hope that our results offer new insights for researchers investigating advertising theory and practice.

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