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Review

A Systematic Literature Review of the Phenomenon of Disinformation and Misinformation

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Abstract
Disinformation threatens the virtue of knowledge. The notion of truth becomes corrupted when citizens believe and give credibility to false, inaccurate, or misleading messages. This situation is particularly relevant in the digital age, where users of media platforms are exposed to different sorts of persuasive statements with uncertain origins and a lack of authenticity. How does academia understand the disinformation problem, and are we equipped to offer solutions? In response to this question, our study provides an overview of the general definitions, trends, patterns, and developments that represent the research on disinformation and misinformation. We conducted a systematic review of *N* = 756 publications covering eight years, 2014–2022. This period captures phenomena such as Trump's emergence as a candidate for the US presidency, his term in office, as well as the leadership of figures such as Erdogan in Turkey, Bolsonaro in Brazil, Modi in India, and various similar populist and nationalist leaders across a range of democratic and semi-democratic societies. This period is also one that witnessed the first global pandemic, when misinformation and disinformation not only threatened societal cohesion but the lives of people. This systematic review explores the critical terminology used, the areas of social life where disinformation is identified as problematic, the sources identified as creating or circulating this material, as well as the channels studied, the targets, and the persuasiveness of the discourse. What this article offers, then, is an overview of what we know about disinformation and what gaps in research should be pursued. We conclude that given the problems that misinformation and disinformation are seen to cause for democratic societies, we need to assess the contribution of social science in providing a foundation for scientific knowledge.

Keywords
credibility; disinformation; fake news; falsehood; hoaxes; misinformation; truth

Issue
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1. Introduction

The circulation of misinformation and disinformation poses a threat to the notions of truth and fact. It can undermine trust in science, experts, elites, and politicians, some of whom may be the creators and disseminators of false information. While there is a general understanding of these terms they are often conflated with the notion of fake news which is problematic for public understanding. Fake news is a vague term that has been used to cover a wide variety of communication that is to some degree false, but it has also been weaponised by far-right political actors as part of their attack on oppositional media outlets (see Farkas & Schou, 2018; Koliska & Assmann, 2021). Awareness of the notions of fake news and disinformation as a problem has become intrinsically linked to the presidency of Donald Trump in the US, although he is not alone or the first in using

this style of populist communication as a tool of governance. In the aftermath of the election of Trump, the victory of the leave campaign during the EU membership referendum within the UK, 2016 was marked as the beginning of the post-truth era. The notions of misinformation and disinformation have a history as long as that of communication itself, but post-truth was not simply an observation that disinformation was circulating widely, facilitated by social media. Rather, describing the post-2016 period as the post-truth era reflected that disinformation was influential in shaping public opinions and attitudes and so drives the political engagement of some citizens. The observations that disinformation was spreading and shaping opinions led researchers to attempt to explain this phenomenon. Hence, the body of research on these themes has been burgeoning and addressing the mis/disinformation problem is seen as one of the priorities to correct instabilities in democratic societies.

The quantity of research in this area offers the opportunity to reflect on what we know about the challenge of disinformation, and what aspects continue to be of concern. Despite the association with the Trump presidency and Brexit campaign, the Covid-19 pandemic led research on disinformation to become a cross-disciplinary and multi-disciplinary problem. Debates on how to tackle this information disorder have moved into more science-based journals that both expand and deepen understanding of the nature and impact of the spread of disinformation. Hence, through a meta-analysis of published research, we explore the trends within this holistic body of research, exploring how researchers across the disciplines have provided an understanding of the fake news problem and what research gaps are illuminated. We cover an eight-year period: 2014–2022. This captures research which responded to the emergence of Trump as a candidate for the US presidency, his tenure in office as well as figures such as Erdogan in Turkey, Bolsonaro in Brazil, Modi in India, and the rise of similar populist and nationalist figures and movements across a range of democratic and semi-democratic societies. Importantly, it also covers the period of the Covid-19 pandemic which was described as coinciding with a misinformation infodemic by the World Health Organisation (Lilleker et al., 2021). The systematic review of N = 756 publications explores the key terminology used, the areas of social life where disinformation is identified as problematic, the sources identified as creating or circulating this material as well as the channels researchers have explored, the targets, and the persuasiveness of the discourse. What this article offers, therefore, is an overview of what we know about disinformation and what gaps in research exist that should be pursued. Given the problems that fake news and disinformation are seen to cause for democratic societies, we begin by considering the notion of truth and the contribution of social science in providing a foundation for scientific knowledge.

2. Disinformation and Misinformation: An Epistemological Problem

Disinformation is fundamentally an attack on the integrity of knowledge. If false information circulates and is believed to be true by members of society then the information environment becomes polluted (Tsipursky, 2017). This situation is particularly true in the realm of politics, a sphere of activity that gave rise to the notion of post-truth. Politics is contested and contentious (Lilleker, 2018). Political parties and their candidates interpret data through the lens of their ideologies as well as their communication strategies for gaining elections. While one party can claim economic success, their opponent can contest that claim, often using the same data or an alternative source of data to support their argument. Both sides can have an almost religious adherence to their own interpretations (Ho, 2021). Media organizations can also be embroiled in this contestation, sometimes due to their partisan bias, and at other times due to their role as scrutineer of the claims of politicians (Chadwick, 2017). But even the most objective journalism can find itself under fire within the modern age. Donald Trump weaponised the term fake news in response to criticism from CNN (Farkas & Schou, 2018). Similarly, the German far-right AfD describes sections of the media sweepingly as "lugenpresse," the lying press (Koliska & Assmann, 2021). The escalation of the contestation that is natural to politics can, in the most extreme cases, lead to polarization in society with each side believing it has ownership of its own immutable truth (Bruns, 2019). The other side of the divide is at best stupid, at worst liars. Hence it is important that citizens of democratic societies can recognize what is fact, what is an ideological interpretation of reality, and what is opinion. It is important that they know which sources are reliable and credible and which sources should be treated with scepticism. If the lines between fact and fiction, reliable and unreliable, become blurred then individual beliefs are all that matter. This observation was at the heart of the issues identified when coining the phrase post-truth. As Lisbet van Zoonen (2012) presciently argued, objective and scientific knowledge (epistemology) is being challenged by those who argue that if they believe something it must be true (i-pistemology). Disinformation naturally fuels the shift away from a society that values scientific knowledge.

How do ordinary citizens know what is or is not scientific fact? This is particularly pertinent in the digital age where users of social media platforms can be exposed to persuasive statements which can be devoid of any informational cues regarding their credibility or authenticity (Sawyer, 2018). The concept of truth itself has a contested history, debates on truth are not simply an artefact of the fragmented nature of communication via digital technologies. From the age of superstition, through the enlightenment and into the industrial, scientific, and technological revolutions, what we

know to be fact has evolved (Anstead, 2021). Yet even in an age where science and technology impact every area of human life to some extent, religious belief remains a powerful force. Religious belief and science can often compete in providing legitimate answers, for example, is climate change the will of God or due to the carelessness of mankind (Morrison et al., 2015)? The fact that the opinion of the vast majority of scientists can be contested on the grounds of religious beliefs indicates that defining immutable truth can be problematic in a range of contexts. Such problems can also be found when considering how we might define disinformation. If one cannot definitively define truth, how can one definitively identify what is false? Such questions are even more complex when considering the realm of politics where everything can be contestable and truths are delivered through ideological lenses.

Scientific fact is largely privileged as being objective and accurate, despite scientific knowledge evolving over time. In fact, one positive element of the pandemic was that public trust in science increased (Bromme et al., 2022). Social science however is not always viewed as being similarly authoritative. Social science is not simply descriptive but it can and arguably should also adopt a normative position, stating not just how things are but also how they should be. Montuschi (2004) not only argued that the normative position of objectivity in social science is extremely challenging in practice, but also that if social science is to guide society it has to be led by a philosophical or ideological position which will naturally be contested. Whether we consider the differing positions of liberal economists, revisionist historians, or debates surrounding decolonization, normative positions are open to debate and thus challenged (Weiner, 2014). Social science researchers can also shape understanding of phenomena through the position they take with regard to ongoing social struggles. They can set the agenda for research by prioritizing some issues over others, for example focusing on disinformation within the context of political contests and not in other communication contexts. They imbue the production of knowledge with social meaning and interpretation. In this sense, social science may not only follow fashion in order to buck the publishing game but also contravene notions of political ambivalence and neutrality, perhaps particularly when analyzing the actions of illiberal leaders (Stocchetti, 2023). Sociologist Dick Pels (1996) suggests that, for social scientists, the suggestion that there is a definitive truth that is out there can lead researchers to make truth claims that are coloured more by ideological attachments than objective reasoning. With references to Foucault's notion of "regimes of truth," these arguments recognize that differing groups in society may have their own interpretations that are no less truthful than that of any other. The academic community, in this case, may have its own notion of what is and is not truth.

It is therefore following this line of reflection on research that we consider what we know about disinformation. Despite criticisms of social science as an objective discipline, defenders claim that we can build a holistic understanding of phenomena through rigorous data collection while ensuring when interpreting that data the researcher maintains a sensitivity to their own biases and avoids succumbing to the wider pressures of institutions, the academy, or governments (Habermas, 1971). While this may not be true or even possible for every researcher and every project, across all projects a more objective picture may emerge. Similarly, a review of the totality of a body of work can overcome the problem that individual social scientists can adopt a restricted scope, focusing on one prominent issue while ignoring others to the detriment of developing a holistic understanding. This, Barnes (2014) argues, dogged the development of economic theory. Hence, through our meta-analysis of studies of disinformation, we seek to explore how this contested term has been understood and studied and how we understand the current challenges this phenomenon poses to democracy.

3. Methodology

3.1. Method

A systematic review is a qualitative and structured method for identifying previous studies in a given area of research (Boote & Beile, 2005; Combs et al., 2010; Onwuegbuzie et al., 2014; Siddaway et al., 2019), helping to categorize the literature to answer specific research questions (Grant & Booth, 2009; Williams, 2019), as well as to shed light on trends, to reveal connections across many studies (Baumeister & Leary, 1997; Canet & Pérez-Escolar, 2022; Pérez-Escolar & Canet, 2022; Reyes-de-Cózar et al., 2022), and to detect any gaps that need to be filled (Petticrew, 2001; Petticrew & Roberts, 2006). In doing so, the present systematic review provides a database comprising all the relevant literature, from across the disciplines, related to disinformation and misinformation.

For this purpose, the variables included in this systematic review, which aim to address this study's main objective and research questions, are divided into three categories. The first is formal elements: This variable provides information about the journal indexation, the ranking and the Web of Science (WoS) database in which the journal is included, the number of authors of the research, the number of words in the abstract, and the number of keywords, and article pages. The second variable is factors related to the design and method conducted in each study: This variable analyses the type of document (essay or empirical), the methodology applied (descriptive, causal, or experimental), the research methods used (quantitative, qualitative, or mixed), and the size of the sample used in each study. And the third variable is elements regarding the content and the structure of the phenomenon being explored: This variable refers to the sender of the message, the potential victim or

targets of the falsehood, the channel used to spread disinformation, and the type of disinformation. We follow the categorization offered by Wardle and Derakhshan (2017), who argued that there are different kinds of disinformation, these are: Satire or Parody, Misleading Content, Impostor Content, Fabricated Content, False Connection, False Content, and Manipulated Content. We also explore the extent that researchers investigate the persuasiveness of disinformation, specifically whether articles contain any reference to the manipulation of emotions, as well as the topic and purpose of the form of disinformation being examined.

The final database of 756 articles was analyzed by three coders—the authors—in October 2022. The categories are discrete and largely based on simple indicators; however, an intercoder reliability test was carried out on a sample of 20 articles. Given that 100% agreement was found no further discussion or revision of the coding scheme was required.

3.2. Objective and Research Questions

The formulation of research questions is one of the first steps in terms of defining the scope of a systematic review, guiding the decision-making throughout the whole review process, and ensuring more focused findings (Booth et al., 2012; Counsell, 1997; Petticrew & Roberts, 2006; Siddaway et al., 2019). Given this, the present study attempts to respond to the following core research questions:

RQ1: What are the main characteristics of research on disinformation and misinformation?

RQ2: What are the main topics and features related to fake news?

RQ3: Who are seen as the primary sources of the dissemination of fake news?

RQ4: Who are the principal victims of disinformation?

RQ5: Through which channels are disinformation and misinformation mainly disseminated?

Addressing these research questions was the main objective of this systematic review, which is to provide an overview of the general definitions, trends, patterns, and developments that represent the research on disinformation and misinformation.

3.3. Inclusion and Exclusion Criteria for Identifying the Study Population

Following Siddaway et al. (2019), inclusion and exclusion criteria were developed to allow us to ensure we could answer the research questions, which necessarily meant narrowing down the literature in order to delimit the systematic review. Hence, the eligible literature responds to the following principles:

1. Publications focused on disinformation and misinformation.
2. Publications written in English and Spanish as the two most used languages within the field of social science.
3. Publications published between 2014 and 2022. This time criteria captures research which responded to the emergence of Trump as a candidate for the US presidency, his tenure in office as well as similar figures such as Erdogan in Turkey, Bolsonaro in Brazil, Modi in India, and various populist and nationalist figures across a range of democratic and semi-democratic societies. The period also includes the Covid-19 pandemic and so articles related to the infodemic that was raised as a concern.
4. Articles.

The terms used were identified from a scoping study, in which we set out to find articles which adhere fully to the selection criteria and so enable us to respond to the research questions previously set out. Given this, the search strategy was formulated as follows: TITLE INCLUDES disinformation OR "misinformation" OR "dis-information" OR "mis-information" OR "dis information" OR "mis information" OR "desinformación" OR "misinformación" OR "des-información" OR "mi-sinformación" OR "des información" OR "mi sinformación."

The research process returned N = 850 results in WoS. Taking into consideration the criteria established, 94 items were excluded because they were written in other languages, they were letters, editorial materials, or duplicates; thus, leaving a total of N = 756 publications that fully satisfied the requirements detailed above.

4. Findings

This section presents the core findings derived from the systematic literature review analysis (N = 756). The results are framed around the five research questions previously formulated.

4.1. Preliminary Descriptive Analysis: An Overview of Formal Elements

Table 1 shows there is an increasing interest in the study of disinformation and misinformation over time. The period 2014–2017 saw less than 20 articles published per year, research outputs increased slightly in 2018 and then again in 2019 but the spike in published outputs on disinformation appeared in 2020 and 2021 and already there have been 160 published articles in 2022. This suggests there was a spike in interest reflecting back on events in the late 2010s but the end of Donald Trump's term as US president as well as the

Table 1. Number of publications over time.

Year	Number of publications	Percentage
2014	16	2.1%
2015	17	2.2%
2016	14	1.9%
2017	16	2.1%
2018	39	5.2%
2019	62	8.2%
2020	180	23.8%
2021	252	33.3%
2022	160	21.2%
TOTAL	756	100%

pandemic has led the literature concerning misinformation and disinformation to have grown exponentially.

The first variable applied in this systematic review refers to formal elements. The WoS database is an indicator of the journal's prestige. Thus, this indicates the journal's position in the Journal Citation Reports (JCR), in the Emerging Sources Citation Index (ESCI)—which is already included in the JCR database but indexed based on the Journal Citation Indictor (JCI) algorithm and not on the Journal Impact Factor (JIF) algorithm, that is the one traditionally used in the JCR database—or in other collections of the database mentioned above. Furthermore, the journal's position in the top quartiles presumably implies the publication of higher-level studies. Thus, in response to RQ1, our results indicating that the preponderance of studies in the JCR, 86% of the total, were published in journals ranked in the high quartiles is noteworthy, this finding could suggest a high scientific level of the works analyzed, as Table 2 shows.

The number of research studies in the JCR is significantly higher than in the ESCI (Chi-square 138.348, $p < .000$, Contingency Coefficient .399), regardless of the main topic or the area of knowledge. Similarly, we have also analyzed the average number of research pages. In this case, no relevant differences can be noted considering factors such as the database, the quartile, or the year of research publication. However, a distinct difference can be observed in the studies according to the subjects explored. Thus, as Table 3 illustrates, articles referring to the field of health tend to be shorter on average which is consistent with the requirements of journals across the different disciplines.

Concerning the average number of words per abstract and keywords in the 756 articles, there is a higher number of keywords in the most recent research, possibly due to the requirements of the journal editors. Regarding the abstract, there are no relevant differences concerning the year of publication, the database, the indexed quartile, or the article's main topic.

Finally, it is worth noting that the majority of articles are published in North American and English journals, specifically in *Health and Communication*. Thus, journals such as *Social Media + Society* (21 articles), *Health Communication* (21), *Plos One* (20), *Journal of Medical Internet Research* (19), *International Journal of Environmental Research and Public Health* (18), *International Journal of Communication* (17), *Profesional de la Información* (15), *Media and Communication* (14), *American Journal of Public Health* (14), *New Media & Society* (12), *Digital Journalism* (12), *Political Communication* (10), and *Science Communication* (10) stand out. Regarding the second variable used in this study, which is related to the type of article, the first consideration to take into account is whether the studies have an empirical basis or whether they are merely theoretical trials.

When analyzing the variable related to each article's method of design, results show that 74.6% of the studies are empirical, homogeneous in all the main topics, with the logical exception of the topic "scientific

Table 2. Database and quartile in which the studies are indexed.

		Quartile			
		1	2	3	4
Database	WoS—JCR	43.7%	33%	15.5%	7.8%
	WoS—ESCI	4.9%	14.7%	47.1%	33.3%
TOTAL	38.3%	30.5%	19.9%	11.4%	

Table 3. Average number of pages per article type.

Topics	Average	Standard deviation
Politics and democracy	17.28	5.620
Immigration	16.50	5.182
Gender	18.14	9.974
Climate change	18	6.588
Education	14.50	5.557
Economics, development, and business	17.23	7.596
Health	10.53	7.135
Young generation	15.50	4.950
Science (conspiracy theories)	13.96	5.971
History and facts	16.33	6.743
Famous people	12	—
Scientific experiment	14.57	6.551
TOTAL	13.67	7.187

experiment," with greater intensity of empirical articles (94.5%). The remaining 25.4% are essays. Concerning the empirical studies, there is very high variability regarding the number within the research sample size. As expected, empirical studies that focus on citizens tend to have a smaller sample size than empirical studies that refer to social networks. The former tends to have an experimental design and explore how ordinary people consume and respond to disinformation. In contrast, the latter focus more on identifying and describing the spread of disinformation; these studies gather a larger sample because they use tweets or other kinds of content or interactions in the sampling procedure—for example, Facebook likes, WhatsApp messages, or Instagram interactions, among others.

Interestingly, concerning the empirical studies, we have also observed a tendency towards descriptive studies (69% of the total) instead of causal (1.9%) and experimental (29.1%) studies. Regarding the research method used, the preferred methods are quantitative (72.1%) as opposed to qualitative (26.3%). This highlights that research appears focused on defining the problem in terms of quantity as opposed to focusing on the effects by drawing on psychological methods.

4.2. Analysis of the Anatomy of Disinformation

In response to RQ2, the general themes or topics of research on misinformation and disinformation (Table 4) mostly related to the field of health (48%), especially in

Table 4. Topics related to fake news.

Topic	Frequency	Percentage of overall sample
Health	341	48%
Politics/democracy	152	21.4%
Scientific experiment	94	13.2%
Science (conspiracy theory)	40	5.6%
Economics, development, and business	19	2.7%
Education	16	2.3%
Climate change	14	2%
Immigration	13	1.8%
Gender	10	1.4%
Historical facts	7	1%
Famous people	2	0.3%
Young generation	2	0.3%
Total	756	

2020, 2021, and 2022. This is unsurprising and is a consequence of the Covid-19 pandemic and the concerns relating to the circulation of misinformation and disinformation and its impact on public health. Equally unsurprising, particularly given the role of specific political leaders in spreading mis/disinformation, the second highest field is that of politics and democracy (21.4%), although the use of disinformation for challenging scientific facts is also quite notable, as well as the topic of conspiracy theories (5.6%). This data suggests that research tends to follow topics which are seen to be important as well as fashionable. The large amount of studies relating to the pandemic suggests many researchers shifted their focus during this period so increasing the body of knowledge focusing on this area.

Another important feature relating to the study of disinformation is that 66.7% of publications do not reference the persuasiveness and emotionality when analysing messages that contain disinformation. The only exception is the main topic "immigration," in which we have observed that 61.5% of cases do mention emotions. When they do, most of them refer to the simplest element "trust." This result is in line with the main topic or theme of research on disinformation and misinformation since it is crucial to assess both the level of citizens' trust in the content they receive and the impact on citizens' trust in institutions of government. The finding is also consistent with the majority of studies being quantitative. The emotionality of discourse is best achieved through a close reading of texts. Similarly exploring the emotional resonance of disinformation or the impact on the individual from being exposed to or having shared disinformation involves in-depth interviews or similar qualitative research involving small and purposeful samples. However, where studies do explore the use of emotional language, the casuistry is broad, as can be seen in the Table 5.

According to Wardle and Derakhshan (2017), there are different types of information disorders. Drawing upon their classification (Table 6), we have identified that the most researched type of information disorder is "misleading content" (37.2%), although focus on this has reduced over the last two years; "false content" (30.8%) was found to be given greater prominence since 2019; and "fabricated content" (20.1%), which has been relatively stable across the period analyzed. The former is doubtless linked to the Covid-19 infodemic where any content that was deemed misleading was given greater importance due to its potential impact on public health. Considering the main topic, it can be noted that "misleading content" type is least referenced in relation to articles that focus on disinformation in the context of immigration and gender (Chi-square 142.446, $p < .000$, Contingency Coefficient .419).

Finally, our findings also show that research on disinformation focuses on a narrow range of purposes (Table 7). The data reveals a significant preponderance of research focuses on disinformation of a purely scientific purpose (67.9%), which remained stable throughout the period analyzed and the main topic addressed. However, there is the logical exception with the use of disinformation for "political propaganda." The latter was referenced mainly when the focus of the article was the topic "politics and democracy" (83.6%). Concerns have been raised for many years about phenomena such as anti-vaccination messages and climate change denial. These issues relating to science were magnified during the Covid-19 pandemic. Hence, and unexpectedly due to the events of the period, we find the greatest priority in research is also awarded to understanding the use and spread of disinformation relating to science, but the second priority is political propaganda (25.3%). Again this is unsurprising given the context, in particular the role of prominent leaders such as US president Trump

Table 5. References to emotions.

Topic	Frequency	Percentage of articles referencing emotions
Trust	158	67.5%
Anger	21	9%
Scepticism	21	9%
Fear	16	6.8%
Sadness	5	2.1%
Happiness	4	1.7%
Disgust	3	1.3%
Excitement	2	0.9%
Surprise	2	0.9%
Shame or embarrassment	1	0.4%
Joy	1	0.4%
No emotion	522	
Total	756	

Table 6. Type of information disorder.

Topic	Frequency	Percentage of Overall Sample
Misleading content	256	37.2%
False content	212	30.8%
Fabricated content	138	20.1%
Manipulated content	59	8.6%
Impostor content	14	2%
False connection	5	0.7%
Satire or parody	4	0.6%
No specific type	68	
Total	756	

and Brazilian president Bolsonaro in spreading disinformation regarding a range of contexts including the severity of Covid-19 and what treatments could be used by those contracting the disease. Interestingly there are few other priorities for researchers.

Addressing RQ3, relating to the sources of fake news which are under investigation, unsurprisingly given the other findings the majority of research focuses on the dissemination of disinformation by social network users (24.3%), mainstream media outlets (22.3%), anonymous people across different online platforms, a generic category relating to research that conducts cross platform-based analyses (16.4%), and political actors (9.3%). In 26.7% of the articles reviewed there was no specific source. These were experimental studies where the researchers exposed subjects to different forms of disinformation under laboratory conditions in order to assess how people responded to exposure to specific types of disinformation. Such research is very important as it moves beyond the descriptive analysis of who produces disinformation and where is it disseminated but explores the crucial questions regarding with what effect.

Consequently, and responding to the RQ4, we find that researchers are most concerned about exposure to disinformation among the general citizenry (85.7%). Nevertheless, where a target is identified the priority is awarded to "young people" (43,8%) when the principal topic is "education." Often this is subjective, drawing assumptions from descriptive analysis of the flow of false content across media platforms and suggesting possible effects on young people's acceptance of established facts. Very few studies explore the impact of exposure to misinformation and disinformation experienced by a specific sub-group or community of citizens. Where studies do identify specific groups as the potential victims of misinformation and disinformation they tend to be the targets of attacks as opposed to being those that are being manipulated. Hence a small number of studies explored the effects upon young people (7.2%), the elderly and the disabled (1.8%), but the use of disinformation was only explored as a means to target attacks against women (3.3%) and immigrants (1.9%) with no examination of the actual or potential impact. The latter category was found to be a specific target of right-wing populist political propaganda which is argued to shape public attitudes.

In response to RQ5, focusing on the channels which researchers investigate, we find research takes a broad view across the information environment. Perhaps due to the concerns raised about social media, these networks were a focus as either a general category as well as research focusing on specific social networks—especially

Table 7. The purpose of fake news.

Topic	Frequency	Percentage of overall sample
Scientific purpose	465	67.9%
Political propaganda	173	25.3%
Cultural purpose	17	2.5%
Financial purpose	16	2.3%
Advertising/clickbait	10	1.5%
Humorous purpose	3	0.4%
Religious propaganda	1	0.1%
No specific purpose	71	
Total	756	

Twitter, Instagram, Facebook, WhatsApp, Telegram, TikTok, Reddit, and YouTube. These are the most common channels and were referenced in 36.5% of the articles within the review, with the logical exception of the topic "scientific experiment," in which the main channel used was a "simulated experience" (72.3%). Concerns were also raised in research about the way that misinformation and disinformation are disseminated through online media websites (30.6%) as well as the pages of traditional media (5.2%). As 24.2% of studies were simulations, these covered a variety of different platforms replicating the types of experiences citizens are likely to have when using social media.

5. Conclusions

The results of our systematic review of the literature allow us to conclude that disinformation and misinformation are increasingly studied phenomena; in other words, they have become to be recognized as a serious social problem that is increasingly studied globally and appears to be of growing concern. This is not surprising considering the large number of false arguments about Covid-19 that were created and shared during the pandemic, in particular hoax content. In this case, such hoaxes put the health of citizens at risk, as their content induces individuals to engage in certain behaviours that are harmful and dangerous to their health. This includes home remedies, miracle cures, and therapies despite there being no scientific evidence of their efficacy in treating any serious illnesses. There were also concerns regarding the spread of conspiracy theories which denied the existence of Covid-19. It is important that the research community maintains this focus as the pandemic subsides, but there is a need to broaden the scope of research. The focus on the use of misinformation and disinformation for political propaganda purposes will remain important, particularly if Donald Trump stands for the US presidency again in 2024. However, his supportive network repeats his claims that he won the 2020 election and so we need to understand how these messages spread, who spreads them, and the extent such arguments are believed within wider American society. This problem is not exclusive to the US, hence explorations of the impact of misinformation and disinformation on the level, extent, and form of political engagement in democratic societies is important. Therefore, based on the data obtained in this systematic review and following the methodology proposed by Lecheler and Kruikemeier (2015) or Flew and McWater (2020), we suggest developing further studies focusing the scope on a particular sub-discipline—e.g., political communication or journalism studies, among others—that deepen the evolution of disinformation in specific fields of knowledge.

However, as the existing priorities of researchers show, the research agenda around public understanding and trust in science communication will remain important. While concerns relating to Covid-19 will naturally subside, the climate crisis requires researchers to explore the extent people understand their role in preventing further environmental damage as well as how to respond to the effects of climate change. There will also be a need to further explore debates around trust in vaccinations, these have proved crucial in the fight against Covid-19 but are also important in quelling the spread of a range of diseases across the world. Hence there is an important role for researchers to explore the extent that science is trusted and under what conditions science misinformation and disinformation spread and become influential. This argument highlights the importance of effects research. Empirical knowledge regarding the prevalence of misinformation and disinformation is important. However, the research community can only effectively combat its influence by understanding the reasons why it has resonance. In particular, research is needed that dissects disinformation and explores the way the source attempts to manipulate the emotions of receivers. At present this area is an under-explored but crucial piece of the jigsaw we need to complete in order to develop ways to equip citizens to inoculate themselves from the harmful effects of fake news. Researchers also need to be cognizant of the full range of actors involved in the production and dissemination of misinformation and disinformation and their motivations for doing so. While it was of crucial importance for researchers to deliver impactful findings during the pandemic that could inform the various health and science communication agencies, they must not follow fashions in order to get published. Monitoring the flow of information, and quantitatively assessing what arguments circulate across media is important. However, it is also important to engage with citizens and gain qualitative understanding of what they see and how it makes them feel. Qualitative research is highly complex but important, adding an additional layer of understanding of how misinformation and disinformation flow, what citizens are exposed to, and how they react.

Identifying these gaps in research is not meant to be a criticism of academic research. Rather we highlight that we currently have a rich picture of the "who" and "what" and of the "channels" but only have a partial picture of the core aspect of communication research: "with what effect." Belief in false arguments jeopardises the democratic health of countries and can have severe impacts on every aspect of the lives of citizens. Misinformation and disinformation act as a fuel which is able to ignite ideological polarization and radical behaviours, and are the seeds of all kinds of propaganda, as Jowett and O'Donnell (2012) distinguished:

- White propaganda, which employs true information and the message is accurate: no lies, distortion, or manipulation in it. This form of propaganda is used to build credibility with the public and persuade them to trust the source and comply with their message.

- Black propaganda, which refers to untruthful content and lies. Black propaganda is directly connected with disinformation because, in both cases, the audience receives false, inaccurate, incomplete, or misleading information.
- Grey propaganda, which has a blurred identity and sits somewhere between white and black propaganda depending on the specific message and context, where it is hard to identify the source or origin of the information. This form of propaganda may or may not use false information but is likely to interpret information for persuasive purposes making false links between what are in reality independent events for example. Therefore, the accuracy of the information is uncertain, and it is related to concepts such as the infodemic and misinformation.

All disinformation undermines truth and makes public debate and social understanding impossible. Disinformation in the field of science has serious consequences for the health and well-being of societies, but so does political disinformation as it undermines trust in institutions. For this reason, one of the key solutions to combat this epidemic of falsehoods is to make society more literate and more knowledgeable so equipping them to detect and avoid manipulation from disinformation. It is of crucial importance that citizens can easily find reliable and trustworthy sources of accurate information. Understanding more about the patterns of behaviour of citizens can support this endeavour. Furthermore, alongside this understanding of human behaviour, we would also recommend that researchers explore how artificial intelligence can help in the verification of information, especially in today's dangerous and confusing world. Further research is also needed to understand the cognitive conditions that lead some people to accept false information, be that low levels of education, extant low trust in institutions, or the effects of their socio-economic positions in society. These factors are also areas that can be combatted if a clear link is found between some or all of these factors and the acceptance of and propensity to spread disinformation. If we can understand how humans operate, we can also develop artificial intelligence to support them and guide them through the complex and fragmented communication ecosystem—aiding them to avoid being manipulated by those who wish to beguile them with false information.

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Conflict of Interests

The author declares no conflict of interests.

References

Anstead, N. (2021). *What do we know and what should we do about fake news?* SAGE.

Barnes, B. (2014). *Interests and the growth of knowledge*. Routledge.

Baumeister, R. F., & Leary, M. R. (1997). Writing narrative literature reviews. *Review of General Psychology*, *1*(3), 311–320.

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher*, *34*(6), 3–15. https://doi.org/10.3102/0013189X0340060

Booth, A., Papaionnaou, D., & Sutton, A. (2012). *Systematic approaches to a successful literature review*. SAGE.

Bromme, R., Mede, N. G., Thomm, E., Kremer, B., & Ziegler, R. (2022). An anchor in troubled times: Trust in science before and within the Covid-19 pandemic. *PloS One*, *17*(2), Article e0262823.

Bruns, A. (2019, July 7–11). *It's not the technology, stupid: How the "echo chamber" and "filter bubble" metaphors have failed us* [Paper presentation]. International Association for Media and Communication Research 2019, Madrid, Spain.

Canet, F., & Pérez-Escolar, M. (2022). Research on prosocial screen and immersive media effects: A systematic literature review. *Annals of the International Communication Association*. Advance online publication. https://doi.org/10.1080/23808985.2022.2130810

Chadwick, A. (2017). *The hybrid media system: Politics and power*. Oxford University Press.

Combs, J. P., Bustamante, R. M., & Onwuegbuzie, A. J. (2010). An interactive model for facilitating development of literature reviews. *International Journal of Multiple Research Approaches*, *4*(2), 159–182. https://doi.org/10.5172/mra.2010.4.2.159

Counsell, C. (1997). Formulating questions and locating primary studies for inclusion in systematic reviews. *Annals of Internal Medicine*, *127*(5), 380–387. https://doi.org/10.7326/0003-4819-127-5-199709010-00008

Farkas, J., & Schou, J. (2018). Fake news as a floating signifier: Hegemony, antagonism and the politics of falsehood. *Javnost-The Public*, *25*(3), 298–314.

Flew, T., & McWater, C. (2020). *Trust in communication research: A systematic literature review of trust studies in leading communication journals*. SSRN. http://doi.org/10.2139/ssrn.3523750

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information Libraries Journal*, *26*(2), 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Habermas, J. (1971). *Toward a rational society: Student protest, science, and politics*. Beacon Press.

Ho, B. S. P. (2021). Confronting the ideology behind the post-truth phenomenon: Outlining a public theology of ultimate concern. *International Journal of Public Theology*, *15*(4), 533–553.

Jowett, G. S., & O'Donnell, V. (2012). *Propaganda & persuasion* (4th edition). SAGE.

Koliska, M., & Assmann, K. (2021). Lugenpresse: The lying press and German journalists' responses to a stigma. *Journalism*, *22*(11), 2729–2746.

Lecheler, S., & Kruikemeier, S. (2015). Re-evaluating journalistic routines in a digital age: A review of research on the use of online sources. *New Media & Society*, *18*(1), 156–171. https://doi.org/10.1177/1461444815600412

Lilleker, D. (2018). Politics in a post-truth era. *International Journal of Media & Cultural Politics*, *14*(3), 277–282.

Lilleker, D., Coman, I. A., Gregor, M., & Novelli, E. (2021). Political communication and Covid-19: Governance and rhetoric in global comparative perspective. In D. Lilleker, I. A. Coman, M. Gregor, & E. Novelli (Eds.), *Political communication and Covid-19* (pp. 333–350). Routledge.

Montuschi, E. (2004). Rethinking objectivity in social science. *Social Epistemology*, *18*(2/3), 109–122.

Morrison, M., Duncan, R., & Parton, K. (2015). Religion does matter for climate change attitudes and behavior. *PloS One*, *10*(8), Article e0134868.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2014). Innovative qualitative data collection techniques for conducting literature reviews/research syntheses. In M. Williams & W. P. Vogt (Eds.), *The SAGE handbook of innovation in social research methods* (pp. 182–204). SAGE. https://doi.org/10.4135/9781446268261.n13

Pels, D. (1996). The politics of symmetry. *Social Studies of Science*, *26*(2), 277–304.

Pérez-Escolar, M., & Canet, F. (2022). Research on vulnerable people and digital inclusion: Toward a consolidated taxonomical framework. *Universal Access in the Information Society*. Advance online publication. https://doi.org/10.1007/s10209-022-00867-x

Petticrew, M. (2001). Systematic reviews from astronomy to zoology: Myths and misconceptions. *BMJ*, *322*(7278), 98–101. https://doi.org/10.1136/bmj.322.7278.98

Petticrew, M., & Roberts, H. (2006). *Systematic reviews in the social sciences: A practical guide*. Wiley.

Reyes-de-Cózar, S., Pérez-Escolar, M., & Navazo Ostúa, P. (2022). Digital competencies for new journalistic work in media outlets: A systematic review. *Media and Communication*, *10*(1), 27–42. https://doi.org/10.17645/mac.v10i1.4439

Sawyer, M. E. (2018). Post-truth, social media, and the "real" as phantasm. In M. Stenmark, S. Fuller, & U. Zackariasson (Eds.), *Relativism and post-truth in contemporary society* (pp. 55–69). Palgrave Macmillan.

Siddaway, A. P., Wood, A. M., & Hedges, L. V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology*, *70*(1), 747–770. https://doi.org/10.1146/annurev-psych-010418-102803

Stocchetti, M. (2023). Indeterminacy, performativity and the "dialectics of the real": The problem on knowledge in the analysis of visual politics. In D. Lilleker & A. Veneti (Eds.), *Research handbook on visual politics* (pp. 335–344). Edward Elgar.

Tsipursky, G. (2017). Towards a post-lies future: Fighting "alternative facts" and "post-truth" politics. *The Humanist*, *77*(2), 12.

Van Zoonen, L. (2012). I-pistemology: Changing truth claims in popular and political culture. *European Journal of Communication*, *27*(1), 56–67.

Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework for research and policymaking*. Council of Europe. https://bit.ly/2OsHEHY

Weiner, M. F. (2014). The ideologically colonized metropole: Dutch racism and racist denial. *Sociology Compass*, *8*(6), 731–744. https://doi.org/10.1111/soc4.12163

Williams, J. R. (2019). The use of online social networking sites to nurture and cultivate bonding social capital: A systematic review of the literature from 1997 to 2018. *New Media & Society*, *21*(11/12), 2710–2729. https://doi.org/10.1177/1461444819858749

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