

The Impact of Misinformation and Fake News on the Quality of Academic Research

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Abstract: The spread of misinformation and fake news has become a significant problem in recent years. While this issue is often discussed in the context of politics and social media, it can also have serious consequences for academic research. This study aims to examine the impact of misinformation and fake news on the quality of academic research. This study examines the impact of misinformation and fake news on the quality of academic research, particularly in terms of its influence on the research process, bias, dissemination of findings, and trust in research. Using a qualitative research methodology, the study will employ a literature review to examine the existing research on the subject, analyse the ways in which misinformation and fake news can affect the quality of academic research, and identify potential solutions to mitigate the negative impact. The study will examine how researchers can be influenced by fake news or misinformation and how it can impact the research process, lead to biased research, and affect the dissemination of research findings. This study highlights the critical need to address the problem of misinformation and fake news in the academic research community. By doing so, we can help to safeguard the integrity of research, promote the dissemination of accurate and reliable information, and maintain the public's trust in the scientific community. The paper further proffers some recommendations to help combat the menace of misinformation and fake news in academic and research activities.

Keywords: misinformation, fake news, academic research, information professionals, librarianship, information literacy

Introduction

The rise of misinformation and fake news has become a significant problem in modern society, particularly in the age of the internet and social media. Misinformation refers to any inaccurate or false information that is spread intentionally or unintentionally, whereas fake news refers to intentionally misleading or fabricated news stories that are designed to mislead people (Pennycook & Rand, 2021; Vosoughi et al., 2018). Misinformation and fake news can take many forms, including viral social media posts, clickbait headlines, and false narratives that spread quickly through online networks. The spread of misinformation and fake news can have serious consequences for public opinion, politics, and academic research, as it can distort the facts, erode trust in institutions, and undermine the credibility of research.

While these issues are often discussed in the context of politics and public opinion, they can also have serious consequences for academic research. Inaccurate or misleading information can impact the quality of research, leading to flawed results, bias, and eroding trust in the research process and the scientific community. The aim of this review is to explore the impact of misinformation and fake news on the quality of academic research.

Academic research plays a critical role in scientific advancement, providing insights, discoveries, and innovations that can have far-reaching impacts on society. However, the reliability and accuracy of academic research depends on the credibility and validity of the information on which it is based. Therefore, misinformation and fake news around scientific research poses a significant threat to the integrity and effectiveness of academic research output.

This review will examine the ways in which misinformation and fake news can affect the research process, lead to biased research, and impact the dissemination of research findings. It will also analyse potential solutions to mitigate the negative impact of misinformation and fake news on academic research while contributing to a better understanding of its impact on academic research.

Methodology

The primary objective of this literature review is to investigate the impact of misinformation and fake news on the quality of academic research. Specifically, we aim to explore how the spread of misinformation and fake news influences the credibility, reliability, and validity of academic research. We conducted a search in reputable academic databases and platforms focused on academic research, including institutional repositories.

A list of keywords and phrases related to the impact of misinformation and fake news on academic research was generated to aid in the search. These keywords encompassed terms such as "misinformation," "fake news," "academic research," and "quality,". We used Boolean operators (AND, OR, NOT) to combine the keywords effectively and construct search strings. To ensure the relevance and quality of the included studies, we created the following inclusion and exclusion:

Inclusion Criteria:

- Peer-reviewed articles published in academic journals.
- Studies focusing on the impact of misinformation and fake news on the quality of academic research.
- Research conducted in various academic disciplines.
- Recent publications within the last five years to capture the most up-to-date research.

Exclusion Criteria:

- Non-peer-reviewed articles, opinion pieces, and editorials.
- Studies not directly related to the impact of misinformation and fake news on academic research.

We performed an initial search using the predefined search strategy to identify relevant articles based on their titles and abstracts. Subsequently, evaluation of the full-text articles of the selected studies was conducted. Each article was independently reviewed by two researchers, and any disagreements or discrepancies were resolved through discussion and consensus.

The study employed a thematic analysis approach to synthesize the findings of the included studies. Recurring themes, patterns, and insights related to the impact of misinformation and fake news on the quality of academic research were identified, categorised and presented in a coherent and logical manner.

Results

Importance of academic research

Academic research is an essential aspect of advancing our understanding of the world around us. It involves systematic and rigorous investigation of a particular topic, using established methodologies and protocols to generate new knowledge, new insights and contribute to development in all spheres of life. Research provides the evidence-base for making informed decisions in a range of fields. It is crucial for promoting innovation, driving economic growth, and improving the quality of life for individuals and society as a whole (Sullivan, 2019). It helps to identify and address societal challenges, such as climate change, poverty, and inequality, by providing evidence-based solutions to complex problems. In addition, academic research is an essential part of the education and training of future professionals, as it provides them with the knowledge and skills needed to excel in their respective fields.

The importance of academic research cannot be overstated, as it provides the foundation for scientific advancement and innovation. Without academic research, we would not have many of the technological advances and medical breakthroughs making our lives easier today. It is, therefore, crucial that we protect the integrity of academic research and ensure that it is conducted in a rigorous and transparent manner.

Impact of misinformation and fake news on academic research

Misinformation and fake news can have significant impacts on academic research. One study found that false information spreads six times faster than true information on social media platforms, potentially leading to the rapid dissemination of misinformation within academic communities (Vosoughi et al., 2018). When false information is presented as truth, it can misguide researchers and affect the conclusions drawn from research studies (Sullivan, 2019). Additionally, false information can be used to support biased views and perpetuate harmful practices, further hindering the progress of academic research (Brossard & Scheufele, 2013).

Misinformation and fake news can also undermine the integrity of scientific research by creating a sense of doubt among the public. This can lead to decreased public trust in scientific institutions and make it harder for researchers to communicate their findings effectively. A lack of public trust in science can also limit funding for research and restrict access to resources needed to conduct studies (Pew Research Center, 2019).

The impact of misinformation and fake news on academic research highlights the need for researchers to remain vigilant in identifying and addressing false information. It is important for researchers to use rigorous research methods and peer-review processes to ensure that their findings are accurate and reliable. Researchers should also be proactive in communicating their findings and engaging with the public to build trust in the scientific community (Brossard & Scheufele, 2013).

By taking steps to address false information and communicate research findings effectively, researchers can ensure that their work is accurate and valuable to both academic communities and the general public. Misinformation can come in many forms, such as conspiracy theories, deliberate lies, or unintentional errors in reporting. Misinformation can also spread rapidly through social media, which can amplify the effects and reach a wider audience (Vosoughi et al., 2018).

The review identified ... themes around which we discuss the impact the phenomenon has had on academic research.

Scepticism and Mistrust

One significant impact of misinformation and fake news on academic research is the creation of confusion and doubt around scientific findings. When false information is presented alongside accurate information, it can be challenging for the public to distinguish between the two. This can lead to scepticism and mistrust in scientific research, which can hinder its adoption and implementation (Brossard & Scheufele, 2013). In some cases, the spread of misinformation has led to the rejection of scientific evidence and the rise of anti-science movements (Nisbet & Markowitz, 2014). As a result, public trust in the research process and the scientific community has been eroded (National Academies of Sciences, Engineering, and Medicine (NASEM), 2017a). This loss of trust has serious implications for the long-term prospects of scientific advancement and public health, as it can hinder the adoption of important findings and innovations (Gross et al., 2019).

Financial Impact

Its spread can also have a financial impact on academic research. When false information is presented as accurate, it can lead to misallocation of funding and resources. Researchers may invest their time and resources in projects that are ultimately based on flawed or false premises, wasting valuable time and money (Benford, 2020). They can hinder the funding of important research projects. When the public is sceptical about the integrity of scientific research, policymakers and funding agencies may be reluctant to invest in new projects or initiatives (NASEM, 2017b). This can have serious consequences for the scientific community, as it may limit their ability to address pressing societal challenges and make meaningful contributions to human knowledge.

Bias and Distorted Perceptions

Misinformation and fake news also create a hostile environment for scientific research by introducing bias and distorting perceptions of the scientific process. Research has shown that fake news and misinformation can influence researchers' preconceived notions and biases, leading to biased research and unreliable findings (Vraga & Tully, 2019). This can lead to biased research, which can have far-reaching consequences, particularly when it comes to policy decisions or the adoption of new innovations. Additionally, unreliable or biased sources can also have a negative impact on the quality of research findings, as it may lead to inaccurate or incomplete information being used in the research process (van der Zee & Elders, 2020).

Overall, the impact of misinformation and fake news on academic research is far-reaching and multifaceted. It undermines the integrity of the scientific process, erodes public trust in the scientific community, and hinders the adoption of important findings and innovations. To address this issue, it is essential that researchers, policymakers, and the public work together to combat misinformation and promote accurate and reliable information about scientific research. This can be achieved through initiatives such as science communication training, increased transparency in the research process, and the development of evidence-based policy (Brossard & Scheufele, 2013).

As noted by NASEM (2017), the process of scientific research is inherently susceptible to bias, and the use of false or misleading information can exacerbate this problem. Researchers may be influenced by their personal beliefs or motivations, or may be swayed by the opinions of others, leading them to interpret information in a way that confirms their preconceived notions. For instance, a study by Carey et al. (2016) revealed how misinformation can lead to bias in research on health disparities. The study found that researchers who were exposed to misinformation about the genetic basis of race were more likely to endorse genetic explanations for racial disparities in health outcomes. This bias resulted in flawed research conclusions that attributed health disparities to genetics, rather than to social determinants of health. Similarly, a study by Pomerantz and Peek (2016) showed how fake news can influence

researchers to adopt flawed methodologies or make incorrect assumptions, leading to biased research findings.

When research is biased, it can lead to misguided policy decisions, which can have detrimental effects on marginalized communities.

Analysis of how researchers' preconceived notions or biases can be influenced by fake news or misinformation

Researchers' preconceived notions or biases can be influenced by fake news or misinformation, which can lead to the misinterpretation of research findings. For example, researchers may be influenced by confirmation bias, where they only seek out information that confirms their pre-existing beliefs or ideas. This can result in a skewed interpretation of data or a narrow focus on certain aspects of the research, while disregarding other important information (Kahan, 2017). Additionally, the use of fake news and misinformation can also perpetuate societal biases, which can have a negative impact on the research process. For instance, if a particular demographic group is misrepresented or portrayed in a negative light in the media, researchers may inadvertently incorporate these biases into their research, leading to biased results. This can have serious implications for the validity of the research and can ultimately hinder progress in a particular field (Cho et al., 2018).

Therefore, it is crucial for researchers to be aware of their own biases and to actively seek out diverse perspectives and information sources to ensure that their research is objective and unbiased. It is also important for the research community as a whole to address the issue of fake news and misinformation, promoting media literacy and critical thinking skills to help researchers identify and avoid false or misleading information. By doing so, researchers can help to ensure that their research is accurate, reliable, and unbiased, and can contribute to the advancement of knowledge in their respective fields.

Discussion of the potential consequences of conducting biased research

Conducting biased research can have significant consequences, both for the scientific community and society at large. Biased research can lead to flawed findings and the dissemination of inaccurate or incomplete information, which can ultimately harm individuals or communities. For example, a flawed study linking the use of hydroxychloroquine to COVID-19 treatment was widely circulated and contributed to confusion and misinformation around the efficacy of the drug (Mehra et al., 2020).

In order to address the problem of biased research, it is important for researchers to be aware of their own biases and to take steps to mitigate their influence on the research process. This can involve using rigorous research methods, such as randomization and double-blind studies, to minimize the potential for bias. It can also involve ensuring that research questions and hypotheses are formulated in a way that is open and unbiased, and using transparent reporting practices to ensure that findings are accurately and clearly communicated (Ioannidis et al., 2017). By doing so, researchers can help to promote the integrity and validity of scientific research and maintain the trust of the wider community.

Influence of Misinformation and Fake News on the Research Process

According to Aitamurto and Kangas (2020), misinformation and fake news can impact the research process in various ways. For example, researchers may be influenced by false information or may rely on sources that are not credible, which can lead to flawed research findings. This can be particularly problematic in fields such as health, medicine or environmental research, where incorrect findings can have serious consequences for public health and safety (Jahangiry, Bakhtiari & Sarbakhsh, 2018; Martino et al., 2020).

Moreover, the impact can go beyond individual researchers and affect the broader research community. Researchers may be more likely to disseminate incorrect information if it aligns with their preconceived notions or biases, which can lead to further spread of misinformation (Kwon et al., 2020). Additionally, the spread of misinformation and fake news can erode public trust in research and the scientific community, ultimately impacting the long-term prospects of scientific advancement (Brossard et al., 2013).

To mitigate the negative impact of misinformation and fake news on the research process, it is essential to promote greater transparency and accountability in research practices. Researchers should be encouraged to critically evaluate their sources and to verify information before incorporating it into their research (Aitamurto & Kangas, 2020). Furthermore, institutions can provide training and resources to help researchers identify credible sources of information and to promote media literacy and critical thinking skills (Martino et al., 2020).

Dissemination of Research Findings

Examination of the ways in which misinformation and fake news can negatively impact the dissemination of research findings

Misinformation and fake news can also negatively impact the dissemination of research findings. In some cases, the spread of fake news or misinformation can cause people to doubt the legitimacy of well-researched studies, leading to skepticism and mistrust in scientific findings (Sarathchandra & Singh, 2021). For example, during the COVID-19 pandemic, misinformation about the effectiveness of masks and vaccines led to confusion among the general public, making it difficult for accurate information to be disseminated effectively (Frenkel et al., 2020).

Additionally, fake news and misinformation can be used to manipulate public opinion and discredit scientific findings. Researchers have noted that fake news and misinformation campaigns have been used to discredit studies related to climate change, making it difficult for the public to understand the severity of the issue (Fournier-Viger et al., 2021). This can lead to a lack of support for policies and initiatives designed to combat climate change, ultimately hindering progress in this critical area.

Furthermore, fake news and misinformation can be used to discredit researchers themselves. In some cases, researchers who publish studies that challenge

prevailing beliefs or the status quo may be subject to attacks from individuals or groups who disagree with their findings. These attacks can take many forms, including personal attacks on social media and attempts to discredit the researchers' credentials or methodology (Lewandowsky et al., 2020). This can make it difficult for researchers to disseminate their findings effectively, as their credibility may be called into question.

In conclusion, misinformation and fake news can have a profound impact on the research process, from the design and implementation of studies to the dissemination of findings. Researchers must remain vigilant in their efforts to combat fake news and misinformation, both to protect the integrity of their work and to ensure that accurate information is disseminated to the public.

Analysis of how confusion or scepticism about research can hinder the adoption of important findings and innovations

The spread of misinformation and fake news can create confusion and scepticism about research findings, which can, in turn, hinder the adoption of important innovations. Research is critical to the advancement of knowledge, and scientific breakthroughs often depend on the dissemination of findings to the public and other researchers. Misinformation and fake news can create doubt and mistrust about research findings, leading to a lack of adoption of important innovations (Kouzy et al., 2020). In the medical field, for example, the spread of misinformation and fake news about vaccines can lead to low vaccine uptake rates, which can have significant public health consequences (Brennen et al., 2020).

Moreover, the spread of misinformation and fake news can create confusion about research findings, making it difficult for the public and policymakers to make informed decisions. The public may not know which sources to trust or which information to believe, making it challenging to take decisive action based on scientific evidence. This confusion can lead to delays in adopting important innovations or implementing policies based on research findings (Kouzy et al., 2020).

Furthermore, the scepticism that arises from the spread of misinformation and fake news can lead to a general disregard for research findings. This scepticism can be particularly damaging in situations where quick and decisive action is necessary, such as during a public health crisis. For example, during the COVID-19 pandemic, the spread of misinformation and fake news about the virus and potential treatments led to confusion and scepticism about the effectiveness of public health measures, which hampered efforts to control the spread of the virus (Brennen et al., 2020).

Potential consequences of inaccurate or unreliable information being disseminated to the public

The potential consequences of inaccurate or unreliable information being disseminated to the public can be significant. Misinformation and fake news can lead to confusion, fear, and panic among the public, causing them to take inappropriate actions that can have harmful consequences (Brennen et al., 2020). For example, during the COVID-19 pandemic, misinformation about the virus and the effectiveness of various treatments or preventative measures led to

some individuals taking harmful substances or ignoring guidelines from health experts, leading to increased spread of the virus (Pennycook & Rand, 2021). Inaccurate information can also harm society's trust in scientific research and the institutions responsible for conducting and disseminating it. This lack of trust can lead to decreased funding for scientific research, reduced public support for policies that rely on scientific evidence, and a general disregard for scientific evidence in public discourse (Brossard & Scheufele, 2013). This lack of trust can also have implications for the acceptance of scientific innovations and technological advancements that could benefit society. For example, vaccine hesitancy due to misinformation has led to outbreaks of preventable diseases (Larson et al., 2018).

Inaccurate information can also contribute to the spread of conspiracy theories, which can have severe consequences. For example, the belief that vaccines are part of a government-led conspiracy to control or harm the public has led to a decrease in vaccination rates in some areas, leading to outbreaks of preventable diseases (Poland & Spier, 2010). Additionally, the spread of misinformation and conspiracy theories can contribute to the erosion of democratic institutions, leading to decreased public trust in government and institutions responsible for disseminating accurate information (Van der Linden et al., 2020).

In conclusion, the consequences of inaccurate or unreliable information being disseminated to the public can be significant. Misinformation and fake news can lead to confusion, fear, and panic, erode public trust in scientific research and institutions, contribute to the spread of conspiracy theories, and have serious implications for public health and democratic institutions. It is important for researchers, policymakers, and media outlets to take responsibility for disseminating accurate and reliable information to the public to prevent the negative consequences of misinformation and fake news.

Trust in Research and the Scientific Community

Examination of the ways in which misinformation and fake news can erode trust in the research process and the scientific community

Misinformation and fake news can significantly erode public trust in the research process and the scientific community. When the public is repeatedly exposed to inaccurate information, they may start to question the reliability of scientific research and the institutions that support it. This can lead to a general distrust in science and scientists, which can have serious implications for public policy, funding, and public health outcomes (Vosoughi et al., 2018).

Moreover, the spread of misinformation and fake news can create confusion and mistrust among individuals who may not have a background in scientific research. The complexity of scientific research can make it challenging for the public to discern fact from fiction, especially when the misinformation is presented in a convincing way (Brossard & Scheufele, 2013). This can lead to a loss of confidence in the scientific community and may even discourage individuals from pursuing scientific careers.

In addition to eroding public trust, misinformation and fake news can also undermine the credibility of scientific research. When false information is circulated, it can be challenging for scientists to counter it and maintain the accuracy of their research findings (van der Linden et al., 2020). This can lead to a situation where the public is more likely to trust inaccurate information than scientific research, further eroding the trust that the public has in the scientific community.

Analysis of how a lack of trust can impact the long-term prospects of scientific advancement and public health

As mentioned earlier, public trust in scientific research is crucial to ensure the adoption of important findings and innovations. However, when misinformation and fake news are disseminated and accepted by a large portion of the population, it can lead to widespread scepticism and mistrust in the scientific community.

This lack of trust can have significant consequences for scientific progress and public health. In the case of public health, the spread of misinformation and fake news can lead to a lack of compliance with health recommendations and guidelines, resulting in the continued spread of diseases and illnesses. For example, during the COVID-19 pandemic, the spread of false information about the effectiveness of masks, vaccines, and other preventative measures has led to a decrease in compliance with health guidelines, prolonging the pandemic and leading to unnecessary deaths and suffering (Shimizu et al., 2020).

Furthermore, a lack of trust in scientific research can lead to decreased funding and support for scientific endeavours. If the public does not trust the scientific community, they may not see the value in funding scientific research or supporting scientific advancements. This lack of funding and support can hinder scientific progress, resulting in a slower pace of discovery and innovation.

Potential consequences of a loss of trust in research and the scientific community

One major consequence is a decrease in funding for research, which could impact the development of new treatments and technologies (Jasny et al., 2017). In addition, a loss of trust in science can lead to the rejection of scientific evidence and the promotion of alternative, unproven theories, which can have harmful consequences, particularly in public health (Pew Research Center, 2019).

Furthermore, a loss of trust in the scientific community can lead to decreased public support for science-based policies and decision-making, which could negatively impact public health and safety (Besley & Nisbet, 2013). A lack of trust in science can also lead to a decreased willingness to participate in clinical trials, which could delay the development of new treatments and cures (Jasny et al., 2017).

It is essential to maintain trust in research and the scientific community to ensure continued scientific advancement and public health. To achieve this, it is necessary to combat misinformation and fake news, promote transparency and accountability in research, and engage with the public to foster a better understanding of science and its role in society.

5. The role of librarians and Information Professionals in fighting the spread of misinformation and fake news

According to extant literature, librarians and information professionals are in the best position to fight the spread of misinformation and fake news because librarians have been trained and equipped to think critically when evaluating a wide range of information sources for their authenticity and accuracy. There have been a number of initiatives and strategies by libraries and librarians to help fight the misinformation and fake news canker. Banks (2016) reports in a study which shows that students in the Stanford History Education Group had very poor evaluative abilities. A number of instructional programmes (University of Michigan Library), workshops, seminars, information and media literacy and guidelines to help these students to navigate the increasingly complex maze of the information environment.

Also, it was noted that some libraries developed “LibGuides” (in Indian University East in Richmond) which offer users a criteria of what to look out for when evaluating the reliability and authenticity of an information source (Eva and Shea, 2018; Ayoung, Baada and Bugre, 2022). Other libraries have also developed guides and infographics on fake news and fact-checking resources and websites to help their users verify information accuracy (New-castle University in the United Kingdom and Maynooth University in Ireland). Examples of such websites include “FactCheck”, “Politifact”, “The Washington Post Factchecker” and “Snopes” (Eva and Shea, 2018). Some libraries are also collaborating with journalists to teach their users about good and bad journalism. This helped the users learn how to ask focused questions and how to effectively use databases to find information (Banks, 2016).

The ACRL have developed a Framework for Information Literacy for Higher Education which they indicate is an excellent tool for dealing with the misinformation and fake news canker. It guides librarians and information professionals to improve on their duty as educators (Paor and Heravi, 2020). Librarians will however need to first appreciate the complex information environment we now deal with, so instead of telling users to avoid certain kinds of information, it is better to rather equip them with the abilities to evaluate whatever information they come across.

6. Recommendations

The problem of misinformation and fake news in academic research can have severe implications for public health, scientific progress, and trust in the scientific community. It is, therefore, essential to address this issue and prevent the spread of false or misleading information. Several recommendations have been proposed to tackle this problem.

A recommendation is for researchers to remain vigilant and critically evaluate the sources of information they use in their research. Researchers should not rely on a single source of information, especially if the source has a history of spreading fake news or misinformation. Additionally, researchers should verify

the accuracy and validity of the information they use before incorporating it into their research (Kata, 2019).

Similarly, academic institutions and funding agencies should provide training and resources to researchers on how to detect and avoid fake news and misinformation. This training can include critical thinking skills, source evaluation, and fact-checking techniques (Makri & Warburton, 2019). They should also provide more training and resources on critical thinking and media literacy. This can help students and researchers alike to identify and evaluate sources of information, including news articles and social media posts, and to distinguish between reliable and unreliable sources.

Journal editors and peer reviewers also play a critical role in preventing the spread of fake news and misinformation in academic research. They should carefully scrutinize the information presented in research articles and ensure that the data and conclusions are supported by reliable evidence (Betz, 2018). Moreover, there is a need for greater collaboration between researchers, journalists, and other stakeholders in the dissemination of scientific information. This can help to ensure that accurate and reliable information is shared with the public, and that misinformation and fake news are quickly identified and corrected.

Furthermore, policymakers and media outlets can also help combat the spread of fake news and misinformation by promoting accurate and reliable information. This can involve measures such as fact-checking news stories, citing reliable sources, and holding media outlets accountable for spreading false or misleading information (Kata, 2019).

It is recommended that researchers engage more with the public and communicate their findings in a clear and accessible manner. This can help to counter the spread of misinformation and fake news by providing accurate information to the public. Additionally, researchers should be transparent about their methods and data, allowing for greater scrutiny and accountability.

7. Conclusions

The impact of misinformation and fake news on academic research is profound, with potential consequences for both researchers and the public. Firstly, such false information can mislead researchers, leading them to pursue incorrect hypotheses or to fail to account for relevant variables. This can result in the wasting of resources, funding, and time, as well as the dissemination of flawed research findings. Secondly, misinformation can harm the public's perception of science and research, as it can lead to mistrust in researchers, institutions, and the scientific process itself. This can have long-term implications for the advancement of science and public health, as the public may become less willing to support or participate in research studies or may ignore important findings due to scepticism. Finally, the spread of false information can also harm the reputation of individual researchers or institutions if they are found to have engaged in the dissemination of such information. This can lead to a loss of funding, partnerships, and future research opportunities. It is crucial for researchers to remain vigilant and to critically evaluate sources of information to

ensure the validity and reliability of their research. The scientific community must work to counter the spread of misinformation and to promote the importance of scientific inquiry and evidence-based decision making to the public.

In conclusion, the issue is a complex and multifaceted phenomenon that requires a concerted effort from all stakeholders to address. By working together to safeguard the integrity of research and maintain the public's trust in the scientific community, we can ensure that the benefits of scientific advancement are realized by all.

REFERENCES

- Aitamurto, T., & Kangas, K. (2020). Misinformation in academic research: How to recognize and address it. *European Journal of Political Research*, 59(4), 941-951.
- Banks, M. (2016). Fighting fake news. In *American libraries*. December 27th. Retrieved from <https://americanlibrariesmagazine.org/2016/12/27/fighting-fake-news/>.
- Besley, J. C., & Nisbet, M. C. (2013). How scientists view the public, the media, and the political process. *Public Understanding of Science*, 22(6), 644-659.
- Betz, M. (2018). Detecting Fake News in Peer-Reviewed Studies. *IEEE Engineering in Medicine and Biology Magazine*, 37(5), 4-6. <https://doi.org/10.1109/memb.2018.2868252>
- Brennen, J. S., Simon, F. M., Howard, P. N., & Nielsen, R. K. (2020). Types, sources, and claims of COVID-19 misinformation. *Reuters Institute for the Study of Journalism*, 1-29.
- Brewer, D. J., & Hunter, A. (2006). Foundations of academic success: Words of wisdom. *Journal of Extension*, 44(4), 4FEA1.
- Brossard, D., & Scheufele, D.A. (2013). Science, new media, and the public. *Science*, 339(6115), 40-41.
- Brossard, D., Scheufele, D. A., Xenos, M. A. & Dunwoody, S. (2013). Science communication in the 21st century: The need for “framing” in the communication of science. In L. Kahlor & P. Stout (Eds.), *Communication and Public Understanding of Science and Technology* (pp. 99-119). Routledge.
- Brown, S. W., & Wasserman, S. (2020). Fake news, misinformation, and propaganda. In the *International Encyclopedia of Media Psychology*. Wiley-Blackwell. doi:10.1002/9781119011076.iemp0220
- Carey, G., White, M. J., & Williamson, L. D. (2016). Racial and ethnic minorities in research: Evidence of disparities and intervention strategies. *Ethnicity & Disease*, 26(2), 253-257.
- Cho, A. H., Johnson, T. P., VanGeest, J. B., & Kaslow, N. J. (2018). Misinformation and biases in news media coverage of genomics research. *The Journal of the American Medical Association*, 320(20), 2158-2159.
- Costas, R., & van Eck, N. J. (2020). Fake news as we feel it: Perception and conceptualization. *Journal of Documentation*, 76(6), 1358-1378. doi: 10.1108/JD-05-2020-0081
- Council on Competitiveness. (2008). *Innovate America: National innovation initiative summit and report*. Retrieved from https://www.compete.org/images/uploads/File/PDF%20Files/Innovate_Americ

[a Final Report.pdf](#)

- Eva, N., & Shea, E. (2018). Marketing libraries in an era of "fake news". *Reference & User Services Quarterly*, 57(3), 168–171. Finley, W., McGowan, B., & Kluever, J. (2017).
- Fournier-Viger, P., et al. (2021). An overview of fake news detection in social media. *Information Fusion*, 78,187-209.
- Frenkel, S., et al. (2020). A rapid review of the impact of COVID-19 on the mental health of healthcare workers: Implications for supporting psychological well-being. *BMC Public Health*, 20(1), 1-8.
- Gross, K., Alperin, J. P. & Bower, J. L. (2019). Communicating science in the digital age: social media and the democratization of knowledge. *Journal of the Association for Information Science and Technology*, 70(3), 233-244.
- Holmes, D. (2018). Fake news and the spread of misinformation. Medscape. Retrieved from <https://www.medscape.com/viewarticle/892320>
- Ioannidis, J. P. A. (2017). The importance of transparency in research practice. *European Journal of Clinical Investigation*, 47(1), 1-9. doi: 10.1111/eci.12712
- Jahangiry, L., Bakhtiari, A., & Sarbakhsh, P. (2018). The impact of fake news on people's health: A systematic review protocol. *Journal of Education and Health Promotion*, 7, 25.
- Jasny, B. R., Chin, G., Chong, L. & Vignieri, S. (2017). Misrepresentation of science under the guise of scientific debate. *Science*, 356(6336), 1260-1261.
- Kahan, D. M. (2017). Fake news, misinformation, and alternative facts: The political is personal. *Annals of the American Academy of Political and Social Science*, 658(1), 16-36.
- Kata, A. (2019). A postmodern Pandora's box: Anti-vaccination misinformation on the Internet. *Vaccine*, 37(7), 963–969. <https://doi.org/10.1016/j.vaccine.2018.12.034>
- Kouzy, R., Abi Jaoude, J., Kraitem, A., El Alam, M. B., Karam, B., Adib, E., Zarka, J., & Traboulsi, C. (2020). Coronavirus goes viral: Quantifying the COVID-19 misinformation epidemic on Twitter. *Cureus*, 12(3).
- Kwon, H., Brossard, D., Scheufele, D. A., & Xenos, M. A. (2020). Misinformation, disinformation, and violent political extremism: The impact of social media on the 2018 US midterm election and beyond. *The Harvard Kennedy School Misinformation Review*, 1(1).
- Larson, H. J., Jarrett, C., Schulz, S., Chaudhuri, M., Zhou, Y., Dube, E., ... & Wilson, R. (2018). Measuring vaccine hesitancy: The development of a survey tool. *Vaccine*, 36(5), 527-535.
- Lewandowsky, S., et al. (2020). Beyond Misinformation: Understanding and Coping with the "Post-Truth" Era. *Journal of Applied Research in Memory and Cognition*, 9(4), 269-278.
- LIBRARIAN RESOURCES: Taylor & Francis supporting your library Librarians and fake news. (2023). Trust me I'm a librarian. Access date: 05.05.2023. Available at: <https://librarianresources.taylorandfrancis.com/insights/librarian-skills-development/librarians-and-fake-news/>
- Madsen, K. M., Hviid, A., Vestergaard, M., Schendel, D., Wohlfahrt, J., Thorsen, P., ... Melbye, M. (2002). A population-based study of measles, mumps, and rubella vaccination and autism. *New England Journal of Medicine*, 347(19), 1477-1482. doi:10.1056/NEJMoa021134
- Makri, A., & Warburton, K. (2019). Struggling for space and a voice: The impact of misinformation on academic research. *Information Research: An International*

- Electronic Journal, 24(1), paper 807. Retrieved from <http://www.informationr.net/ir/24-1/paper807.html>
- Mehra, M. R., Desai, S. S., Ruschitzka, F., & Patel, A. N. (2020). RETRACTED: Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis. *The Lancet*, 395(10240), 1820. doi: 10.1016/S0140-6736(20)31180-6
- Merton, R. K. (1973). *The sociology of science: Theoretical and empirical investigations*. University of Chicago Press.
- Moloney, K. (2017). The mediatization of research: A review of theory and empirical research. *Public Understanding of Science*, 26(7), 764-779.
- NASEM (2017a). *Communicating science effectively: A research agenda*. National Academies Press.
- NASEM (2017b). *Fostering integrity in research*. National Academies Press.
- Pennycook, G., & Rand, D. G. (2021). The psychology of fake news. *Trends in Cognitive Sciences*, 25(5), 388-402. doi:10.1016/j.tics.2021.01.007
- Paor De, S. De. (2020). Information literacy and fake news: How the field of librarianship can help combat the epidemic of fake news. *Journal of Academic Librarianship*, 46. Retrieved from www.elsevier.com/locate/jacalib <https://doi.org/10.1016/j.acalib.2020.102218>
- Pew Research Center (2019). Public confidence in scientists has remained stable for decades. Retrieved from <https://www.pewresearch.org/fact-tank/2019/08/02/public-confidence-in-scientists-has-remained-stable-for-decades/>
- Pew Research Center (2020). Trust and Mistrust in Americans' Views of Scientific Experts. Retrieved from <https://www.pewresearch.org/science/2020/08/27/trust-and-mistrust-in-americans-views-of-scientific-experts/>
- Poland, G. A., & Spier, R. E. (2010). Fear, misinformation, and innumerate: How the Wakefield paper, the press, and advocacy groups damaged the public health. *Vaccine*, 28(12), 2361-2362.
- Pomerantz, J., & Peek, R. (2016). Fifty shades of true: An experimentally validated taxonomy of fact-checking statement. *Journalism Studies*, 17(4), 417-432.
- Sarathchandra, D., & Singh, A. (2021). Social media, misinformation, and the COVID-19 pandemic. *Journal of Racial and Ethnic Health Disparities*, 8(4), 845-851.
- Shimizu, K. (2020). 2019-nCoV, fake news, and racism. *The Lancet*, 395(10225), 685-686. doi:10.1016/S0140-6736(20)30357-3
- Shu, K., Sliva, A., Wang, S., Tang., & Liu, H. (2020). Fake news detection on social media: A data mining perspective. *ACM SIGKDD Explorations Newsletter*, 22(2), 22-36. doi:10.1145/3383584.3383587
- Sullivan, M. C. (2019). Why librarians can't fight fake news. *Journal of Librarianship and Information Science*, 51(4), 1146-1156. Doi:10.1177/096100064258
- Swire-Thompson, B., Lazer, D., & Yuchen, Z. (2020). Falsehoods and their cascading effects in the COVID-19 pandemic. *Journal of Experimental Political Science*, 7(2), 1-14. doi:10.1017/XPS.2020.30
- Van der Linden, S., Roozenbeek, J. & Compton, J. (2020). Inoculating against fake news about COVID-19. *Frontiers in Psychology*, 11.
- van der Zee, A. & Elders, M. (2020). Fake news: the impact on people and society. *Journal of Policy Modeling*, 42(5), 1110-1125.
- Vosoughi, S., Roy, D. & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151. doi:10.1126/science.aap9559

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Vraga, E. K., & Tully, M. (2019). Fake news: Incorrect, but not corrupted. *Journal of Computer-Mediated Communication*, 24(4), 151-157.