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## Challenges of Journalist Verification in the digital age on Society: A Thematic Review

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### Abstract

Verification is an integral part of journalism and is usually done before or during publication. It is a basic rule of professional journalism to check facts, but the digital age has created new challenges for journalists. However, previous research has shown that no review paper talks about the patterns of challenges of journalists' verification practices on society. Therefore, this article presents a thematic review of the selected publications to explore the challenges faced by journalists' verification practices in recent years. The thematic review aims to summarise the literature from 2018 to 2022 on the challenges of journalists' verification in the digital age and their effects on society using a thematic review. A keyword search followed by inclusion criteria from the SCOPUS, WOS and Mendeley databases identified 226 peer-reviewed journal articles. However, only 34 publications were included as final articles for review after the inclusion and exclusion process. A thematic review of the 34 articles identified five main themes: Social media use and fake news; media accuracy; verification practice and technology; professional and organisational and media trust; and social and political impact. The findings will benefit knowledge of journalist verification trends and future studies of journalist verification practice.

**Keywords:** Journalist Verification, Digital Age, Impacts on Society, Challenges, Thematic Review

### Introduction

It is much easier and faster for people to share information in the digital age, leading to more information and news sources. However, not all of this information is accurate or reliable, making it difficult for journalists to verify the information they share with the public. Verification is an essential part of journalism and is usually done before or during publication. It is a basic rule of professional journalism to check the facts, but the digital age has created new challenges for journalists. The "essence" of journalism is verification, distinguishing journalists from other disciplines such as entertainment, fiction and propaganda (Kovach and Rosenstiel, 2001). Verifying journalists has become more critical in the digital age as the public increasingly relies on journalists to provide accurate, trustworthy and reliable information.

According to verification experts and open-source researchers, journalists have a civic duty to warn the public about false information dangers and be transparent about their work processes (Bryant, 2018; Gregory, 2019).

Moreover, in today's digital media context, the rapid spread of fake news and online disinformation has been identified as a significant problem with major implications for journalism and society (Giromelakis et al., 2021). Due to the sheer volume of online information and its simplicity, it is now more difficult for journalists to verify material than in the past. Public trust in the media has also suffered further due to the proliferation of misinformation, propaganda and fake news, making it more critical than ever for journalists to have effective verification procedures.

Although the study of verification is well-known, no review paper systematically discusses the challenge of journalists' verification practices on society in the digital age. Therefore, this paper aims to conduct a systematic review of journalistic verification in the digital age, including the challenges and constraints faced by journalists and the impact of these challenges on public trust in news and information, based on the following question

**RQ: What are the challenges of journalist verification in the digital age on society discussed in the literature from 2018 -2022?**

### **Methodology**

The term 'thematic review' was introduced by Zairul (2020) using ATLAS.ti 8 as a tool and implemented as the technique of this study uses a thematic analysis procedure in a literature review. Furthermore, Clarke and Braun (2013) define thematic analysis as identifying patterns and developing themes after reading the topic. Thematic review, or TR was chosen because it allows researchers to analyse data flexibly and categorise large data sets into broad themes. The following step is identifying patterns and developing themes to understand journalists' challenges in verifying practice trends. The tenets of the research are to analyse and interpret the challenges and findings for the recommendation of future research in journalist verification practices topic and their impacts on society. Several criteria were used to select the literature: 1) Publication from 2018 to 2022; 2) Have at least the keywords journalist verification or verification practises, challenges and digital age or social media; 3) focus on journalist verification, challenges and society. Review papers were removed as they contradict the purpose of this paper. The research databases Web of Science by Clarivate Analytics and Scopus by Elsevier and Mendeley was used as sources for the literature review. The Network of Science was selected because it contains all indexed journals with a measured impact factor in the Journal Citation Report (JCR) (Carvalho et al., 2013); Mendeley was selected because the research comes from many different fields and sources; and Scopus was selected because it has the most extensive collection of peer-reviewed publications. The Web of Science was filtered by "type of document", article types and proceedings papers, but NOT review papers. The other datasets provided analytical criteria: "title, keywords and abstract".

Table 1  
 Search string from WOS, SCOPUS and Mendeley

<b>SCOPUS</b>	(TITLE-ABS-KEY ("issue*" OR "challenge*" OR "impact*" OR "consequence*" ) AND ( "verification*" OR "verify" OR "verification practice*" ) AND ( "journalist*" OR "journalism" ) AND ( "social media" OR "new media" OR "digital age" OR "online news" ) Year: 2018 – 2022	<b>83 results</b>
<b>WOS</b>	("issue*" OR "challenge*" OR "impact*" OR "consequence*" ) AND ( "verification*" OR "verify" OR "verification practice*" ) AND ( "journalist*" OR "journalism" ) AND ( "social media" OR "new media" OR "digital age" OR "online news" ) Timespan: 2018-2022 Indexes: A&HCI , BKCI-SSH , BKCI-S , ESCI , CPCI-SSH , CPCI-S , SCI-EXPANDED , SSCI	<b>72 results</b>
<b>Mendeley</b>	"journalists" AND "verification" AND "challenge" Year: 2018-2022	<b>71 results</b>

In the SCOPUS search, the article used TITLE-ABS-KEY (( "issue\*" OR "challenge\*" OR "impact\*" OR "consequence\*" ) AND ( "verification\*" OR "verify" OR "verification practice\*" ) AND ( "journalist\*" OR "journalism" ) AND ( "social media" OR "new media" OR "digital age" OR "online news" )), and the search is limited to the year of 2018 until 2022. In the WOS, the search string used (( "issue\*" OR "challenge\*" OR "impact\*" OR "consequence\*" ) AND ( "verification\*" OR "verify" OR "verification practice\*" ) AND ( "journalist\*" OR "journalism" ) AND ( "social media" OR "new media" OR "digital age" OR "online news" )) with the same limitation year. The Mendeley search is much more straightforward using "journalists" AND "verification" AND "challenge", which respond to 71 results (Table 1).

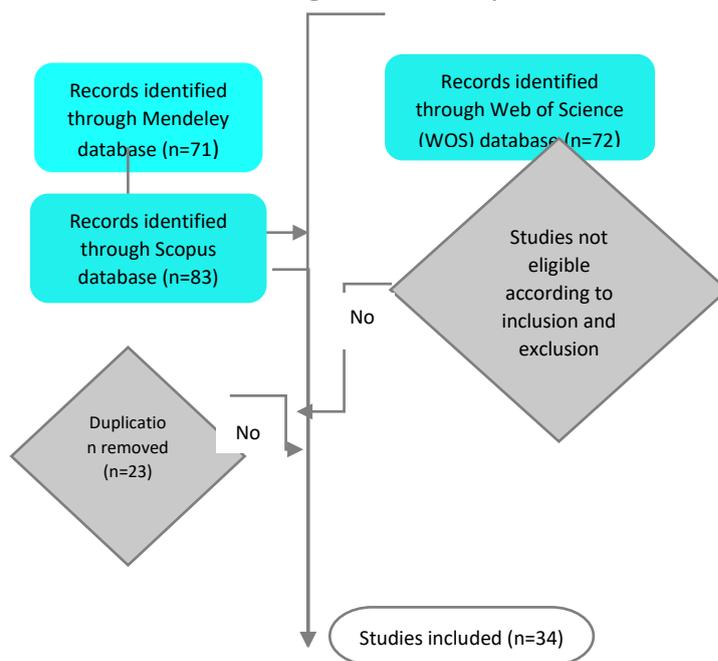


Figure 1: Inclusion and Exclusion criteria for thematic review (Zairul, 2020)

After the initial search in three databases, about 226 papers were found. The articles included in this paper were selected from journals, conferences and theses that were thematically reviewed. Finally, 192 publications were eliminated due to duplicate content and publications irrelevant to the research topic. Publications from the last five years (from 2018 to 2022 inclusive) were used for the evaluation, and only English-language articles were included in the final selection. After removing duplicates and scanning all abstracts to remove articles irrelevant to this research topic, 34 articles emerged as the basis for review. The articles were classified as irrelevant if they were related to citizen journalists, did not discuss journalist verification and focused on fact-checking services and algorithms. The articles were then uploaded as primary documents to ATLAS.ti 8 grouped each article by author, issue number, periodical, publisher, volume and year of publication. In this way, the articles can be analysed by year of publication and the discussion pattern by year. The total number of articles finalised for ATLAS.ti 8 is 34 (Figure 1).

Subsequently, all 34 metadata were transferred from Mendeley to ATLAS.ti 8 and created as primary documents. ATLAS.ti 8's improved classification algorithm makes sorting more straightforward and systematic. In the first round of coding, thirteen different initial codes were generated. After that, the codes were grouped into different themes, resulting in five main categories to answer the research questions. The results of this review are presented in two parts: the quantitative and the qualitative findings.

### **Results and Discussions**

The report's quantitative section includes descriptive data based on research trends in various countries and publications by year. The paper presents the countries compared to the number of publications by year (Figure 2) and the research patterns in each country. The trends in the figure below show the highest contributions from Spain from 2018 to 2022. Numerous Spain studies on journalist verification challenges focus on the use of tools and skills in journalistic verification. For example, Bautista (2021) describes the use of fact-checking in Tik Tok to combat misinformation and professional skills in social media for data verification (López-Rabadán & Mellado, 2019). The US follows in second place, with trends from the US mainly on trusted sources, such as uncertain health information during crises (Fleerackers et al., 2022), misinformation and disinformation (Gregory, 2019). Social media policies contribute to the challenge of verification (Adornato & Frisch, 2022) and technology and tools to verify information (Singer, 2021). The UK is in third place, with studies focusing on the use of journalism tools and skills for verification, such as the use of credibility assessment tools in verification (Fletcher et al., 2020). The statistics continue with a study from Indonesia, Germany, New Zealand and China with two articles each, while the rest have one article on the topic (Figure 2). Thus, the topic of the study is predominantly dominated by Western countries.

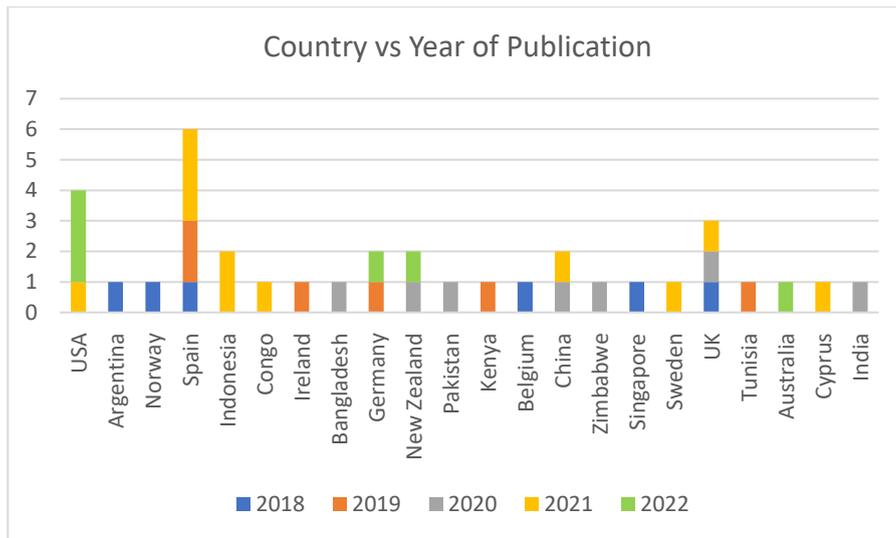


Figure 2: Country vs Number of Publications by Year.

Figure 3 below shows that the number of publications is increasing every year. In 2021, the number of publications increased more than in the other years. The increasing health crisis of Covid-19 around the world affects the research on journalists' verification. However, the numbers decreased slightly in 2022, but the trend increased between 2018 and 2021. The trend is expected to increase or remain the same in 2023, as many researchers are still discussing the verification of journalists due to the increase of Fake News on social media platforms.

Subsequently, the papers are coded using ATLAS.ti 8 to identify themes. Based on the abstract and the title of the paper, ATLAS.ti allows the researcher to select, categorise and theme a topic. A marginal note in the form of codes based on social constructs and the author's interpretation of the issue discussed in the articles constitutes a thematic review process. Based on the sorting, five main themes were found: Social media use and fake news, media accuracy, professionals and organisations, verification practices and technology, and media trust and social and political impact.

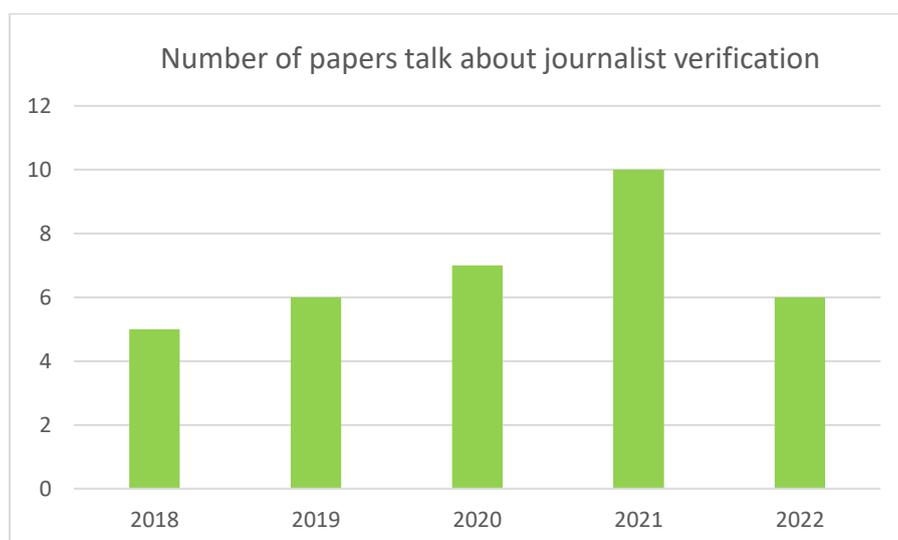


Figure 3: Paper breakdown according to the year publications.

The data captured the intensity of themes generated from 2018 to 2022 after analysing 34 papers. The themes were grouped into five groups, and one study could be coded to address more than one theme. There were 13 initial codes in the first round of coding. The data will be compared to find the best matching theme, and similar discussions and solutions will be examined. Data collection, coding and analysis all happen simultaneously. Numerous papers highlighted multiple themes in the publication, resulting in a homogeneous study outcome. The thematic analysis results will be described and discussed in the following section. Furthermore, the themes can be built as theoretical contexts, disciplines, or areas of study (Boyatzis, 1998).



Figure 4: Overall network and how the themes answer the research question.

### Social media use and Fake news

Social media has become an increasingly popular platform for journalists to disseminate news and gather information in recent years. Journalists often use social media as a source and verification tool (Zhang, 2020). With billions of active users, social media platforms provide journalists with access to a massive audience and the ability to communicate with individuals in real-time. According to Van Leuven *et al.* (2018), online and social media sources provide much faster-breaking news shortly after an event and encompass a broader range of perspectives. However, the growth of social media has also brought new challenges, particularly in the form of fake news. The study by López-Marcos and Vicente-Fernández (2021) demonstrates that one of the most critical problems facing journalism in the twenty-first century is the rapid spread of misinformation via social media and that this spread of Fake News will continue to increase and by 2022, half of all news will be fake. Although Fake News has been around for centuries, it is now more dangerous than ever because it is so easy to produce and spread (Vizoso *et al.*, 2021). Fake News has the potential to seriously affect society by influencing elections and public opinion and even triggering potentially dangerous situations. Vizoso *et al.* (2021) believe that while verification has always been an essential part of journalism, the fake news epidemic is becoming more widespread, making it more critical than ever. Fletcher *et al.* (2020) noted that using social media for news production brings new challenges to the verification process for professional journalists.

Journalists play a crucial role in combating fake news. They can do this by double-checking information and sources before sharing them, verifying information from numerous sources and avoiding sensational headlines. In a contrary study by Zhang (2020), journalists believe that social media is a reliable news source, and the more one uses social media to verify facts, the less likely one is to cross-check them with interviews. Supported by Xu and Gutsche



report the truth. In the Covid 19 pandemic crisis, for example, the news media plays a critical role in providing timely and accurate information. When journalists fail to tell the truth, the danger to society becomes apparent. Therefore, the credibility of news on social media should be checked before journalists publish it (Jamil & Appiah-Adjei, 2020). Before a piece of information is published or shared, it must be checked for accuracy, usually through many sources. This process ensures that only credible information is reported and that false information is not spread. However, newspaper journalists claim that checking internet content is not part of their job and is beyond their capacity, given the amount of information published daily (Haque et al., 2020). However, numerous scholars have studied the veracity of traditional news media, such as newspapers, television and magazines, but not online media (Emeraldien et al., 2021). Therefore, the accuracy of online media is crucial for journalists today. This has led to calls for more excellent investment in verification systems, including more resources and training for journalists and the development of new technologies to support the verification process. However, how verification practises and technology challenge journalists' verification in the digital age continues to be debated.

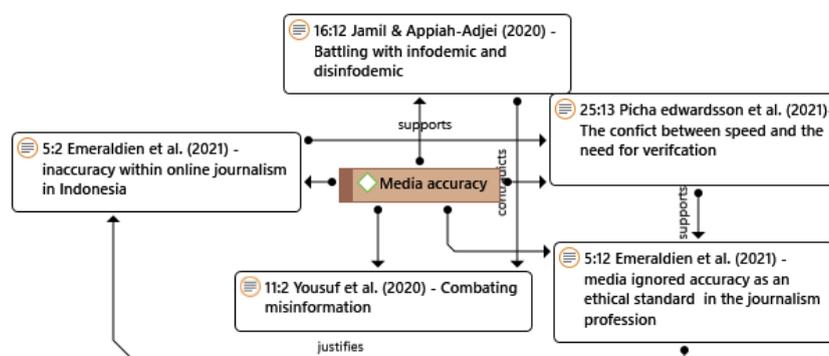


Figure 6: Media accuracy network theme.

### Verification practices and technology

Journalist verification practices are a series of steps journalists take to ensure that the information they report is accurate and reliable. These may include checking multiple sources, interviewing experts and fact-checking. In the digital age, journalistic verification practises must also consider the possibility of false or misleading information spreading quickly and efficiently through social media and other online platforms. According to Zhang (2020), journalists use offline information, elite information and information published by PR firms or government officials to check facts thru interviewees, data from reliable sources, colleagues and other news organisations are used to checking facts. Another study found that journalists use both manual and digital technologies to verify content and check various facts (Sushmita, 2021). Journalists may get biased results when verifying information, making "double-checking" difficult. To overcome these challenges, journalists must have the skills and knowledge to verify information from multiple sources, including social media. However, many journalists lack the knowledge and skills to verify and track the source (Van Leuven et al., 2018).

Moreover, Munoriyarwa and Chambwera (2020) suggest professional practice first, strengthening multiple source verification. Second, fake news threatens journalism, so newsrooms need to work together, especially in uncertain times. Third, investigative journalism needs to be deepened to uncover news backed by evidence that authorities would rather keep secret. This would ensure that professional journalists are given incontrovertible

evidence to debunk or refute fake news based on speculation. In addition to traditional verification methods, editors and journalists need new technological tools to verify the information. The emerging literature on journalism and social media emphasises that traditional verification methods used by journalists to assess credibility may not be sufficient to handle the amount of information available on social media (Fletcher et al., 2020). Today, tools can automatically detect fake news and other forms of misinformation and flag them for further investigation. In recent years, much discussion has been about how journalists use algorithmic tools to gather information. However, journalists' scepticism about their use has increased (Picha Edwardsson et al., 2021). According to de Haan *et al* (2022); explicitly designed algorithmic tools for journalistic research are rarely or never used. Xu and Gutsche (2021) confirm in their study that Chinese journalists still use offline tools for reviewing and sourcing information, while Western journalists have turned to digital and online tools. Therefore, tools developed for journalists' fact-checking must be simple and integrated into newsrooms' editorial systems to ensure effective news production.

Other studies show that fact-checking agencies pose a challenge to journalists. These technologies can change how journalists work by making checking faster, more accurate and more efficient. However, journalists saw these services as potentially helpful but were wary of trusting them blindly (Brandtzaeg et al., 2018). Some emphasised the usefulness of such services, while others expressed strong scepticism. There is even discussion of fact-checking as a new journalistic genre, capable of monitoring information spread on social networks and transforming complex information into knowledge that the public can accept. In Europe, news verification agencies strive to demonstrate their usefulness and transparency to the public, especially in light of the comparison between Spain and the United Kingdom (López-Marcos & Vicente-Fernández, 2021).

However, journalists still have a strong sense of professional authority and believe they can work independently of any influence, including algorithms (de Haan et al., 2022). Moreover, verification practices and the use of technology can help build public trust in the media by improving transparency and accountability. This is particularly important in the digital age, as the rapid spread of false information can seriously affect individuals and society.

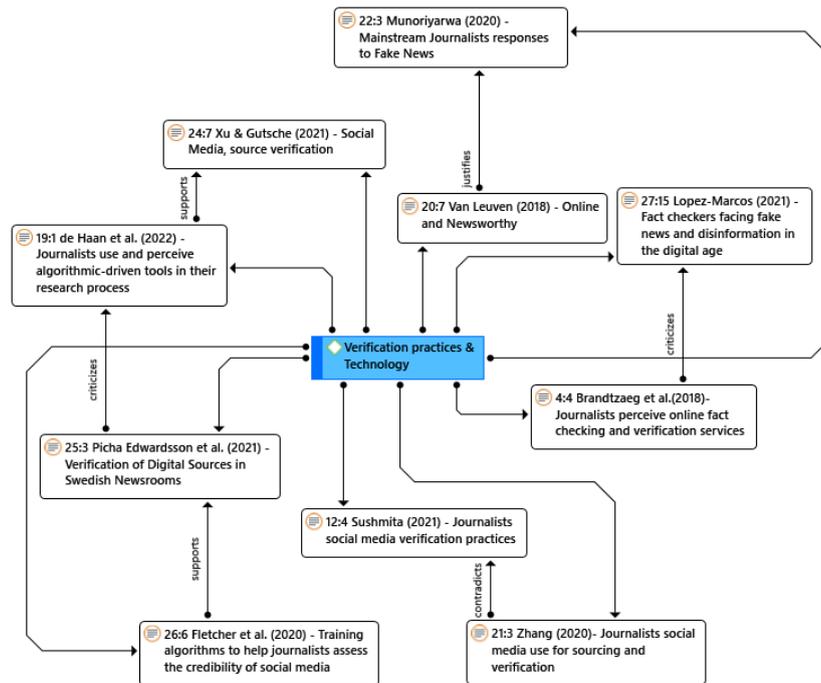


Figure 7: Verification practices and technology network theme.

### Professional and Organization

The implementation of journalist verification practices can be challenging for individual journalists. From journalists' responses, it appears that at the individual level, factors such as gender, education, fact-checking training and individual attitudes influence their reporting (Jamil & Appiah-Adjei, 2020). In addition, the fast pace of digital media requires journalists to make often quick decisions about what information to report and how to report it. This can lead to errors and omissions, especially when dealing with large amounts of information from multiple sources. Verification journalism can survive if it learns new technical skills and storytelling techniques and adapts to changing trends and user groups (Bautista, 2021; Thomson et al., 2022). To overcome these obstacles, journalists must have the necessary skills and knowledge. According to Rupar (2020), technological, social and organisational challenges play a role in reporting terrorist attacks. However, some journalists acknowledge that they lack the necessary skills and capacity (Gregory, 2022). In addition to skills, professional dynamics also challenge journalists in verification practices. These professional dynamics widen the gap between young digital elite journalists and older local or regional media practitioners, which should be empirically investigated (López-Rabadán & Mellado, 2019).

For example, journalists may not be familiar with the latest verification technologies or have the time and resources to check the accuracy of every information they receive. According to Picha Edwardsson *et al* (2021), lack of time and knowledge are two barriers to adopting new verification routines in journalism. Some media organisations may prioritise speed over accuracy to be the first to publish a story, which is another challenge and can lead to errors and retractions and damage the reputation of the media organisation and the credibility of journalism. Although newsrooms have adopted policies to determine acceptable behaviour and most newsrooms have revised their policies, these do not always address the current challenges journalists face, such as online threats and the vetting of user-generated content (Adornato & Frisch, 2022). Further findings from the journalist survey showed that Swedish

newsrooms lack routine in verifying digital sources and doubt in verifying news and other information found on social media and websites (Picha Edwardsson et al., 2021) and according to Emeraldien et al (2021) indicate inaccuracies due to a wrong procedure in verifying information. Therefore, there is a need for a clear routine for verifying digital sources in a newsroom and strict guidelines for social media to regulate misinformation.

It is also tricky for media organisations to establish procedures to verify journalists. For example, organisations may not have the money or technology to invest in procedures and systems for verification. Economic pressures in the media industry, such as falling revenues and more competition, can make it difficult for organisations to spend money on verification processes. Another study identified three major organisational factors that affect journalists' ability to deal with fake news and disinformation: Job insecurity, lack of economic, technological and logistical resources, and lack of training and work guidelines (Jamil & Appiah-Adjei, 2020). In addition, it seems that newsroom culture and media ownership rather than technical solutions are driving the change in journalists' and editors' attitudes towards verification in the digital age (Edwardsson et al., 2021). There is also a social institution of government that influence journalist verification. Any verification that goes against the government could put journalists and fact-checkers at risk. As a result, they cannot freely verify all misinformation (Haque et al., 2020). Media organisations must commit to accuracy and verification and provide the resources and technology needed to support these processes. Currently, there is no common understanding of verification practices. Moreover, most scholars survey or study journalists to learn more about their verification practises (Van Leuven et al., 2018); however, there are limited studies on the challenge affecting journalists' verification practices in social media content at various levels. The following section further discusses the impact of journalists' verification practices on society.

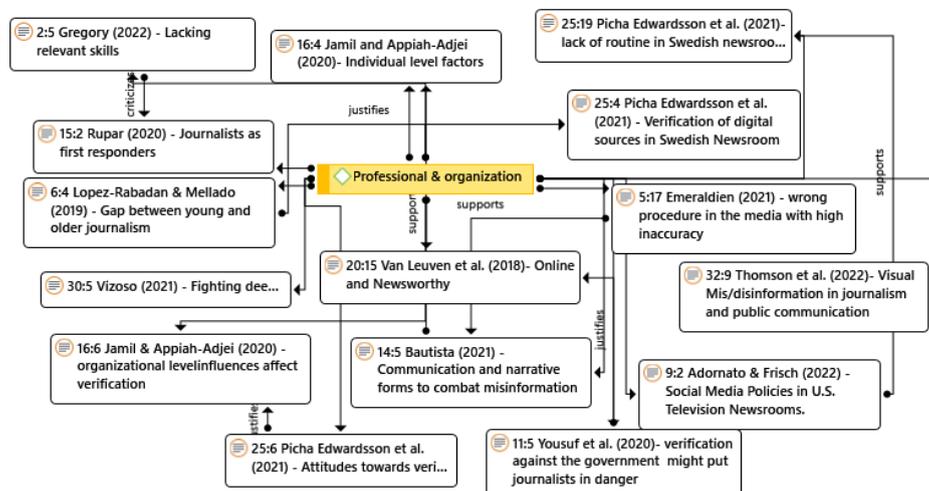


Figure 8: Professional and organization network theme.

### Media trust, social and political impacts

People are less likely to participate in the political process if they do not trust the information they receive, so a decline in public trust in the media can harm democracy. People who have lost trust in the media are less likely to seek out or engage with news and information. This can lead to less public engagement with critical issues. When journalists and media organisations are open about how they work and admit mistakes, they show that they care about accuracy and honesty and can be trusted. According to Van Leuven *et al.* (2018),

journalists need to be aware of their responsibility to deliver trustworthy news and verify information, as audiences are more sceptical of mainstream news media than ever. When journalists and media organisations cannot verify information, false or misleading information spreads quickly, causing confusion and misunderstanding. This can have severe consequences in a world where misinformation can manipulate public opinion, spread hate speech or incite violence. In Pakistan, Pakistani citizens risk losing their lives to the Covid 19 pandemic due to misinformation and treatment. Moreover, this study finds that government censorship, restrictions on journalists' information and misleading data from the authorities are influencing journalists' coverage of the pandemic COVID -19 and fuelling the disinfodemic (Jamil & Appiah-Adjei, 2020). By distrusting the media, politicians and other political actors can disseminate false or misleading information on a larger scale because they are not scrutinised to the same level and do not have to be accountable. This can harm democracy by undermining the media's role as a watchdog and allowing political actors to manipulate public opinion. According to López-Marcos and Vicente-Fernández (2021), limiting the ability of citizens to form their own opinions on issues of public interest or even purely political issues threatens democracy, and various governments are trying to pass laws to prevent the spread of fake news so that people receive accurate information. Verification practices by journalists strengthen trust in the media and have an impact on society and politics. Verification practices improve the accuracy of the media and provide reliable information. However, journalists and media organisations must have the skills, knowledge and resources to implement verification practises effectively, and they must be supported by management. Promoting the verification of journalists and supporting the media industry can help build trust, social stability and democratic societies.

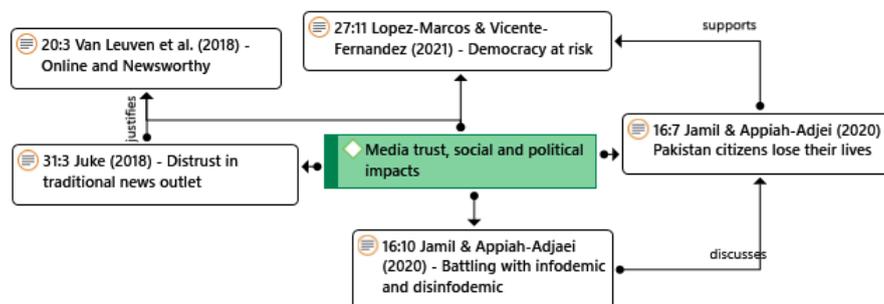


Figure 9: Media trust, social and political impacts network theme.

### Discussion and Future Studies

This article reviewed the challenges of journalists' verification practices on society. The findings show that the challenges of journalistic verification on society highlight the use of social media and fake news, media accuracy, verification practises and technology, professional and organisation and media trust, and social and political impact. This paper has contributed towards analysing the challenges journalists face in verifying and comprehensively identifying the impact of the study and the thematic codes from 2018 to 2022. However, based on the findings of this study, there is a gap in the study of journalist verification practices from various levels of influence and challenges journalist verification practices which are significantly hampered by structural problems in the news industry (Thomson et al., 2022). Journalistic practices that promote accuracy and trust in the media have significant social and political implications. Much work must be done to make these practices more effective in the digital age. Future research in this area will be critical in

advancing our knowledge of journalistic verification practices and developing new tools and technologies to support them. We can aid in the media, promote social stability and defend democratic societies by promoting journalist verification practises and supporting media organisations.

### Contribution and Benefits of Study

The study will contribute to the body of knowledge on literature trends and patterns related to journalists' verification practises and can provide direction for future research on journalists' verification and identify gaps in journalists' verification practises in non-Western countries.

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