Patterns and Actors of Disinformation: Analysis of Debunked Hoaxes in Spain in 2022[1]

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This research examines the patterns followed by disinformation in Spain through the fact-checking activities of Maldita.es, the leading fact-checking organisation in Spain. We sought to answer three research questions: 1. What are the predominant topics of the hoaxes debunked by Maldita.es? 2. Who is responsible for the creation and dissemination of these hoaxes? and 3. In what formats and platforms are these hoaxes generally distributed? For this purpose, we conducted a quantitative content analysis of 729 hoaxes fact-checked in 2022 by Maldito Bulo. 40.7% of the debunked hoaxes were related to social issues, while 37.2% focused on political affairs. Regarding those responsible for the creation and dissemination, most of the hoaxes came from unidentified sources, although when the identity is known, the most frequent contributors are social media accounts, alternative and partisan pseudo-media and journalists. These results explore the general disinformation scenario in Spain, using fact-checking as an approximation and discussing its implications.

Introduction

Fake news, misinformation and disinformation have received a growing interest in the scientific community in the last years, as they have become a concerning phenomenon that expands at an unprecedented speed through social media platforms and the modern communication ecosystem (AÏMEUR et al. 2023; VOSOUGHI et al. 2018). Their effects not only reach communication and journalism but also put at risk the democratic system (BENNETT–LIVINGSTON 2018; ROMERO-RODRÍGUEZ et al. 2021) and even the integrity and lives of individuals, as has been seen during the pandemic.

According to IAB (2023), 94% of Spaniards use the Internet, and from those, 85% are users of social media. Moreover, the Reuters Institute's Digital News Report 2023 (NEWMAN et al. 2023) observed that 50% of Spaniards claim to access news on social media. The same study has observed that trust in the news is quite low in this country (only 33% of people in Spain trust the news, a value that has decreased in the last few years and is particularly low for news posted on social media). Furthermore, this report has consistently shown in the last years that the concern in Spain about online fake news is among the highest in Europe (62% in 2022, according to Vara et al. 2022). Besides, according to the Eurobarometer conducted in the winter of 2022–2023, 78% of Spaniards found disinformation frequently, compared to a 69% average in the EU (European Commission 2023).

The use and consumption patterns of news, mainly based on information found in social media, combined with the lack of media and digital skills of users, make social media the primary source of dissemination of fake news (SHARMA et al. 2019; SHU et al. 2019), especially due to the ease with which erroneous or biased information can be generated and how difficult it is to detect them (KUMAR–SHAH 2018).

One of the great risks of fake news, in addition to their rapid dissemination, is that they have the appearance of being true and can be generated in large volumes (SHU et al. 2017), which impacts their perceived realism and, consequently, generates more credibility of the information (ROMERO-RODRÍGUEZ et al. 2021). In this line, Vosoughi et al. (2018) found that the online dissemination of false information occurs up to six times faster than accurate information, while 70% of users do not know how to distinguish between fake news and factual information, mainly due to the characteristics of novelty and attraction with which fake news is designed (BOVET–MAKSE 2019).

Usually, fake news is generated by political and electoral interests (VOSOUGHI et al. 2018), although by 2020, the World Health Organization attributed fake news the character of an "infodemic" due to the proliferation of false information related to Covid-19 and vaccines, leading to many conspiracy theories that gained credibility, putting public health at risk (APUKE–OMAR 2021; HARTLEY–VU 2020; GUPTA et al. 2022).

Fact-checking: The fight against fake news

Disinformation is not new, but its dimensions and potential effects are. Accordingly, although the attempts to fight it are also not new (GRANT 1995), they have intensified recently. Amongst them, fact-checking has been one of the most relevant. Fact-checking services generally have journalistic activities based on the systematic evaluation, verification and contrast of data, in which the accuracy of the affirmations found in an informative unit is evaluated (LOTERO-ECHEVERRI et al. 2018). In fact, many journalists positively appreciate the role of fact-checking (MARTÍN GARCÍA – BUITRAGO 2022), and many consider that fact-checking is rather a task of journalists themselves (BLANCO-HERRERO–ARCILA-CALDERÓN 2019), as this is a core practice of the ethical guidelines of the profession (MCBRIDE–ROSENSTIEL 2013). That also explains why many fact-checking initiatives are linked to larger media companies or are run with journalistic practices, even though in the last years more initiatives have been created as independent organisations supported by public institutions (GRAVES–CHERUBINI 2016).

Despite the effort of many fact-checkers to avoid the spread and distribution of fake news, the empirical evidence regarding the capacity of fact-checkers to reduce the effects of misinformation is divided: while some studies (e.g. FRIDKIN et al. 2015) conclude that exposure to fact-checking can reduce misinformation, other results (e.g. GARRETT–WEEKS 2013) find null effects, while, for example, Nyhan and Reifler (2010) find boomerang effects. In this sense, the efficacy of this activity is still under debate within the scientific community, but the general agreement tends to be limited but significant effectiveness (ECKER et al. 2019; WALTER et al. 2020; BODE–VRAGA 2018). It is also important to keep in mind the multiple cognitive reasons that prevent fact-checking from working in some cases (LEWANDOWSKY et al. 2012), including the determinant role of source credibility (BODE–VRAGA 2018; VRAGA–BODE 2017). Anyhow, fact-checking tends to work better when matching the existing believes of the person exposed to it, although some research hints that Republicans in the U.S. tend to have more hostile feelings towards fact-checking (SHIN–THORSON 2017).

To be effective and credible, fact-checking organisations must be non-partisan, transparent and independent. These organisations should be distinguished from other agencies by their exclusive focus on factual statements made by major political players in debates, speeches, interviews and press releases, limiting the issues to claims that can be definitively proven or disproven (AMAZEEN 2016). Thus, it is unsurprising that organisations such as PolitiFact, FactCheck.org and The Fact Checker agree and come to very similar verdicts (AMAZEEN 2016). However, Marietta et al. (2015), who analysed the checks performed on FactCheck.org, PolitiFact and The Fact Checker, sometimes evidenced disagreement on the level of veracity of the information.

Fact-checkers have gained professional prestige (GRAVES–CHERUBINI 2016), but their credibility and non-partisan nature could still make their judgment more influential and their pronouncements more effective, especially in cases where there is much conflicting information and social polarisation. Despite this expectation of a substantial fact-checker effect, it is naïve to suggest that mere exposure to truthful information

can shape beliefs in a post-truth context and in highly polarised political environments, where the notion of objectivity and impartiality is constantly challenged (ROMERO-RODRÍGUEZ et al. 2023).

Understanding this situation, the International Factchecking Network (IFCN) was born in 2016 to give more credibility to fact-checkers. Before including a fact-checker, it evaluates its commitments to balance and non-politicisation, to the transparency of sources, to the transparency of funding, organisation and links, to the methodology used, and, finally, to honesty and rectification. Also, with the rise of artificial intelligence, some researchers, such as Hansen et al. (2019), expose the existence of tools that can automatically identify verifiable claims and even establish a ranking of phrases worthy of being verified, which today are used by many social media platforms to limit the dissemination of fake news.

Fact-checkers in Spain

Most research on fact-checkers has focused on the United States (GRAVES–CHERUBINI 2016). On Spanish-language fact-checking, researchers have investigated the Spanish-language fact-checking platforms that the Duke Reporters' Lab included in 2018 in its database (VIZOSO–VÁZQUEZ HERRERO 2018), as well as nine Spanish-language initiatives that have emerged since 2010 in half a dozen Latin American countries (PALAU-SAMPIO 2018).

One relevant work that should be studied here is López-Pan and Rodríguez-Rodríguez (2019), who identified and analysed fact-checking websites in Spain, complemented by interviews with journalists who have carried out fact-checking initiatives. They did this work guided by a primordial list provided by the research of Ufarte-Ruiz et al. (2018). In this work, López-Pan and Rodríguez-Rodríguez classify Spanish fact-checkers in the three typologies described by Graves (2016): a) promoted by civil society; b) linked to the media; and c) independent journalistic websites. Within this third group, we can find Verificat, Newtral and Maldita.es. Together with EFE Verifica and AFP, these three are associated with news agencies, the most relevant platforms nowadays, and they are signatories of the IFCN principles.

Setting of the study

Beyond their fact-checking activity, these platforms offer the best approximation to the state of misinformation in Spain. Given that they follow the principles of "viralization" – the spread of contents – and danger – potential risks for people or coexistence – their activity reflects the most relevant hoaxes and fake news that have gained presence at a certain point. With that perspective, several studies have used the activity of fact-checking platforms as an approximation to study disinformation patterns (MOLINA CAÑABATE – MAGALLÓN ROSA 2018; SALAVERRÍA et al. 2020; GUTIÉRREZ-COBA et al.

2020; López-García et al. 2021). Our article has adopted a similar approach to the one used in these works.

These works have focused on specific issues surrounded by misinformation, but the academic efforts to systematically address the general activity of a fact-checker to understand the features of misinformation are more limited. Although research on disinformation has been fruitful and abundant in the past years, this means a knowledge gap because a broad and general understanding of fact-checking and disinformation is essential for developing more efficient strategies to counter and fight this phenomenon. In particular, it is essential to identify the topics, who and where are spreading them, and how the fact-checkers tackle them. In this vein, our study has one main goal: to identify the patterns followed by disinformation in Spain.

A key element when analysing a phenomenon is understanding the themes on which it revolves. Regarding misinformation in Spain, there have been works focused on health, very frequent during the pandemic (Salaverría et al. 2020), on climate change (Fernández-Castrillo–Magallón-Rosa 2023) or on migration (Narváez-Llinares–Pérez-Rufi 2022). But these works do not allow us to evaluate which themes are predominant in general terms. The works of Almansa-Martínez et al. (2022) or Gamir-Ríos and Tarullo (2022), with a methodology similar to the one that will be used here, were able to establish comparisons, finding a notable predominance of misinformation about health, especially in the context of the Covid-19 pandemic. Covid-19, followed by political aspects. However, these are works focused on the pandemic period, so it is necessary to obtain a broader vision of misinformation in Spain. Thus, the first research question is posed:

RQ1: What are the predominant topics of the hoaxes debunked by Maldita.es in 2022?

The study of Blanco-Herrero et al. (2021) identified the perceptions of citizens about the responsible actors, but this does not necessarily match reality. The aforementioned works by Almansa-Martínez et al. (2022) or Gamir-Ríos and Tarullo (2022), in the context of the pandemic, found that the creators of hoaxes tend to be anonymous, with a significant presence of media or political actors. But, again, there are no studies that, in a comparative way, have examined a larger period of time to identify the actors that cause disinformation to proliferate in Spain. To delve deeper into this aspect the following research question is posed:

RQ2: Who is responsible for the creation and spread of the hoaxes debunked by Maldita.es in 2022?

Finally, understanding through which platforms disinformation is spread is essential to designing strategies to combat it and its effects. And this cannot be understood without also addressing the formats used, as they are strongly connected to the platform – e.g. text is more common on Twitter or Facebook, whereas video is predominant on TikTok, and pictures on Instagram. In fact, research on disinformation has predominantly focused on platforms such as Facebook (Allcott–Gentzkow 2017; Farkas et al. 2018) or Twitter (Grinberg et al. 2019), although others such as YouTube (Calvo et al. 2022), WhatsApp (Moreno-Castro et al. 2021), TikTok (Alonso-López et al. 2021) or Telegram (Rogers

2020) have gained relevance in recent years. At the same time, misinformation has been studied primarily as a textual problem, but aspects such as deepfakes and images generated by AI (Yang et al. 2019; Zhang et al. 2019) are also adding new dimensions to the problem. Thus, the following research question is posed:

RQ3: In what formats and platforms do the hoaxes debunked by Maldita.es in 2022 usually spread?

Materials and method

To answer these questions, we have conducted a quantitative content analysis of 729 hoaxes debunked in 2022 by Maldito Bulo, the debunking branch of Maldita.es. The choice of Maldita.es as our object of study is explained by the fact that the studies focusing on fact-checking activities in Spain, such as those mentioned in the previous section, have used mostly Maldita.es as a reference (Fernández-Castrillo–Magallón-Rosa 2023; Narváez-Llinares–Pérez-Rufi 2022), although sometimes together with Newtral (López-García et al. 2021), the other main fact-checking agency in Spain. Together with the ease of access to the content (https://maldita.es/malditobulo/), the reasons for this choice are the fact that this is the most popular platform in terms of users or followers in social media (for instance, as of late September 2023, Maldito Bulo has 295.2 thousand followers on X, whereas Newtral has 198.4 thousand) as well as the most active (it accumulates the longest and oldest collection of debunks in Spain). Moreover, the focus will be on 2022, in which disinformation campaigns have been especially active after the Russian invasion of Ukraine, but also given the continuation of issues related to the Covid-19 pandemic and vaccination campaigns as other aspects related to politics or social issues.

All the articles, including explanations, reports, or phishing warnings, were removed, focusing the study only on debunks. Maldito Bulo offers three levels of verifications: Bulo (Hoax), verifiably false content; No hay pruebas (No proofs), content spreading misinformation, for which no independent sources exist as to claim their official falsehood; and ¿Qué sabemos? (What do we know?), for disputed content or information that cannot be classified as false but that could be used for disinformation purposes. Those verifications belonging to this last group were removed, as there is no certainty about their falsehood. Furthermore, fake news and hoaxes are often recurrent, and the same content might become popular over and over, which is why fact-checkers sometimes publish the same debunk several times, sometimes even more than once in the same year; thus, repeated debunks were also removed from the study. The links to the 729 analysed content can be found in the following folder of the OSF (https://osf.io/fd57a/?view_only=b42ffc9785ba464382e5322a6a550af5).

The links were collected in January 2023, the classification took place between January and March 2023. Two previously trained coders made this classification. To ensure the reliability of the classification, 79 cases (>10% of the sample) were double-coded. Then, using the Kalpha macro for SPSS (Hayes–Krippendorff 2007), we calculated Krippendorff's alpha, achieving an average value of 0.86, with all cases showing an

agreement over 0.65, which can be considered satisfactory (Neuendorf 2002). Although the codebook had more variables, the ones used for this research are described next. Except the second variable, which was designed ad-hoc, the categories in each variable were based on a preliminary review of the information that was provided in each debunk, on previous works (Almansa-Martínez et al. 2022; Blanco-Herrero et al. 2021; Gamir-Ríos–Tarullo 2022) and on the discussion with experts in the field during the validation process. The information has always been collected from the explanation provided within the debunk, which usually adds specific data about who, where and how the false information has started or spread.

- The main topic of the debunked information. More than one option was possible, but its presence had to be relevant for a topic to be chosen: Politics (focused on parliamentary activity or on the activity of politicians); Social (including education, crime or coexistence-related topics); Economy (business, employment, international economy, etc.); Science and technology (scientific discoveries, climate, new technologies; excluding health-related scientific elements); Health (vaccines, warnings, health tips, etc., including everything related to Covid-19); Others (miscellaneous for everything not included in the other topics).
- Scope of the debunked information. Only one option was possible between: Exclusively Spanish; mostly Spanish, with references to other countries; mostly international, with mentions to Spain; exclusively international or undetermined.
- Category of the person or institution originating debunked information. Except when selecting the last one, more than one option was possible: Political personality or party; news media or journalist; public figure; organisation or company; fake profile that supersedes a real person or institution; parody or satiric media or profiles; another type of profile in social media; not identified.
- Category of the person or institution participating in the spread of debunked information. Except when selecting the last one, more than one option was possible: Political personality or party; news media or journalist; public figure; organisation or company; fake profile that supersedes a real person or institution; parody or satiric media or profiles; another type of profile in social media; not identified.
- Format of the debunked information. More than one option was possible, as long as it referred to the hoax or misinformation itself and not to the messages spreading it: Textual; headline of news piece; WhatsApp or similar chain; image or meme; audio or video; interview, press conference or other forms of public declaration produced outside of digital platforms.
- The social media platforms in which the debunked content has been spread. Except when the first or the second options were selected, more than one option was possible: Not spread in social media; spread in social media, but no specific one is mentioned; Facebook; Twitter; Instagram; YouTube; LinkedIn; Telegram; TikTok; WhatsApp; others.

Regarding the actors responsible for the creation and spread of this false information, it is important to keep in mind that the policy of Maldito Bulo is to hide the identity of accounts participating in the spread of fake content when they do not belong to famous groups or people. On some occasions, even if the account is blurred in the main image of the debunk (see Figure 1), it might be visible later in the article, thus making it possible to identify it. A further search of the debunked content could have allowed the identification of specific accounts involved in spreading or creating fake news. However, this does not bring relevant knowledge, given that this activity, especially the sharing one, is unintentional on many occasions, and not much can be done to identify a person who once shared fake content.

Figure 1: Example of an image of a debunk in which the names and handles of the users spreading a hoax have been blurred
Source: Maldito Bulo (https://maldita.es/feminismo/20220317/charlas-feministas-presupuesto-20000-millones-igualdad/).

Results

Before addressing the results, it should be noted that 95.5% (n = 696) of the debunks were addressing hoaxes, whereas the other 4.5% (n = 33) were debunking misinformation without proof. The debunked content was either exclusively international (40.3% of the debunks) or exclusively national (38.4%). Although the activity of these fact-checkers tends to have a national approach and the exclusively national topics tend to be predominant; during 2022, the importance of international events, such as the Russian invasion of Ukraine, the death of Queen Elizabeth II or the World Football Championship in Qatar, have attracted significant attention. Moreover, this group includes all messages spread without specific mentions to any particular country, such as fake cures against cancer or antivaccination conspiracies.

Focusing now on the first RQ of the study, we can see that the most common topic is related to Social issues, present in 40.7% (n = 297) of the debunks. This includes hoaxes about specific social groups, coexistence, crime, or education. Secondly, 37.2% (n = 271) of the debunked content focused on Politics, including attacks on politicians or political parties or false information about the parliamentary activity. This topic is frequently interconnected with political polarisation and is often transversally present in other topics, as many phenomena are blamed on or used to attack the government or the opposition. For example, a hoax about passing a Law for trans people would be classified simultaneously as Social issues and Politics, whereas a hoax claiming that trans people are responsible for a crime would be only considered a Social issue.

Then the category *others* appears, with 21.0% (n = 153) of the cases. Although this was designed as a marginal category, its design took place before the war in Ukraine, and while some content related to the war might fall within politics (for instance, hoaxes related to Vladimir Putin or Volodymyr Zelensky), others were included in the miscellaneous category given their particularities and their independence from politics (for instance, number of victims or location of an attack). This category includes sports-related content, extensively present during the FIFA Soccer World Cup between November and December 2022. Afterward, Health was present in 11.5% (n = 84) of the debunks, frequently associated with the pandemic or vaccination. Economy and Science and Technology (5.3 and 5.2%, respectively) were the least frequent groups. Figure 2 visually shows these values:
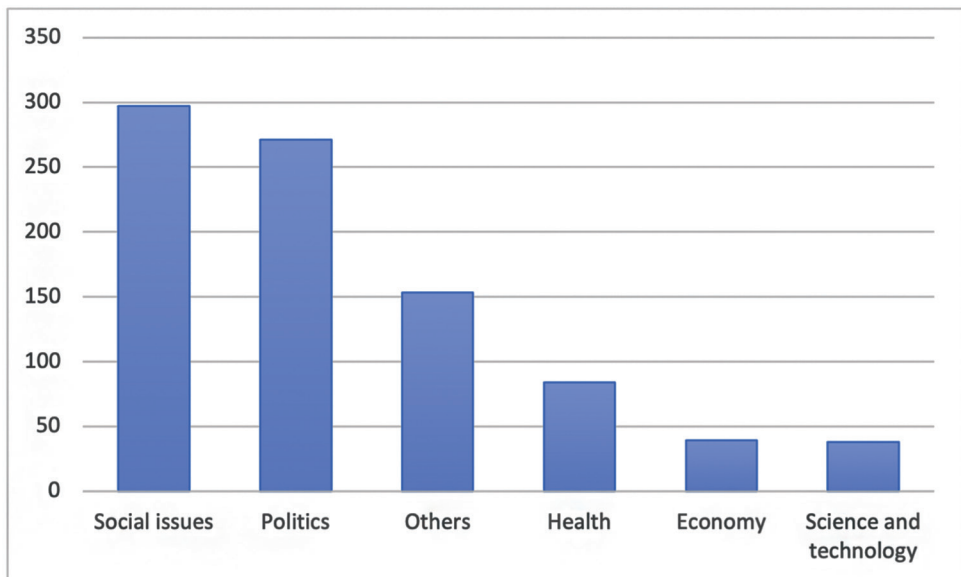

Figure 2: Main topics identified in the false information debunked by Maldito Bulo in 2022
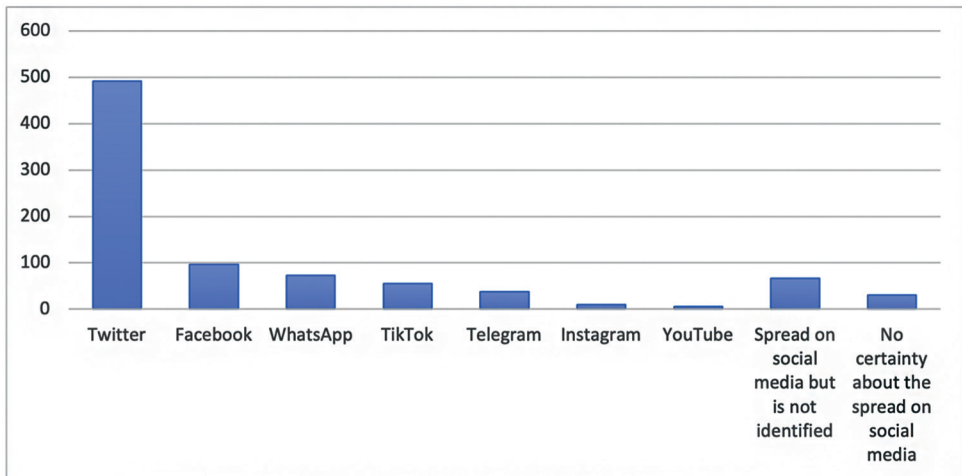*Source:* Compiled by the authors.

The second research question wondered who is responsible for creating and spreading fake content. Table 1 shows more in detail that in most cases, the identity of those creating or spreading fake information is unknown or, at least, not shared in the debunk. When the identity is known, the most frequent actors are some social media accounts and news media and journalists, although in both cases, there are pseudo-media or pseudo-journalists with very partisan or ideologically motivated agendas behind them.

Table 1: Actors behind the spread of false information debunked by Maldito Bulo in 2022

| Entity	Creator	Spreader
Political personality or party	7 (1.0%)	6 (0.8%)
News media or journalist	67 (9.2%)	27 (3.7%)
Public figure	4 (0.5%)	3 (0.4%)
Organisation or company	–	–
Fake profile that supersedes a real person or institution	42 (5.8%)	–
Parody or satiric media or profiles	34 (4.7%)	–
Another type of profile in social media	90 (12.3%)	96 (13.2%)
Not identified	487 (66.8%)	592 (81.2%)

Source: Compiled by the authors.

The third research question relates to more features of the hoaxes and debunked information. First, regarding the format, we see the predominance of text in 63.0% (n = 459) of the cases. In 32.2% (n = 235) of the cases, an image or meme was used, while in 27.2% (n = 198), there was a video or audio. Less frequent were the news or headlines (8.4%; n = 61), WhatsApp or similar chains (5.2%; n = 38), and other non-digital formats (0.4%; n = 3). These values can be seen with more detail in Figure 3.

Figure 3: Social media in which false information debunked by Maldito Bulo in 2022 spread
Source: Compiled by the authors.

As mentioned in the methodology description, more than one format could be present. Thus, one common combination was using text to interpret images or videos; in many cases, the text was falsely describing the audiovisual content or making fake claims about it. For instance, a text falsely claiming that the person participating in a violent attack shown in a video is a political leader; another alternative could include deep fakes or visual modifications of the audiovisual content that makes the textual interpretation redundant.

Secondly, it is also possible to study on what social media platforms the fake content was spread, thus identifying where the efforts to fight misinformation should focus. The most present social media was Twitter, with 67.4% (n = 491) of the cases. The following platforms are far: Facebook reaches 13.2% (n = 96); WhatsApp reaches 10.0% (n = 73); TikTok, 7.5% (n = 55); Telegram, 5.2% (n = 38); Instagram, 1.4% (n = 10), and YouTube is present in 0.8% (n = 6) of the cases. In 9.1% (n = 66) of the cases, the content spread in social media, but none are identified, and in 4.1% (n = 30), there is no certainty about whether the debunked information spread in social media. Figure 4 shows these values.
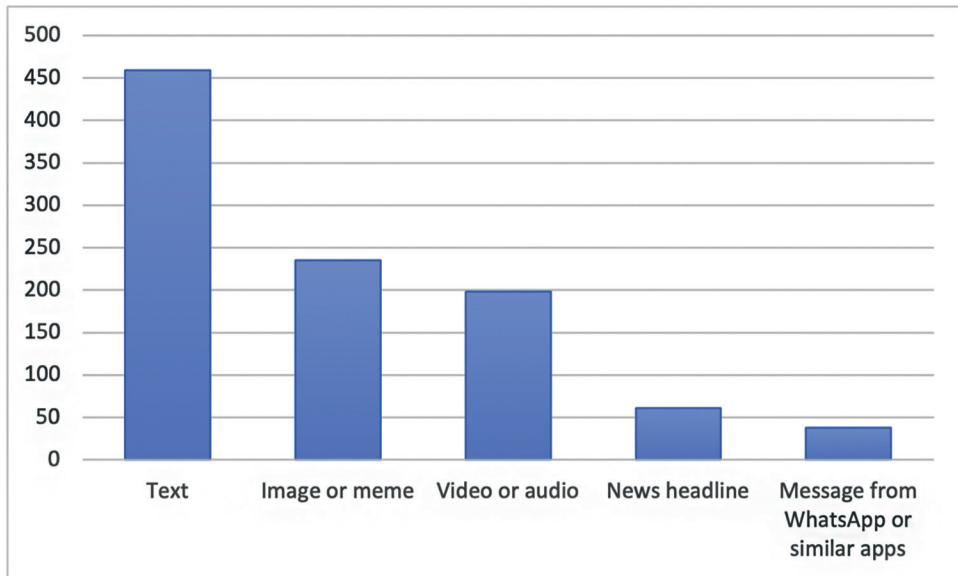
Figure 4: Formats of the false information debunked by Maldito Bulo in 2022
Source: Compiled by the authors.

Conclusions and discussion

Studying the features of disinformation is an essential step to address it more efficiently and effectively. Our article has attempted to offer more details on the topics, actors and platforms involved most present among the fake content debunked in 2022 by one of the leading Spanish fact-checkers.

The first observation, related to the predominance of social issues, has important implications, given that the specific issues included within this topic are related to coexistence and have a closer connection to issues that directly affect citizens. Of particular relevance is the potential role of disinformation in spreading hate speech (Evolvi 2018; Grambo 2019), which can be seen in the many debunks including attacks on social groups such as immigrants: a post-hoc test showed that up to 57.6% of all the debunks could have been used to spread hate, something even more common within the category of social issues, as it includes some of the associations – social burden, criminality, symbolic threat (Amores 2022) – most common against vulnerable groups such as migrants and refugees. The presence of many hoaxes spreading hate speech can be partly explained by the fact that one of the reasons motivating Maldito Bulo to debunk something is its danger for individuals and coexistence, and hate speech poses a grave danger for both; thus, false information spreading hate speech might be proportionally more present here than in real life. Nonetheless, given the particular challenges posed by disinformation spreading hated, rejection and extremist discourses (Schwarz–Holnburger 2019), it is important to pay attention to this connection.

Strongly related to that, the presence of political content is important because, although the hoaxes might not always spread hate speech, they contribute to the polarisation of society, especially in a context of growing affective polarisation (Iyengar et al. 2012), in which the political confrontation is not only guided by policy differences but by the belonging to a different group. This is also visible in the fact that many hoaxes have a transversal presence of political intolerance; for instance, in case of a message falsely accusing immigrants of crimes, the attack is not only aimed against them but also against the politicians that allow them to stay in Spain. It is also relevant to highlight that politics are less frequent than social issues when we study only the main topic, but they are transversally and underlyingly present in a large amount of the debunks, which connects with the great role of political misinformation already mentioned in the introduction (Vosoughi et al. 2018).

Regarding the actors responsible for the phenomenon of misinformation, some news media and journalists seem to be responsible for a significant proportion of the debunked information. It should be noted that the most frequent actors in this category are not well-established and traditional media or professionals but rather extremely partisan and pseudo-media, such as *Mediterráneo Digital, Alerta Digital* or the pseudo-journalist Alvise Pérez. The agenda and misinformation strategies of this type of actors have already been studied in the past (Palau-Sampio–Carratalá 2022) and should be differentiated from the role of real news media. Moreover, real news media are sometimes superseded by fake social media accounts, replicating their logo and name so that some content can be spread as if this news medium had been responsible for it, making it more believable or making this media less reliable. Thus, together with fighting these pseudo-journalists, the actual dimension of the responsibility of real journalists and news media needs to be further researched (Bakir–McStay 2018). It is also important to keep in mind that a large proportion of the debunked information circulated without a clear origin and thanks to the spreading activity of regular citizens, which are sometimes unaware of the

consequences of their actions. Focusing on specific actions is important, but a deeper understanding of the sharing patterns of those citizens will be also necessary in future research.

Finally, citizens consider that not only journalists and media are behind the creation and spread of fake news, but also politicians and political parties (Blanco-Herrero et al. 2021). This does not seem to be the case here, and their presence has been marginal in the debunks conducted in 2022 by Maldito Bulo, although long-term studies might be able to analyse whether this remains stable in other periods of time.

Regarding the format and platforms, there is a clear predominance of text and Twitter, respectively. One possible explanation for this is the fact that, although Twitter allows the use of other audiovisual elements, the text is still the most prevalent format, so it makes sense that, given the predominance of Twitter, the text is also very present. Another reason for the strong presence of text was already mentioned in the Results section, where it was mentioned that many audiovisual contents were accompanied by a textual interpretation that introduced false claims about what is depicted. Given the current advances in audiovisual forms of misinformation, including deepfakes and AI-based techniques, future studies will need to continue exploring formats, as it could be expected that text might lose relevance compared to these formats.

More challenging to explain is the strong predominance of Twitter. Some studies have pointed out that disinformation on Twitter was growing (Allcott et al. 2019), and there are claims that the fight against misinformation on Twitter has declined since the acquisition of Twitter –now X – by Elon Musk by October 2022 (Hickey et al. 2023; Smalley 2023), leading to a lack of compliance of the platform with the 2022 Code of Practice on Disinformation (Goujard 2023). These changes are, however, too recent and it is expected that the predominance of Twitter is rather explained by the focus on this platform by the fact-checkers than by its greater presence of misinformation. Determine the platform with most cases of false information is not part of this study, and future works will need to specifically address this.

However, the difference in the presence of debunks between Twitter and other social media platforms is too big to be explained by these factors. The main reason behind this is how Maldito Bulo conducts its research: they usually show some examples of messages spreading the debunked hoax; these examples do not pretend to reflect all the discussion around the topic but just to illustrate it, and these examples are usually tweets. Here it should be highlighted that fact-checkers do not seek to offer a complete image of the disinformation scenario but to verify or debunk specific scenarios. Accordingly, the use of tweets is reasonable, given the clarity and ease of access to this content, but this could also lead citizens to believe that Twitter is the primary source of fake news (Blanco-Herrero et al. 2021), while other platforms might be ignored.

Finally, it should be explained that the use of Maldito Bulo as a reference had a double intention: the study of the most relevant disinformation spread in Spain during 2022 and the study of the fact-checking activity of this organisation. Although this offers a complete approach to the research, it also poses a limitation by itself because the goal of these institutions is not to make a complete collection of the disinformation present

in a society over a period or to analyse this false information but to verify some cases of potentially false contents and to debunk them when they are fake. The debunks offer information about the debunked false information, and they can be used as an approximation to the otherwise immeasurable phenomenon of disinformation, but the biases of the fact-checker might affect the global perspective over disinformation. This could have been observed before when the significant predominance of Twitter was discussed.

It is also important to remember that fact-checkers cannot – and do not claim to – debunk all the fake news out there, and their perception of danger and virality, although validated by the IFCN, might not be generalisable for the whole society. For example, it has not been a subject of the study. However, there has been a more significant presence of debunks of content coming from what could be considered the political right: it will be a matter of future studies to determine whether the spread of fake content is more common among the right, as some international studies have hinted (Guess et al. 2019; Grinberg et al. 2019), or if the agenda and bias of the fact-checker are playing a role here.

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