Disinformation narratives in Spain: reach, impact and spreading patterns

Jaume Suau; David Puertas-Graell

Jaume Suau ✉
https://orcid.org/0000-0003-4480-4441

Universitat Ramon Llull
Facultat de Comunicació i Relacions
Internacionals Blanquerna
Plaça Joan Coromines, s/n
08001 Barcelona, Spain
jaumesm@blanquerna.url.edu

David Puertas-Graell
https://orcid.org/0000-0003-0484-3526

Universitat Ramon Llull
Facultat de Comunicació i Relacions
Internacionals Blanquerna
Plaça Joan Coromines, s/n
08001 Barcelona, Spain
davidpg5@blanquerna.url.edu

Abstract

We present data from a survey conducted in Spain (*N* = 1003) in March 2022. We analysed fact-checker activity to obtain daily information regarding disinformation content encountered in the three weeks before the survey was launched. The research team analysed the material found to identify content that was related or that belonged to similar narratives. The goal was to identify the key disinformation narratives that were spreading before the survey, rather than just isolated content, to test the reach and impact of disinformation narratives, as well as spreading patterns, through survey research. Results point towards the fact that disinformation narratives were spread among a majority of respondents, with TV and social media being the main media responsible for spreading them. In addition, those that received the narratives before were more likely to believe them, indicating the disinformation narratives' potential high impact.

1. Introduction

The study of the real impact of disinformation in our societies is a complex endeavour. Foreign-sponsored misleading content and anonymous bots and social media profiles mix with domestic actors and content creators, who seem to always be one step ahead of fact-checkers and automated countermeasures (**Almenar** *et al*., 2022). Election times, or relevant current issues such as covid-19 pandemic or the Russian invasion of Ukraine, trigger alarms about the vast array of content created to mislead the public. Scandals such as *Cambridge Analytica* or proven involvement of Russian operators in USA elections showed how disinformation campaigns are aimed at diminishing societal trust and reinforce pre-existing societal cleavages (**Colley**; **Granelli**; **Althius**, 2020; **Casero**-**Ripolles**; **Doménech**-**Fabregat**; **Alonso**-**Muñoz**, 2023). This also involves news media, who sometimes act, willingly or not, as amplifiers of such narratives (**Waisbord**, 2018). Consequently, news media, which have been absorbed by the attention economy (**Wu**, 2020) and are currently in search of successful business models (**Newman** *et al*., 2022), contribute to said diffusion by utilising techniques associated with sensationalism that increase the effectiveness of misinformation disseminated (**Staender** *et al*., 2021). Moreover, the role of the audience in disinformation spreading patterns needs to be also taken into account. As "unwilling crowds" (**Starbird**; **Arif**; **Wilson**, 2019) audiences not just passively consume misleading content, but share it, reshape it into a different format, or comment on it, contributing to its dissemination. Previous research has found, precisely, that the goal of disinformation campaigns is to move beyond like-minded audiences to reach broader publics, through multiple kinds of content and spreading strategies, continuously through time and aiming at social reproduction and remediation (**Wilson**; **Starbird**, 2020; **Flore**, 2020). Hence, as stated by Starbird, Arif and Wilson,

> "evaluating disinformation is less about the truth value of one or more pieces of information and more about how those pieces fit together to serve a particular purpose" (**Starbird**; **Arif**; **Wilson**, 2019, p. 3).

Taking this into consideration, our goal is to analyse the impact of disinformation in Spain from a holistic point of view. We will focus our attention on disinformation narratives, understanding narratives as a group or collective of content that refers to the same idea or story, based on current societal polarised issues, with a moral base that plays with emotions through a certain degree of plausibility (**Dawson**, 2021). Previous studies have focused on the capacity of organised disinformation campaigns to increase societal polarisation and distrust (**Colley**; **Granelli**; **Althuis**, 2020) through the use of narratives (**Weinberg**; **Dawson**, 2021). Such narratives are designed to target specific societal groups or audiences, with content designed for them and spread through different platforms (**Dawson**, 2021). However, the ultimate goal of disinformation campaigns is not just to reach these specific publics, but to get to broader audiences. To do so, the common strategy is to play with emotions and polarising or divisive political topics (**Bánkuty-Balogh**, 2021), increasing visibility and spreadability, ensuring that common audiences become unaware collaborators in the spread of misleading content (**Bastos**; **Mercea**, 2018). Here it is key that the narratives have a certain degree of plausibility or credibility. At least, some part of true facts that can be traced or accepted, which increases their chances of being accepted by a broader audience (**Starbird**; **Arif**; **Wilson**, 2019).

Hence, we will not focus on specific content or stories shared in a particular platform, but rather, on how these pieces fit together to "build narratives". Around any given narrative or core idea multiple different related content exist, originally created as part of a disinformation campaign, or remediated and spread by anonymous citizens or amplified by news media or political actors. A single piece of content can be easily forgotten. However, the underlying narrative is more likely to be remembered, and therefore, easier to be tracked and researched. More specifically, we are interested in researching the reach (understood as the spread of such content among a certain audience) and impact (the capacity of content to pass as true and therefore, mislead those who receive it) of disinformation narratives, together with their spreading patterns. In the theoretical background section we will develop these concepts more in-depth, explaining also the hypothesis that will guide our research. In the methodology section it will be introduced how disinformation narratives were identified, together with how our survey has been designed. The results and discussion sections will show our main findings and relate them with previous literature in the field.

2. Defining reach and impact of disinformation narratives

With already some years of existence, the field of disinformation research has seen some papers that attempt to summarise the main findings and trends in the field (**Jankowski**, 2018; **Kapantai** *et al.*, 2021; **García-Marín**; **Salvat-Martinrey**, 2022; **Pérez-Escolar**; **Lilleker**; **Tapia-Frade**, 2023). At an initial stage, the concept that dominated the field was *fake news*, rather than disinformation. However, as the concept was used in political discussion to blame non-aligned news media, it became more an example of societal struggles to hegemonise reality rather than a useful academic construct that might guide empirical research (**Farkas**; **Schou**, 2018). The field now uses the broadly accepted concept of disinformation, referring to false or misleading information that is deliberately spread through multiple platforms to deceive or manipulate public opinion. **Wardle** and **Derakhshan** (2017) include it in the typology of information disorders, based on the motives behind the creation or spread of such content. It divides between mis-, dis- and mal- information, being the first one when false information is shared without intention, the second when false content is shared intentionally and, the third, when genuine information is spread with the intention to cause harm. As **Kapantai** *et al.* (2021) argue, the field of disinformation studies can be classified according to two main areas of research: i) studies that conduct research on the extent or degree of dissemination of disinformation and ii) studies that are more interested in the effects or impact of disinformation content. It can be added here a third area of research, gathering studies that focus on the remedies or strategies focused on countering or mitigating the effects of disinformation. Here we will find research that focuses on how media literacy helps to identify misleading information (**Amazeen**; **Bucy**, 2019; **Vraga**; **Bode**; **Tully**, 2022; **Sádaba**; **Salaverría**, 2023) or the effects of fact checking institutions, with interesting results about the capacity of fact-checks to shape factual beliefs, but having minimal effects on candidates evaluations despite proven falsehoods (**Nyhan** *et al.*, 2020). This is an area of promising research, as different authors have proven the capacity of citizens to identify misleading content once exposed to fact checks, although partisan motivated reasoning, cognitive bias and well established political beliefs seems to be still of high relevance (**Hameleers**, 2020; **Freiling** *et al.*, 2021). Furthermore, more recently in this third area of research it can be included also research that focuses on regulatory and self-regulatory mechanisms, as national governments and EU start to adopt regulations to counter disinformation, especially in relation with online platforms (**Espaliú-Berdud**, 2022; **Napoli**, 2019). However, despite its relevance, in this research we will focus on the aforementioned two main areas (the extent or degree of disinformation dissemination and its effects or impact), due their stronger relation with our research goals.

2.1. Reach of disinformation

An analysis of previous research shows that to study the dissemination of disinformation content has been a main concern since early years. This has even given rise to what some authors have called "misinformation on misinformation" (**Altay**; **Berriche**; **Acerbi**, 2023). That is, how narratives about online misinformation continue to gain traction despite evidence that its prevalence and impact are overstated. Previous research has mostly focused on the propagation of disinformation on social media, with a special focus on *Twitter* and, to lesser extent, *Facebook*. These kinds of studies focus generally on one single social media, researching the dissemination of a certain content or story. Different studies have shown how false content spreads faster and deeper than truth or verified information, especially if the content on *Twitter* is related to political issues (**Vosoughi**; **Roy**; **Aral**, 2018). Furthermore, it seems common or ordinary citizens are

the ones responsible for the spread of false content on social media, rather than automated profiles or bots (**Brennen** *et al.*, 2020). Citizens tend to share content about public issues that they consider more likely to be true or that relates with pre-existing attitudes or particularly strong beliefs (**Buchanan**, 2020), preferably among like-minded peers rather than through open platforms in which anyone can see, and reply (**Das**; **Schroder**, 2020; **Suau**, 2015). Content directly identified (correctly or not) as untrue or of dubious nature is less likely to be shared or interacted with (**Tandoc**; **Lim**; **Ling**, 2020). Hence, disinformation has a certain participatory nature: instead of passive receivers or consumers of disinformation content, audiences have an important position in the spread of such content (**Wilson**; **Starbird**, 2020; **Wanless**; **Berk**, 2021). As **Starbird**, **Arif** and **Wilson** (2019) define, audiences act as "unwilling crowds", sharing, commenting or even remaking into a different format those contents that are related with stronger emotions or beliefs.

Furthermore, even in highly polarised scenarios such as the US elections Russian-sponsored accounts on *Facebook* and *Twitter*, despite publishing great amounts of content, hardly managed to reach general audiences (**Spangher** *et al.* 2018; **Zannettou** *et al.*, 2019). **Arce**-**García**, **Said**-**Hung** and **Mottareale** (2022) found similar results in Spain when studying astroturfing strategies of covid-related disinformation dissemination in *Twitter*, concluding that reach of such content was low among the overall population. Astroturfing –*Astroturf* company sells artificial grass for sports fame avenues– is not limited to what happens online. However, it is currently used to describe situations where certain users or bots act in an organised manner. These users are generally presented anonymously on social networks, appear to have no connection with one another, and followed by a small number of individuals. All of these factors are connected in a way that give credibility to the idea that public opinion has generated a movement. This type of circumstance occurs preferably in a political context, implying the emergence of more specific concepts such as political astroturfing (**Howard**, 2006; **Walker**, 2014),

> "a campaign in which participants appear to be part of a genuine grassroots movement or sentiment, while it is in fact orchestrated centrally and top down" (**Kellet** *et al.*, 2019, p. 1).

This common type of manipulative behaviour that creates additional problems for social media platforms and the online environment in general (**Chan**, 2022) has been applied and associated with the spread of disinformation (**Cho** *et al.*, 2011; **Leiser**, 2016), as well as with its psychological effects (**Zerback**; **Töpfl**; **Knöpfle**, 2021).

Studies focused on the dissemination or spread of disinformation paid attention also to closed platforms. Due its technological affordances and popularity among the population of many countries, *WhatsApp* has been considered a fertile environment for disinformation to spread (**Chagas**, 2022; **Maros** *et al.*, 2020). Hence, it has been the focus of most of the research, despite the fact that its information is encrypted and therefore complexifies research on what users share. **Masip** *et al.* (2020) highlighted the role of *WhatsApp* as spreader of disinformation during confinement, although most citizens did not report in their survey high level exposure to disinformation. **Cardoso**, **Sepúlveda** and **Narciso** (2022) in a research about audio misinformation spread in *WhatsApp* also during Covid-19 pandemic noticed that sharing (and producing) misinformation occurs spontaneously, in relation with strong emotional attitudes towards certain topics or events. Hence, the conceptual model of dis/mis/mal information (**Wardle**, 2018) based on the intention to mislead might prove useful to assess some content with proven authorship, but complex to apply if we take into account the participatory nature of disinformation. Regarding formats of disinformation spread on *WhatsApp*, the research of **More-no**-**Castro** *et al.* (2021) shows that during Covid-19 pandemic in Spain audio, images and videos were similarly relevant (30% of found content each), with texts threads having some more relevance in terms of numbers (around 39%). In their research focused on two different political events in Brazil, **Resende** *et al.* (2019) found a predominance of images as the most common format, identifying also spreading patterns as most content on *WhatsApp* has been spotted previously on social media or other websites. Interestingly, their research also shows that disinformation content remains being shared on the platform for more than 4 days, spreading through different *WhatsApp* groups. Despite the relevance of previous research, it is still hard to assess the real dissemination of disinformation content spread through *WhatsApp* among the general population. Moreover, as disinformation becomes "participatory" and spread through social media and messaging apps it is necessary to consider the extent to which this kind of content may reach different societal groups. Recent research discusses the existence or not of the echo-chamber effect, which states that due selective exposure and attention citizens tend to be exposed, especially on social media platforms, to ideologically aligned content (**Masip**; **Suau**; **Ruiz**-**Caballero**, 2020; **Cardenal** *et al.*, 2019). Furthermore, confirming, even if at least partially, the echo-chamber theory, previous research found that fact checks are generally spread among similar audiences, hardly reaching those most likely to be convinced about misleading information (**Hameleers**; **Van**-**der**-**Meer**, 2019; **Shin**; **Thorson**, 2017).

Although social media and messaging apps focused most of the attention of studies aimed at assessing the dissemination of disinformation, relevant research has been done also on tabloid or highly polarised news media outlets. For example, **Chadwick**, **Vaccari** and **O'Loughlin** (2018) found that readers of tabloid press were more likely to disseminate misleading content. Other research has focused on websites labelled as fake news producers, finding that its relevance in terms of daily users or penetration in society is scarce. In the US, **Guess**, **Nyhan** and **Reifler** (2020) argue that sharing from websites identified as producers of fake news was relatively scarce in 2016, being more likely between citizens 65 or older and among right-wing ideology and/or pro-republican party. Studies conducted in different countries show that such spaces, even including their social media presence, gather just between 0.15 to 6% of the population (**Grinberg** *et al.*, 2019; **Allen** *et al.*, 2020; **Fletcher**; **Nielsen**, 2018). Particularly interesting is the findings of **Allen** *et al.* (2020), which indicate that in the US disinformation spread from TV is highly more relevant than in social media, although the focus

here is mostly still on hyper partisan news. It is precisely the role of traditional news media in the spread of disinformation which is still less understood and researched (**Tsfati** *et al*., 2020). Few attention has been given to the possibility that traditional news media outlets may also be producers of disinformation. However, their amplifying effect has been widely researched (**Phillips**, 2018): as news media have to cover speeches and declarations of political leaders, is inevitable that news media end up contributing to the spread of disinformation and even conspiracy theories, even if they report with clear warnings, corrections and red flags (**Lewandowsky** *et al*., 2012; **Walter** *et al*., 2020; **Waisbord**, 2018).

At this point, it is relevant to highlight that in our country of study, Spain, TV has an important relevance as a source of news, still higher than social media, while print and radio news reach around a quarter of the population (*AIMC*, 2022; **Newman** *et al*., 2022). Hence, our study of the spread of disinformation narratives needs to take into account also more traditional formats of news media consumption, such as TV, radio and press, to test the spread and impact of disinformation narratives. At the same time, it is necessary also to reflect on the lack of trust that Spanish citizens show on traditional media outlets. As shown in periodic studies (see here **Newman** *et al*., 2002, as well as previous *Digital News Reports*) trust on news has been declining since 2017. Despite generalised lack of media credibility and reliability, news media outlets, or legacy media, are showing still higher levels of trust than online media or online media platforms (**Fernández-Torres**; **Almansa-Martínez**; **Chamizo-Sánchez**, 2021; **Besalú**; **Pont-Sorribes**, 2021). However, research in Spain has shown that this generalised lack of trust, combined with political polarisation, creates a general perception of news media as disinformation producers. **Masip**, **Suau** and **Ruiz-Caballero** (2020) has shown how Spanish citizens clearly position news media outlets according to ideological positions. Furthermore, they tend to identify those news media identified as ideologically non-afine as disinformation producers, not as legitimate journalism, a pattern that repeats in different countries and that can be attributed to political polarisation (**Van-der-Linden**; **Panagopoulos**; **Roozenbek**, 2020).

As mentioned in the introduction, reach can be understood as the capacity of certain content to spread among the general population. Or, at the level of localised reach, the capacity of disinformation content to target specific audiences or subpopulations (**Allen** *et al*., 2020). Despite general concerns about the spread of disinformation, as shown in former paragraphs, studies that researched the reach of such content point precisely towards a situation of limited reach regarding the general population. Previous studies focused mostly on certain kinds of content on one social media platform. Although our approach is different, researching disinformation narratives rather than specific pieces of content, measuring reach in terms of the percentage of respondents who have heard about a certain narrative. Hence, basing on previous studies our first hypothesis will be as follows:

> H1: Disinformation narratives have limited reach among the public, with higher degrees depending on the polarisation nature of the narrative or its connection to political issues.

> H2: Disinformation narratives will be more spread through TV than digital media, with social media and messaging apps having also a predominant role.

However, the dissemination of disinformation narratives does not ensure their impact. Despite the growing body of literature on disinformation, we still do not fully understand the effects that the production and dissemination of such content has in society (**Zannetou** *et al*., 2019). Previous research provides different considerations of the concept of impact. Research based on elections time in different countries highlighted the capacity of disinformation campaigns to shape election results, which will be a proof of their impact (**Kazeem**, 2018; **Kapantai** *et al*., 2021). Other studies about public opinion stress the importance of disinformation in polarising society and contributing to extremism (**Müller**; **Schwarz**, 2020; **Bursztyn**; **González**; **Yanagizawa-Drott**, 2018). In Spain, a study by **Casero-Ripolles**, **Doménech-Fabregat** and **Alonso-Muñoz** (2023) based on citizens' self-reporting perceptions highlights the capacity of disinformation to shape citizens' positions and beliefs. Relevant here are other methodological approaches based on experiment design (**Richter**, 2017). Participants were shown video clips from *RT* and/or from *BBC*, to then test their opinions about the subject. Participants just exposed to *RT* content were more likely to express a negative opinion of Western policy and were even more likely to trust several fake narratives about Russian-speaking Ukrainians. As pointed out by **Starbird**, **Arif** and **Wilson** (2019) the body of literature on the impact of disinformation provides so far different results, as well as a varied selection of methodological approaches. The key aspect here is that, although it is possible that effects of disinformation content are lower than is perceived by the general public, it is plausible that these effects are in fact hard to measure, as it happened with more traditional formats of propaganda (**Bittman**, 1986). Effects are likely going beyond the impact of a certain content, being more acute when narratives are spread through time and in multiple formats. Hence, rather than individuals affected by a particular story on social media, what is more likely is that perceptions are shaped if exposed to a continuous flow of misleading information (**Katz**; **Lazarsfeld**; **Roper**, 2017; **Marwick**, 2018).

The idea that exposure may have an effect on attitudes, beliefs and political positions has been a long time present in communication studies (**Gilbert**; **Tafarodi**; **Malone**, 1993; **Nyhan**, 2020), highlighting also the potential effect of repetition and exposure through time to different formats about the same topic, disregarding how fake the content might be (**Fazio**, 2015; **Prior**, 2005; **Guess**; **Nyhan**; **Reifler**, 2020). As disinformation narratives are designed to attract attention and play with emotions and its contagion (**Kramer**; **Guillory**; **Hancock**, 2014; **Stieglitz**; **Dang-Xuan**, 2013) or current cleavages in society, they might be specially successful in shaping views and perceptions. As **Flore** (2020) points out, repetition increases the ease with which content is analysed and processed, which diminishes accuracy of heuristic mechanisms to assess its veracity.

Hence, we will assess the impact of disinformation narratives, measured in terms of how many respondents believe each narrative, with our third and fourth hypotheses:

H3: Those citizens that have received the narrative before are more likely to believe it than those that have never heard about it.

H4: The effect of "having received the narrative before" is similar in all narratives under study.

3. Methodology

Our methodological approach started with the identification of the most relevant disinformation narratives. We choose to study a three-weeks period, from February 14th to March 7th 2022. No elections at local, regional or national level took place during these weeks, which accomplished our goal to choose a time frame in which no particular relevant event happened, to test disinformation narratives out of elections or particular breaking events. To identify the narratives we used a methodology tested in a previous research at regional level during last Catalan elections (**Suau**, **Cruz** and **Yeste**, pending publication). This consists in studying the different material identified as disinformation by Spanish fact-checkers *Newtral*, *Maldita* and *Verificat*, based on the fact-checks published in their websites. The fourth week analysis was conducted on a daily basis, building an excel database that classified fact-checks according to key words and topics addressed. In total, 163 fact-checks have been collected. After the data collection process was concluded our goal was to cluster all content into disinformation narratives. The selection was shared with journalists from fact checker *Newtral*, so both research team and fact checkers could work on clustering the topics related to fact-checks into disinformation narratives. A team of two people from *Newtral* and two researchers worked separately to codify the collected fact-checks. Per each fact-check each team assigned gathered the following information into an excel file: i) a description of the disinformation content identified in the fact-check; ii) up to 6 keywords to resume it; iii) a statement summarising the narrative or idea that the disinformation content is referring to. The two excels were then shared between both teams, to make comments and analyse differences. This process took three days, so by March 10th both teams agreed on 6 main disinformation narratives. To choose the narratives, the following criteria were followed: i) Must be narratives that have been linked to more than one fact-check; ii) Must be narratives referred to national issues, as the survey wa to be distributed in all Spain; iii) Must be narratives related to content spread through multiple platforms. The narratives were then identified with a keyword and a description sentence (see table 1). The process has to be done in a short time period, as the main intention of our survey is to test disinformation narratives that are currently happening or that have spread just some days ago.

As Table 1 shows identified narratives are related to different topics. Not surprisingly, two of them (Ns 1 & 5) are related to covid-19 pandemic. Another one, about the war in Ukraine (N2). Despite their relevance, none of these topics is divisive in the sense that represents a certain political cleavage in Spain. Conversely, the rest are related to divisive political issues in current Spanish politics. N3 is related to immigration, while N4 to economy and party positions and N6 to the Catalan case, particularly relevant during recent years. As a conclusion, we expect narratives 3, 4 and 6 to be of a more polarising nature in terms of analysis of results.

Table 1. Identified disinformation narratives (originals in Spanish) (source: authors' own elaboration)

Number	Narrative	Code
1	Poland, Sweden and Norway have filed a lawsuit against the *World Health Organization* accusing it of infecting Europe.	Covid&WHO
2	Russia is surrounded by hundreds of *NATO* bases, of neighbouring countries just China and Mongolia have none.	Russia&NATO
3	Young immigrants can collect 450 rental assistance, 250 social bonus plus 200 for being immigrants. If they are "MENAS", up to a supplement of 1,125 euros.	MENAS
4	The labour law reform has been approved by a vote cast in error. As it is an error, it can be corrected and if the president of parliament does not respond to these requests, the government party is committing an illegality.	Labour law
5	The mRNA-based covid vaccines are scientific trials of unproven effectiveness and with side effects not yet detected	Covid vaccines
6	The Spanish language is not taught in schools in Catalonia. It is common for children to finish school with a much lower level of knowledge than in the rest of Spain	Spanish in CAT

The survey was launched on March 10th until 16th, online, with *N*=1.003, among Spanish residents between 18 and 74 years old, with a margin of error of +/- 3,4% for a confidence level of 95% and p=q=0,5. The survey company *Gesop* was hired to conduct the fieldwork, which was conducted with the usual stratified with uniform affixation sampling method. The strata are formed by the crossing of sex and age, at a rate of 125 interviews in each of the eight strata resulting. Within each stratum, the questionnaires have been distributed accordingly, proportional by autonomous community and size of the municipality of residence.The final distribution included 49% of men and 51% of women. Regarding age 16,95% from 18-29 years old, 28,81% from 30-44, 32% from 45-49 and 22,23% from 60-74. The survey utilised an online panel and ensured the anonymity of respondents. Personal information was not collected as part of the survey process, thereby eliminating any risks associated with the storage and handling of sensitive data. The survey design

adhered to the principles outlined in the *General Data Protection Regulation* (*GDPR*) to ensure compliance with data protection regulations. As such, the survey methodology prioritised the protection of participants' privacy and the confidentiality of their responses. In terms of data storage and access, the survey data was stored on secure servers provided by a reputable survey platform (*Gesop*). These servers were compliant with industry-standard security protocols to safeguard the data from unauthorised access. Only the research team had access to the survey data, and strict confidentiality measures were implemented to ensure that individual respondents could not be identified or linked to their responses. Regarding informed consent, participants were explicitly informed about the purpose of the research, the voluntary nature of their participation, and the confidentiality measures in place. They were provided with a clear and concise explanation of the survey's objectives and potential risks and benefits. Prior to participating, respondents were required to provide their consent electronically by affirmatively agreeing to a consent statement presented at the beginning of the survey. The consent statement reiterated the voluntary nature of participation and assured respondents of the confidentiality and anonymity of their responses. All methodological aspects of the research are in line with the standards of the authors' university Ethical Committee.

> Our methodology allowed us to identify the most relevant disinformation narratives

The survey was structured according to the aforementioned narratives. After an initial set of socio-demographic questions (including here ideology, party identification and media engagement[1]), each narrative was presented with a set of questions:

- has the respondent heard the narrative before;
- does the respondent agree with the statement (1-5);
- which media or platform have they heard it from, just one possible answer (if this was the case); and
- had they shared related content.

We conducted the statistical analysis using the *R* programming language, a widely used tool for statistical computing and data analysis. *R* provides a comprehensive suite of packages and functions for conducting various statistical procedures. Specifically, for this study, we utilised several *R* packages for data analysis, such as "tidyverse," "ggplot2," and "dplyr," among others. These packages allowed us to efficiently manipulate, clean, and visualise the survey data. Additionally, we employed various statistical procedures available in *R* to examine the research questions and test hypotheses. The Results section explains the different procedures used to test the aforementioned hypothesis.

4. Results

Our first hypothesis (H1) stated that disinformation narratives were likely going to have a limited reach among the public, with differences among them depending on the topic addressed (higher the more political or polarised). However, results show otherwise (see figure 1). Just one of the narratives shows limited reach (N1-Covid&WHO), being heard by 29% of respondents. Other two narratives (N3-MENAS and N5-CovidVaccines), related to immigration and covid-related disinformation, were spread among 60%. Despite being a high percentage, there were three other narratives that overpass 70% reach. These were N2 (Russia&NATO), N4 (Labor law) and N6 (Spanish in CAT). Hence, results showed that 5 of the 6 identified narratives were highly spread among the respondents of our survey. The next step is, then, to identify how citizens were exposed to those narratives. Hence, our first hypothesis is not verified, as all narratives but one were spread among more than 50% of respondents, showing then high levels of reach, rather than low ones. Furthermore, apart from N1, all other narratives show levels of reach between 60-70%, being just N6 close to 73%. The small differences among narrative in terms of reach does not allow us to decide if a more polarising nature of a certain narrative implies higher reach levels.

Our hypothesis 2 states that disinformation narratives will likely be more spread through television rather than digital media, with also social media playing an important role. Table 2 summarises our findings here. It needs to be highlighted that in order to structure the table we have grouped different answers into the six final categories. The category "TV" groups both "news at TV" and also "entertainment programs at TV", although this last one reported actually almost irrelevant results. Category "Social Media" includes most of the common social media (*Twitter*, *Facebook*, *Ins-*
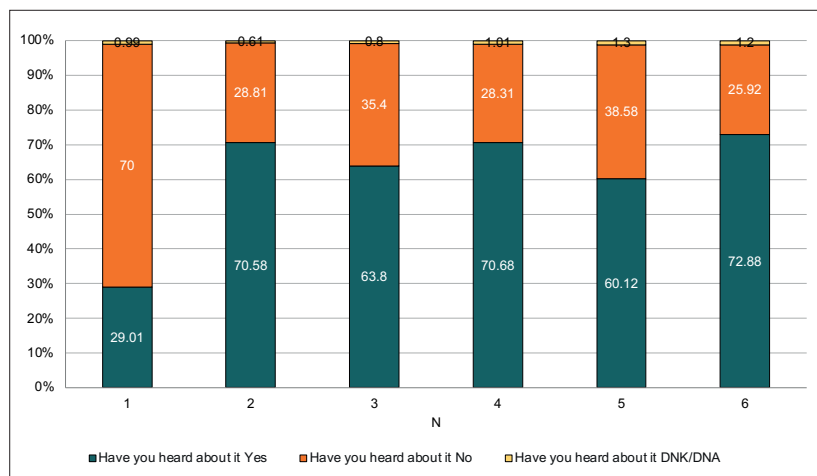

Figure 1. Reach of disinformation narratives

tagram, *TikTok*…) but also messaging Apps such as *WhatsApp* or *Telegram*. The category "Public talk" gathers results from different situations such as "Talking with friends or family" or "Talking at workplace". "Radio" includes traditional radio and also podcasts (although this last one reported almost irrelevant results). Finally, the category "Digital" collects both websites of legacy media and digital native ones. The table stresses in dark green the most common channel of dissemination per each narrative, with a lighter green for the second one and an even lighter green for the third one. As it can be seen, TV is the most relevant spreading channel in three of the narratives (N2, N4 and N6) while Social Media dominates in the other three (N1, N3 and N5). While the role of Press, Public talk and Radio is scarcely relevant, Digital represents a relevant role in the spread of disinformation narratives. Although it never reaches first position, it represents between 14 and 27% of the spread of disinformation narratives. Furthermore, it is relevant here to stress that spreading patterns show great degrees of variability. For example, N4 (labour law) was heard by 60% from TV, while just 14% heard it from Digital and 13% from Social Media. This might be the fact that is related to a political debate that was happening at that time between the two main political parties in Spain. Similar results show N6 (Spanish in CAT) with also greater presence through TV and around 18-20% in Digital and Social Media). In comparison, N1 (Covid&WHO) and N3 (MENAS) show very different patterns, being spread through Social Media (36 and 41% respectively). Hence, N1 seems to follow a mostly online pattern, as is also the one in which Digital shows higher levels (27%) while is the one with lower results at TV (21%). Finally, N5 (Covid Vaccines) is the one that shows more similar results among the three most common channels: 36% from Social media, 32% from TV and 19% from Digital. Results confirm our hypothesis 2, which states that disinformation narratives were going to be more spread through TV than digital media, with social media and messaging apps having also a predominant role. Interestingly, two of the three narratives (Ns 4 & 6) that we identified as part of political debate are reaching citizens mainly through television. The other narrative that is being mostly heard from TV is N2 about war in Ukraine. This might be because the conflict had a daily presence in the news. In general, narratives 2, 4 and 6 the ones where TV plays a greater role were also the ones with higher levels of reach. For the rest of the narratives, social media plays a predominant role. These are the ones with lower levels of reach, although as stated the difference is of around just 10 points. Except for N1 which was the only narrative with a low level of reach (29%). This is the narrative that shows a very different spreading pattern: mostly online through social media and Digital, with the lowest relevance from TV (21%).

Table 2. Spreading channels of disinformation narratives

N	Press	Digital	TV	Public talk	Radio	Social Media
1	7.2993	27.0073	21.1679	0.7299	7.6642	36.1314
2	2.2760	21.0930	43.8540	0.6070	5.6150	26.5550
3	3.4880	18.6050	28.0730	3.9870	4.4850	41.3620
4	4.1787	14.1210	60.0865	0.8646	7.0605	13.6888
5	3.2990	19.4440	32.2920	2.2570	5.9030	36.8060
6	4.1310	18.0910	49.0030	2.5640	6.2680	19.9430

To complete our study, hypothesis 3 and 4 are focused on the impact of disinformation narratives. H3 proposes that those citizens that have received the narrative before are more likely to believe it than those that have never heard about it. To start, table 3 shows the general results of trust on disinformation narratives, grouped in Not believing, Neutral and Believing (the original question was a 1-5 likert scale, in which we grouped 1-2 results and 4-5 ones, being 3 the neutral one). As it can be seen, the different narratives show different levels of acceptance among survey respondents. Just one narrative (N2 Russia&NATO) is trusted by more than 50%, while other two show results close to 46% (N4 Labor Law and N6 Spanish in CAT). The other three narratives show levels of acceptance between 22 and 37%.

If we compare these results with Figure 1 we can see that those narratives with higher percentage of dissemination among survey respondents are also those that are more trusted: N2 (Russia&NATO), N4 (Labor law) and N6 (Spanish in CAT). In order to fully test this relationship and test H3, a series of bivariate chi2 tests is performed, where the dependent variable is believing, being neutral, or not believing the narrative, and the independent variable is having been exposed to it before. Cramer's V values are used to evaluate the strength of the successive bivariate associations. Table 4 summarises the results of the chi2 tests. Of the six narratives studied, 3 of them show a strong relationship between having received the narrative before and believing it, in the other three the effect is moderate-strong. Hence, having received the narrative beforehand is positively and significantly associated with

Table 3. Trust on narratives

	Trust on narrative			
N	Not believing	Neutral	Believing	DNK/DNA
1	49.55	27.43	22.13	0.89
2	17.41	29.12	52.14	1.33
3	39.58	21.33	37.98	1.11
4	29.51	22.53	46.16	1.80
5	35.49	29.81	33.89	0.81
6	36.69	16.75	45.56	1.00

an increased tendency to believe in it, regardless of the topic under discussion. This points towards a relevant effect of disinformation content on those citizens exposed to it, confirming our hypothesis 3. Finally, our last hypothesis, H4, is also confirmed. It argues that the effect of "having received the narrative before" will be similar in all narratives under study. As seen in Table 4, the Cramer's V results show that the strength of the associations is similar, with Ns 1, 2 and 4 showing large effects, others showing medium-large effects. Although Cramer's V

Table 4. Trust on narratives depending on received before

N	Association measures	
	Cramer's V	p value
1	0.480 (df2)	0.000
2	0.404 (df2	0.000
3	0.262 (df2)	0.000
4	0.423 (df2)	0.000
5	0.307 (df2)	0.000
6	0.318 (df2)	0.000

does not allow us to compare between narratives, the fact that most of them show similar results can be indicative of the relevance of the "having received the narrative before" effect, especially taking into account that the topics of each narrative are very diverse and their spread level, as seen before, shows also different patterns.

5. Discussion

Our research has presented a methodology to research the spread and impact of disinformation narratives from a holistic approach that does not rely on data from a single social media or dissemination channel. Such a methodology, like any other, has its own limitations, but allows us to evaluate disinformation not in terms of single pieces of information but at narrative level, assessing the impact that such narratives have in a certain society. It also allows us to "test" public opinion, avoiding survey design based on citizens' own perceptions of the impact of disinformation. Former research (**Vosoughi**; **Roy**; **Aral**, 2018; **Spangher** *et al.*, 2018; **Zannettou** *et al.*, 2019; **Arce**-**García**; **Said**-**Hung**; **Mottareale**-**Calvanese**, 2022; **Masip** *et al.*, 2020; **Grinberg** *et al.*, 2019; **Allen** *et al.*, 2020; **Fletcher**; **Nielsen**, 2018) has indicated that disinformation hardly reached relevant numbers of citizens, especially among those studies that are single platform-based. Our research indicates that disinformation narratives might be more spread among public opinion than what is generally perceived in platform-based studies. The level of reach of most narratives in our research is between 60-72% of survey respondents, being just one of the narratives at low levels of reach (29%). This allows us to state that the detected narratives reached the general public, rather than being spread just among certain societal groups. Hence, just one narrative (N1) plays at the level of localised reach (**Allen** *et al.*, 2020; **Dawson**, 2021). As explained in the introduction, to reach dissemination among the general public is one of the main goals of disinformation campaigns (**Polletta**; **Callahan**, 2019). The goal of this research is not to determine the origin of each one of the spotted narratives. However, we do know that disinformation campaigns, foreign and domestic, intend to build on existing cleavages and use emotion and relate to political issues to enhance polarisation (**Richter**, 2017; **Colley**; **Granelli**; **Althuis**, 2020; **Bánkuty**-**Balogh**, 2021). Three of our spotted narratives can be identified as related to current political debates (Ns 3, 4 and 6), while other two are related to vaccination in Covid-19 pandemic (Ns 1 and 5) and the Russian invasion of Ukraine (N2). Neither covid vaccines nor Russian war in Ukraine are specially divisive topics in Spain. In general, narratives related to current political cleavages reached higher percentages of the population, confirming that disinformation spreads at higher levels if related to emotional and divisive political issues. The only exception is N2, but its higher levels of reach may be due to the constant presence of the Ukraine war in news spaces.

To analyse each narrative spreading pattern can be also interesting to consider its origin. Foreign and domestic disinformation campaigns are more likely to be spread through social media and messaging apps (**Starbird**; **Arif**; **Wilson**, 2019) rather than through traditional news media. The different results that can be seen in spreading patterns among spotted narratives can be interpreted in this line. However, it cannot be disregarded the participatory nature of disinformation in analysing spreading patterns. In all narratives except N4 and N6 social media (including messaging apps) showed high percentages of spread. This can indicate the presence of disinformation campaigns, but also the potential of these narratives to be spread by common citizens on social media who share content in line with their political beliefs or that addresses emotionally own beliefs and values (**Buchanan**, 2020; **Wilson**; **Starbird**, 2020). Interestingly, among those narratives more spread through social media we have the two related with covid vaccination (N1 and 5), plus the narrative that addresses immigration topic (N3). While vaccination has never been a divisive political issue in Spain, immigration is a relevant one. Our research shows that disinformation narratives spread predominantly through social media do have the potential to reach relevant percentages of the general population. However, we cannot identify the origin of such content, to establish if a certain narrative originated through an organised campaign, as our methodological approach does not consider this issue. Nevertheless, in line of results we can argue that single-platform studies that pointed out the limited reach of disinformation campaigns on a single platform (**Spangher** *et al.*, 2018; **Zannettou** *et al.*, 2019; **Arce**-**García**; **Said**-**Hung**; **Mottareale**-**Calvanese**, 2022) might be relevant in relation to this platform, but need to be complemented if the aim is to assess real spread or dissemination of such content at societal level. Mo-

> **Most of disinformation narratives reached more than 50% of survet participants**

reover, the relevant results of social media as spreading pattern indicate that such mechanisms of dissemination reach relevant percentages of the overall population, which may contradict the theory of social media and messaging apps as spaces where just politically in line content is found (**Masip**; **Suau**; **Ruiz-Caballero**, 2020; **Cardenal** *et al.*, 2019).

> " Study disinformation narratives allows us to assess impact beyond single pieces of content "

Furthermore, confirming hypothesis 2, our results have shown that one of the main spreading patterns of disinformation in Spain are news programs on television. Generally disregarded in most disinformation studies, mostly based on online platforms, TV seems to deserve more attention. The relevant role of TV, which in Spain is one of the most common sources of news, can be of a double nature. Firstly, television programs can act as spreaders by repetition. Former research has pointed out the potential role of television as an amplifier of disinformation narratives produced by political actors (**Phillips**, 2018; **Tsfati** *et al.*, 2020). Our results may confirm these theories, as television is normally the first or second main spreading pattern, but at closer distance than others. Another possibility, which may cohabitate with the former one, is that television programs are not just amplifiers but also producers of disinformation. This might be the case of some narratives, mainly spread through television and with lower percentages in other formats. For example, N4 and to a lesser extent N6 are narratives strongly related to political issues, where television shows much higher percentages than the others (in N4, for example, TV represents 60% while the second spreading pattern, Digital, just 14%). Hence, the role of journalists in relation to disinformation cannot be avoided, both as amplifiers but also as producers. Our findings suggest that future research should focus on both traditional and digital media as sources of disinformation, rather than just mere unwilling or passive spreaders as is sometimes assumed. This means to also focus on their ownership in terms of transparency and possible economic or political influence that drive their reporting and editorial line. Similar research in other countries may shed some light on this, to better understand if such a pattern exists in other societal contexts.

However, in our opinion the most relevant (and worrisome) result in our research is the proof that being exposed to disinformation content plays an important role in assuming the inherent narrative, confirming H3. Furthermore, confirming H4, this effect is relevant in all narratives under study, disregarding their more or less political or emotional nature. Our findings highlight that the effect of being exposed to disinformation narratives is consistent for all topics. No differences have been found in spreading patterns, gender or age during the testing of results prior drafting the paper. Hence, the effects of being exposed to disinformation narratives are widespread, being similar for narratives that reach 29% of the respondents and also for those that passed 70%. Previous studies have shown that disinformation content can shape citizens' attitudes and positions, but were mostly focused on elections or particular breaking events (**Kazeem**, 2018; **Silverman**; **Singer-Vine**, 2016; **Kapantai** *et al.*, 2021; **Richter**, 2017). As pointed out by **Starbird**, **Arif** and **Wilson** (2019) there is a need to better understand how disinformation narratives work through time, shaping public opinion in "normal" times. Results presented in this paper contribute to this line of research by showing how being exposed to disinformation content has an impact on citizens' assessment of what is true or not. We think that this is a relevant aspect of our methodological design, allowing us to detect an aspect of disinformation narratives that may pass as unnoticed in other research methodologies: as explained, disinformation effects are hard to measure and exist beyond the spread or impact of a certain singular piece of content, which makes them hard to measure, as happened with traditional forms of propaganda (**Bittman**, 1986). The adoption of narratives as a pivotal concept in the research (**Weinberg**; **Dawson**, 2021) allowed us to track impact through time and in multiple formats that may pass unnoticed in other methodological designs.

> " This research proves that disinformation has high impact on citizens "

Nevertheless, our methodological design also presents limitations that future research may address to complete the whole picture. Firstly, once we are aware of the relevance of narratives we need to focus on their repetition. It might happen that citizens are particularly influenced if they are exposed to continuous flows of disinformation-related content (**Katz**; **Lazarsfeld**; **Roper**, 2017; **Marwick**, 2018). This was not considered in our methodological design, and we strongly suggest future research to address this issue. Likewise, the type of emotion that the different narratives chosen could generate in citizens has not been considered, as this is another interesting factor related with the spread of disinformation (**Kramer**; **Guillory**; **Hancock**, 2014; **Stieglitz**; **Dang-Xuan**, 2013). Moreover, despite that our Cramer's V values have been significant, survey research has always limitations. For example, such tests do not allow differentiating between competing causal explanations for such results. Further research may also study other possible factors that may influence the significant relationship found in our research: ideology of research participants may also shape their trust levels on the different narratives (**Suau, Cruz** and **Yeste**, pending publication). On the other hand, these particular messages might have *selection bias*, reaching a larger proportion of people already primed for believing in them. Further research would be needed in order to differentiate between these alternative explanations.

6. Note

1. For media engagement we include different questions related to kind of media consumption and frequency of news' consumption. These variables were not used in the analysis of results presented in this paper.

7. References

AIMC (2022). *Estudio general de medios*. Asociación para la Investigación de Medios de Comunicación (AIMC). *https://reporting.aimc.es/index.html#/main/cockpit*

Allen, Jennifer; **Howland, Baird**; **Mobius, Markus**; **Rothschild, David**; **Watts, Duncan J.** (2020). "Evaluating the fake news problem at the scale of the information ecosystem". *Science advances*, v. 6, n. 14, eaay3539. *https://doi.org/10.1126/sciadv.aay3539*

Almenar, Ester; **Puertas-Graell, David**; **Ruiz-Caballero, Carlos**; **Suau, Jaume**; **Masip, Pere** (2022). "Conocimiento y uso de los verificadores de datos: ¿una herramienta para la regeneración de la autoridad periodística en un entorno polarizado?". *Anàlisi: quaderns de comunicació i cultura*, v. 66, pp. 113-129. *https://doi.org/10.5565/rev/analisi.3472*

Altay, Sacha; **Berriche, Manon**; **Acerbi, Alberto** (2023). "Misinformation on misinformation: conceptual and methodological challenges". *Social media + society*, v. 9, n. 1. *https://doi.org/10.1177/20563051221150412*

Amazeen, Michelle A.; **Bucy, Erik P.** (2019). "Conferring resistance to digital disinformation: the inoculating influence of procedural news knowledge". *Journal of broadcasting & electronic media*, v. 63, n. 3, pp. 415-432. *https://doi.org/10.1080/08838151.2019.1653101*

Arce-García, Sergio; **Said-Hung, Elías**; **Mottareale-Calvanese, Daria** (2022). "Astroturfing as a strategy for manipulating public opinion on *Twitter* during the pandemic in Spain". *Profesional de la información*, v. 31, n. 3, e310310. *https://doi.org/10.3145/epi.2022.may.10*

Bánkuty-Balogh, Lilla-Sarolta (2021). "Novel technologies and geopolitical strategies: disinformation narratives in the countries of the Visegrád group". *Politics in central Europe*, v. 17, n. 2, pp. 165-195. *https://doi.org/10.2478/pce-2021-0008*

Bastos, Marco; **Mercea, Dan** (2018). "The public accountability of social platforms: lessons from a study on bots and trolls in the Brexit campaign". *Philosophical transactions of the Royal Society A. Mathematical, physical and engineering sciences*, v. 376, n. 2128, 20180003. *https://doi.org/10.1098/rsta.2018.0003*

Besalú, Reinald; **Pont-Sorribes, Carles** (2021). "Credibility of digital political news in Spain: comparison between traditional media and social media". *Social sciences*, v. 10, n. 5, 170. *https://doi.org/10.3390/socsci10050170*

Brennen, J. Scott; **Simon, Felix M.**; **Howard, Philip N.**; **Nielsen, Rasmus-Kleis** (2020). *Types, sources, and claims of Covid-19 misinformation*. University of Oxford. Reuters Institute. *https://reutersinstitute.politics.ox.ac.uk/types-sources-and-claims-covid-19-misinformation*

Buchanan, Tom (2020). "Why do people spread false information online? The effects of message and viewer characteristics on self-reported likelihood of sharing social media disinformation". *Plos one*, v. 15, n. 10, e0239666. *https://doi.org/10.1371/journal.pone.0239666*

Bursztyn, Leonardo; **González, Alessandra L.**; **Yanagizawa-Drott, David** (2018). *Misperceived social norms: female labor force participation in Saudi Arabia*. National Bureau of Economic Research. Working paper series 24736. *https://doi.org/10.3386/w24736*

Cardenal, Ana S.; **Aguilar-Paredes, Carlos**; **Cristancho, Camilo**; **Majó-Vázquez, Sílvia** (2019). "Echo-chambers in online news consumption: evidence from survey and navigation data in Spain". *European journal of communication*, v. 34, n. 4, pp. 360-376. *https://doi.org/10.1177/0267323119844409*

Cardoso, Gustavo; **Sepúlveda, Rita**; **Narciso, Inês** (2022). "*WhatsApp* and audio misinformation during the Covid-19 pandemic". Profesional de la información", v. 31, n. 3. *https://doi.org/10.3145/epi.2022.may.21*

Casero-Ripollés, Andreu; **Doménech-Fabregat, Hugo**; **Alonso-Muñoz, Laura** (2023). "Percepciones de la ciudadanía española ante la desinformación en tiempos de la Covid-19: efectos y mecanismos de lucha contra las noticias falsas". *Icono 14*, v. 21, n. 1. *https://doi.org/10.7195/ri14.v21i1.1988*

Chadwick, Andrew; **Vaccari, Cristian**; **O'Loughlin, Ben** (2018). "Do tabloids poison the well of social media? Explaining democratically dysfunctional news sharing". *New media & society*, v. 20, n. 11, pp. 4255-4274. *https://doi.org/10.1177/1461444818769689*

Chagas, Viktor (2022). "Whatsapp and digital astroturfing: a social network analysis of Brazilian political discussion groups of Bolsonaro's supporters". *International journal of communication*, v. 16, n. 25, pp. 2431-2455. *https://ijoc.org/index.php/ijoc/article/view/17296*

Chan, Jovy (2022). "Online astroturfing: a problem beyond disinformation". *Philosophy & social criticism*, Online first.
https://doi.org/10.1177/01914537221108467

Cho, Charles H.; **Martens, Martin L.**; **Kim, Hakkyun**; **Rodrigue, Michelle** (2011). "Astroturfing global warming: it isn't always greener on the other side of the fence". *Journal of business ethics*, 104, pp. 571-587.
https://doi.org/10.1007/s10551-011-0950-6

Colley, Thomas P.; **Granelli, Francesca**; **Althuis, Jente** (2020). "Disinformation's societal impact: Britain, Covid and beyond". *Defence strategic communications*, v. 8, n. 1, pp. 89-140.
https://doi.org/10.1080/10.30966/2018.RIGA.8.3

Das, Anupam; **Schroeder, Ralph** (2020). "Online disinformation in the run-up to the Indian 2019 election". *Information, communication & society*, v. 24, n. 12, pp. 1762-1778*.
https://doi.org/10.1080/1369118X.2020.1736123

Dawson, Grant (2021). "Classical realism, status, and emotions: understanding the Canada/Saudi Arabia dispute and its implications for global politics". *Global studies quarterly*, v. 1, n. 4.
https://doi.org/10.1093/isagsq/ksab027

Edgerly, Stephanie; **Vraga, Emily K.** (2019). "News, entertainment, or both? Exploring audience perceptions of media genre in a hybrid media environment". *Journalism*, v. 20, n. 6, pp. 807-826.
https://doi.org/10.1177/1464884917730709

Espaliú-Berdud, Carlos (2022). "Legal and criminal prosecution of disinformation in Spain in the context of the European Union". *Profesional de la información*, v. 31, n. 3, e310322.
https://doi.org/10.3145/epi.2022.may.22

Farkas, Johan; **Schou, Jannick** (2018). "Fake news as a floating signifier: hegemony, antagonism and the politics of falsehood". *Javnost-the public*, v. 25, n. 3, pp. 298-314.
https://doi.org/10.1080/13183222.2018.1463047

Fazio, Lisa K.; **Brashier, Nadia M.**; **Payne, B. Keith**; **Marsh, Elizabeth J.** (2015). "Knowledge does not protect against illusory truth". *Journal of experimental psychology general*, v. 144, n. 5, pp. 993-1002.
https://doi.org/10.1037/xge0000098

Fernández-Torres, María-Jesús; **Almansa-Martínez, Ana**; **Chamizo-Sánchez, Rocío** (2021). "Infodemic and fake news in Spain during the Covid-19 pandemic. *International journal of environmental research and public health*", v. 18, n. 4, 1781.
https://doi.org/10.3390/ijerph18041781

Fletcher, Richard; **Nielsen, Rasmus-Kleis** (2018). "Are people incidentally exposed to news on social media? A comparative analysis". *New media & society*, v. 20, n. 7, pp. 2450-2468.
https://doi.org/10.1177/1461444817724170

Flore, Massimo (2020). *Understanding citizens' vulnerabilities (II): from disinformation to hostile narratives*. Luxembourg: European commission. ISBN: 978 9276143086
https://doi.org/10.2760/271224

Freiling, Isabelle; **Krause, Nicole M.**; **Scheufele, Dietram A.**; **Brossard, Dominique** (2023). "Believing and sharing misinformation, fact-checks, and accurate information on social media: the role of anxiety during Covid-19". *New media & society*, v. 25, n. 1, pp. 141-162.
https://doi.org/10.1177/14614448211011451

García-Marín, David; **Salvat-Martinrey, Guiomar** (2022). "Tendencias en la producción científica sobre desinformación en España. Revisión sistematizada de la literatura (2016-2021)". *Adcomunica*, n. 23, pp. 23-50.
https://doi.org/10.6035/adcomunica.6045

Gilbert, Daniel T.; **Tafarodi, Romin W.**; **Malone, Patrick S.** (1993). "You can't not believe everything you read". *Journal of personality and social psychology*, v. 65, n. 2, pp. 221-233.
https://doi.org/10.1037/0022-3514.65.2.221

Grinberg, Nir; **Joseph, Kenneth**; **Friedland, Lisa**; **Swire-Thompson, Briony**; **Lazer, David** (2019). "Fake news on *Twitter* during the 2016 US presidential election". *Science*, v. 363, n. 6425, pp. 374-378.
https://doi.org/10.1126/science.aau2706

Guess, Andrew M.; **Nyhan, Brendan**; **Reifler, Jason** (2020). "Exposure to untrustworthy websites in the 2016 US election". *Nature human behaviour*, v. 4, n. 5, pp. 472-480.
https://doi.org/10.1038/s41562-020-0833-x

Hameleers, Michael (2020). "Separating truth from lies: comparing the effects of news media literacy interventions and fact-checkers in response to political misinformation in the US and Netherlands". *Information, communication & society*, v. 25, n. 1, pp. 110-126.
https://doi.org/10.1080/1369118X.2020.1764603

Hameleers, Michael; **Van-der-Meer, Toni G. L. A.** (2020). "Misinformation and polarization in a high-choice media environment: how effective are political fact-checkers?" *Communication research*, v. 47, n. 2, pp. 227-250.
https://doi.org/10.1177/0093650218819671

Howard, Philip N. (2006). "New media campaigns and the managed citizen". Cambridge, UK: Cambridge University Press. ISBN: 978 0511615986
https://doi.org/10.1017/CBO9780511615986

Jankowski, Nicholas W. (2018). "Researching fake news: a selective examination of empirical studies". *Javnost-The public*, v. 25, n. 1-2, pp. 248-255.
https://doi.org/10.1080/13183222.2018.1418964

Kapantai, Eleni; **Christopoulou, Androniki**; **Berberidis, Christos**; **Peristeras, Vassilios** (2021). "A systematic literature review on disinformation: toward a unified taxonomical framework". *New media & society*, v. 23, n. 5, pp. 1301-1326.
https://doi.org/10.1177/1461444820959296

Katz, Elihu; **Lazarsfeld, Paul F.**; **Roper, Elmo** (2017). *Personal influence: the part played by people in the flow of mass communications*. Routledge. ISBN: 978 1412805070

Kazeem, Yomi (2018). "Nigerian media houses are forming a coalition to combat fake news ahead of next year's elections". *Quartz Africa*, November 29.
http://qz.com/africa/1478737/fake-news-mediacollaborate-ahead-of-nigeria-2019election

Keller, Franciska B.; **Schoch, David**; **Stier, Sebastian**; **Yang, JungHwan** (2020). "Political astroturfing on Twitter: how to coordinate a disinformation campaign". *Political communication*, v. 37, n. 2, pp. 256-280.
https://doi.org/10.1080/10584609.2019.1661888

Kramer, Adam D. I.; **Guillory, Jamie E.**; **Hancock, Jeffrey T.** (2014). "Experimental evidence of massive-scale emotional contagion through social networks". *Proceedings of the National Academy of Sciences*, v. 111, n. 24, pp. 8788-8790.
https://doi.org/10.1073/pnas.1320040111

Leiser, Mark (2016). "Astroturfing, 'cyberturfing' and other online persuasion campaigns". *European journal of law and technology*, v. 7, n. 1.
https://ejlt.org/index.php/ejlt/article/view/501

Lewandowsky, Stephan; **Ecker, Ulrich K.**; **Seifert, Colleen M.**; **Schwarz, Norbert**; **Cook, John** (2012). "Misinformation and its correction: continued influence and successful debiasing". *Psychological science in the public interest*, v. 13, n. 3, pp. 106-131.
https://doi.org/10.1177/1529100612451018

Maros, Alexandre; **Almeida, Jussara**; **Benevenuto, Fabrício**; **Vasconcelos, Marisa** (2020). "Analyzing the use of audio messages in *Whatsapp* groups". In: *Proceedings of the web conference 2020*, pp. 3005-3011.
https://homepages.dcc.ufmg.br/~fabricio/download/www20-maros.pdf

Marwick, Alice E. (2018). "Why do people share fake news? A sociotechnical model of media effects". *Georgetown law technology review*, v. 2, n. 2, pp. 474-512.
https://georgetownlawtechreview.org/wp-content/uploads/2018/07/2.2-Marwick-pp-474-512.pdf

Masip, Pere; **Aran-Ramspott, Sue**; **Ruiz-Caballero, Carlos**; **Suau, Jaume**; **Almenar, Ester**; **Puertas-Graell, David** (2020). "Consumo informativo y cobertura mediática durante el confinamiento por el Covid-19: sobreinformación, sesgo ideológico y sensacionalismo". *Profesional de la información*, v. 29, n. 3, e290312.
https://doi.org/10.3145/epi.2020.may.12

Masip, Pere; **Suau, Jaume**; **Ruiz-Caballero, Carlos** (2020). "Percepciones sobre medios de comunicación y desinformación: ideología y polarización en el sistema mediático español". *Profesional de la información*, v. 29, n. 5, e290527.
https://doi.org/10.3145/epi.2020.sep.27

Moreno-Castro, Carolina; **Vengut-Climent, Empar**; **Cano-Orón, Lorena**; **Mendoza-Poudereux, Isabel** (2021). "Estudio exploratorio de los bulos difundidos por *Whatsapp* en España para prevenir o curar la Covid-19". *Gaceta sanitaria*, v. 35, n. 6, pp. 534-540.
https://doi.org/10.1016/j.gaceta.2020.07.008

Müller, Karsten; **Schwarz, Carlo** (2020). "Fanning the flames of hate: social media and hate crime". *Journal of the European economic association*, v. 19, n. 4, pp. 2131-2167.
https://doi.org/10.1093/jeea/jvaa045

Napoli, Philip M. (2019). *Social media and the public interest: media regulation in the disinformation age*. Columbia university press. ISBN: 978 0231184540

Newman, Nic; **Fletcher, Richard**; **Robertson, Craig T.**; **Eddy, Kirsten**; **Nielsen, Rasmus-Kleis**(2022). *Digital news report 2022.* Oxford: Reuters institute for the study of journalism.
https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2022-06/Digital_News-Report_2022.pdf

Nyhan, Brendan (2020). "Facts and myths about misperceptions". *Journal of economic perspective*s, v. 34, n. 3, pp. 220-236.
https://doi.org/10.1257/jep.34.3.220

Nyhan, Brendan; **Porter, Ethan**; **Reifler, Jason**; **Wood, Thomas J.** (2020). "Taking fact-checks literally but not seriously? The effects of journalistic fact-checking on factual beliefs and candidate favorability". *Political behavior*, 42, pp. 939-960.
https://doi.org/10.1007/s11109-019-09528-x

Pérez-Escolar, Marta; **Lilleker, Darren**; **Tapia-Frade, Alejandro** (2023). "A systematic literature review of the phenomenon of disinformation and misinformation". *Media and communication*, v. 11, n. 2, pp. 76-87.
https://doi.org/10.17645/mac.v11i2.6453

Phillips, Whitney (2018). *The oxygen of amplification*. Data & society.
https://datasociety.net/library/oxygen-of-amplification/

Polletta, Francesca; **Callahan, Jessica** (2019). "Deep stories, nostalgia narratives, and fake news: storytelling in the Trump era". In: *Politics of meaning/meaning of politics: cultural sociology of the 2016 US presidential election*, pp. 55-73.
https://doi.org/10.1007/978-3-319-95945-0_4

Prior, Markus (2005). "News vs. entertainment: how increasing media choice widens gaps in political knowledge and turnout". *American journal of political science*, v. 49, n. 3, pp. 577-592.
https://doi.org/10.1111/j.1540-5907.2005.00143.x

Resende, Gustavo; **Melo, Philipe**; **Sousa, Hugo**; **Messias, Johnnatan**; **Vasconcelos, Marisa**; **Almeida, Jussara-Marques**; **Benevenuto, Fabrício** (2019, May). "(Mis)information dissemination in *Whatsapp*: gathering, analyzing and countermeasures". In: *The world wide web conference,* pp. 818-828.
https://doi.org/10.1145/3308558.3313688

Richter, Monika L. (2017). *The Kremlin's platform for 'useful idiots' in the west: an overview of RT's editorial strategy and evidence of impact.* European values. Kremlin watch report, 18 September.
http://www.elespiadigital.com/images/stories/Documentos9/Overview-of-RTs-Editorial-Strategy-and-Evidence-of-Impact.pdf

Sádaba, Cháro; **Salaverría, Ramón** (2023). "Tackling disinformation with media literacy: analysis of trends in the European Union". *Revista latina de comunicación social*, n. 81, pp. 17-32.
https://www.doi.org/10.4185/RLCS-2023-1552

Shin, Jieun; **Thorson, Kjerstin** (2017). "Partisan selective sharing: the biased diffusion of fact-checking messages on social media". *Journal of communication*, v. 67, n. 2, pp. 233-255.
https://doi.org/10.1111/jcom.12284

Silverman, Craig; **Singer-Vine, Jeremy** (2016). "Most Americans who see fake news believe it, new survey says". *BuzzFeed news*, December 6.
https://www.buzzfeednews.com/article/craigsilverman/fake-news-survey

Spangher, Alexander; **Ranade, Gireeja**; **Nushi, Besmira**; **Fourney, Adam**; **Horvitz, Eric** (2018). "Analysis of strategy and spread of Russia-sponsored content in the US in 2017". *Arxiv*, 1810.10033.
https://doi.org/10.48550/arXiv.1810.10033

Staender, Anna; **Humprecht, Edda**; **Esser, Frank**; **Morosoli, Sophie**; **Van-Aelst, Peter** (2021). "Is sensationalist disinformation more effective? Three facilitating factors at the national, individual, and situational level". *Digital journalism*, v. 10, n. 6, pp. 976-996.
https://doi.org/10.1080/21670811.2021.1966315

Starbird, Kate; **Arif, Ahmer**; **Wilson, Tom** (2019). "Disinformation as collaborative work: surfacing the participatory nature of strategic information operations". *Proceedings of the ACM on human-computer interaction*, v. 3, n. 127.
https://doi.org/10.1145/3359229

Stieglitz, Stefan; **Dang-Xuan, Linh** (2013). "Emotions and information diffusion in social media—sentiment of microblogs and sharing behavior". *Journal of management information systems*, v. 29, n. 4, pp. 217-248.
https://doi.org/10.2753/MIS0742-1222290408

Suau, Jaume (2015). *Citizens and online media participation. Attitudes and motivations towards participatory journalism and other online practices in London and Barcelona*. Doctoral dissertation. Universitat Ramon Llull.
http://hdl.handle.net/10803/289347

Suau, Jaume; **Cruz, Irene**; **Yeste, Elena** (pending publication). "Assessing the impact of disinformation narratives in a polarized electoral campaign: the case of 2021 Catalan elections". Paper presentado en la *Eighth conference of the International Journal of Press/Politics*, Loughborough University, 21-23 September 2022).

Tandoc, Edson C.; **Lim, Darren**; **Ling, Rich** (2020). "Diffusion of disinformation: how social media users respond to fake news and why". *Journalism*, v. 21, n. 3, pp. 381-398.
https://doi.org/10.1177/1464884919868325

Tsfati, Yariv; **Boomgaarden, Hajo G.**; **Strömbäck, Jesper**; **Vliegenthart, Rens**; **Damstra, Alyt**; **Lindgren, Elina** (2020). "Causes and consequences of mainstream media dissemination of fake news: literature review and synthesis". *Annals of the international communication association*, v. 44, n. 2, pp. 157-173.
https://doi.org/10.1080/23808985.2020.1759443

Van-der-Linden, Sander; **Panagopoulos, Costas**; **Roozenbeek, Jon** (2020). "You are fake news: political bias in perceptions of fake news". *Media, culture & society*, v. 42, n. 3, pp. 460-470.
https://doi.org/10.1177/0163443720906992

Vosoughi, Soroush; **Roy, Deb**; **Aral, Sinan** (2018). "The spread of true and false news online". *Science*, v. 359, n. 6380, pp. 1146-1151.
https://doi.org/10.1126/science.aap9559

Vraga, Emily K.; **Bode, Leticia**; **Tully, Melissa** (2022). "Creating news literacy messages to enhance expert corrections of misinformation on *Twitter*". *Communication research*, v. 49, n. 2, pp. 245-267.
https://doi.org/10.1177/0093650219898094

Waisbord, Silvio (2018). "Truth is what happens to news: on journalism, fake news, and post-truth". *Journalism studies*, v. 19, n. 13, pp. 1866-1878.
https://doi.org/10.1080/1461670X.2018.1492881

Walker, Edward T. (2014). *Grassroots for hire: public affairs consultants in American democracy.* New York: Cambridge university press. ISBN: 978 1107619012

Walter, Nathan; **Cohen, Jonathan**; **Holbert, R. Lance**; **Morag, Yasmin** (2020). "Fact-checking: a meta-analysis of what works and for whom". *Political communication*, v. 37, n. 3, pp. 350-375.
https://doi.org/10.1080/10584609.2019.1668894

Wanless, Alicia; **Berk, Michael** (2021). "Participatory propaganda: the engagement of audiences in the spread of persuasive communications". In:: Herbert, David; Fisher-Høyrem, Stefan (eds.). *Social media and social order*. De Gruyter Open Poland, pp. 111-139.. ISBN: 978 8366675612
https://doi.org/10.2478/9788366675612-009

Wardle, Claire (2018). "The need for smarter definitions and practical, timely empirical research on information disorder". *Digital journalism*, v. 6, n. 8, pp. 951-963.
https://doi.org/10.1080/21670811.2018.1502047

Wardle, Claire; **Derakhshan, Hossein** (2017). *Information disorder: toward an interdisciplinary framework for research and policy making*. Strasbourg: Council of Europe.
https://edoc.coe.int/en/media/7495-information-disorder-toward-an-interdisciplinary-framework-for-research-and-policy-making.html

Weinberg, Danna B.; **Dawson, Jessica** (2021). *From anti-vaxxer moms to militia men*: *Influence operations, narrative weaponization, and the fracturing of American identity*. Massachusetts, The Brookings institution.

Wilson, Tom; **Starbird, Kate** (2020). "Cross-platform disinformation campaigns: lessons learned and next steps". *The Harvard Kennedy school (HKS) misinformation review*, v. 1, n. 1.
https://doi.org/10.37016/mr-2020-002

Wu, Tim (2020). "Comerciantes de atención: la lucha épica por entrar en nuestra cabeza". Capitán Swing Libros. ISBN: 978 8412064599

Zannettou, Savvas; **Sirivianos, Michael**; **Blackburn, Jeremy**; **Kourtellis, Nicolas** (2019). "The web of false information: rumors, fake news, hoaxes, clickbait, and various other shenanigans". *Journal of data and information quality*, v. 11, n. 3, pp. 1-37.
https://doi.org/10.1145/3309699

Zerback, Thomas; **Töpfl, Florian**; **Knöpfle, Maria** (2021). "The disconcerting potential of online disinformation: persuasive effects of astroturfing comments and three strategies for inoculation against them". *New media & society*, v. 23, n. 5, pp. 1080-1098.
https://doi.org/10.1177/1461444820908530