

Scare to destabilise: disinformation about COVID-19 in Argentina and Spain

Asustar para desestabilizar: desinformación sobre la COVID-19 en Argentina y España

Assustar para desestabilizar: desinformação sobre a COVID-19 na Argentina e Espanha

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ABSTRACT | Disinformation about the COVID-19 pandemic has reached such a magnitude that the situation has been described as infodemic. The aim of this research is to analyze the intentions of such disinformation on social networks and its relationship with the sources, topics, main actors, and emotional appeals of the hoaxes. To this end, we conducted a content analysis on the 548 pandemic-related disinformation published between 1 January 2020 and 30 June 2021 by the fact-checking media platforms Chequeado, in Argentina, and Newtral, in Spain. The results show that disinformation about COVID-19 has similar characteristics in both countries, except in sources' case, which is consistent with the transnational nature of the infodemic. The hoaxes seek, above all, to destabilize; negationism is the most frequent issue; the most common protagonists are health institutions and professionals, and negative emotional appeals prevail, especially anger, used with polarizing objectives, and fear, whose incorporation pursues destabilizing and chaos-fuelling purposes. The appeal to positive emotions is reserved, for fake content with reputational or informative objectives. Furthermore, a statistical correlation is observed between the inferred intention of disinformation and the rest of the variables. The findings of this study lead to the conclusion that the infodemic had the same transnational character as the pandemic, which would suggest that disinformation on a global agenda item uses shared parameters for its propagation in different scenarios.

KEYWORDS: disinformation; fake news; social media; COVID-19; fact-checking; Argentina; Spain; content analysis.

HOW TO CITE

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RESUMEN | *La desinformación sobre la pandemia de COVID-19 ha alcanzado tal magnitud que ha sido descrita como infodemia. El objetivo de esta investigación es estudiar las intenciones de su propagación en redes sociales, su relación con las fuentes, los temas, los protagonistas y las apelaciones emocionales de los engaños. Para ello, se analizó el contenido de los 548 desmentidos publicados al respecto entre el 1 de enero de 2020 y el 30 de junio de 2021 por los medios verificadores Chequeado, en Argentina, y Newtral, en España. Los resultados muestran que la desinformación sobre la COVID-19 tiene características similares en ambos países, salvo en el caso de las fuentes, lo que se condice con el carácter transnacional de la infodemia. Los engaños buscan, sobre todo, desestabilizar; el negacionismo es el tema más frecuente; los protagonistas más usuales son las instituciones y los profesionales de salud, y prevalecen las apelaciones emocionales negativas, sobre todo la ira, utilizada con objetivos polarizantes, y el miedo, para desestabilizar y alimentar el caos. La apelación a emociones positivas queda reservada para los materiales con objetivo reputacional o informativo. Asimismo, se observa una correlación entre la intención inferida de la desinformación y el resto de las variables estudiadas. Los hallazgos permiten concluir que la infodemia tuvo el mismo carácter transnacional que la pandemia, lo cual insinuaría que la desinformación sobre un tema de agenda mundial utiliza parámetros compartidos para propagarse en distintos escenarios.*

PALABRAS CLAVE: *desinformación; fake news; redes sociales; COVID-19; verificación de información; Argentina; España; análisis de contenido.*

RESUMO | *A desinformação sobre a pandemia da COVID-19 atingiu tal magnitude que a situação foi descrita como infodemia. O objetivo desta investigação é estudar as intenções da sua difusão nas redes sociais, a sua relação com as fontes, os tópicos, os protagonistas e os apelos emocionais dos enganamentos. Foi realizada uma análise de conteúdo sobre as 548 desinformações publicadas entre 1 de janeiro de 2020 e 30 de junho de 2021 pelos meios de verificação Chequeado, na Argentina, e Newtral, na Espanha. Os resultados mostram que a desinformação sobre a COVID-19 tem características semelhantes em ambos os países, exceto no caso das fontes, o que é consistente com a natureza transnacional da infodemia. Os enganamentos procuram, acima de tudo, desestabilizar; o negacionismo é o tema mais frequente; os protagonistas mais comuns são as instituições e os profissionais de saúde; e prevalecem os apelos emocionais negativos, especialmente a raiva, usada para fins polarizadores, e o medo, para desestabilizar e alimentar o caos. O apelo às emoções positivas é com objetivos de reputação ou de informação. Da mesma forma, observa-se uma correlação entre a intenção inferida de desinformação e o resto das variáveis estudadas. Com base no anterior é possível concluir que a infodemia teve o mesmo carácter transnacional que a pandemia mesma, o que indicaria que a desinformação num tema da agenda mundial utiliza parâmetros partilhados para a sua propagação em diferentes cenários.*

PALAVRAS CHAVE: *desinformação; fake news; redes sociais; COVID-19; verificação de informação; Argentina; Espanha; análise de conteúdo.*

INTRODUCTION

Since March 2020, when the World Health Organization (WHO) declared a pandemic due to the spread of COVID-19, the exponential increase in disinformation not only damaged democratic civic culture and the quality of public conversation (Chadwick & Vaccari, 2019), but also became a health problem that endangered the citizenry (Salaverría et al., 2020).

The intensity in the spread of disinformation motivated various international institutions to describe the situation as infodemic (Organización Mundial de la Salud, 2020) not only because of the overabundance of circulating information (Cebal-Loureda & Sued-Palmeiro, 2021), but above all because of its contents' quality and reliability (Larson, 2020), which seem scientific but are not (McDougall et al., 2019). Likewise, the consumption of news on scientific topics had not been a common practice (López Duque & Tejedor, 2020) until 2020 when, faced with a novel media framework characterized by the uniqueness of the agenda (Calzado et al., 2021), citizens found themselves faced with a tsunami of medical-scientific content on COVID-19 (Zarocostas, 2020), without tools to verify them and without knowing through which sources to contrast them (McDougall et al., 2019). The role of the fact-check media peaked in importance during the critical moments of the pandemic; in fact, the deputy director of the International Fact-Checking Network (IFCN), Cristina Tardáguila, considered it the greatest challenge that fact-checkers had faced (Brennen et al., 2020).

In this context, and in a framework in which comparative studies addressing the issue in Ibero-America are scarce (Guallar et al., 2020; Gutiérrez-Coba et al., 2020, Nieves-Cuervo et al., 2021), this paper analyzes COVID-19 debunking in Argentina and Spain, focusing on the intentions underlying this material of dubious quality. To do so, we applied a five-variable content analysis to 548 disinformations debunked by the fact-check medias *Chequeado* (Argentina) and *Newtral* (Spain). Argentina registers one of the highest levels of news consumption in social networks in Latin America, and in Spain the majority of the population claims go to these platforms for information (Newman et al., 2020). Likewise, citizens in both countries are increasingly less trusting of the media and are concerned about the viralization of misinforming content (Nielsen et al., 2020).

THEORETICAL FRAMEWORK

The production of misinforming content is not new, but the circulation of misleading material increased dramatically with the use of social networks as sources for consuming news (Brennen et al., 2020). These messages are 70% more likely to be shared (Vosoughi et al., 2018), and it is estimated that virality

will continue to increase (Panetta, 2019) as a consequence of interactions in which automated structures play a residual role compared to the practices of Internet users, influenced by diverse motivations (Chadwick & Vaccari, 2019), among which emotional components (Tarullo, 2018) and confirmation biases (Wason, 1960) stand out.

The context becomes more complex with a growing decline of trust in journalistic institutions (Bennett & Livingstone, 2018). The latter feed (Arceneaux & Johnson, 2015) and increase polarization (Bergmann, 2020), sometimes adopting populist discursive features for audience reasons (Mazzoleni, 2003) and have modified some of their practices to meet the demands of instantaneity (López-Marcos & Vicente-Fernández, 2021). Thus, the digital space offers easy-to-use tools to create misinformative material in news format (Tandoc et al., 2017), while the citizenry requires new skills to decipher what is true and what is fictitious (Waisbord, 2018) in an intricate environment of informational clutter (Wardle & Derakhshan, 2017).

Moreover, both the production and circulation of falsehoods are motivated by economic and political intentions, as clicks are monetized and messages spread deceptions that benefit certain sectors and harm others (Tucker et al., 2018). Thus, polarized contexts –as well as times of uncertainty, hesitation, and distress– are often the ideal setting for producing and propagating deceptions (Bennett & Livingstone, 2018). When citizens need quality information to guide their behavior (Casero-Ripollés, 2020), disinformation flows proliferate and multiply easily (Peña Ascacibar et al., 2021), with polarizing ideological motivations (Gutiérrez-Coba et al., 2020), which generate greater disorder and chaos (López-Borrull & Ollé, 2020).

At least four factors were conducive to the digital circulation of disinformation when WHO declared the pandemic in 2020:

1. The health measures taken by governments added voices for and against, increasing the polarization of contexts that were already highly polarized (Gutiérrez-Coba et al., 2020), such as Argentina (Alonso & Brusino, 2018) and Spain (Simón, 2020).
2. With mandatory lockout, the use of digital platforms to become informed increased (Nielsen et al., 2020).
3. The extraordinary increase in circulating information, along with the public's eagerness to obtain continuous news about the pandemic, increased the risk of an increase in unverified and unreliable content (Masip et al., 2020).

4. In a disconcerting atmosphere and with a population frightened of the unknown, conspiracy theories were more likely to be accepted (Vega-Dienstmaier, 2020). In line with the concern about the infodemic situation (Organización Mundial de la Salud, 2020), scientific research on the circulation of COVID-19 hoaxes increased (Magallón-Rosa & Sánchez-Duarte, 2021; Neubauer Esteban, 2020).

Salaverría and colleagues (2020) systematized the nature of disinformation in a typology designed according to the level of severity of hoaxes and four categories of disinformation sources: anonymous, fictitious, impersonated, and real. The comparative study by Peña Ascacibar and colleagues (2021) found that disinformation about the virus was used to discredit and polarize, especially in those messages with misleading and decontextualized information about governmental measures. Similar results were obtained by studies that analyzed the motivations of the hoaxes circulating in social networks (Brennen et al., 2020; Gutiérrez-Coba et al., 2020), observing that disinformation about COVID-19 can pursue economic purposes, although ideological intentions that seek to discredit institutions and the political class prevail. Deceptions were even detected that sought to attack the system itself, with alarming messages and conspiracy theories that, taking advantage of the population's vulnerability, sowed fear and confusion (Vega-Dienstmaier, 2020). Although the appeal to emotions is essential to activate mechanisms of adhesion and sharing of misinformative messages (Chadwick & Vaccari, 2019), it is a little explored axis to which this study seeks to contribute.

Considering the above, in order to analyze the intentions of disinformation about COVID-19 in social networks, as well as their relationship with the sources, topics, protagonists, and emotional appeals of the hoaxes, the following research questions were posed:

1. To what extent is the disinformation about the COVID-19 pandemic in social networks similar or different in Argentina and Spain?
2. What are the intentions, themes, protagonists, emotional appeals, and sources of disinformation about the COVID19 pandemic in social networks?
3. Is there a correlation between the inferred intention of the disinformation and the deceptions' mentioned characteristics?

METHODOLOGY

The paper analyzes a corpus of 548 pieces of information circulating in social networks about the COVID-19 pandemic that were debunked between January 1, 2020 and June 30, 2021 by the Argentinean media *Chequeado* (n=154) and the Spanish media *Newtral* (n=394). Both fact-checkers are accredited by the International Fact-Checking Network (IFCN): *Chequeado* is the only Argentinean media in this network and *Newtral*, the first Spanish one to be part of it. This field of study on disinformation in social networks has been used in previous research on infodemic (Gutiérrez-Coba et al., 2020; Magallón-Rosa & Sánchez-Duarte, 2021; Peña Ascacibar et al., 2021; Salaverría et al., 2020), especially during the first months of the spread of the virus. This work extends the time frame to a year and a half and considers new variables, such as emotional appeal.

The materials were defined in three stages:

- **Stage 1:** manual download of all debunks published by both media in the period analyzed (n=1,160) - 01/07/2021.
- **Stage 2:** discarding those referring to more than one hoax. By means of a single dichotomous variable coding, we selected those related to science, technology, and health (54.5%, n=632).
- **Stage 3:** establishment of the definitive sample. We used the same procedure as in phase two, and selected the number of debunks referring to the pandemic: 47.2%, n=548.

To answer the three research questions, we conducted a content analysis (Krippendorff, 2004; Neuendorf, 2002; Silverman, 2016) on the 548 units of the corpus. A codebook of five variables was designed: intention, theme, protagonist, emotional appeal, and source. The definition of each variable considered previous literature on disinformation, both general (Tandoc et al., 2017; Wardle, 2018) and pandemic-related (Brennen et al., 2020; Gutiérrez-Coba et al., 2020; Magallón-Rosa & Sánchez-Duarte, 2021; Moreno Castro et al., 2020; Peña Ascacibar et al., 2021; Salaverría et al., 2020).

The coding was developed by the authors, after inter-judge reliability testing on a random sample of 12.5% of the corpus (n=68). Krippendorff's alpha coefficients above 0.8 were obtained in all cases, within the usual validation range (Igartua, 2006).

Variable	Categories and subcategories	
1. Intention	Reputational-informative / Polarizing-hyper-partisan / Destabilizing-anti-system	
	Measures	Restrictions / Supplies for protection or prevention / Vaccines / Public-private partnership / Financial aid / Invented measures
	Behavior	Social / Political
2. Topic	Recommendations against contagion or for cure	
	Sanitary situation	Situation / Forecasts / Comparison with other countries
	Negationism	Conspiracy / Origin / Measures effects
	Others	
	No protagonist or anonymous characters	
	Institutional and political actors	Governments / Political class / State Security Forces and Corps
	Healthcare actors	Healthcare institutions / Medical or health research professionals
3. Protagonist	Non-political and non-health public actors	Companies and businessmen / Progressive mainstream media or cultural referents / Conservative mainstream media or cultural referents / Members of the academy in non-health areas
	Stakeholders belonging to vulnerable groups	
	Other country actors	Eastern countries / Western countries / Non-specialized supranational health agencies
4. Emotional appeal	Positive	Surprise / Happiness or joy
	Negative	Fear / Anger or rage / Disgust / Sadness
	Nonexistent	Anonymous / fictitious
5. Source	Impersonated	Political or institutional / Media / Influencers (non-scientists) / Specialized (health, research or law professionals) / Corporate
	Real	Political or institutional / Media / Influencers (non-scientists) / Specialized (health, research or law professionals) / Corporate

Table 1. Analysis variables, categories and subcategories

Source: Own elaboration

Likewise, we applied a statistical analysis using R software (version 4.1.1 for Windows). To answer RQ1, “similarities and differences between disinformation content on social networks circulated in Argentina and Spain”, due to the sample size of each country, we performed a Chi-square test of homogeneity of equal proportions using an approximation of Fisher’s exact test. To answer RQ3, on the

possible correlation between the inferred intention of disinformation and the deceptions' characteristics, we reflected the relationships between the variable intention (v1) and the variables theme (v2), protagonist (v3), emotional appeal (v4), and source (v5) in contingency tables. Their correlation was tested by means of Pearson's Chi-square tests of independence that considered the combinations between the inferred intentions and the first-level categories of the rest of the variables. The degrees of correlation were studied by obtaining the corresponding Cramer's V coefficients. According to the recommendations of López-Roldán and Fachelli (2015, p. 26), a moderate but significant relationship was considered when the coefficient is around 0.3 and strong when it is around 0.6.

RESULTS ANALYSIS

Disinformation intentions and deception characteristics

Regarding RQ1, "similarity of disinformation intentions and deception characteristics between Argentina and Spain", Fisher's exact test found that the distribution of proportions is homogeneous in both countries in terms of intention ($\chi^2=0.4474$; $p=0.7995$), topic ($\chi^2=21.771$; $p=0.075$), protagonist ($\chi^2=18.089$; $p=0.0669$), and emotional appeals ($\chi^2=2.989$; $p=0.7441$). However, the results indicate that the samples of deceptions debunked by *Chequeado* in Argentina ($n=154$) and by *Newtral* in Spain ($n=394$) are not homogeneous in terms of sources ($\chi^2=44.71$; $p=0.00049$). Consequently, to answer PI2 and PI3, both samples ($N=548$) have been unified for all variables except sources.

In relation to RQ2, related to the characteristics of disinformation, the predominant intention (v1) was destabilizing (50%, $n=274$), which seeks to compromise the stability of the health system and the official response to the pandemic. It was followed, with almost identical frequencies, by the reputational/informative intention (25.4%, $n=139$) and the hyper-partisan-polarizing intention (24.6%, $n=135$). Reputational/informative occurs when the person who creates the disinformation aspires to position him or herself as a reference in the subject without being one (Larson, 2020), or when the person who disseminates it intends to transmit a supposed information to his/her contacts network, in the case of citizens (Brennen et al., 2020), or to obtain economic benefit, in the case of the media (Tandoc et al., 2017). Deception is considered to have a hyper-partisan-polarizing motivation when it discredits governments, parties or leaders, but does not attack the system itself (Gutiérrez-Coba et al., 2020). Regarding the topics (v2), 42.5% ($n=233$) of the hoaxes had some aspect related to negationism as a central axis, especially the alleged lack of efficacy or alleged side effects of the health measures adopted (25.2%, $n=138$), from vaccination to the use of masks,

followed by conspiracy theories about the virus propagation (12.8%, n=70). The next most frequently used macro category was the adoption of measures (21.4%, n=117), especially the scope and validity of restrictions (5.1%, n=28) and the availability of vaccines (6.6%, n=36). This was followed by recommendations to prevent infection or promote cure (13.1%, n=72), and disinformation about the health situation (12.6%, n=69), especially about the spread of the virus, mortality, and hospital response (6.9%, n=38).

The protagonism (v3) of the disinformations analyzed fell mainly on public healthcare actors (27.2%, n=149): medical or health research professionals (21.4%, n=117). The absence of protagonists or collective protagonism (25.7%, n=141) came in second place. The third corresponded to public actors in the political or institutional sphere (20.4%, n=112). The most frequent emotional appeal (v4) was fear (41.2%, n=226), followed by anger or rage (32.3%, n=177) and, although in a minority, surprise (12.8%, n=70) and happiness (12.4%, n=68). The categorization, which classifies primary emotions according to Damasio (2001), observes that deceptions appeal to fear when they generate concern or a sense of danger; to rage, when they provoke anger or indignation against the institution or the protagonist; to surprise, when they transmit unexpected but gratifying information, and to happiness, when they provide hope in the face of fear. Appeals to sadness and disgust were residual.

The sources (v5) most used by the hoaxes circulating in Argentina were, in almost identical proportions, nonexistent sources (42.9%, n=66), especially those of an anonymous nature (40.9%, n=63), and real sources (40.3%, n=62), mainly from the media (20.1%, n=31) and specialized sources (16.9%, n=26). In Spain, on the other hand, there was an absolute predominance of nonexistent sources (60.9%, n=240), with a preponderance of anonymous sources (59.4%, n=234), and a much lower frequency of real sources (16.8%, n=66). The presence of impersonated sources was higher in the European country (22.3%, n=88) than in the Latin American one (16.9%, n=26).

Relationship between the intentions of disinformation and its characteristics

In response to RQ3, referring to the relationship between the intention of disinformation and the deceptions' characteristics, the most frequent combination of intention and topic (table 2) was to destabilize through negationism (40.7%, n=223), followed by polarizing by disinformation about the measures' scope and availability (11.1%, n=61), reputational/informational about recommendations (8.6%, n=47) and about the measures (7.3%, n=40), and polarizing about social and political class behavior (6%, n=33). Thus, deceptions with a destabilizing objective resorted mainly to negationism; those with a polarizing intention, to the scope and

availability of the measures and political behavior, and those with a reputational or informative intention, to the recommendations.

The resulting Chi-square test $\chi^2(10)=442.03$; $p<0.0001$ corroborates the correlation between disinformation intention and deception topics at a 95% confidence level. In turn, Cramer's V coefficient (0.637) indicates that such correlation is strong.

Topic / Intention	Reputational		Polarizing		Destabilizing		Total	
	f	%	f	%	f	%	f	%
Measures	40	7.3%	61	11.1%	16	2.9%	117	21.4%
Restrictions	5	0.9%	19	3.5%	4	0.7%	28	5.1%
Supplies	2	0.4%	7	1.3%	4	0.7%	13	2.4%
Vaccines	18	3.3%	14	2.6%	4	0.7%	36	6.6%
Collaboration	4	0.7%	6	1.1%	0	0.0%	10	1.8%
Invented measures	9	1.6%	14	2.6%	4	0.7%	27	4.9%
Financial assistance	2	0.4%	1	0.2%	0	0.0%	3	0.5%
Behavior	5	0.9%	33	6.0%	4	0.7%	42	7.7%
Social behavior	5	0.9%	4	0.7%	3	0.5%	12	2.2%
Political behavior	0	0.0%	29	5.3%	1	0.2%	30	5.5%
Recommendations	47	8.6%	4	0.7%	21	3.8%	72	13.1%
Sanitary situation	32	5.8%	28	5.1%	9	1.6%	69	12.6%
Situation	14	2.6%	20	3.6%	4	0.7%	38	6.9%
Forecasts	9	1.6%	1	0.2%	3	0.5%	13	2.4%
Comparison with other countries	9	1.6%	7	1.3%	2	0.4%	18	3.3%
Negationism	7	1.3%	3	0.5%	223	40.7%	233	42.5%
Conspiracy	3	0.5%	1	0.2%	66	12.0%	70	12.8%
Virus origin	0	0.0%	1	0.2%	24	4.4%	25	4.6%
Measures effects	4	0.7%	1	0.2%	133	24.3%	138	25.2%
Others	8	1.5%	6	1.1%	1	0.2%	15	2.7%
Total	139	25.4%	135	24.6%	274	50.0%	548	100.0%

Table 2. Relationship between disinformation intentions and hoax topics

Source: Own elaboration.

Regarding the combination of intention and protagonism (table 3), the most common deceptions were those that attempted to destabilize, conducted by healthcare actors (19.9%, n=109). This was followed by those that sought to polarize, led by political or institutional actors (16.4%, n=90), those that aspired to destabilize and had no protagonist or presented a collective protagonist (13.5%, n=74), and those with the same type of protagonist than the latter had a reputational or informative intention (10.2%, n=56). Thus, the destabilizing hoaxes appealed mainly to health professionals; the polarizing ones, to the political class, and the reputational/informative ones, to the citizenry as a whole or to a lack of protagonists.

Protagonist / Intention	Reputational		Polarizing		Destabilizing		Total	
	f	%	f	%	f	%	f	%
No protagonist / citizenry	56	10.2%	11	2.0%	74	13.5%	141	25.7%
Institutions and political class	11	2.0%	90	16.4%	11	2.0%	112	20.4%
Governments	9	1.6%	53	9.7%	6	1.1%	68	12.4%
Politicians	1	0.2%	31	5.7%	4	0.7%	36	6.6%
State Security Forces and Corps	1	0.2%	6	1.1%	1	0.2%	8	1.5%
Healthcare institutions	27	4.9%	13	2.4%	109	19.9%	149	27.2%
Institutions	6	1.1%	5	0.9%	21	3.8%	32	5.8%
Physicians	21	3.8%	8	1.5%	88	16.1%	117	21.4%
Non-political actors	16	2.9%	4	0.7%	38	6.9%	58	10.6%
Companies	14	2.6%	4	0.7%	26	4.7%	44	8.0%
Progressive referents	2	0.4%	0	0.0%	5	0.9%	7	1.3%
Conservative referents	0	0.0%	0	0.0%	4	0.7%	4	0.7%
Academics and scientists	0	0.0%	0	0.0%	3	0.5%	3	0.5%
Vulnerable groups	13	2.4%	7	1.3%	14	2.6%	34	6.2%
Heads of State/ countries	16	2.9%	10	1.8%	28	5.1%	54	9.9%
Eastern countries	4	0.7%	2	0.4%	6	1.1%	12	2.2%
Western countries	11	2.0%	6	1.1%	14	2.6%	31	5.7%
Supranational	1	0.2%	2	0.4%	8	1.5%	11	2.0%
Total	139	25.4%	135	24.6%	274	50.0%	548	100.0%

Table 3. Relationship between the intentions of the disinformation and the hoaxes' protagonists

Source: Own elaboration.

La prueba Chi-cuadrado $\chi^2(10)=264,73$; $p<0,0001$ corrobora la existencia de una correlación entre la intención de la desinformación y los protagonistas de los engaños, con un nivel de confianza de 95%. A su vez, el coeficiente V de Cramer (0,491) indica que dicha correlación es moderada pero significativa.

En cuanto a la combinación de intenciones y emociones (tabla 4), los engaños más frecuentes fueron los desestabilizadores que apelaban al miedo (30,3%, $n=166$) o a la ira (13,1%, $n=72$), los polarizadores que recurrieron a la ira (16,2%, $n=89$) y los reputacionales o informativos que interpusieron la sorpresa (8%, $n=44$). Así, mientras las desinformaciones que tenían por objeto atacar al sistema o reforzar el hiper partidismo apelaron mayoritariamente a emociones negativas, aquellas con finalidades reputacionales o informativas, incluyendo el *clickbait* practicado por algunos medios de comunicación (Gutiérrez-Coba et al., 2020), lo hicieron a emociones positivas.

La prueba Chi-cuadrado de $\chi^2(2)=99,761$; $p<0,0001$ corrobora la correlación entre la intención de la desinformación y la apelación emocional de los engaños, con un nivel de confianza de 95%. A su vez, el coeficiente V de Cramer (0,426) indica que, como en el caso anterior, dicha correlación es moderada pero significativa.

Respecto de la combinación de intención y tipo de fuente, se estudiaron los corpus de ambos países de forma separada por la falta de homogeneidad de las muestras de *Chequeado* y *Newtral* hallada en respuesta a la PII.

Emotion / Intention	Reputational		Polarizing		Destabilizing		Total	
	f	%	f	%	f	%	f	%
Positive appeals	79	14.4%	23	4.2%	36	6.6%	138	25.2%
Surprise	44	8.0%	5	0.9%	21	3.8%	70	12.8%
Happiness / joy	35	6.4%	18	3.3%	15	2.7%	68	12.4%
Negative appeals	60	10.9%	112	20.4%	238	43.4%	410	74.8%
Fear	40	7.3%	20	3.6%	166	30.3%	226	41.2%
Rage /anger	16	2.9%	89	16.2%	72	13.1%	177	32.3%
Disgust	1	0.2%	0	0.0%	0	0.0%	1	0.2%
Sadness	3	0.5%	3	0.5%	0	0.0%	6	1.1%
Total	139	25.4%	135	24.6%	274	50.0%	548	100.0%

Table 4. Relationship between disinformation intentions and deceptions' emotional appeals

Source: Own elaboration.

In Argentina (table 5), the most common deceptions attempted to destabilize by using real sources (29.2%, n=45), especially media (14.3%, n=22) and specialized sources (13%, n=20), followed by those that with the same purpose presented nonexistent sources (15.6%, n=24), polarizers with nonexistent sources (12.3%, n=19), and polarizers with impersonated sources (7.8%, n=12). Thus, in the Latin American country, disinformation attacking the system resorted, above all, to real or nonexistent sources; those aiming to reinforce hyper-partisanship, to nonexistent or impersonated sources, and those with a reputational or informational objective, to nonexistent sources.

The Chi-square test yields a result of $\chi^2(4)=24.23$; $p=0.00014$ in the case of the Argentine corpus, which corroborates the correlation between the disinformation intention and deception sources, with a confidence level of 95%. The Cramer’s V coefficient (0.280) indicates that this correlation, although it exists, is weak.

Source / Intention	Reputational		Polarizing		Destabilizing		Total	
	f	%	F	%	f	%	f	%
Nonexistent	23	14.9%	19	12.3%	24	15.6%	66	42.9%
Anonymous	21	13.6%	18	11.7%	24	15.6%	63	40.9%
Fictitious	2	1.3%	1	0.6%	0	0.0%	3	1.9%
Impersonated	4	2.6%	12	7.8%	10	6.5%	26	16.9%
Political / institutional	2	1.3%	7	4.5%	3	1.9%	12	7.8%
Media	0	0.0%	3	1.9%	1	0.6%	4	2.6%
Influencers	0	0.0%	0	0.0%	2	1.3%	2	1.3%
Specialized	1	0.6%	2	1.3%	2	1.3%	5	3.2%
Corporate	1	0.6%	0	0.0%	2	1.3%	3	1.9%
Real	9	5.8%	8	5.2%	45	29.2%	62	40.3%
Political / institutional	0	0.0%	0	0.0%	2	1.3%	2	1.3%
Media	3	1.9%	6	3.9%	22	14.3%	31	20.1%
Influencers	0	0.0%	0	0.0%	1	0.6%	1	0.6%
Specialized	5	3.2%	1	0.6%	20	13.0%	26	16.9%
Corporate	1	0.6%	1	0.6%	0	0.0%	2	1.3%
Total	36	23.4%	39	25.3%	79	51.3%	154	100.0%

Table 5. Relationship between disinformation intentions and deceptions’ sources in Argentina

Source: Own elaboration.

As for Spain (table 6), the most frequent deceptions were always those that resorted to nonexistent sources, with destabilizing (29.7%, n=117), reputational (16.5%, n=65) or polarizing (14.7%, n=58) purposes. The break occurred in the sources that were used in second place. While disinformation with a destabilizing objective presented with the same frequency impersonated (9.9%, n=39) and real sources (9.9%, n=39), those with a polarizing or reputational/informational purpose opted in greater proportion for impersonation (7.4%, n=29, in the first case; 5.1%, n=20, in the second) than for real sources (2.3%, n=9, in the first case; 4.6%, n=18, in the second).

The Chi-square test yields, in the case of the Spanish corpus, a result of $\chi^2(4)=10.85$; $p=0.0089$, which corroborates the correlation between the disinformation intention and the sources of deception, with a confidence level of 95%. As in the Argentine case, the Cramer's V coefficient obtained (0.117) indicates that the correlation is weak.

Source / Intention	Reputational		Polarizing		Destabilizing		Total	
	f	%	f	%	f	%	f	%
Nonexistent	65	16.5%	58	14.7%	117	29.7%	240	60.9%
Anonymous	62	15.7%	58	14.7%	114	28.9%	234	59.4%
Fictitious	3	0.8%	0	0.0%	3	0.8%	6	1.5%
Impersonated	20	5.1%	29	7.4%	39	9.9%	88	22.3%
Political / institutional	8	2.0%	18	4.6%	17	4.3%	43	10.9%
Media	5	1.3%	10	2.5%	5	1.3%	20	5.1%
Influencers	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Specialized	3	0.8%	1	0.3%	14	3.6%	18	4.6%
Corporate	4	1.0%	0	0.0%	3	0.8%	7	1.8%
Real	18	4.6%	9	2.3%	39	9.9%	66	16.8%
Political / institutional	0	0.0%	1	0.3%	5	1.3%	6	1.5%
Media	12	3.0%	7	1.8%	11	2.8%	30	7.6%
Influencers	0	0.0%	0	0.0%	2	0.5%	2	0.5%
Specialized	6	1.5%	0	0.0%	21	5.3%	27	6.9%
Corporate	0	0.0%	1	0.3%	0	0.0%	1	0.3%
Total	103	26.1%	96	24.4%	195	49.5%	394	100.0%

Table 6. Relationship between disinformation intentions and deceptions' sources in Spain

Source: Own elaboration.

DISCUSSION AND CONCLUSIONS

This paper analyzed the intentions and characteristics of disinformation about the COVID-19 pandemic in social networks through content analysis of the 548 debunks published by the fact-checkers *Chequeado*, from Argentina, and *Newtral*, from Spain, between January 1, 2020 and June 30, 2021. The statistical analysis allowed us to observe similarities and differences between both countries and to evaluate the relationship between the intention of the disinformation and the topics, the protagonists, the emotional appeals, and the sources of the deceptions.

In relation to RQ1, it was shown that disinformation on COVID-19 in Argentina and Spain operates in the same way in four of the five characteristics studied – intentions, themes, protagonism, and emotional appeal – but not in the case of sources, where there are notable differences.

While in Argentina, nonexistent sources and real sources are the majority, almost in the same proportion, in Spain the former clearly predominate. Thus, the deceptions about the virus in the Latin American country were not only disseminated anonymously, but also by media actors –as Moreno-Castro and colleagues (2020) have already detected in the Spanish case– and scientists, which lends verisimilitude to the deceptions and thus makes disinformation harmful to the quality of public debate but, above all, to health. This finding, however, does not correspond with the findings of Salaverría and colleagues (2020) in Spain on the prevalence, with almost identical frequencies, of anonymous and impersonated sources, which is also inconsistent with the results of our research in this area, in which we have detected the absolute preponderance of nonexistent sources, especially convenient for citizens to create and disseminate cheapfakes, coarsely produced misinformative content within the reach of users with not necessarily high digital literacy (Gamir-Ríos et al., 2021; Gamir-Ríos & Tarullo, 2022). We estimate that the difference in the results is a consequence of the evolution of the strategies of disinformation producers in the course of the pandemic.

The homogeneity of the results from Argentina and Spain indicates that the infodemic developed with the same transnational character as the pandemic itself, both in the topics about which disinformation was given (already demonstrated in Gutiérrez-Coba et al., 2020; Peña Ascacibar et al., 2021, Magallón-Rosa & SánchezDuarte, 2021), and in its intentions, protagonists, and emotional appeals, which this study verifies. Thus, and extending the response to RQ1, territorial qualities did not echo in the misinformation studied. This could hint that in polarized societies (Alonso & Brusino, 2018; Simón, 2020) –with social networks

as the main source for news consumption (Newman et al., 2020) and a shared language– disinformation on a global agenda item uses shared parameters to propagate in different scenarios.

As for RQ2, the primary intention of the disinformation about the pandemic that circulated in social networks was to destabilize the health system and the institutional health response by denying the existence of the virus, contesting its effects, and spreading conspiracy theories about its spread (Vega-Dienstmaier, 2020). This finding differs from that observed by Gutiérrez-Coba and colleagues (2020) in the hoaxes that circulated during the first two and a half months since the declaration of the pandemic, whose motivations were political, first, economic, second, and destabilizing, third. This reveals that, as the pandemic progressed, the infodemic evolved from partisan or clickbait-related objectives to an anti-establishment purpose.

The prevalence of the aforementioned topics is consistent with the findings of Salaverría and colleagues (2020) for the first months of the pandemic in Spain, but not with other research according to which national and international politics predominated (Peña Ascacibar et al., 2021). In turn, the preeminence of actors linked to medicine or health research is consistent with previous studies (Gutiérrez-Coba et al., 2020; Moreno-Castro et al., 2020; Peña Ascacibar et al., 2021; Salaverría et al., 2020), which indicates a tendency to place disinformation in the hands of those who are expected to report truthfully and whom the public looked to as referents during the first months of the pandemic (Nielsen et al., 2020).

Regarding RQ3, the main finding is that the inferred intention pursued by the deception conditions the topics, actors, and emotional appeals contained in it. This was tested statistically, noting the correlation in varying degrees between the inferred intention of the disinformation and the four studied characteristics of the deceptions. Those with a destabilizing objective resorted mainly to negationist themes, to protagonists related to the health field, and appealed to negative emotions, especially fear and, to a lesser extent, anger. Those of polarizing intent, to issues related to the scope and availability of the measures and the behavior of the political class in relation to the health situation, to political protagonists, and to negative emotional appeals, with a prevalence of anger. Those with a reputational or informative purpose, to recommendations to prevent contagion or cure the disease, absence of protagonists or collective protagonism and, unlike the previous cases, positive appeals.

In short, infodemics appealed to fear to destabilize, used anger and rage when the intention was to polarize, and resorted to positive emotions such as surprise

and joy to achieve reputational or informational goals. As stated in the introduction, although emotional appeals have been considered essential in disinformation flows (Chadwick & Vaccari, 2019), no precedents were found that have addressed them in research on the production of disinformation. The great weight of emotions in the assimilation and sharing of hoaxes (Tucker et al., 2018; Weeks, 2015) is, then, considered by the producers of problematic content, who vary the nature of their appeals according to their misinformative intention. In that regard, the result on the presence of anger and fear predominantly in disinformation about COVID-19 is a contribution of this research. Anger can get disinformation to be evaluated from partisan parameters, thus reinforcing the public's prior beliefs and fertilizing polarization (Weeks, 2015) in already polarized contexts, such as Argentina and Spain. Likewise, the fact that disinformation appealed to fear to destabilize makes sense in the very essence of fear as a disturbing emotion, of distrust that accredits the idea that something bad is going to happen. With a disconcerted citizenry, in a unique context of global uncertainty, disinformation found a wide echo to operate.

Although this work contributes to the study of disinformation in two Ibero-American countries with novel findings, its limitation is the composition of the corpus based on hoaxes debunked by fact-checking media. Although this does not detract from its validity, since it is a consolidated way of constructing corpora to study disinformation in social networks (Gamir-Ríos et al., 2021; Gutiérrez-Coba et al., 2020; Magallón-Rosa & Sánchez-Duarte, 2021; Peña Ascacibar et al., 2021; Salaverría et al., 2020), the methodologies used by checkers to select hoaxes leave out little disseminated content and content circulating in private networks such as WhatsApp (Moreno-Castro et al., 2020).

Future work could study the relationship between the inferred intention of scientific and health disinformation and the characteristics of deception in post-pandemic situations, with samples not limited to COVID-19. Likewise, studying what works on audiences in terms of the emotions to which misinformative content appeals would be a line that could be addressed with qualitative techniques. Similarly, by observing the results of previous studies on disinformation in less prolonged periods or during the first months of the pandemic (Gutiérrez-Coba et al., 2020; Magallón-Rosa & Sánchez-Duarte, 2021; Peña Ascacibar et al., 2021; Salaverría et al., 2020), we believe that incorporating the debunk publication date will allow identifying changes and similarities in the deceptions at different times of the pandemic.

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