



Research Note

Explaining beliefs in electoral misinformation in the 2022 Brazilian election: The role of ideology, political trust, social media, and messaging apps

The 2022 elections in Brazil have demonstrated that disinformation can have violent consequences, particularly when it comes from the top, raising concerns around democratic backsliding. This study leverages a two-wave survey to investigate individual-level predictors of holding electoral misinformation beliefs and the role of trust and information habits during the 2022 Brazilian elections. Our findings demonstrate that susceptibility to electoral misinformation is affected by factors such as political ideology, trust in the electoral process and democratic institutions, and information consumption, with those who participate in political groups in messaging apps being more likely to believe in electoral misinformation.

Authors: Patrícia Rossini (1), Camila Mont’Alverne (2), Antonis Kalogeropoulos (3)

Affiliations: (1) School of Social and Political Sciences, University of Glasgow, UK, (2) Reuters Institute for the Study of Journalism, University of Oxford, UK, (3) Department of Communication Sciences, Vrije Universiteit Brussel, Belgium

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Research questions

- What is the relationship between individual-level indicators of holding electoral misinformation beliefs?
- What is the role of traditional news media, social media, and messaging applications in explaining vulnerability to electoral misinformation?
- Are people who participate in political WhatsApp and Telegram groups more likely to be misinformed?

Essay summary

- We used a two-wave survey in Brazil in which we asked about belief in electoral misinformation, media use, trust in the election results, and support for democracy.
- Susceptibility to electoral misinformation is a complex issue affected by factors like political ideology, levels of trust in the electoral process, and reported news use.

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- Trust in specific institutions affects belief in misinformation in different ways: trust in the government and in the Army is positively associated with misinformation belief, while trust in the Courts is negatively associated.
- Those who joined political groups in messaging apps are more likely to believe in electoral misinformation, highlighting a complex relationship between the increasing use of private messaging for political participation and the spread of misinformation largely left unchecked in these spaces.

Implications

Disinformation and misinformation have been established as critical challenges for democratic societies (Bennett & Livingston, 2018; Guess & Lyons, 2020; Hameleers et al., 2020). The recent elections in the United States and Brazil have exemplified how disinformation can have violent consequences when bolstered by illiberal incumbents who actively threaten the electoral process through open disinformation campaigns (Papakyriakopoulos & Goodman, 2022). Scholars have long established the role of political elites in influencing public opinion, including in the context of election policies and procedures (McCarthy, 2023). As such, we argue that these two major presidential elections have established electoral *misinformation* and *disinformation*² as signs of democratic backsliding—that is, deliberate attempts to undermine democracy from within (Bauer & Becker, 2020)—and a threat to the ability to hold free and fair elections by openly and continuously undermining trust in the electoral process and its results, while also casting doubt on the institutions that uphold democratic processes.

This article contributes to the literature on politics and disinformation, which often finds that support for populist political leaders and higher levels of social media use predict belief in falsehoods (Enders et al., 2021; Jamieson & Albarracin, 2020), by looking at the association between believing electoral falsehoods and indicators of electoral backsliding, such as trust in the electoral process and institutions. Investigating this relationship is relevant because backsliding may affect otherwise stable individual-level attitudes, such as trust in institutions, when elected leaders are the ones misleading citizens (Norris, 2022). In democratic countries, the phenomena of incumbents spreading disinformation to openly undermine elections and institutions is somewhat unique, as it represents a shift from covert (foreign or domestic) disinformation operations to overt threats to the democratic process and challenges to democratic institutions.

To shed light on the relationships between belief in electoral misinformation and democratic backsliding, we used a survey with a representative sample of Brazilian internet users to examine the predictors of beliefs in electoral disinformation in the aftermath of the 2022 election. Brazil is the fourth largest democracy in the world, and the role of social media and messaging applications in spreading misinformation has been intensively scrutinized in the country due to the high levels of internet penetration and high reliance on social media and messaging apps for news (Newman et al., 2022). The importance of messaging apps and social media for information consumption in Brazil is hardly unique, especially across other Global South countries, and understanding the potential for vulnerability to electoral misinformation on these platforms during a contentious campaign might offer guidance for scholars and policymakers in other similar contexts dealing with similar problems.

² We deliberately use *misinformation* and *disinformation* to refer to electoral falsehoods, and this choice is based on our ability to determine intentionality. When referring to the action by political elites in spreading false or misleading claims, we use *disinformation* as there is a clear and deliberate intention to disinform. However, when referring to citizens' beliefs (our dependent variable), we use *misinformation* because not all statements included in our battery of falsehoods can be traced to political elite discourse.

Our findings suggest that beliefs in electoral misinformation can be explained by a combination of political, informational, and attitudinal factors. In line with prior research on disinformation in highly polarized contexts (Druckman et al., 2021; Garrett et al., 2016), right-wing ideology is a positive predictor of holding misinformed beliefs about the election. We also found that those who were less trusting in the 2022 election results were more likely to hold misinformed beliefs largely spread by then-President Jair Bolsonaro and his supporters (Nicas & Spigariol, 2022), echoing prior research suggesting that exposure to voter fraud allegations undermines overall trust in the process (Berlinski et al., 2023). Our results also relate to studies focusing on conspiracy theories about elections in the United States, which found that partisanship and elite cues are among the main drivers of conspiracy belief (Edelson et al., 2017; Uscinski et al., 2016). Taken together, these findings suggest that Bolsonaro's efforts to undermine confidence in the elections may have effectively misled voters—particularly those supportive of his campaign—potentially leaving them vulnerable to electoral falsehoods. These results should raise concerns because electoral disinformation has the potential to fuel political violence and may have consequences beyond a single election cycle. After the 2022 elections, thousands of Bolsonaro supporters demanded a military intervention to prevent the election winner, President Lula da Silva, from taking office, which was followed by an attack on the Supreme Federal Court building, the National Congress building, and the Planalto Presidential Palace in Brasília on January 8, 2022 (Watson, 2023).

During his term as President, Bolsonaro threatened Supreme Court ministers and raised suspicion around the electoral process, which led to disputes between the executive and judicial branches.³ Consistent with the clash between Brazil's institutions amidst Bolsonaro's threats to the judicial system (Pooler & Ingizza, 2022), we found contrasting relationships between the effect of trust in institutions and belief in electoral misinformation:⁴ those who trusted the government and the Army were more likely to believe misinformation, while trust in the judicial system was negatively correlated with holding misinformed beliefs. This dynamic suggests that disinformation from political leaders is effective in misleading those trusting in them. These results are in line with Norris's (2022) argument that citizens who place their trust in institutions and actors who do not perform their duties are likely to be misguided.

Citizens' informational choices have a longstanding relationship with political knowledge (Amsalem & Zoizner, 2023; Gil de Zúñiga & Diehl, 2019) and have been associated with vulnerability to misinformation, particularly regarding social media and partisan news outlets (Jamieson & Albarracin, 2020). In the Brazilian context, we found this relationship varied based on the choice of digital media sources. Those who said they used social media or alternative outlets for news (e.g., partisan or opinion-based outlets) were more likely to hold misinformed beliefs about the election than those relying on messaging apps—in line with prior research suggesting that messaging apps may not have the negative impact scholars often attribute to them (Rossini et al., 2021), at least as a source of information. Despite some evidence about the role of traditional media in mitigating beliefs in falsehoods and conspiracies (Jamieson & Albarracin, 2020), we did not find a significant relationship between traditional news use and beliefs in electoral misinformation.

Finally, the use of messaging applications has been the focus of scholars concerned with misinformation in the Global South. Research suggests that a significant part of WhatsApp users in the country report sharing misinformation (Rossini et al., 2021). We did not find a significant relationship between frequency of using messaging apps for news and beliefs in misinformation. However, those who joined groups to discuss the elections on WhatsApp or Telegram were much more likely to believe in electoral misinformation. In other words, using messaging apps, in general, does not predict belief in

³ See more details: <https://www.hrw.org/news/2021/09/15/brazil-bolsonaro-threatens-democratic-rule>

⁴ Given the context of the institutional clash between Bolsonaro-aligned institutions, Justice, and Congress, we estimated the effects of trust in each of the five institutions we measured. We present the model with a scaled item for institutional trust in the appendix, which shows a positive relationship with misinformed electoral beliefs. Inspecting the coefficients, this result seems to be due to the combined predictive power of trust in the Army and government.

misinformation, but using it for participating in political groups does. These results indicate that the reasons for which people use these services are also relevant in explaining how they are affected by misinformation, and echo concerns raised by scholars about the use of WhatsApp groups to spread political misinformation and disinformation (Soares et al., 2021).

These findings have important implications for future research on online mis- and disinformation beyond the context of elections. This is the first study, to our knowledge, to consider beliefs in electoral misinformation in the context of open disinformation campaigns by an incumbent, shedding light on the importance to consider the reach and influence of political leaders in misleading and disinforming the public. By undermining confidence in the “system” (institutions and the media), a common populist strategy (Bergmann, 2020; Hameleers, 2020), illiberal politicians can create confusion and sow mistrust, leaving citizens more vulnerable to believing in falsehoods. Each context, however, needs to be carefully considered since our own data shows that adherence to populist attitudes is so high among Brazilian respondents that it does not predict belief in electoral misinformation. This is not to say that populism is not related to misinformation beliefs. It is possible that the prevalence of populist attitudes among the population, in general, provides fertile ground for populist anti-system discourses to thrive. Bolsonaro’s ability to foster suspicion around the electoral process signals how populist leaders’ discourses can spread a fragmented ideology (Engesser et al., 2017).

Our results have a direct impact on our understanding of institutional trust and on how scholars interpret this construct in the future: the contrasting dynamics around trust in different institutions in our findings demonstrate how the villainization of institutions that uphold democracy for political gain may have lasting consequences in terms of democratic stability and trust. These results also emphasize challenges for democratic institutions when it comes to counterattacks from political elites and their impacts on citizens when they follow cues from leaders in polarized environments. For instance, interventions to combat disinformation have mainly focused on pointing citizens to a single source of trustworthy information: in the Brazilian elections, this was the official website of the electoral tribunal. However, the impact of such approaches may be limited insofar as citizens who are more affected by misinformation may not trust these sources. Our findings suggest that future interventions need to consider how different sources may inspire varied levels of confidence, potentially requiring such interventions to use a wider variety of sources to refute falsehoods. A promising example of strategies that might work in a Global South context are corrections by peers in messaging apps groups (Badrinathan & Chauchard, 2023).

Second, our findings about the role of WhatsApp discussion groups in explaining vulnerability to electoral misinformation raise heightened concerns about the use of messaging applications by politically engaged citizens. As messaging apps increasingly focus on group chats,⁵ they may facilitate the spread of and exposure to misinformation. This finding is particularly problematic because politicians leverage group chats to spread disinformation and coordinate malicious activities without public scrutiny (Scott, 2023). Moreover, most people are not necessarily looking for news when using group chats (Mont’Alverne et al., 2022), being potentially vulnerable to inadvertently encountering misinformation while having fewer chances of being exposed to corrections, given the platform architecture. The potentially detrimental role of group membership has important consequences for future research on misinformation and disinformation, as the oversight on open platforms, the closure of social media APIs, and the move towards encrypted environments requires scholars to develop creative research approaches to study the impact of messaging applications (Rossini, 2023).

⁵ WhatsApp doubled its group size to 512 participants in 2022—a change that was withheld in Brazil until after the election, and Telegram allows groups with thousands of participants. Since WhatsApp, owned by Meta, enjoys greater scrutiny in Brazil, Bolsonaro started urging supporters to use Telegram several months prior to the election.

Findings

Finding 1: Institutional trust is a complex construct amidst democratic backsliding.

The individual-level predictors of beliefs in election misinformation reflect political attitudes associated with democratic backsliding. We found a strong negative association between trust in the electoral process and beliefs in falsehoods about the election—meaning that those distrustful of the electoral results were also likely to believe in falsehoods. Institutional trust is more complex, reflecting the tension between Bolsonaro's government and other democratic institutions. Citizens with higher trust in the government and the Army were more likely to hold misinformed beliefs about the election, while those who trusted the judicial system were less likely to become disinformed. These results add nuance to the idea that institutional trust is always desirable since it might lead to anti-democratic attitudes in cases in which these institutions are weaponized by actors who want to push forward their agendas of eroding democracy.

Finding 2: Right-wing citizens are more likely to believe in electoral misinformation.

Respondents who identify as being right-wing were more likely to believe in electoral misinformation. Considering that Bolsonaro was the primary purveyor of electoral disinformation, this effect is not surprising insofar as right-wing citizens may be susceptible to falsehoods that are primarily driven by his discourse. In line with this, those with lower satisfaction with how democracy works in Brazil tended to be more disinformed (although this was not significant). There are no clear demographic patterns explaining vulnerability to electoral falsehoods, except for a small negative association between education and misinformed beliefs. This is in line with prior research in Brazil, which has found mixed evidence for the role of education in explaining misperceptions (Altay et al., 2023; Rossini et al., 2021).

Finding 3: Using alternative sources and social media for news predicts belief in misinformation.

When turning to information consumption, those who reported more frequently using what we label as "alternative news" (e.g., partisan, online-only outlets), as well as social media as a source of news, were also more likely to believe in electoral misinformation. Traditional news use had a negative, but insignificant, coefficient, and using messaging applications for news was also not significantly associated with holding misinformed beliefs.

Finding 4: Participating in political WhatsApp groups is the strongest predictor of misinformation belief.

Considering the role of WhatsApp, we found that the strongest predictor of holding misinformed beliefs after the election was having joined a WhatsApp group to discuss the elections before the elections took place, corroborating scholarly concern about the detrimental effects of political groups on the messaging app (Machado et al., 2019; Soares et al., 2021). While those who reported using WhatsApp to consume information were no more likely to hold misinformed beliefs, users who joined groups with the goal of discussing politics prior to the elections were much more vulnerable to the falsehoods that tend to circulate in these environments (Rossini et al., 2021; Soares et al., 2021). However, we refrain from making causal claims given that misinformed beliefs were measured only in Wave 2, after the election. Our self-reported measures did not allow us to tease out the underlying dynamics of private discussion groups that might be driving this effect. A potential explanation is that discussion groups may expose their participants to a large amount of political information, some of which might be inaccurate, exaggerated, or false

(Chauchard & Garimella, 2022; Resende et al., 2019; Santos et al., 2022). It is also possible that these groups facilitate like-minded discussions, which may decrease the possibility that attitude-enforcing misinformation is countered or debunked (Scheufele & Krause, 2019).

Finding 5: Electoral disinformation plays into a broader conspiratorial narrative of institutional distrust.

We included belief in a placebo misinformation statement about the election as a control (a statement that has not been circulated), but its predictive power suggests a tendency for respondents to fall for falsehoods about the election that echo disinformation they already believe in, demonstrating susceptibility to “new” falsehoods that align with broader conspiratorial narratives about the election. However, the correlations reported in this article hold even after controlling for belief in placebo misinformation.

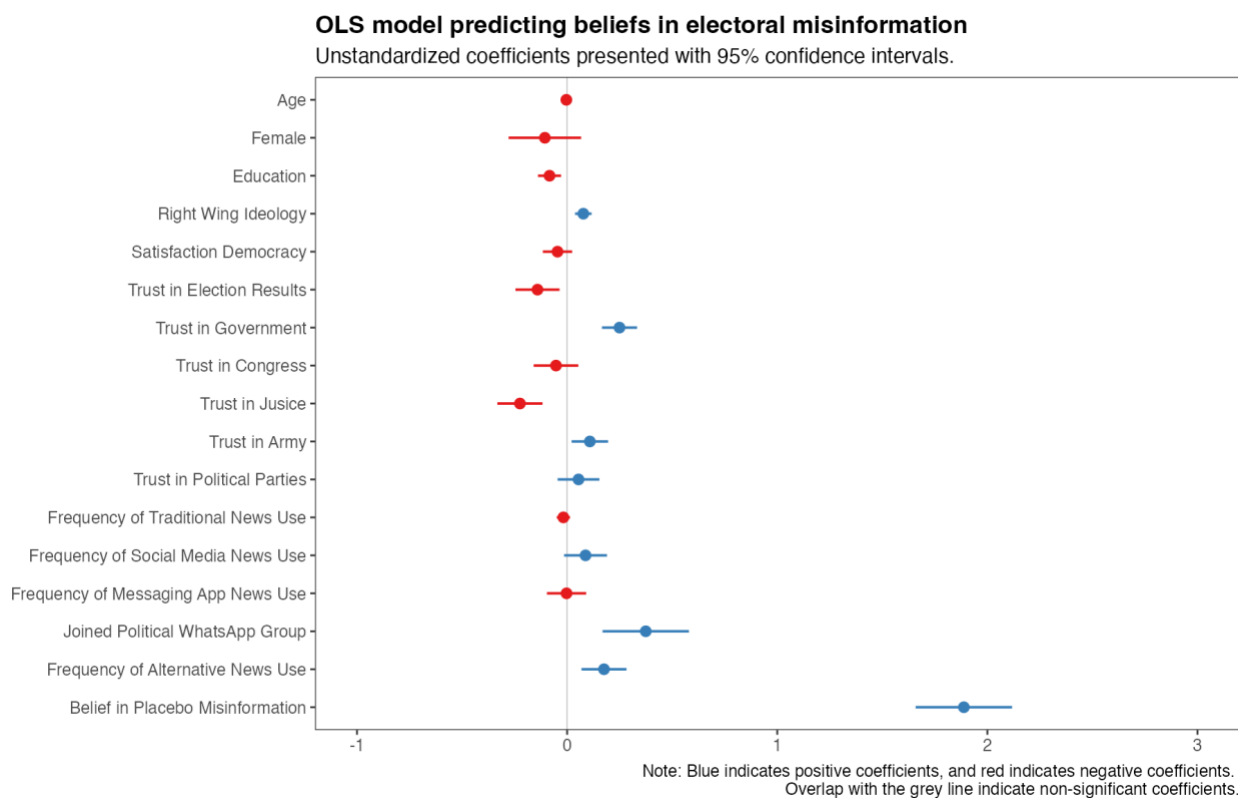


Figure 1. Model coefficient plot predicting misinformed beliefs. Full model is available in the Appendix.

Methods

We used a two-wave post-election survey in Brazil, using demographic quotas to obtain a representative sample of the Brazilian population. The survey was conducted online, using quotas for age, gender, income band, and region to represent the online population of Brazil. The first wave had 1,600 respondents, of which 1,328 were retained in the second wave. The first wave took place between 5 and 18 October, and the second wave was fielded between 8 and 23 November, shortly after each round of voting in the 2022 Brazilian presidential elections. The survey was fielded by the Brazilian opinion poll company Ipec. Items comprising the dependent variable, *misinformed electoral beliefs*, were asked solely during the second wave after voting had been completed. As such, despite using measures from the first

wave as explanatory variables, we did not perform a panel analysis, given that our dependent variable was measured once. We opted not to measure misinformed beliefs in wave one for ethical considerations (to avoid exposing participants to electoral misinformation before they voted in the runoff election). Participants were debriefed with fact-checking information after concluding the survey.

Variables

Our dependent variable, *misinformed electoral beliefs* (see Appendix), consisted of a battery of 12 statements about the election, of which eight were false, three were true, and one was made up by the researchers as a placebo (Vaccari et al., 2023). Participants were asked whether they thought each statement was true or false using a 5-point Likert scale. The answers to false statements were binary coded so that each statement classified as true or probably true was coded as 1, while correct answers were coded as zero. We then calculated a “misinformed belief score,” ranging from 0 to 8. Around half of the respondents (46%) had a score of zero on the misinformation scale, meaning that they did not mistakenly flag a false statement as true. The placebo item was included in our model as a control; to investigate the correlates of misinformed beliefs that are part of a larger conspiratorial mindset that would make respondents believe every misinformed statement about the election and are not necessarily related to the information they have received.

To investigate what the role of information diets is, we measured the reported frequency of use of the following during the elections: mainstream news (e.g., TV broadcasters, newspapers), alternative news sites (e.g., right-wing portals), social media (e.g., Facebook, Twitter), and messaging applications (e.g., WhatsApp). We additionally asked if participants had joined a WhatsApp group to discuss politics and the election. To measure the participants’ political attitudes, we asked them about their ideological self-placement on an axis from 1 (very left-wing) to 10 (very right-wing), their satisfaction with democracy asked on a 1 (very unsatisfied) to 5 (very satisfied), and a measure of trust in election results. For the latter, we asked respondents whether they thought the 2022 elections were reliable on a scale from 0 (not reliable at all) to 4 (very reliable). Last, we also included a measurement of participants’ age, education levels, and gender.

Bibliography

- Altay, S., Nielsen, R. K., & Fletcher, R. (2023). News can help! The impact of news media and digital platforms on awareness of and belief in misinformation. *The International Journal of Press/Politics*. Advance online publication. <https://doi.org/10.1177/19401612221148981>
- Amsalem, E., & Zoizner, A. (2023). Do people learn about politics on social media? A meta-analysis of 76 studies. *Journal of Communication*, 73(1), 3–13. <https://doi.org/10.1093/joc/jqac034>
- Badrinathan, S., & Chauchard, S. (2023). “I don’t think that’s true, bro!” Social corrections of misinformation in India. *The International Journal of Press/Politics*. Advance online publication. <https://doi.org/10.1177/19401612231158770>
- Bauer, M. W., & Becker, S. (2020). Democratic backsliding, populism, and public administration. *Perspectives on Public Management and Governance*, 3(1), 19–31. <https://doi.org/10.1093/ppmgov/gvz026>
- Bennett, W. L., & Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. *European Journal of Communication*, 33(2), 122–139. <https://doi.org/10.1177/0267323118760317>
- Bergmann, E. (2020). Populism and the politics of misinformation. *Safundi*, 21(3), 251–265. <https://doi.org/10.1080/17533171.2020.1783086>

- Berlinski, N., Doyle, M., Guess, A. M., Levy, G., Lyons, B., Montgomery, J. M., Nyhan, B., & Reifler, J. (2023). The effects of unsubstantiated claims of voter fraud on confidence in elections. *Journal of Experimental Political Science*, 10(1), 34–49. <https://doi.org/10.1017/XPS.2021.18>
- Druckman, J. N., Klar, S., Krupnikov, Y., Levendusky, M., & Ryan, J. B. (2021). How affective polarization shapes Americans' political beliefs: A study of response to the COVID-19 Pandemic. *Journal of Experimental Political Science*, 8(3), 223–234. <https://doi.org/10.1017/XPS.2020.28>
- Edelson, J., Alduncin, A., Krewson, C., Sieja, J. A., & Uscinski, J. E. (2017). The effect of conspiratorial thinking and motivated reasoning on belief in election fraud. *Political Research Quarterly*, 70(4), 933–946. <https://doi.org/10.1177/1065912917721061>
- Enders, A. M., Uscinski, J. E., Seelig, M. I., Klofstad, C. A., Wuchty, S., Funchion, J. R., Murthi, M. N., Premaratne, K., & Stoler, J. (2021). The relationship between social media use and beliefs in conspiracy theories and misinformation. *Political Behavior*. <https://doi.org/10.1007/s11109-021-09734-6>
- Engesser, S., Ernst, N., Esser, F., & Büchel, F. (2017). Populism and social media: How politicians spread a fragmented ideology. *Information, Communication & Society*, 20(8), 1109–1126. <https://doi.org/10.1080/1369118X.2016.1207697>
- Garrett, R. K., Weeks, B. E., & Neo, R. L. (2016). Driving a wedge between evidence and beliefs: How online ideological news exposure promotes political misperceptions. *Journal of Computer-Mediated Communication*, 21(5), 331–348. <https://doi.org/10.1111/jcc4.12164>
- Gil de Zúñiga, H., & Diehl, T. (2019). News finds me perception and democracy: Effects on political knowledge, political interest, and voting. *New Media & Society*, 21(6), 1253–1271. <https://doi.org/10.1177/1461444818817548>
- Guess, A., & Lyons, B. A. (2020). Misinformation, disinformation, and online propaganda. In J. A. Tucker & N. Persily (Eds.), *Social media and democracy: The state of the field, prospects for reform* (pp. 10–33). Cambridge University Press.
- Hameleers, M. (2020). Populist disinformation: Exploring intersections between online populism and disinformation in the US and the Netherlands. *Politics and Governance*, 8(1), 146–157. <https://doi.org/10.17645/pag.v8i1.2478>
- Hameleers, M., van der Meer, T. G. L. A., & Brosius, A. (2020). Feeling “disinformed” lowers compliance with COVID-19 guidelines: Evidence from the US, UK, Netherlands and Germany. *Harvard Kennedy School (HKS) Misinformation Review*, 1(3). <https://doi.org/10.37016/mr-2020-023>
- Jamieson, K. H., & Albarracin, D. (2020). The relation between media consumption and misinformation at the outset of the SARS-CoV-2 pandemic in the US. *Harvard Kennedy School (HKS) Misinformation Review*, 1(3). <https://doi.org/10.37016/mr-2020-012>
- Machado, C., Kira, B., Narayanan, V., Kollanyi, B., & Howard, P. (2019). A study of misinformation in WhatsApp groups with a focus on the Brazilian presidential elections. *Companion proceedings of the 2019 world wide web conference* (pp. 1013–1019). Association for Computing Machinery. <https://doi.org/10.1145/3308560.3316738>
- McCarthy, D. (2023). Do partisans follow their leaders on election manipulation? *Political Communication*, 40(2), 173–200. <https://doi.org/10.1080/10584609.2022.2150728>
- Mont'Alverne, C., Badrinathan, S., Arguedas, A., Toff, B., & Nielsen, R. K. (2022). *The trust gap: How and why news on digital platforms is viewed more sceptically versus news in general*. <https://reutersinstitute.politics.ox.ac.uk/trust-gap-how-and-why-news-digital-platforms-viewed-more-sceptically-versus-news-general>
- Newman, N., Fletcher, R., Robertson, C. T., Eddy, K., & Nielsen, R. K. (2022). *Reuters Institute digital news report 2022*. <https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2022>
- Norris, P. (2022). *In praise of skepticism: Trust but verify*. Oxford University Press.

- Papakyriakopoulos, O., & Goodman, E. (2022). The impact of Twitter labels on misinformation spread and user engagement: Lessons from Trump's election tweets. *Proceedings of the ACM web conference 2022* (pp. 2541–2551). Association for Computing Machinery.
<https://doi.org/10.1145/3485447.3512126>
- Pooler, M., & Ingizza, C. (2022, October 24). Judges join the fray in Brazil's bitter election fight. *Financial Times*. <https://www.ft.com/content/542e5046-15f5-4ec0-b598-068cc03622da>
- Reis, J. C. S., Melo, P., Garimella, K., & Benevenuto, F. (2020). Can WhatsApp benefit from debunked fact-checked stories to reduce misinformation? *Harvard Kennedy School (HKS) Misinformation Review*, 1(5). <https://doi.org/10.37016/mr-2020-035>
- Rossini, P. (2023). Farewell to big data? Studying misinformation in mobile messaging applications. *Political Communication*. <https://doi.org/10.1080/10584609.2023.2193563>
- Rossini, P., Stromer-Galley, J., Baptista, E. A., & Veiga de Oliveira, V. (2021). Dysfunctional information sharing on WhatsApp and Facebook: The role of political talk, cross-cutting exposure and social corrections. *New Media & Society*, 23(8), 2430–2451.
<https://doi.org/10.1177/1461444820928059>
- Scheufele, D. A., & Krause, N. M. (2019). Science audiences, misinformation, and fake news. *Proceedings of the National Academy of Sciences*, 116(16), 7662–7669.
<https://doi.org/10.1073/pnas.1805871115>
- Scott, M. (2023, January 9). Everyone saw Brazil violence coming. Except social media giants. *POLITICO*.
<https://www.politico.eu/article/brazil-violence-social-media-lula-bolsonaro-riot-insurrection-coup/>
- Soares, F. B., Recuero, R., Volcan, T., Fagundes, G., & Sodré, G. (2021). Research note: Bolsonaro's firehose: How Covid-19 disinformation on WhatsApp was used to fight a government political crisis in Brazil. *Harvard Kennedy School (HKS) Misinformation Review*, 2(1).
<https://doi.org/10.37016/mr-2020-54>
- Uscinski, J. E., Klobstad, C., & Atkinson, M. D. (2016). What drives conspiratorial beliefs? The role of informational cues and predispositions. *Political Research Quarterly*, 69(1), 57–71.
<https://doi.org/10.1177/1065912915621621>
- Vaccari, C., Chadwick, A., & Kaiser, J. (2023). The campaign disinformation divide: Band sharing news in the 2019 UK General Election. *Political Communication*, 40(1), 4–23.
<https://doi.org/10.1080/10584609.2022.2128948>
- Watson, K. (2023, January 9). *What do the Bolsonaro protesters in Brazil want?* BBC News.
<https://www.bbc.com/news/world-latin-america-64212627>

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Competing interests

The authors declare no competing interests.

Ethics

This research received ethical approval by the University of Glasgow Research Ethics Committee (Id: 400220013). Informed consent was obtained, and participant data was fully anonymized by the survey company prior to the delivery of the dataset. Gender categories were defined as Male, Female, Other (specify, open-ended), and Prefer not to say. Gender was included in the survey for the purpose of obtaining a sample that matched the population across demographic characteristics. It is also used as a control variable, as prior studies on misinformation have identified gender as a relevant individual-level dimension.

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Data availability

All materials needed to replicate this study are available via the Harvard Dataverse: <https://doi.org/10.7910/DVN/VVDUCZ>

Appendix: Supplementary methods

Sample demographics and quotas

We used demographic quotas to ensure that the survey mirrored population characteristics, based on data from PNAD - the Continuous Household National Sample Survey (2022). Table 1 presents the distribution of our sample. The margin of error is 2% with a 95% confidence interval.

Table 1. *Sample characteristics and quotas.*

	Expected	Completed	Difference
<u>Gender</u>			
Male	774	769	-1%
Female	826	831	+1%
<u>Region</u>			
North	96	96	-
Northeast	286	286	-
Southeast	798	798	-
South	283	283	-
Midwest	137	137	-
<u>Age</u>			
18 - 24	287	280	-2%
25 - 34	392	396	+1%
35 - 44	381	382	-
45 - 59	415	417	-
60+	125	125	-
<u>Income Band</u>			
A	54	55	+2%
B	488	484	-1%
C	1058	1061	-

Regression models

Table 2 presents two OLS models. Model 1 includes a combined measure for Institutional Trust, scaling the five items used to measure it (Cronbach's Alpha = .79). Model 2 is the full model used in the analysis and presented as a plot in the paper.

Table 2. Full models, OLS regressions. Numbers denote coefficients. Numbers in brackets denote standard error. DV: Misinformation score.

	Model 1	Model 2
(Intercept)	0.96 ** (0.37)	0.80 * (0.36)
Age	-0.00 (0.00)	-0.00 (0.00)
Female	-0.17 (0.09)	-0.10 (0.09)
Education	-0.09 ** (0.03)	-0.08 ** (0.03)
Ideology (Right wing)	0.12 *** (0.02)	0.08 *** (0.02)
Satisfaction with Democracy	-0.05 (0.04)	-0.05 (0.04)
Trust in Election Results	-0.27 *** (0.05)	-0.14 * (0.05)
Frequency of traditional news use	-0.03 * (0.02)	-0.02 (0.02)
Frequency of social media news use	0.14 * (0.05)	0.09 (0.05)
Frequency of messaging app news use	0.03 (0.05)	0.00 (0.05)
Membership in a WhatsApp political group	0.35 *** (0.11)	0.37 *** (0.10)

Frequency of Alternative news use	0.18 ** (0.06)	0.18 ** (0.05)
Belief in Placebo Misinformation	1.95 *** (0.12)	1.89 *** (0.12)
Institutional Trust	0.10 * (0.05)	
Trust in Government		0.25 *** (0.04)
Trust in Congress		-0.05 (0.05)
Trust in Justice		-0.22 *** (0.05)
Trust in Army		0.11 * (0.04)
Trust in Political Parties		0.05 (0.05)
N	1262	1262
R2	0.41	0.44

Note: *** p < 0.001; ** p < 0.01; * p < 0.05.

Full wording for survey items

Demographics

D1. How old are you? _____ [open ended]

D2. What is your gender?

1. Female
2. Male
3. Other (specify) _____
4. Prefer not to say.

D3. What is the highest degree or level of school you have completed?

1. Completed pre-school
2. Incomplete primary education
3. Complete primary education
4. First year of high school
5. Second year of high school
6. High school degree or equivalent
7. Some college, no degree
8. Bachelor's degree
9. Postgraduate degree (Masters', MBA)
10. Doctorate (e.g., PhD, EdD)

Q1. In the past month, how often did you use messaging apps and social networking sites (Facebook, YouTube, etc.)?

- Facebook
 - Instagram
 - WhatsApp
 - Telegram
 - YouTube
1. Several times a day
 2. Every day or almost every day
 3. Once or twice a week
 4. At least once a month
 5. I didn't use it last month

Q8. In the past month, did you...?

- Joined a group on WhatsApp or Telegram to discuss politics?
1. Yes
 2. No

Q9. How often do you get news using the following channels in the past week?

- Printed newspapers, such as Folha de S. Paulo, O Globo, including on-line
- Local newspapers, including on-line
- TV, such as Globo, SBT, Record, Band, Rede TV etc.
- 24h-TV channels, such as Globo News, BandNews, CNN
- Online news websites, such as UOL, Terra, R7, G1 etc.
- Social media (Facebook, Twitter, Instagram, etc.)
- Messaging apps (Facebook Messenger, WhatsApp, etc.)
- Search engines (e.g., Google)
- Blogs and alternative news websites (e.g., O Antagonista, Brasil de Fato, Brasil 247, Jornal da

Cidade Online)

1. Several times a day
2. Every day or almost every day
3. Once or twice a week
4. I didn't use it last week

Q14. Please indicate your level of agreement with the following:

- I trust the National Congress
- I trust political parties
- I trust the Justice Branch
- I trust the Army
- I trust the federal government

1. Completely agree
2. Somewhat agree
3. Neither agree nor disagree
4. Somewhat disagree
5. Completely disagree

Q15. How satisfied are you with the way democracy is working in Brazil?

1. Very satisfied
2. Somewhat satisfied
3. Neither satisfied nor unsatisfied
3. Not too satisfied
4. Not at all satisfied

Q21. In politics, people normally speak of "left," "right," and "center." On a scale where 1 is left and 10 is right, where would you place yourself?

[1 - 10 scale]

Q22. Thinking about the results of the 2022 presidential election, how trustworthy do you think the results are?

1. Very trustworthy
2. Likely trustworthy
3. Not very trustworthy
4. Not at all trustworthy
5. I don't know

Q35B) As far as you know, how accurate do you think the claims below are? (See claims under "Misinformation statements" in this Appendix.)

1. Definitely accurate
2. Probably accurate
3. I am not sure
4. Probably not accurate
5. Definitely not accurate

Misinformation statements

Table 3 presents the distribution of responses to the statements utilized to create our dependent variable of misinformed beliefs. These statements were compiled based on fact-checking websites, such as Aos Fatos, G1's Fato ou Fake, and Agência Lupa, as well as the website of the Electoral Justice. True statements were also based on materials posted on social media by the Superior Electoral Tribunal (TSE).

Our placebo item attributes to the Superior Electoral Tribunal the decision to withhold a report about the integrity of the elections elaborated by the army. This is false due to a misattribution of responsibility:

Bolsonaro's government requested that the report be withheld, and the document was only published several weeks after the second round of voting.

Table 3. Response distribution for the electoral misinformation statements.

	Definitely False	Probably False	Probably True	Definitely True	I am not sure
Votes are counted in a secret room in TSE (F)	20%	15%	13%	9%	44%
There is no way of auditing the voting machines in Brazil (F)	25%	17%	10%	10%	37%
A secret document has revealed flaws in the 2018 election vote count (F)	25%	21%	8%	7%	39%
There is a software capable of changing votes in the voting machines (F)	30%	16%	13%	11%	29%
A WhatsApp video proves fraud in the voting receipts in the first round of voting in MG (F)	30%	17%	10%	7%	37%
Some cities in the Northeast registered more votes in Lula than their total of citizens (F)	28%	14%	15%	13%	30%
The new Bolsonaro government will seize people's savings accounts (F)	36%	27%	3%	3%	30%
If elected, the Worker's Party will hold a constitutional assembly to decriminalize drugs (F)	25%	18%	14%	11%	32%
Anyone can check the voting receipts on the Electoral Justice website after the elections (T)	6%	8%	21%	29%	36%
No fraud was found in the test of electoral integrity in the 2022 elections (T)	10%	12%	16%	31%	31%
Voting machines are not connected to the internet (T)	8%	10%	15%	34%	33%
TSE forbade the disclosure of a report elaborated by the Army about the first round of the elections (<i>Placebo</i>)	21%	19%	10%	9%	40%

Note: False items are identified by (F), and true items are identified by (T).