

This is the final peer-reviewed accepted manuscript of:

Iannelli, L., Marino, G. (2022). Participation in Problematic News Cycles on Social Media and Instant Messaging Services during the Covid-19 Pandemic. The Impact of News Use, Political Discussion, and Ideological Extremism. COMUNICAZIONE POLITICA, 23(3), 381-402. 10.3270/105430

The final published version is available online at:

<https://www.rivisteweb.it/doi/10.3270/105430>

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Participation in problematic news cycles on social media and instant messaging services during the Covid-19 pandemic: The impact of news use, political discussion, and ideological extremism

After a period of initial enthusiasm about the greater communication power offered to citizens by the Internet, scholars now share a widespread concern about online participation in problematic news cycles. In particular, social media (SM) have attracted scholars' interest in mis- and disinformation processes. Less attention has been paid to semi-private instant messaging services (IMs); moreover, the literature about SM/IMs has principally investigated the process of fake news amplification, neglecting other participatory practices that can challenge democratic processes when driven by cognitive bias, inadequate skills, or digital hate. Against this background, and distinguishing between SM and IMs, this study provides evidence about the impact of citizens' digital news use, online political discussion, and ideological extremism on misinformation amplification, verification, and correction. Relying on a longitudinal survey administered during the Covid-19 emergency to a representative sample of online Italian adults, the study shows a counter-intuitive and paradoxical positive association between the expressive use of SM/IMs and these three forms of participation in problematic information cycles. Moreover, the analyses show that extreme ideological stances asymmetrically affect these participatory practices. These associations encourage further research to understand the extent to which – in other social and media contexts – a politically active and ideologically extreme citizenry may increase online problematic information.

Keywords: participation, problematic news cycles, social media, instant messaging services, ideological extremism

1. Introduction

Over the past decade, citizens have increasingly used social media (SM) and instant messaging services (IMs) to consume and share news (Newman et al., 2021). Moreover, through these platforms, citizens have participated ever more frequently in “hybrid news cycles” (Chadwick, 2017), competing and collaborating with established or alternative media actors in creating news stories, gathering evidence, and verifying information (Iannelli and Splendore, 2017).

Despite initial enthusiasm, after Trump's election and the Brexit referendum in 2016 scholars started to detect that citizens' growing participation in information cycles had detrimental consequences for the health of democracy (Quandt, 2018), in particular the rise in the circulation of problematic information on SM. “Problematic information” is an umbrella term indicating all forms of information created, whether intentionally or not, to mislead the audience (Jack, 2017). Problematic information has become particularly widespread on SM, where it can be legitimated by the personal influence of “friends” (Anspach, 2017) and the algorithmic logic increases the credibility of the most popular posts, as in the bandwagon effect (Schmitt-Beck, 2015).

Scholars have focused less on IMs, although they enable close network ties that may further facilitate users' judgments of credibility (Malhotra, 2020). Moreover, the absence of a feed makes it harder to identify the sources of decontextualized information on IMs, and the end-to-end encryption limits content-reporting and fact-checking systems (Chadwick et al., 2022; Rossini et al., 2021). These characteristics make studying problematic information on IMs interesting, but their private nature makes them harder to research without relying on self-reported data.

Literature on citizens' participation in problematic news cycles mainly focuses on mis/disinformation “amplification”: all those actions that contribute – accidentally or intentionally – to increase the visibility of such news in digital environments. Scholars have thus neglected two other less-than-ideal participatory practices for a healthy democracy, namely news verification and correction.

The term “verification” refers to those actions through which citizens authenticate the credibility of a news item or source encountered online. In a normative perspective, audience verification should prevent citizens from spreading false news (Silverman, 2018). However, research has demonstrated that verification led by confirmation bias or inadequate skills does not contribute to “clean” a toxic news media environment (Edgerly et al., 2020; Hameleers and van der Meer, 2019; Tandoc et al., 2018; Walter et al., 2021).

The term “correction” refers to all actions which consist of warning someone else about circulating problematic information. Both professionals and peer users perform corrections on SM and IMs. In a normative perspective, correcting journalists is a form of “media criticism”, transforming citizens into a “fifth estate” and encouraging participatory journalism (Hayes, 2008). Nevertheless, in a context of increased anti-press sentiment, media criticism can become a threat to journalists’ role in healthy and robust democratic societies (Cheruiyot, 2022; Rojas, 2010). Social corrections can, similarly, have positive and negative outcomes for the quality of democracy. Peer-to-peer correction may support a “self-correcting crowd” (Surowiecki, 2005), discouraging the sharing of false information through social sanctions. Conversely, social correction led by cognitive biases is less than ideal for democracy. During Covid-19, for example, Bode and Vraga (2021) observed that people who engaged in correction had higher levels of misperceptions about the virus, amplifying concerns about how this practice even contributes to misinformation spreading.

Against this background, the present study analyzed citizens’ participation in problematic news cycles by distinguishing between SM and IMs and considering the practices of misinformation amplification (sharing a news story and later finding out it was false), verification (verifying whether information encountered was true), and correction (warning someone else they were circulating false information). Using a longitudinal survey administered during the first phases of the Covid-19 emergency to a representative sample of Italian adults with internet access, this study provides evidence about the impact of digital news use, online political discussion, and ideological extremism on these participatory actions.

Below, we discuss the scientific literature on which we drew to formulate our research questions, present our methodological strategy, and, finally, discuss the results and main takeaways of the study.

2. Literature review and research questions

Digital news use and online political discussion as drivers of participation in problematic news cycles on SM and IMs

Chadwick and colleagues (2021) observe that most research into problematic news amplification has focused on understanding how journalists and bots limit or encourage this behavior, while the individual-level factors affecting the amplification of exaggerated and false information have been less studied. Individual drivers of mis/disinformation sharing on SM and IMs identified include frequency of online news use and political discussion. Studies conducted in the USA (Grinberg et al., 2019), the UK (Chadwick et al., 2021), Brazil (Rossini et al., 2021), and Chile (Valenzuela et al., 2019) suggest a “participation versus misinformation paradox” (Valenzuela et al., 2019): a counter-intuitive positive correlation between a higher informative/expressive political use of SM/IMs and a greater likelihood of sharing fake news on digital platforms. Otherwise put, in some contexts the most informed and active online citizens – what Hindman and colleagues (2022) call “superusers” – are those who perform online behaviors that are most harmful to the health of democracy.

Fact verification has mostly been studied in relation to professional verification, particularly by fact-checking organizations and journalists, while evidence of ordinary citizens’ verification behaviors is rare and mainly USA-based (Nieminen and Rapeli, 2019). In the USA, scholars have mainly investigated how and why people verify online news (Edgerly et al., 2020; Tandoc et al., 2018; Walter et al., 2021; Zubiaga et al., 2014). Analyzing media and political practices as antecedents of citizens’ news verification, two (USA-based) studies show that citizens with higher rates of SM news use, mainstream news consumption, and political discussion were more likely to visit fact-checking sites

(Kim et al., 2021; Robertson et al., 2020). These studies addressed only one online verification strategy (visiting fact-checking sites) and neglected the news use of IMs. However, their findings suggest it is worthwhile testing whether the “participation versus misinformation paradox” (Valenzuela et al., 2019) can also be identified in relation to citizens’ verification of problematic information encountered on SM and IMs.

Scientific evidence about citizens’ corrections on SM and IMs is also rare. Most scholars have analyzed the effect of corrections made by fact-checking organizations (Hameleers and van der Meer, 2019), groups of activists (Haigh et al., 2018), or algorithms (Bode and Vraga, 2015). The effects and diffusion of social corrections (from regular SM users to other users) have also been investigated (Chadwick et al., 2018; Margolin et al., 2018; Vraga and Bode, 2020). Recent studies of occurrences of online social correction reached divergent results. Chadwick and colleagues (2022), in the UK, identified a “conflict avoidance” on IMs which aimed to safeguard close social ties. Conversely, Rossini et al. (2021), in Brazil, and Tandoc et al. (2020), in Singapore, demonstrated that users tended to express social corrections more on IMs than on SM because they experienced a certain sense of safety in these semi-private online spaces. The motivations driving these divergent results may be both individual – such as the perceived relevance of an issue or feeling of personal efficacy (Tandoc et al., 2020) – and cultural – such as the social norms that regulate relationships with closer and weaker ties (Malhotra, 2020).

As well as for verification, little is still known about individual-level antecedents of social correction on SM and IMs (Chadwick and Vaccari, 2019). Only two studies have investigated the relationships between correction and the use of SM for news (Amazeen et al., 2019; Bode and Vraga, 2021). Examining the 2016 US presidential election, Amazeen and colleagues (2019) proved that sharing fact-checking news in political conversations on Facebook and Twitter increased among those most likely to seek out political information on SM. In the US context of Covid-19, Bode and Vraga (2021) found that relying on social media as an information source was not related to higher reports of correcting others.

Given the limited research in the field, especially for European countries, our study looked at both SM and IMs, focusing on the effects of news use (RQ1) and political discussion (RQ2) on diverse forms of participation in problematic information cycles in Italy during the first phases of the Covid-19 emergency. Accordingly, the first two research questions were formulated as follows:

RQ1. Does using SM and IMs *to consume news* about politics and public interest issues affect problematic information amplification, verification, and correction on these platforms, and if so, how?

RQ2. Does using SM and IMs *to discuss* politics and public interest issues affect problematic information amplification, verification, and correction on these platforms, and if so, how?

Extreme ideologies and asymmetric participation in problematic news cycles on SM and IMs

Ideology is among the most analyzed individual-level factors that can affect participation in problematic information cycles. In fact, ideological position provides an interpretive filter for processing information. Thus, individuals with strong political identities could be more likely to share information in line with their ideological positions (Hanitzsch et al., 2018; Weeks and Garrett, 2014), even if such information is false.

Scholars have shown an ideological asymmetry in fake news sharing on SM in the USA: Conservatives tend to share problematic information more than liberals (Freelon et al., 2020; Guess et al., 2021), raising concerns about an increasing “asymmetric polarization” (Benkler et al., 2018; Tucker et al., 2018). During the 2016 election, Grinberg et al. (2019), for example, noted that on Twitter problematic news sharing was more frequent among users on the extreme right. However, little is known about these trends since 2016 (Freelon et al. 2020).

Beyond the US context, although studies in the field pursued the association of extreme ideological stances and problematic news amplification, findings remain controversial. In a UK experimental setting with a sample of SM users, Kaiser and colleagues (2022) showed that extreme left-wingers were more likely to unfollow politically dissimilar friends who shared misinformation. However, when a sample of UK Twitter users following the most-read national tabloids was interviewed during the 2017 general election campaign, Chadwick and colleagues (2018) found no effect of ideological extremism on democratically dysfunctional news sharing. In Brazil, according to Rossini and colleagues (2021), political extremism was not a significant predictor of information sharing, whether accidental or not, on Facebook and WhatsApp.

In the US, scholars have demonstrated that strong ideologies – and ideological asymmetries – can also affect problematic news verification. Being liberal is a strong motivating factor to visit fact-checking sites, while being conservative is a negative predictor (Robertson et al., 2020; Guess et al., 2018). To our knowledge, no research has yet investigated, outside the US, the relation between (extreme) ideological positions and verification of information encountered on SM and IMs.

More research is also needed to contextualize and better understand the connection between ideological extremism and news corrections. In the USA during the 2016 presidential election, strong liberals tended to share fact-checking messages on SM more than strong conservatives (Amazeen et al., 2019; Shin and Thorson, 2017). At the beginning of the Covid-19 emergency, when the new virus was not yet a politicized and divisive issue in the USA, Bode and Vraga (2021) discovered that engaging in social correction was not related to partisan identification. In the UK, Chadwick and Vaccari (2019) used a sample of news sharers on Facebook, Twitter, Instagram, and WhatsApp to demonstrate that those reprimanding others for their problematic news sharing were more likely to be on the ideological left.

To our knowledge, no research has investigated the connection between extreme ideologies and participation in problematic information cycles by looking at Italy – a polarized pluralist context (Hallin and Mancini, 2011) – or the specific Italian context during the Covid-19 crisis.

Considering the limitations in the existing data, the final research question was formulated as follows: *RQ3*. Do extreme left and extreme right positions impact problematic information amplification, verification, and correction on SM and IMs, and if so, how?

3. Measures and method

To answer our research questions, we used data from a larger project on political polarization in hybrid media systems in which we administered, through a polling organization (Swg Italia), a three-wave online survey to a representative sample of the Italian adult population (aged 18–74) with internet access based on quotas related to gender, age, education, employment status, and region of residence¹. For the present study, we used data from waves 1 and 2. Wave 1 was conducted between 18 and 28 May 2020, immediately after the conclusion of Phase 1 of pandemic management in Italy, which included a two-month mass lockdown; wave 2 was administered between 31 August and 13 September 2020, at the end of Phase 2, when citizens experienced less strict limitations on their individual freedoms. In total, 1353 citizens completed the questionnaire in the two waves².

Outcome variables

Participation in problematic news amplification, verification, and correction

¹ For more information about the larger research project – entitled “IPOLHYS. Investigating POLarization in HYbrid media Systems” – visit www.ipolhys.it. The longitudinal online survey was coordinated by Prof. Augusto Valeriani (University of Bologna).

² After the conclusion of the longitudinal survey, we implemented a process of data cleaning to improve dataset quality by excluding inattentive panelists (based on inconsistencies in answers to sociodemographic time-invariant questions across the waves) and sloppy interviews (based on short completion time). For the final dataset, the completion rate in wave 1 was 34%, and the retention rate between waves 1 and 2 was 86.6%.

We recorded respondents' reports on three practices of participation in problematic news cycles on SM and IMs (misinformation amplification, verification, and correction). In other words, we recorded their awareness of participation rather than their actual participatory behaviors. While observing digital traces left by users on platforms could have helped us to record actual behaviors, such as problematic news amplification or warning, observational data present diverse limitations that encouraged us to use self-reported data. In fact, observational digital methods require researchers to define what problematic news is; they cannot record behaviors such as problematic news verification or grasp individual-level factors motivating digital actions; and they struggle to penetrate the private environments of IMs.

We recorded (awareness of) participation in problematic news cycles through six questions, asking whether, in the last two months, in relation to both SM and IMs, respondents had:

- shared a news story and later found out it was false;
- verified whether information encountered or received from contacts was true or false;
- warned someone else that they were circulating false information.

Outcome variables' frequencies are summarized in Table 1.

- Table 1 here -

Table 1 – Outcome variables' frequencies (%) (survey waves 1 and 2).

Explanatory variables

Use of SM and IMs for political news

We used two questions to measure the frequency with which, in the previous two months, people had used SM and IMs to inform themselves about politics and public interest issues. The two frequency scales ranged from a minimum value of 0 ("Never") to a maximum of 4 ("More than once a day").

Use of SM and IM for political discussion

We used two questions to measure the frequency with which, in the previous two months, people had discussed politics and public issues on SM and IMs. Again, respondents could answer on a frequency scale ranging from 0 ("Never") to 4 ("More than once a day").

Extreme ideological positions

Ideological extremism was first measured by asking respondents to indicate their ideological position on an 11-point scale. Responses showed that 22.5% of respondents chose the first two or last two points of the scale, 53.7% chose other positions, and 23.9% responded that they did not know how to answer or did not identify with any position. Following Rossini et al.'s (2021) measure of political extremism – adopted in a multi-party system and on the basis of a similar distribution of the ideological scale – we first excluded those who were not placed on the ideological scale, then selected the first and last two positions of this scale as extreme positions (values 1–2: extreme left; 10–11: extreme right), and, finally, created two dummy variables: extreme left (1 if the respondent expressed position 1 or 2; 0 otherwise) and extreme right (1 if the respondent expressed position 10 or 11; 0 otherwise).

The descriptive statistics and frequencies of explanatory variables are summarized in Tables 2 and 3.

- Table 2 here -

Table 2 – Explanatory variables 1: Use of SM and IMs for news and discussion – descriptive statistics (survey waves 1 and 2).

- Table 3 here -

Table 3 – Explanatory variables 2: extreme ideological positions – frequencies (%) (survey waves 1 and 2).

Statistical analysis

To answer the RQs, we ran a set of cross-sectional and autoregressive logistic regressions. In the cross-sectional models, both the predictors and the dependent variable were measured in wave 1 (referring to the first mass lockdown). In the autoregressive models, the dependent variable was measured in wave 2 – when citizens had returned to quasi-normality – while all covariates, including the lagged value of the dependent variable, were measured in wave 1. Cross-sectional analyses were employed to explore associations between our independent and dependent variables during the first phase of the emergency, a period of uncertainty which saw increased use of media to access news about Covid-19 and discuss pandemic management (Marino and Serani, 2020), “infodemic” circulation (WHO, 2020), and participation in problematic news cycles (Table 1). Moreover, hard conflicts between the government (5 Stars Movement and left-wing and far-left parties) and opposition (right and far-right parties) on the virus’ origins, data, and therapy quickly emerged in this phase, after an initial shock (Bertero and Seddone, 2021). We estimated auto-regressive models to understand whether some degree of causality could be envisaged in the associations identified through the cross-sectional models. In fact, auto-regressive models add the time sequence of causes and effects, enabling us to exclude that the dependent variables – citizens’ participatory behaviors on SM and IMs concerning problematic information in a period of return to “quasi-normality” – depended entirely on their participation in problematic news cycles four months earlier, during the more critical moments of the pandemic.

We included in the models control variables that theoretically relate to the amplification, verification, and correction of misleading information: age, gender, level of education (Amazeen et al., 2019; Chadwick and Vaccari, 2019; Grinberg et al., 2019; Guess et al., 2021), and perceived exposure to fake news on SM and IMs³ (Müller and Schulz, 2019).

4. Findings

Descriptive statistics (Table 1) show that SM and IMs enable similar practices of participation in problematic news cycles, with a slight difference only in relation to news verification. In fact, respondents performed news verification on IMs less than on SM, probably because IMs support closer and thus more trustworthy ties. SM and IMs use frequencies for political news and discussion (Table 2) do not show significant differences, suggesting the importance of the under-investigated IMs as channels for political information and talk.

The first research question (RQ1) asked whether and how using SM and IMs to consume news about politics and public interest issues affected problematic information amplification, verification, and correction on these platforms.

The cross-sectional analyses (Models 1, 3, and 5 in Table 4) showed associations between variables measured at the end of the first and more restrictive lockdown. Positive and significant associations between a high informational use of SM and the activities of verifying news encountered and warning someone else who was circulating fake news were detected. On IMs (Models 1, 3, and 5 in Table 5), a high frequency of news consumption was positively associated with misinformation amplification. In the autoregressive framework only SM news use maintained a positive and significant effect on verification of problematic news.

³ We recorded perceived exposure to fake news on SM and IMs through these two questions: “In the last two months, how often have you encountered news concerning political or public interest issues that, in your opinion, contained hoaxes, fake news, or any type of false information... 1. On social media? 2. On instant messaging platforms?” (0 = never; 4 = always).

The second research question (RQ2) asked whether and how the frequency of political discussion on SM and IMs was related to problematic information amplification, verification, and correction on these platforms.

As regards both SM and IMs, cross-sectional regressive models (Models 1, 3, and 5 in Tables 4 and 5) revealed that a higher frequency of political discussion during the lockdown was significantly and positively associated with performing all the participatory practices considered as dependent variables. This significant association also held in autoregressions (Models 2, 4, and 6 in Tables 4 and 5), providing statistical support for the idea that the higher frequency of political discussion on SM and IMs during the first phase of the pandemic had a strong influence on diverse forms of participation in problematic news cycles.

Finally, the third research question (RQ3) concerned the association between extreme ideological stances and the practices of problematic information amplification, verification, and correction on SM and IMs.

As regards respondents who declared they identified with a far-right ideology, cross-sectional regressions showed that, regarding the activities of verifying news and warning someone else about circulating fake news on SM, coefficients were negative and significant (Models 1 and 3 in Table 4). However, once we accounted for the baseline level of verification and correction on SM in the autoregressive model, the correlations vanished (Models 2 and 4 in Table 4). Conversely, the coefficient measuring the association with misinformation amplification on SM was positive and significant, but even this did not hold in autoregressive regressions (Models 5 and 6 in Table 4).

The extreme left position was positively and significantly associated with verifying news encountered on SM in the cross-sectional analysis, but this was not confirmed by the autoregressive analysis (Models 1 and 2 in Table 4). In the autoregressive analysis, identifying with an extreme left position increased the likelihood of warning someone else about having shared fake news (Model 4 in Table 4).

Similar outcomes emerged for IMs. In both the cross-sectional and autoregressive models (Models 1 and 2 in Table 5), the coefficients measuring the association between extreme left stance and news verification on these services were positive and significant, while, about having amplified misinformation, extreme right position coefficients were positive and significant (Models 5 and 6 in Table 5).

As regards control variables, both regressions indicated that perceived high levels of exposure to fake news on SM and IMs during the lockdown significantly and positively increased the likelihood of performing verification and correction on these platforms. Demographic control variables showed significant effects only on the practice of verifying news encountered on SM and IMs. In fact, the analysis showed that being aged 45–54 decreased the likelihood of verifying news on both platforms, while being aged 64+ decreased only the probability of verifying news on IMs. Conversely, the coefficient of verifying news on SM was positively and significantly associated with the highest level of education.

- Table 4 here -

Table 4 – Cross-sectional and autoregressive logistic models predicting the likelihood of having performed problematic news amplification, verification, and correction on SM

- Table 5 here -

Table 5 – Cross-sectional and autoregressive logistic models predicting the likelihood of having performed problematic news amplification, verification, and correction on IMs

5. Discussion and conclusion

This study sought to understand the impact of digital news use, online political discussion, and ideological extremism on citizens' online participation in problematic news cycles in Italy during the Covid-19 pandemic.

Prior analyses of such potential predictors of mis/disinformation behaviors have tended to focus on the USA (and other non-EU countries), pay scarce attention to the semi-private IMs in favor of the semi-public SM, and neglect the diverse types of citizens' participatory actions in problematic information cycles in favor of fake news amplification. The present analysis provides new evidence on an underexplored context, distinguishing between SM and IMs, and focusing on three forms of participation in the problematic news cycles, which could all have – beyond a normative perspective – detrimental consequences for democracy, namely amplification, verification, and correction.

We conducted a longitudinal study on a representative sample of Italian adults with Internet access who were interviewed immediately after the first total lockdown (wave 1) and immediately after a summer of quasi-normality (wave 2). We used a set of cross-sectional regressions to explore the relations between our variables in wave 1, that is, in relation to a moment of increasing use of SM and IMs for news and discussion, of growing participation in the infodemic process, and of mounting conflict between political elites concerning diverse aspects of the pandemic. Moreover, we ran autoregressive logistic regressions to understand whether some degree of causality could be assessed in the relations which emerged from cross-sectional models.

The first aim of the study was to understand whether, in Italy, during two particular moments of the pandemic, a “participation versus misinformation paradox” (Valenzuela et al., 2019) occurred.

In pursuit of this aim, we asked whether and how the use of SM and IMs for political news affected problematic information amplification, verification, and correction on these platforms (RQ1). Unlike prior studies (Amazeen et al., 2019; Chadwick et al., 2021; Grinberg et al., 2019; Rossini et al., 2021; Valenzuela et al., 2019), our data show that Italian internet users who were highly engaged with political news on SM and IMs during the first lockdown were not more likely to amplify misinformation or correct false news on these platforms. However, our analysis revealed that a high frequency of SM use for news consumption increased the likelihood of verifying news encountered in SM environments. This finding aligns with the few prior works which show the positive effect of frequent SM news use on some forms of online verification, such as visiting fact-checking sites (Kim et al., 2021, Robertson et al., 2020). Therefore, our results confirm only partially the paradox of the informed citizen who contributes to the toxicity of digital environments, showing the importance in Italy, during the pandemic crisis, of SM news use in encouraging news verification.

To test the “participation versus misinformation paradox” (Valenzuela et al., 2019) in Italy, during the Covid-19 outbreak, we also asked whether and how the use of SM and IMs for political discussion affected problematic information amplification, verification, and correction on these platforms (RQ2). In this case, data analysis indicated a clearer presence of a counter-intuitive positive correlation between a higher frequency of political discussion on SM/IMs in the first and more severe phase of the pandemic and a greater likelihood of amplifying, verifying, and correcting false news in these digital environments. These findings confirm the powerful effect of the expressive use of SM and IMs on mis/dis-information sharing (Rossini et al., 2021; Valenzuela et al., 2019), but also suggest the importance of examining the effect of political discussion on all forms of citizens' participation in problematic information cycles, not just on fake news amplification.

Finally, following the literature about (asymmetric) polarization and fake news (Freelon et al., 2020; Grinberg et al., 2019; Guess et al 2021; Tucker et al., 2018), our final aim was to understand whether and how, in the Italian context of the Covid-19 pandemic, extreme left and extreme right positions impacted problematic information amplification, verification, and correction on SM and IMs (RQ3). Data analysis provides evidence that citizens' extreme ideological stances affected participatory practices in online problematic news cycles.

Specifically, Italian online citizens identifying as far-right – who were in opposition during the first phases of the Covid-19 pandemic – were more likely than those on the far left to inadvertently amplify false news, although only on IMs. This result only partially aligns with previous findings. In fact, unlike available studies, which considered only SM and the asymmetrically polarized US context, our study confirms the presence in Italy of a strong relationship between political extremism and expressive uses of IMs (Valeriani and Vaccari, 2018). In amplifying problematic information, far-right Italian citizens seem to prefer semi-private online environments where they can mainly interact with close ties, avoiding sanctions from strangers and the news verification systems employed by platforms. Such ideological asymmetry in misinformation sharing on IMs by the far right can have severe implications for democracy, because it implies that – in these less-easy-to-check environments, richer in close contacts whom people trust – problematic information favors only one political side, and it can be more difficult to find common ground where different points of view about news can be compared.

In complete contrast to extreme right-wingers, far-left Italian online citizens were more likely to verify news encountered on IMs and to warn others about circulating problematic information on SM. These findings align with prior studies carried out in the USA and UK that demonstrate the effect of ideological asymmetry on fake news correction on SM (Amazeen et al., 2019; Chadwick and Vaccari, 2019; Shin and Thorson, 2017). Moreover, our analysis provides evidence of how extreme positions can asymmetrically influence the practices of verification in the more intimate digital environments supported by IMs.

Interpretation of these findings has also considered the moments in which the two-wave survey was administered. Indeed, the two-month mass lockdown was characterized by high uncertainty, a rise in the circulation of problematic news, and a general increase of SM and IMs use for news consumption and political discussion. The following three months were characterized by a partial return to normality, including the use of digital media. To further confirm these findings, future research should replicate this study in a period distant from disruptive events. We thus hope the associations emerging in this study will encourage further research oriented toward understanding – beyond periods of crisis and in normalized media environments – the extent to which a citizenry that is politically active and extreme may increase problematic information on SM and IMs.

In our analysis, as in any study, comprehensive understanding of the phenomenon was affected by several limitations.

Firstly, this study lacks specific information about the nature of the content which citizens amplify, verify, or try to correct. Bode and Vraga (2021) proved how sources (experts, personal contacts, local newspapers, or President Trump’s SM channels) differently affected online corrections and disinformation-sharing behaviors.

Moreover, unlike in Chadwick and colleagues’ (2021) analysis of false news amplification, we cannot shed light on potential different effects of specific SM or IMs on misinformation sharing (and other forms of participation in problematic information cycles).

Additionally, while this study avoids a normative reading of verification and correction as practices that only contribute to a healthy news media environment, it cannot distinguish between those practices orientated to “clean up” the toxicity of digital environments and those led by cognitive bias, inadequate digital skills, and digital hate (Bode and Vraga, 2021; Cheruiyot, 2022; Edgerly et al., 2020; Hameleers and van der Meer, 2019; Tandoc et al., 2018; Walter et al., 2021).

Finally, unlike other surveys (Barthel et al., 2016; Chadwick and Vaccari, 2019), our measures accounted only for citizens who shared false news accidentally, both to overcome the possible social desirability bias of self-reported disinformation behaviors and because we believe that chains of propagation misinformation – such as conspiracy theories – can also have detrimental consequences for the quality of democracy (Giglietto et al., 2019). However, although in private communication contexts such as IMs self-reported data are a profitable source for social research, it is important to recognize that, in a survey, misinformation behavior can be underestimated, because people may not be aware that they have participated in the amplification of problematic news.

In conclusion, systematic studies on participation in problematic news cycles, considering both different behaviors and individual-level political/media predictors, are necessary for a deeper understanding of the problematic information phenomenon and its implications. This study represents a step in this direction.

Acknowledgment

This work was supported by the Italian Ministry of Research and University under the National Projects of Relevant Interest (PRIN) research program 2017 (grant number: 20175HFEB3).

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Table 1 – Outcome variables’ frequencies (%) (survey waves 1 and 2).

In the last 2 months have you...		Yes (%)		No (%)		N
		W1	W2	W1	W2	
shared a news story and later found out it was false	On SM	17	15	83	85	1353
	On IMs	18	15	82	85	
verified whether information you encountered or received from your contacts was true or false	On SM	70	65	30	35	
	On IMs	64	56	36	44	
warned someone else that they were circulating false information	On SM	51	48	49	52	
	On IMs	51	44	49	56	

Table 2 – Explanatory variables 1: Use of SM and IMs for news and discussion – descriptive statistics (survey waves 1 and 2).

	In the last two months, how often have you used SM to keep yourself informed about politics and public interest issues?		In the last two months, how often have you used IMs to keep yourself informed about politics and public interest issues?		Thinking about the last two months, how often have you found yourself discussing politics or issues of public interest with your contacts on SM?		Thinking about the last two months, how often have you found yourself discussing politics or issues of public interest with your contacts on IMs?	
	W1	W2	W1	W2	W1	W2	W1	W2
Mean	2.6	2.48	2.19	2.03	1.41	1.23	1.44	1.17
Median	3	3	3	2	1	1	1	1
Standard Deviation	1.42	1.44	1.62	1.64	1.29	1.21	1.26	1.17
Skewness	-0.75	-0.63	-0.27	-0.1	0.37	-1.1	0.33	0.6
Kurtosis	-0.78	-0.97	-1.54	-1.63	0.55	-0.83	-1.08	-0.74
N	1353							

Table 3 – Explanatory variables 2: extreme ideological positions – frequencies (%) (survey waves 1 and 2).

	Yes (%)		No (%)	
	W1	W2	W1	W2
Extreme left	11	11	89	89
Extreme right	13	12	87	88
N	1353			

Table 4 – Cross-sectional and autoregressive logistic models predicting the likelihood of having performed problematic news amplification, verification, and correction on SM.

	Dependent variables					
	Verifying news encountered on SM		Warning someone else they are circulating fake news on SM		Sharing a news story on SM and finding out later that it was false	
	<i>Cross-sectional</i>	<i>Auto-regressive</i>	<i>Cross-sectional</i>	<i>Auto-regressive</i>	<i>Cross-sectional</i>	<i>Auto-regressive</i>
	1	2	3	4	5	6
Frequency of news consumption on SM	0.157*** (0.054)	0.138** (0.061)	0.103** (0.049)	0.02 (0.061)	0.082 (0.067)	0.108 (0.082)
Frequency of political discussion on SM	0.248*** (0.062)	0.181*** (0.068)	0.406*** (0.054)	0.268*** (0.066)	0.354*** (0.066)	0.203** (0.082)
Extreme left	0.494* (0.263)	0.172 (0.267)	0.044 (0.199)	0.490** (0.246)	-0.177 (0.261)	-0.371 (0.343)
Extreme right	-0.354* (0.202)	-0.291 (0.233)	-0.348* (0.193)	-0.238 (0.243)	0.777*** (0.209)	0.13 (0.276)
Frequency of perceived exposure to fake news on SM	0.804*** (0.082)	0.505*** (0.094)	0.605*** (0.076)	0.339*** (0.094)	0.057 (0.092)	-0.142 (0.111)
Gender – Female	-0.326** (0.143)	-0.241 (0.158)	-0.143 (0.125)	0.17 (0.155)	0.289* (0.159)	0.143 (0.199)
Age cohort:						
25–34	-0.707** (0.323)	-0.471 (0.353)	-0.343 (0.243)	-0.079 (0.31)	-0.04 (0.338)	0.204 (0.434)
35–44	-0.908*** (0.31)	-0.247 (0.35)	-0.208 (0.235)	0.005 (0.305)	0.146 (0.323)	0.215 (0.429)
45–54	-0.922*** (0.302)	-1.001*** (0.331)	-0.206 (0.228)	-0.382 (0.296)	0.355 (0.306)	0.12 (0.414)
55–64	-0.772** (0.313)	-0.355 (0.346)	-0.065 (0.235)	0.223 (0.305)	0.493 (0.31)	0.596 (0.405)
64+	-0.898*** (0.344)	-0.315 (0.382)	-0.328 (0.269)	0.194 (0.338)	0.534 (0.347)	0.347 (0.453)
Education level – medium	0.455*** (0.175)	0.297 (0.199)	0.26 (0.161)	0.144 (0.203)	0.123 (0.206)	0.098 (0.26)
Education level – high	0.486** (0.209)	0.505** (0.235)	0.496*** (0.187)	0.171 (0.23)	0.213 (0.239)	-0.136 (0.309)
Lagged – Verifying news encountered SM		1.789*** (0.171)				
Lagged – Warning someone else about circulating fake news on SM				2.223*** (0.157)		
Lagged – Have unintentionally						2.341*** (0.206)

circulated fake news
on SM

Constant	-2.376*** (0.476)	-2.819*** (0.556)	-3.402*** (0.431)	-3.388*** (0.54)	-3.720*** (0.549)	-3.122*** (0.691)
N	1,279	1,083	1,256	1,051	1,247	1,041
Log likelihood	-623.568	-512.665	-766.355	-533.901	-528.49	-357.864
Akaike Inf. Crit.	1,275.14	1,055.33	1,560.71	1,097.80	1,084.98	745.728

Note: Coefficients are log-odds; standard errors are in parentheses.

*p<0.1; **p<0.05; ***p<0.01

Table 5 – Cross-sectional and autoregressive logistic models predicting the likelihood of having performed problematic news amplification, verification, and correction on IMs

	Dependent variables					
	Verifying news encountered on IMs		Warning someone else they have circulated fake news on IMs		Sharing a news story on IMs and later finding out it was false	
	<i>Cross-sectional</i>	<i>Auto-regressive</i>	<i>Cross-sectional</i>	<i>Auto-regressive</i>	<i>Cross-sectional</i>	<i>Auto-regressive</i>
	1	2	3	4	5	6
Frequency of news consumption on IMs	0.065 (0.044)	0.034 (0.048)	0.05 (0.042)	0.04 (0.047)	0.135** (0.055)	0.077 (0.07)
Frequency of political discussion on IMs	0.370*** (0.06)	0.158** (0.064)	0.457*** (0.056)	0.176*** (0.063)	0.460*** (0.067)	0.219** (0.088)
Extreme left	0.403* (0.227)	0.453* (0.239)	0.203 (0.199)	0.269 (0.22)	-0.338 (0.269)	-0.626 (0.394)
Extreme right	-0.043 (0.202)	0.0005 (0.225)	-0.081 (0.195)	-0.06 (0.227)	0.681*** (0.21)	0.668** (0.268)
Frequency of perceived exposure to fake news on IMs	0.624*** (0.075)	0.399*** (0.083)	0.588*** (0.075)	0.278*** (0.084)	0.014 (0.088)	-0.033 (0.113)
Gender – female	-0.036 (0.132)	-0.186 (0.143)	-0.038 (0.125)	0.016 (0.141)	0.272* (0.156)	0.370* (0.202)
Age cohort:						
25–34	-0.607** (0.273)	-0.444 (0.306)	-0.423* (0.244)	-0.14 (0.284)	0.251 (0.336)	0.31 (0.46)
35–44	-0.394 (0.271)	-0.09 (0.303)	-0.173 (0.238)	0.11 (0.278)	0.52 (0.321)	0.35 (0.448)
45–54	-0.475* (0.261)	-0.482* (0.293)	-0.187 (0.231)	-0.094 (0.272)	0.706** (0.307)	0.568 (0.434)
55–64	-0.306 (0.274)	-0.308 (0.304)	-0.164 (0.241)	0.095 (0.282)	0.685** (0.322)	0.551 (0.448)
64+	-0.525* (0.301)	-0.594* (0.33)	-0.002 (0.274)	-0.142 (0.312)	1.189*** (0.341)	0.422 (0.48)

Education level – medium	0.204 (0.166)	0.291 (0.183)	0.139 (0.161)	0.332* (0.184)	0.162 (0.203)	0.351 (0.268)
Education level – high	0.23 (0.195)	0.296 (0.212)	0.176 (0.188)	0.363* (0.211)	0.006 (0.241)	0.287 (0.316)
Lagged – Verifying news encountered on IMs		1.342*** (0.152)				
Lagged – Warning someone else about circulating fake news on IMs				1.460*** (0.145)		
Lagged – Have unintentionally circulated fake news on IMs						2.147*** (0.205)
Constant	-2.403*** (0.423)	-2.306*** (0.478)	-3.262*** (0.415)	-2.819*** (0.472)	-4.124*** (0.516)	-4.002*** (0.696)
N	1,250	1,043	1,247	1,037	1,230	1,024
Log likelihood	-703.371	-601.057	-766.323	-614.169	-535.764	-346.895
Akaike Inf. Crit.	1,434.74	1,232.11	1,560.65	1,258.34	1,099.53	723.789

Note: Coefficients are log-odds, standard errors are in parentheses.

*p<0.1; **p<0.05; ***p<0.01