*Research Article*

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# Navigating the information environment about the Ukraine war

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## Abstract

The concern about misinformation in the public space has become more worrisome during the COVID-19 pandemic and the war in Ukraine. In this context, we investigate what make people correctly recognize accurate information and detect misinformation about the war at the beginning of the conflict in Romania, a bordering country. By means of a national survey ($N = 1006$) conducted in April-May 2022, we looked for predictors of people's capacity of navigating the information environment about the conflict. Data was gathered via an online panel conducted by Kantar as part of a cross-country project implemented in 19 countries. Findings show that people are relatively good at discerning between correct and misleading statements about the war. Prior negative attitudes about the Ukraine invasion, the level of concern about the war, not having a conspiracy mindset, self-perceived media literacy, and the extent to which people believe fact-checks to be effective in fighting misinformation are all predictors of the accuracy of misinformation detection of the respondents. These results offer insights into how ideologically based/motivated misinformation could be countered in a war crisis context, in a country bordering the conflict.

## Keywords

Ukraine war, misinformation, media literacy, conspiracy theories, misinformation detection

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## Introduction

The systematic propaganda and various forms of mis- and disinformation spread in social media about the ongoing Ukraine war has reached an alarmingly high level, growing both in quantity and dangerousness. Despite claims to the contrary, Russia's invasion in Ukraine is not the first military conflict in which social media have played a major role. However, it is the most viral social media war (The Economist, 2022), a vivid illustration of the prominent role that the sophisticated information technologies have in the unfolding of the conflict. Social media have been overwhelmingly used to reframe the war, change the narrative, and shape public perception and understanding of the conflict. While offering huge potential for people to stay informed and connected to the war, the rapid flow of war-related information circulating online also increases the possibility that a significant portion of the accessible information is misleading. The proliferation of Ukraine war-related mis- (dis-) information in social media poses a major threat to transparency and informed participation in public debates over Russia's aggression.

We examine the factors that contribute to increasing Romanians' ability to detect true from false information about the war that circulated in the media at the beginning of the conflict. The study is part of a larger cross-country research carried out in 19 countries and aimed at investigating public perception of the war and the role played by misinformation detection capacity in shaping this perception (Anonymized, forthcoming). A southern neighbor of Ukraine, Romania has been publicly condemning Russia's military aggression against Ukraine and has been supporting the latter by receiving Ukrainian refugees and by assisting its neighbor as part of NATO's and EU's efforts to aid Ukraine. However, an important proportion of Romanians supports pro-Russian narratives circulating in social media (Krastev and Leonard, 2022).

Our findings show that personal characteristics, such as the attitudes pro- or anti-invasion of Ukraine by Russia, the level of concern about the war, not having a conspiracy mindset, self-perceived media literacy, the perceived prevalence of misinformation[1] about the war in the media, and the extent to which people believe fact-checks to be effective to counter misinformation, are predictors of Romanians' performance at distinguishing between accurate and misleading war-related information.

## Literature review

### *Distinguishing true from false information*

The ground war between Russia and Ukraine has also sparked an information war, with media on both sides being constantly accused of spreading misinformation in the form of false reports, propaganda stories, manipulated videos, rumors and exaggerations that were widely used for various purposes, including in an intentionally misleading way (BBC News, 2022; Cabrera Blázquez, 2022). The usage of lies, distortions, and falsehoods is nothing new in today's media landscape. From the early 20th century yellow journalism to conspiracy theories about COVID-19, encountering misleading content is, and always has been, a risk of media consumption. What is unprecedented, however, is the role of new media and social platforms in amplifying the reach and potential penetration of misperceptions, belief in conspiracies and knowledge resistance, ultimately (Strömbäck et al., 2022). In this respect, the war in Ukraine has illustrated how social platforms are changing not only the way wars can be 'chronicled, experienced and understood' (The Economist, 2022), but equally how they can be misreported and misrepresented to distract, confuse and mislead both opponents and the general public.

In a context in which the news describing the war in neutral, accurate terms are suffocated with misrepresentations of facts and unfounded claims, people struggle to discern true narratives from false ones. Distinguishing between true and false information is key for democracy: well-informed citizens, trust in media and factual judgments decrease the risk of missing available knowledge and forming misperceptions (Glüer and Wikforss, 2022). We argue that it is of paramount importance for the people to distinguish between truth and falsehood in all circumstances, but specifically in crisis situations such as Russia's invasion of Ukraine which, as previously shown, has led to a spike in conspiratorial and inaccurate content on social media. We explore in this research the extent to which people can accurately spot both accurate and misleading information about the war, highlighting main predictors of their performance in this regard.

## *Attitudes towards the invasion of Ukraine and people's capacity to discern between true and false information*

Studies expose various reasons – ranging from cognitive biases, ideology and personal worldviews to changes in the media landscape – that prevent people from making simple, straightforward distinctions between true and deceiving information (Lewandowsky et al., 2012; Szostek, 2018). Similarly, there is research showing that, on average, people can tell the difference between fact-based stories and disinformation, some are better at it than others and do so more easily for certain topics such as politics, historical experience or the military (Erlich and Garner, 2023). In the context of the war in Ukraine, we believe that people's attitudes about the conflict can also influence how they process information about it, including their capacity to distinguish between accurate and misleading narratives. This relationship is definitely complex and can vary from person to person, but given the impact that people's attitudes are likely to exert on their behavior (Glasman and Albarracín, 2006; Howe and Krosnick, 2017), we believe that this also applies to information behavior in relation to topics of interest (obtrusive topics) or how (mis)information is perceived and processed. What we know from the literature is that for an attitude to become important to an individual it must be related, among others, to his/her self-interest, that is, it must directly affect the individual's rights, privileges or lifestyle in a concrete way (Howe and Krosnick, 2017). With respect to the war in Ukraine, we argue that Romanians tend to perceive the ongoing conflict as important to them since even a year after its outbreak, two thirds of Romanians are interested in and follow the developments in the neighboring country (IRES, 2023). Given the topic's high relevance and impact on people's daily life – most recent reports show that Romanians are concerned with the rising prices and cost of living, Russia's attacks on NATO member countries or the increasing numbers of refugees (Eremia, 2023) – we expect Romanians' attitudes about the war to matter significantly in how they read, understand and process the information about such an obtrusive subject. However, the direction of such correlations is not suggested in any way by the literature. Drawing on the above, we formulate the following research question: *In what way (if any) do attitudes towards the invasion of Ukraine correlate with people's capacity to discern accurate and false information about the war? (RQ1)*

## *Need for orientation, public concerns about the war, news' misleading potential and misinformation detection*

During unforeseen circumstances, individuals and communities experience increased levels of concern, nervousness and anxiety. To overcome tension and get oriented, people intensify their

search for stable references and reliable sources of information (Matthes, 2006; Sadiq and Mathew, 2022). The need for orientation (NFO) is defined as the individual's motivation to pay attention to news to understand a new environment or situation (Camaj and Weaver, 2013). NFO is commonly seen as a combination of an individual's interest in and uncertainty about a topic. The higher the levels of interest and/or concern about an issue, the higher the levels of NFO and of media use for political information (Matthes, 2006). We argue that with Russia's invasion of Ukraine, Romanians' need to be familiar with what happens in their vicinity increases. To make sense of the new realities, people become more attentive and interested in the war topic, engaging in information-seeking (Newman et al., 2022).

As people consume more news and pay more attention to media war content, they may become more informed about the war and therefore more capable to distinguish between good and bad information. Research shows that people who critically evaluate information, seek alternative information, engage in analytical thinking or question default narratives perform better when asked to discern between fake and real news (Elrich et al., 2023; Salvi et al., 2021). We theorize that any crisis situation generates an impression of uncontrollability (Matthes et al., 2023: 3139), which makes people continuously evaluate their environment to assess their capacity to deal with the situation (Zacher and Rudolph, 2021). Consequently, we expect people to be more motivated and attentive at distinguishing between accurate and false information, which could hinder their capacity to deal with the crisis. Thus, we propose that: *The more concerned people are about the Ukraine war, the better they are at detecting accurate and false information about the war (H1)*

Recent reports on people's news consumption patterns during the Russia-Ukraine war show that most people follow the conflict closely, with some differences in preferred sources across age groups and countries. In the UK or Germany, more than half of the people over 55 turn to TV for up-to-date content, while younger people read social media news about the war. In the US and Poland, news from online sources is also highly considered across age groups (Newman et al., 2022: 35-36). In Romania, television remains the main source of information for most of the people who want to keep abreast of events in Ukraine, particularly for those aged over 50, with low education and women (Romanian Institute for Evaluation and Strategy, 2023). Online social networks are the main source of information on the subject for 24% of the respondents aged 18-50 and those with higher education.

According to Newman et al. (2022), more than half of the respondents are *concerned* about their ability to separate between what is real or false/misleading when it comes to online news; people who use social media as their dominant source of information are the most alarmed. This does not necessarily mean that (just) extensive use of social media causes misinformation, although there are studies to the contrary (Jamieson and Albarracín, 2020; Xiao et al., 2021). Nevertheless, there is a link between fears of online misinformation and widespread use of social media, in that the latter can generate awareness of and increased exposure to false information (Zarocostas, 2020). Consistent with these views, we believe that people who consider that media reporting on the war is likely to be biased/deceiving may be more cautious of media reports and remain vigilant. They may be willing to carefully examine sources, check information from multiple channels and thus increase their ability to detect deeply flawed content (Elrich et al., 2023). Along these lines, the following hypothesis states that: *The more people believe the information about the Ukraine war to be misleading, the better they are at detecting accurate and false information about the war (H2)*

People's propensity towards selecting and exposing themselves to attitude-consistent information while avoiding attitude-discrepant information, has long been documented (Festinger, 1957; Knobloch-Westerwick, 2014). This biased information processing due, among others, to cognitive limitations such as confirmation bias – a preference for information that is consonant with

pre-existing views and beliefs (Hart et al., 2009) or motivated reasoning – a systematic bias of judgments in favor of automatically activated, affectively congruent beliefs and feelings (Lodge and Tabler, 2013) can increase the risk of forming or holding on to one's misperceptions, even when media outlets provide correct, empirically-based information (Strömbäck et al., 2022). This is mainly explained by people's tendency to perceive attitude-compliant information as more credible, rewarding, reassuring and self-protective (Knobloch-Westerwick and Meng, 2011; Sude and Knobloch-Westerwick, 2022).

When the immense amount of (mis)information that is available in high-choice media environments aligns with people's prior beliefs and values, the efforts to correct it might be less successful (Strömbäck et al., 2022). We believe that especially in the case of individuals holding a conspiracy mindset, the tendency to resist knowledge (i.e., ignore available/empirical evidence about various situations and events – see Glüer and Wikforss, 2022) is higher. Since beliefs in conspiracies are closely linked to psychological factors such as uncertainty, powerlessness or anxiety (Abalakina-Paap et al., 1999; Van Prooijen, 2020), they are often underpinned by people's need to construct a narrative that provides them with the ability to cope with the unknown (Smallman, 2015). We surmise that, especially in times of war, people's need to restore a threatened sense of security and control (which is also seen as an important predictor of conspiracy mentality – see Douglas et al., 2019) may be greater than any information or evidence that challenges their deep-seated beliefs. We argue that people who believe in conspiracy theories will seek out and interpret media (war) content based on whether it is congruent with their pre-existing attitudes and beliefs rather than based on which information is most relevant or of the highest quality. This is usually associated with people becoming even more certain about the validity of arguments and evidence with which they were already familiar (Sude and Knobloch-Westerwick, 2022), a process that makes it harder for them to detect false information. Thus, we advance that: *People holding a conspiracy mindset are less able to detect accurate and false information about the war (H3).*

## *Self-perceived media literacy and misinformation*

The recent shift towards high-choice media and digital environments puts a lot of pressure on people's own motivations and abilities to seek out, comprehend and differentiate between low- and high-quality information (Strömbäck et al., 2022). While some people have both the motivation and the ability to select relevant news from the huge amount of media content that is irrelevant or often misleading, others lack both the motivation and the skills in media and information literacy. This leads to increased inequalities in media and information use, news avoidance, knowledge resistance, different learning outcomes, and different approaches to mitigating misinformation (Castro et al., 2022; Karlsen et al., 2020). In this regard, previous studies provided evidence that individuals with higher media literacy skills (i.e., those who know and understand more of the media production system, those who critically analyze news information, etc.) tend to show more skeptical and realistic expectations about media messages (Jeong et al., 2012) and to be more critical of false or questionable stories they encounter in their media consumption routine (Bulger and Davison, 2018; Mihailidis and Viotty, 2017). Similarly, Kahne and Bowyer (2017) found that people with higher media literacy levels were more likely to rate evidence-based posts as more accurate than misinformation posts, while Vraga and Tully (2015) documented media literacy skills and knowledge as effective in contributing to more thoughtful news consumption. More recently, Tully et al. (2020) found that exposure to news literacy messages may be somewhat successful in increasing people's skepticism towards misinformation and in boosting their self-perceived media literacy.

Perceptions of one's knowledge and literacy versus actual knowledge, literacy or behavior are related, yet distinct constructs (Vraga et al., 2015). This makes self-perceived media literacy a good, albeit biased proxy for media literacy. Given that the literature on media literacy usually emphasizes 'people's perceived beliefs about their ability to critically consume, question, and analyze information' (Jones-Jang, 2019: 4), we posit that: *The higher people's self-perceived media literacy, the higher their capacity to detect accurate and false information about the war (H4)*. We assume that if people feel that they are media literate, this self-perceived efficacy may promote more critical news behaviors (Tully et al., 2020), including a better capacity of distinguishing truth from falsehood.

## Fact-checking as a tool to fight misinformation

Among the various tools shown as effective in fighting misinformation (e.g., media literacy education, government oversight and regulations, etc. – see Marwick, 2018; Tully et al., 2020) human and algorithmic fact-checking may prove an important part of the solution (Nyhan and Reifler, 2015; Pennycook et al., 2020a; Porter and Wood, 2021). However, it is not clear to what extent and in what circumstances fact-checking has a significant effect in debunking and/or mitigating misinformation (Szewach et al., 2022), more research in this area being needed. Nonetheless, it is worth examining people's attitude towards fact-checking which is shown to be shaped by various factors such as age, political ideology or prior political views (Amazeen et al., 2018; Lyons et al., 2020; Nyhan and Reifler, 2015). We assume that people's perception that fact-checking is useful against misinformation can have a positive impact because it also raises awareness of the possibility that the information they encounter is misleading. We believe that any form of awareness-raising about misinformation could be associated with greater cognitive reflection and increased ability to detect true from false information (Pennycook et al. 2020b, 2020c). Thus, we suggest that: *The more convinced people are that fact-checking is an effective tool to fight misinformation, the better they are at detecting accurate and false information about the war (H5)*.

## News consumption and misinformation

Disruptive crises such as the war in Ukraine increase people's need for knowledge and orientation, leading to a spike in news consumption. Of all the possible avenues one could use to get information about the world, media is usually the most important source. Most of what people know/think they know is based on information transmitted via some sort of media. To obtain reliable information about topics of interest or concern, to form perceptions and opinions, people choose between different types of media and more media content than they can handle. This rapid transformation from low- to high-choice media has influenced citizens' understanding of politics and society both positively (through the availability of global news and high-quality information) and negatively (by undermining the gatekeeping function of the media news or by widely exposing people to various information disorders) (Strömbäck et al., 2022).

In this paper, we distinguish between mainstream media (i.e., radio, television and online newspapers), and social media (i.e., social and instant messaging platforms) and assume that news consumption from mainstream versus social media outlets affects people's ability to detect misinformation differently. We hypothesize that: *Increased news consumption from mainstream media is associated with better capacity to detect true and false information about the war (H6),* whereas *Increased news consumption from social media is associated with lower capacity to detect true and false information about the war (H7)*. We believe that people who consume news from traditional media have better information and knowledge levels than people who get their news from social

media. This is supported by Castro et al. (2022) and Kümpel (2020) who show that in social media headlines are often the only information people access, which can only contribute to an illusory sense of knowledge. Thus, the less people know or understand from the news they expose themselves to, the lower their capacities to distinguish between quality versus misleading information (Jeong et al., 2012; Mihailidis and Viotty, 2017). With the unprecedented growth of social platforms and the prevalence of online misinformation, it has become much easier for people to come across misleading information at the click of a button. In addition, algorithms and artificial intelligence make a decision about what people get to see, increasing the likelihood that they will be disproportionately exposed to information that corresponds to already held beliefs and attitudes. This leads to an increased risk of people being misinformed and therefore less able to distinguish true from unreliable content (Strömbäck et al., 2022). Finally, we believe that people's trust or distrust in the media is crucial to their ability to detect misinformation. During the COVID-19 pandemic, traditional media were perceived as most trusted (Ali et al., 2020), and social media as less reliable (Gandhi, 2021; Jurkowitz and Mitchell, 2020). This may indicate that people who consume information from mainstream media are better at detecting deceitful content than those who rely on social media for information.

To sum up, we believe that, in order to better understand the formation of Romanians' (mis) perceptions and attitudes towards the war in Ukraine, which further influence their ability to identify and manage war-related misinformation, we need to consider the *interplay* between the supply of mediated information, media exposure and information processing by people. People's characteristics, predispositions and motivations appear to influence the extent to which they consume or trust media to provide real-time information, how they engage in information-seeking, how they perceive and interpret information, and similar related processes.

## Materials and methods

We used data from a national survey ($N$ = 1006)[2], using soft quotas for gender and age (see Appendix 1 for more information). The survey was conducted in 2022 (April 19-May 4), by Kantar. The mean age in the sample was 38.7 years (SD = 13.6). The sample comprises 49.4% women, and 50.6% men. In terms of education, the sample had the following distribution: 7.3% low educated people, 30.8% medium educated people, and 61.9% high educated people; thus, the sample being biased towards more educated people.

### *Measurements*

The independent variable in this study was people's *capacity to detect accurate and false information overall* about the war. We were interested in revealing the extent to which people were able to discern truthful statements on the war from misinformation. We relied on an extensive analysis of fact-checked and verified statements on the war conducted by various fact-checking organizations and international media. We used factcheck.org, politifact.com, as well as investigative journalistic reporting by BBC. We tried to maintain an equal balance between pro- and anti-Russia statements, both for factually accurate and misinformation statements. In a first step, participants were asked to rate the truthfulness of some statements on the following scale: (1) Very certain it's false, (2) Somewhat certain it's false, (3) Uncertain whether it's true or false, (4) Somewhat certain it's true, (5) Very certain it's true. Specifically, we asked people to rate the truthfulness of the following nine statements: (1) The Russian attack repeatedly hit civilian targets in Ukraine (true); (2) China has publicly condemned the Russian invasion of Ukraine (false); (3) NATO is keeping previous

agreements on which countries are allowed to join NATO (true); (4) In Russia-occupied Crimea and in the Donbas, Ukrainians live in repression and fear (true); (5) Ukraine's government is antisemitic and controlled by neo-Nazis (false); (6) Ukraine has repeatedly broken the ceasefire they previously agreed to (true); (7) The U.S. is funding biological weapons research in Ukraine (false); (8) The Ukrainian Armed Forces are supported by far-right militias (true); and (9) Ukraine signed a law that forbids publishing news only in Russian (true). In a second step, false items were inverted and accuracy scores varying from 1 (lowest) to 5 (highest) were created to measure participants' performance in accurately distinguishing between false and true statements. Additionally, we constructed two variables that account for people' *capacity to detect false information*, by averaging only the items that were false (M = 3.41, SD = 0.89), and *capacity to detect accurate information*, by averaging only true items (M = 3.34, SD = 0.51). M and SD for each item are provided in Appendix 2.

*People's attitudes towards the Ukraine war* were measured with four items, using 7-point Likert scales on statement agreement [1 (completely disagree) to 7 (completely agree)] on sentences about the Ukraine war ('Russia uses disproportionate violence against Ukraine'; 'The global community should do more to help Ukraine to defend itself'; 'Russia's military operation in Ukraine is legitimate'; 'Russia should not be sanctioned for their military operation against Ukraine'). A factor analysis using varimax rotation yielded two factors: one we labeled 'Pro-invasion attitudes' (items 3 and 4, $r_{SB} = 0.734$), the other 'Anti-invasion attitudes' (items 1 and 2, $r_{SB} = 0.559$).

To measure *concerns about the war*, we asked participants to assess the extent to which they agree with four statements on a scale ranging from 1 (*completely disagree*) to 7 (*completely agree*): (1) The war in Ukraine is an important global issue; (2) The war in Ukraine is an important issue for my country; (3) The war in Ukraine is an important issue to me personally; and (4) The war in Ukraine makes me anxious. The items loaded on one factor, with loadings ranging from 0.786 to 0.850 ($\alpha = 0.842$, M = 5.52, SD = 1.34).

We measured *people's perceptions about the information related to the war in Ukraine* on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Participants were asked to evaluate the extent to which they agree with the following statements: 'Information on the war in Ukraine …: (1) is mostly inaccurate; (2) is not based on relevant expert knowledge; (3) is not based on objective facts; (4) is deliberately false; (5) is based on lies; and (6) is manipulated to deceive the public'. The items loaded on one factor, with loadings ranging from 0.819 to 0.882 ($\alpha = 0.929$, M = 3.90, SD = 1.63).

People's tendency to hold a *conspiracy mindset* was measured on a 7-point Likert scale ranging from 1 (*do not agree at all*) to 7 (*agree completely*). We asked participants to assess the extent to which they agree with the following statements: (1) Much of our lives are being controlled by plots hatched in secret places; (2) Even though we live in a democracy, a few people will always run things anyway; (3) The people who really 'run' the country are not known to the voters; and (4) Big events like wars and the outcomes of elections are controlled by small groups of people who are working in secret against the rest of us. The items loaded on one factor, with loadings ranging from .785 to .844 ($\alpha = .836$, M = 4.98, SD = 1.41).

We measured *self-perceived media literacy* on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Participants were invited to indicate the extent to which they agree with the following statements: (1) I find it easy to distinguish between what is true and what is false information; (2) I can tell when production techniques are used to influence my perception; (3) I spot it when events are made to look more dramatic than they really are; and (4) I know where and how to find accurate information. The items were based on existing conceptualizations and measurements

of self-perceived media literacy (e.g., Vraga et al., 2015). The items loaded on one factor, with loadings ranging from 0.747 to 0.813 (α = 0.790, M = 5.41, SD = 1.09).

To measure whether participants thought *fact-checking as a tool to fight misinformation*, we asked them to indicate, on a scale ranging from 1 (*completely disagree*) to 7 (*completely agree*), their agreement with the following statement: 'Fact-checks are an effective way to limit the spread of misinformation' (M = 5.90, SD = 1.38).

To measure *mainstream media news consumption*, we asked participants to indicate, on a scale ranging from 1 (*never*) to 7 (*very often*), how often they get information about political news and societal issues from the following sources: television; radio; newspapers and magazines (including news websites); and news aggregators (e.g., Google News, Yahoo News, etc.). The items loaded on one factor, with loadings ranging from 0.684 to 0.793 (α = 0.731, M = 4.88, SD = 1.33).

S*ocial media news consumption* was measured on a similar scale, from 1 (*never*) to 7 (*very often*), indicating how often people get information about political news and societal issues from Facebook, Instagram, YouTube, and TikTok. The items loaded on one factor, with loadings ranging from 0.717 to 0.860 (α = 0.827, M = 4.02, SD = 1.72).

All the composite indexes of the above variables were constructed as means of the items included in each index.

We controlled for political orientation and socio-demographics (education, gender, and age). *Political orientation* was measured by asking participants to place themselves on the scale from 0 (the left) to 10 (the right) on the political spectrum (M = 6.22, SD = 2.60). *Education* was measured by asking participants to indicate the highest level of education they have successfully completed, using an 11-point ordinal scale. *Gender* was measured by asking participants to indicate their gender by choosing one of the following categories: woman, man, other, or don't want to say. *Age* was measured by asking participants to indicate their year of birth.

Appendix 3 details the distribution of all variables and Appendix 4 provides bivariate correlations.

## Findings

Main findings reveal that participants in this study have a relatively good capacity of detecting true and false information about the war in general (on a 5-point scale, M = 3.36, SD = 0.37). Comparatively, people's skills to discern correct information in other bordering countries, such as Poland, is more or less similar while the mean across Europe plus US is 3.29 (see Anonymized, forthcoming). Generally speaking, people are only slightly better at detecting misinformation (M = 3.41, SD = 0.89) than identifying accurate information (M = 3.34, SD = 0.51).

To test hypotheses, we used OLS regression models with three dependent variables: capacity to detect accurate and false information overall, capacity to detect accurate information, and capacity to detect false information. We constructed two models for each of the three dependent variables (one that includes news consumption from mainstream media and the other news consumption from SNS), as news consumption variables were to highly correlated to each other and could not be included in one single model. (Table 1) For space reasons and readability of the paper, we only report regression coefficients in the mainstream media models in text, except from where specifically discussing news consumption from SNS; all coefficients for all models could be found in Table 1.

Generally speaking, irrespective of the media consumption type (mainstream vs social media), the significant predictors of people's capacity to detect both accurate and false information about the war (Models 1 and 2) are: attitudes pro- (negative correlation) and anti-invasion

**Table 1.** Ordinary Least Squares regression models predicting people's capacity to detect accurate and false information, only accurate information, and only false information.

| | Capacity to detect accurate and false information | | Capacity to detect accurate and false information | | Capacity to detect accurate information | | Capacity to detect accurate information | | Capacity to detect false information | | Capacity to detect false information | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Model 1 - mainstream media) | | (Model 2 - SNS) | | (Model 3 - mainstream media) | | (Model 4 - SNS) | | (Model 5 - mainstream media) | | (Model 6 - SNS) | |
| | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta |
| (Constant) | 2.69(.094)** | | 2.699(.097)** | | 2.373(.144)** | | 2.312(.147)** | | 3.333(.224)** | | 3.474(.225)** | |
| Concerns about the war | .024(.009)** | .087 | .024(.009)* | .086 | .032(.014)* | .084 | .033(.014)* | .085 | .088(.022) | .012 | .006(.022) | .009 |
| Attitudes pro-invasion | −.050(.006)** | −.248 | −.050(.006)** | −.248 | .009(.009) | .032 | .001(.010) | .004 | −.166(.015)** | −.339 | −.152(.015)** | −.310 |
| Attitudes anti-invasion | .051(.008)** | .208 | .049(.008)** | .198 | .031(.012)* | .091 | .026(.013)* | .077 | .090(.019)** | .151 | .094(.019)** | .156 |
| People's perceptions about the information related to the war | .012(.008) | .046 | .015(.008) | .058 | .014(.012) | .040 | .016(.012) | .044 | .007(.019) | .011 | .013(.019) | .021 |
| Conspiracy mindset | −.018(.008)* | −.068 | −.016(.008)* | −.063 | .029(.012)* | .081 | .024(.012)* | .066 | −.111(.019)** | −.174 | −.097(.019)** | −.153 |
| Self-perceived media literacy | .030(.011)** | .090 | .033(.011)** | .098 | .029(.012) | .058 | .019(.016) | .040 | .036(.025) | .044 | .062(.025)* | .074 |
| Fact-checking as a tool to fight misinformation | .025(.008)** | .091 | .025(.009)** | .090 | .020(.013) | .053 | .025(.013) | .065 | .035(.020) | .052 | .025(.020) | .037 |
| News consumption mainstream media | .002(.009) | .009 | | | .025(.013) | .064 | | | −.042(.021)* | −.062 | | |

*(continued)*

**Table 1.** (continued)

| | Capacity to detect accurate and false information | | Capacity to detect accurate and false information | | Capacity to detect accurate information | | Capacity to detect accurate information | | Capacity to detect false information | | Capacity to detect false information | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (Model 1 - mainstream media) | | (Model 2 - SNS) | | (Model 3 - mainstream media) | | (Model 4 - SNS) | | (Model 5 - mainstream media) | | (Model 6 - SNS) | |
| | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta |
| News consumption SNS | | | −.005(.006) | −.021 | | | .043(.011)** | .145 | | | −.100(.016)** | −.191 |
| Gender (1 = female) | −.009(.021) | −.012 | −.008(.021) | −.011 | .055(.032) | .054 | .055(.032) | .054 | −.137(.049)** | −.076 | −.134(.049)** | −.075 |
| Education | .005(.005) | .032 | .007(.005) | .040 | .008(.007) | .036 | .011(.007) | .047 | −001(.011) | −.002 | −.002(.011) | −.005 |
| Political orientation | −.001(.004) | −.006 | −.001(.004) | −.006 | .005(.006) | .027 | .005(.006) | .025 | −.013(.010) | −.037 | −.013(.010) | −.036 |
| Age | .002(.001) | .055 | .001(.001) | .045 | −.003(.001)* | −.083 | −.002(.001) | −.038 | .011(.002)** | .161 | .007(.002)** | .099 |
| Adj R2 | 0.234 | | 0.229 | | 0.066 | | 0.077 | | 0.281 | | 0.302 | |

**$p < .01$, *$p < .05$.

(positive correlation), fact-checking as a tool to fight misinformation, self-perceived media literacy, concerns about the war, and holding a conspiracy mindset (negative correlation). None of the control variables play a significant role in predicting people's capacity to discern true and false information about the war (see Table 1). Even though the effect of each predictor is rather small, the overall explanatory power of the model is relatively strong (Adj. $R^2 = 0.234$ for the mainstream media model and Adj. $R^2 = 0.229$ for social media model).

The models predicting people's capacity to correctly identifying accurate information (Models 3 and 4 in Table 1) show that in fact only anti-invasion attitudes (negative correlation), concerns about the war and holding a conspiracy mindset remain significant correlates, while the explanatory power of the models drops to less than 0.100). Interestingly, in this case, news consumption from SNS positively correlates with people's capacity to discern correctly true information about the war. Alternatively, the models predicting people's capacity to detect false information (Models 5 and 6) show attitudes pro-invasion as a very strong negative predictor ($B = -0.166$; $\beta = -0.339$, $p < .01$ for mainstream media model; $B = -0.152$; $\beta = -0.318$, $p < .01$ for SNS model), and some other significant but much weaker predictors: conspiracy mindset (negative correlation), news consumption from both mainstream and SNS media sources, and self-perceived media literacy (only in Model 6). The explanatory power of both models is strong (Adj. $R^2 = 0.281$ for the mainstream media model and Adj. $R^2 = 0.302$ for social media model).

Findings reveal that attitudes pro- and anti-invasions play a complex role in how people manage to spot true and false information: the more pro-invasion people are, the worse they are at processing information in general ($B = -0.050$; $\beta = -0.248$, $p < .01$), but the correlation remains significant only for false information detection ($B = -0.166$; $\beta = -0.339$, $p < .01$). Conversely, the more anti-invasion people are, the better they are at discerning both accurate and false information about the war (all correlations positive and significant in all six models). The answer to the RQ of this study seems to point towards a specific direction of the correlation: the less supportive of the war people are, the better equipped they are at spotting both accurate and false information about the war.

Moreover, we found that the more concerned people are about the war in Ukraine, the better their capacity to discern between accurate and false information about the war in general (overall models), even though the size effect is quite small ($B = 0.024$; $\beta = -0.087$, $p < .01$). (Support for H1). However, in the more detailed models, the correlation remains significant only for people's capacity to detect accurate information ($B = 0.032$; $\beta = 0.084$, $p < .05$), but not false information. This implies that people's overall worries about the bordering war makes them better at correctly identifying true information about the topic, but does not help in fighting misinformation about the Ukraine war.

On the contrary, people's capacity to detect true and false information about the war overall is not significantly associated with their perceptions about the information related to war (i.e., whether they consider that information to be misleading or not). (H2 invalidated)

People holding a conspiracy mindset have a lower capacity to detect misinformation about the war in the overall model ($B = -0.018$, $\beta = -0.068$, $p < .05$). However, this correlates into different direction with detecting accurate information (positive correlation, $B = 0.029$, $\beta = 0.018$, $p < .05$) and false information (negative correlation $B = -0.111$, $\beta = -0.174$, $p < .01$). This holds true irrespective of the type of news media consumption. (H3 partially validated)

People who perceive they have strong media literacy skills also have better abilities to detect war misinformation ($B = 0.030$, $\beta = 0.090$, $p < .01$), thus offering support for H4 in the overall model, but

the correlation only holds significant in the false information detection model that includes SNS news consumption (Model 6) (B = 0.060, β = 0.074, $p < .05$).

Another significant predictor of people's capacity to detect overall accurate and false information about the war is related to their belief that fact-checking is an effective tool to fight misinformation (B = 0.025, β = 0.091, $p < .01$), thus validating H5, but the correlation becomes insignificant in the distinct models for true and false information detection.

Regarding the role played by the media, neither mainstream media, nor SNS news consumption significantly correlates with people's overall capacity to navigate the information environment about the war. However, this might be due to the fact that SNS news consumption is positively correlated with people's capacity to discern accurate information (B = 0.043, β = 0.145, $p < .01$) and negatively with people's capacity to detect misinformation (B = −0.100, β = −0.191, $p < .01$). This invalidates both hypotheses related to media's role in the models, but opens the discussion about the important play of the social platforms in the Ukraine war, which we will further develop in the Discussion section.

**Table 2.** Ordinary Least Squares regression models predicting people's capacity to detect accurate and false information pro- and anti-invasion of Ukraine.

| | Capacity to detect pro-invasion accurate and false information | | Capacity to detect pro-invasion accurate and false information | | Capacity to detect anti-invasion accurate and false information | | Capacity to detect anti-invasion accurate and false information | |
|---|---|---|---|---|---|---|---|---|
| | (Model 7 - mainstream media) | | (Model 8 - SNS) | | (Model 9 - mainstream media) | | (Model 10 - SNS) | |
| | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta | B(SE) | Beta |
| (Constant) | 2.97(.11)** | | 2.98(.12)** | | 2.35(.15)** | | .36(.16)** | |
| Concerns about the war | −.01(.01) | −.026 | −.01(.01) | −.027 | .06(.02)** | .129 | .06(.02)** | .130 |
| Attitudes pro-invasion | −.01(.01) | −.029 | −.01(.01) | −.041 | −.10(.01)** | −.292 | −.10(.01)** | −.285 |
| Attitudes anti-invasion | −.01(.01) | −.004 | −.00(.01) | −.016 | .12(.01)** | .266 | .12(.01)** | .264 |
| People's perceptions about the information related to the war | .02(.01)* | .088 | −.03(.01)** | .092 | −.00(.01) | −.007 | .00(.01) | .005 |
| Conspiracy mindset | −0.1(.01) | −.047 | .02(.01) | −.060 | −.02(.01) | −.050 | −.02(.01) | −.036 |
| Self-perceived media literacy | .02(.01) | .056 | .02(.01) | .041 | .04(.02)* | .072 | .06(.02)** | .094 |
| Fact-checking as a tool to fight misinformation | .00(.01) | .016 | .00(.01) | .011 | .05(.01)** | .103 | .05(.01)** | .107 |
| News consumption mainstream media | −.01(.01) | −.040 | | | .02(.01) | .041 | | |
| News consumption SNS | | | .00(.01) | .016 | | | −.02(.01) | −.039 |
| Gender (1 = female) | .00(.03) | .004 | .00(.03) | .005 | −.02(.03) | −.018 | −.02(.04) | −.018 |
| Education | .02(.01) | .090 | .02(.01)** | .089 | −.01(.01) | −.026 | −.01(.01) | −.016 |
| Political orientation | −.00(.01) | −.024 | −.00(.01) | −.027 | .00(.01) | .010 | .00(.01) | .012 |
| Age | −.00(.00) | −.042 | −.00(.00) | −.041 | .01(.01)** | .100 | .00(.00)** | .088 |
| Adj R2 | 0.011 | | 0.010 | | 0.350 | | 0.341 | |

**$p < .01$, *$p < .05$.

Looking at controls, only age and gender play a role, but only in the false information detection models: generally, men are better than women at spotting misinformation, and younger people are better than older ones.

Building on these findings, we further explored whether in fact the nature of both true and false statements from the point of view of pro- or anti-invasion type of content might in fact offer better insights into possible explanations about how people generally navigate the information environment about the Ukraine war. As stated before, we used a balanced number of pro-and anti-invasion statements, for both true and false information (see Appendix 2 for identification of each type). Consequently, we constructed two different variables, one as a mean of the pro-invasion variables, regardless of their truthfulness (M = 3.08, SD = 0.39) and one as a mean of the anti-invasion variables, regardless of their truthfulness (M = 3.71, SD = 0.65). Subsequently, we constructed four more regression models, using the same predictors as in the main models (1-6), to investigate whether pro- or anti-invasion attitudes (and the other predictors) might add supplementary explanations about how people try to discern true from false information. (see Table 2).

## Discussion and conclusions

Residents of one of Ukraine's neighboring countries, living in a (social) media-saturated environment, Romanians were constantly exposed to war-related information as Russia's aggression in Ukraine progressed. Their ability to distinguish between true or false information about the war is crucial to their understanding of the conflict unfolding at Romania's northern border. This study sought to explore what factors are associated with Romanians' capacity to accurately spot accurate and misleading information about the war, at the beginning of the conflict in Ukraine. We were particularly interested in the individual-level factors that might influence people's capacity to navigate the complex information environment concerning the conflict in Ukraine.

People's attitudes towards the war in Ukraine play the most important part (in terms of the power of the predictors we tested in this study) in people's capacity to navigate the information ecosystem in Romania. However, their role is complex. Generally speaking, we found that less supportive people of the Russian's invasion of Ukraine are better at spotting both true and false information about the war. However, pro-invasion people are worse only at false information detection (but identify accurate information just like anybody else). These findings should be interpreted in the Romanian context, a NATO country, in which anti-invasion attitudes are dominant among the general population. The further exploratory models (7-10) add some nuances to these findings: people are generally better at evaluating anti-invasion information in terms of truthfulness, and pro- and anti-invasion attitudes are only significant (and strongest) predictors of people's capacity to detect anti-invasion (but not pro-invasion) true and false information. In other words, the more anti-invasion people are, the better they are at spotting both true and false information that is in line with their views, and the more pro-invasion people are, the worse they are at spotting anti-invasion information. This might suggest a selective exposure kind of interpretation: being much more exposed to like-minded information, people are better informed about it and less informed about cross-cutting information, which in turn influence their capacity of discerning true and false content; however, this holds true only for anti-invasion information environment. This deserves further exploration is studies designed for this particular purpose.

In line with recent studies that show a positive correlation between cognitive reflection and misinformation detection (Pennycook and Rand, 2019; Salvi et al., 2021) we found that concern about the war was a significant predictor of Romanians' ability to detect accurate and false information about the war at the aggregate level (H1 validated). However, it seems that this is only due

the significant correlation with people's capacity to recognize accurate information, and not necessarily to spot misinformation. Romanians appear to have a relatively good capacity to accurately navigate the information environment. Given the geographical proximity of the war, we assumed that Romanians were interested and uncertain about the complex and multifaceted conflict unfolding at the border, which might lead to their increasing search for reliable information about the conflict (Matthes, 2006; Sadiq and Mathew, 2022). To better understand what happens in their vicinity, Romanians who have started to pay more attention and have become more interested in the conflict became better at recognizing reliable information about the war.

Wars are characterized by fear, anxiety and uncertainty which fuel conspiracy narratives. People holding a conspiracy mindset are less inclined to accommodate evidence-based information and more prone to resist knowledge about events taking place in their environment (Glüer and Wikforss, 2022). Drawing on research showing that cognitive reflection positively associates with false information detection and on studies demonstrating that engaging in analytical thinking reduces belief in conspiracy theories (Swami et al., 2014), we hypothesized that people with a conspiracy mindset are less proficient at navigating the complex media environment from an accuracy point of view. Our results show that Romanians scoring lower on the conspiracy mindset questions were better at correctly identifying false information, but, surprisingly, worse at recognizing accurate information (H3 partially validated). The first part of the hypothesis testing has a logical explanation: that is, people who engage in analytical reasoning, and are therefore more open-minded, are more likely to critically scrutinize the news content they receive and reject simplistic views, such as misinformation, often framed as conspiracy theories about the Ukraine war. However, understanding why people who hold conspiracy mindsets are better at recognizing accurate information than those who do not hold conspiracy mindsets is challenging. We speculate that this result might be due to the fact that fear might make people with conspiracy mindsets have higher levels of need for cognition (Matthes, 2006), which makes them more informed about the facts regarding the war in general, but they become too biased when it comes to misinformation, which sometimes comes *in the form of conspiracy theories*. However, this needs to be further tested and should be taken with a grain of salt, especially since prior research has pointed out to different roles played by different social media platforms and instant messaging programs in people's affinity towards conspiracy myths (Schwaiger et al., 2022).

Previous studies have shown that for people to be able to fight misinformation, first they need to be aware of having been exposed to false information. It is widely acknowledged that increased media literacy positively corelates with people's ability to fight disinformation (Tully et al., 2020; Varga et al., 2020). We tested the link between people's self-perceived media literacy and their capacity to detect war accurate and false information. Results show that Romanians who perceive themselves as highly media literate are better at spotting false information about the war (H4 validated). While self-reported media literacy is not actual media literacy (Varga et al., 2015), a higher degree of self-perceived media literacy may favor the adoption of a more critical stance towards the information people are exposed to, which could include an improved capacity to detect misinformation, but not necessarily an improved capacity to recognize accurate information.

Interestingly, despite the scarcity of established fact-checkers in Romania, fact-checking seems to be perceived as an important tool to fight misinformation, being one of the significant predictors of Romanians' good performance at misinformation detection (H5 validated). The more people believe fact-checking to be effective in countering misinformation, the better they are at navigating the information environment about the war, but not necessarily at spotting misinformation. While the efficiency of fact-checking in debunking misinformation is still subject to scholarly debate (Collins et al., 2021; Szewach et al., 2022), our findings are rather in line with studies suggesting

that, in general, people hold favorable attitudes towards fact-checking (Lyons et al., 2020; Nyhan and Reifler, 2015).

As far as the media is concerned, our study showed that, at least for the war-related information, media only play an important part when it comes to information coming from social platforms. Our findings show mixed results: one the one hand the more people take their daily information from social media, the better they are at recognizing accurate information, and on the other hand the worse they are at spotting misinformation. This might be due to the fact that social media consumers are more or less up-to-date with information about obtrusive topics for their daily lives, such as the war in Ukraine, but also more intoxicated by the high level of misinformation circulating on social platforms. According to a recent report on news consumption and social media (Statista, 2022), Facebook is the second most used source of news for Romanians (surpassed only by television). In their study of disinformation and societal resilience during the COVID-19 pandemic, Durach and Volintiru (2021) warn that Romanians' media diet relying excessively on social media makes them highly vulnerable to misinformation due to increased permeability of misleading information.

Of all the control variables, only age and gender were significant and only in the models predicting misinformation detection. We found that men and younger people have a better capacity of detecting war-related misinformation.

Our study provides additional support for the growing body of literature that explores the factors affecting people's performance at detecting misinformation about the Russia-Ukraine war.

The study comes with limitations, too. The results are bound to a specific geographical territory related to the war in Ukraine, namely, a bordering country; the online panel design itself is not representative of the entire population, being biased towards younger, educated people with an Internet connection; the correlational nature of the data does not allow for causal interpretation. However, we believe that the findings provide useful insights into what could be done to help people better cope with misinformation and navigate the high-choice media environment in times of crisis. Additionally, the statements used as tests for people's capacity to discern true and false information were not designed to test specifically whether pro- or anti-invasion media content, may it be true or false, is differently assessed based on people's own beliefs, which was an emerging finding of this study. Further research is needed to clarify this insight.

The results of this study may be useful to journalists and media communicators, government communication officials, communication professionals, and educators. Since concern about the war is positively associated with people's ability to detect misinformation, journalists and media reporters should be able to convey timely and accurate information about the conflict. Promoting strong norms regarding news reporting and supporting investigative journalism are key in combating the proliferation of misinformation.

As our study shows, Romanians' positive attitude toward fact-checking is associated with their capacity to identify accurate information, but not necessarily to spot misinformation about the war. Fact-checking initiatives should be strongly encouraged by means of national-level policies. Equally important, official communicators and news outlets should promote fact-checking and high-quality reporting, especially in countries in which fact-checking agencies are still emerging. Investing in media education and improving information literacy skills among the public could be useful on the battlefield against misinformation.

The fight against misinformation is ultimately a race to ensure transparency and high-quality reporting, to support fact-checking initiatives and investigative journalism, to encourage media and information literacy education and campaigns, to strengthen media ecosystems across the world, especially when the topic under scrutiny is a military conflict. Taken together, all these measures could have real implications in making citizens better and more accurately informed.

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## Supplemental Material

Supplemental material for this article is available online.

## Notes

1. In this paper, we take note of the distinctions made by scholars between several related concepts such as dis-, mis-, and mal-information in addressing information disorders (Alcott and Gentzkov, 2016; Bakir and McStay, 2018; Wardle and Derakhshan, 2017). However, in our study, because the malicious intent of (media) actors creating and spreading false information has not been our concern, we use the term misinformation, which largely includes both intentional deceiving, but also that incorrect content can be created and/or disseminated unintentionally or by people who are unaware that the information is inaccurate (Egelhofer and Lecheler, 2019; Lecheler and Egelhofer, 2022).
2. The data was collected within a comparative, cross-country project in 19 countries, preregistered here: https://osf.io/pruda/?view_only=188fca5107ca40639936bfa810bbe5d5.

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