Identifying the drivers behind the dissemination of online misinformation : a study on political attitudes and individual characteristics in the context of engaging with misinformation on social media

Identifying the Drivers Behind the Dissemination of Online Misinformation A Study on Political Attitudes and Individual Characteristics in the Context of Engaging with Misinformation on Social Media

Abstract

The increasing dissemination of online misinformation in recent years has raised the question which individuals interact with this kind of information and what role attitudinal congruence plays in this context. To answer these questions, we conduct surveys in six countries (BE, CH, DE, FR, UK, U.S.) and investigate the drivers of the dissemination of misinformation on three noncountry specific topics (immigration, climate change, and COVID-19). Our results show that besides issue attitudes and issue salience, political orientation, personality traits, and heavy social media use increase the willingness to disseminate misinformation online. We conclude that future research should not only consider individual's beliefs but also focus on specific user groups that are particularly susceptible to misinformation and possibly caught in social media 'fringe bubbles'.

Keywords: misinformation, dissemination, social media, political attitudes, personality traits

Introduction

Because a well-informed citizenry is considered a vital foundation for a healthy democracy, the dissemination of false and misleading information poses a major threat to it. The deliberate fabrication of false information to mislead individuals, generally labelled as disinformation, is nothing new, but today's high-choice media environment provides a fertile ground for its dissemination (Weeks & Gil de Zúñiga, 2021). After the 2016 U.S. presidential elections in particular, scholars began examining origins, causes and consequences of false and misleading messages. Ample research indicates that this false content is often deliberately

and strategically created to reach certain segments of the public and influence their beliefs and political behavior (Bennett & Livingston, 2018; Wardle & Derakhshan, 2017). Moreover, ordinary citizens contribute to its dissemination and are consequently co-responsible for misinforming parts of the public (Talwar et al., 2019).

A logical starting point is that people share false information because they belief it is true. However, several authors argue that belief in false information is a sufficient, but not a necessary condition for the spread of misinformation and that misleading messages are often shared without the person necessarily believing it (Rossini et al., 2020; Van Bavel et al., 2021). According to Pennycook et al. (2021), citizens disseminate misinformation for different reasons, among others, because they care less about the truth and more about having their opinion confirmed or because they do not focus on the veracity but on other aspects of the message. By now, scholars have identified ample factors that play a central role in the dissemination of online misinformation, but a shared comprehensive framework of what drives the spread of false information is still missing. In a recent step towards an integrative theoretical model, Van Bavel et al. (2021) identified multiple psychological risk factors, which underlie the dissemination of misinformation. First of all, they include several political factors such as partisan bias, polarization, and political ideology (see also Calvillo et al., 2020; Guess et al., 2019). For instance, partisan bias can facilitate the spread of misinformation because it confirms people's own opinions even though the information might be incorrect. Moreover, in polarized environments people might be willing to spread misinformation for partisan gain, to communicate their political identity, and to encourage hostility towards the partisan out-group. In addition to these partisan and ideological factors, Van Bavel et al (2021) argue that several deeper personality traits, emotions, and cognitive skills influence the dissemination of misinformation.

Building on this strand of research, this study aims to identify the individual characteristics that drive the dissemination of online misinformation. In line with Van Bavel et al. (2021) we look both at political attitudes and personality traits (see also Hameleers et al., 2020 and Petersen et al., 2018). Additionally, we include insights from the literature on social media and misinformation. Because false information is spread primarily through social media, it has been argued that people who use social media intensively are more likely to come into contact with false information and are thus more likely to spread it (Humprecht et al., 2020). To structure these different risk factors, we use a funnel that moves from stable to more fluent individual characteristics and attitudes (see Figure 1).

Our study relies on extensive survey data from six Western democracies (Belgium, France, Germany, Switzerland, the United Kingdom and the United States). We test our assumptions on three issues that are highly salient, often polarizing, and relevant in all countries under study: climate change, immigration, and COVID-19. This focus on specific issues allows us to more fine-grained test the role of attitudinal congruence with the message of a post, rather than relying on more general proxies such as partisanship. We focus on the characteristics of people who are willing to like, share or comment on social media posts that contain false or unproven information. We are interested to what extent people are willing to engage with misinformation and what drives these behaviors. Since the intention of the producers of such information is often not apparent to citizens, we prefer, in the context of this specific study, the term misinformation instead of disinformation, often used to refer to the deliberate spread of false information (Wardle & Derakhshan, 2017)

Since there has been a strong focus on the U.S. in the research on misinformation, we additionally included Western European democracies to test our assumptions across varying contexts and to increase the robustness and generalizability of our results (Esser & Vliegenthart, 2017). Subsequently, the strength of the following study lies in combining

different individual factors and testing them on various issues across populations. Our results show both specific attitudes towards issues and general characteristics explain the individual dissemination of online misinformation, thereby contributing to a better understanding of the rapid and wide spread of false and misleading messages on social media.

The Dissemination of Online Misinformation

Social media play a crucial role in how individuals consume and share news with others. Spreading content on social media can, among other things, strengthen underrepresented opinions (Chadwick & Vaccari, 2019), but it becomes problematic when people share false or misleading messages because they can reach large audiences (Allcott & Gentzkow, 2017). One reason for liking or sharing specific social media posts is that citizens agree with the message and convince themselves that sharing the information is legitimate. Since the rise of social media, scholars have extended their interest from selective exposure to selective sharing of information. For instance, Johnson et al. (2020) showed that across various issues, people's existing political beliefs are even more important to explain the selective sharing of online information than to explain selective exposure. People are eager to share information that is in line with their views, even when that information is unproven or openly false (Buchanan, 2020; Guess et al., 2019). In addition, previous research has also shown that other overriding factors influence citizens' social media behavior regarding the dissemination of misinformation (Van Bavel et al., 2021). Overall, the current state of research suggests that people who spread deceptive or misleading content often share similar characteristics (Guess et al., 2019; Pennycook & Rand, 2019). This seems to imply that false information is shared online independent from a specific topic or message. To test whether this general expectation holds, we combine different factors in one comprehensive model, and at the same time, explore in a more detailed manner the role of specific issue attitudes in the

spread of misinformation. More concretely, we examine the role of the individual-level factors like a funnel (see Figure 1). We move from fixed personal factors such as age, gender, and education to personality traits as well as political ideology, issue attitudes, issue salience, and social media use for the dissemination of misinformation. We argue that the factors closer to the narrow end of the funnel are less structurally determined and more directly related to our dependent variable (engagement with misinformation). Furthermore, we expect that the more factors we add, the more nuanced and comprehensive we can explain individuals' engagement with misinformation. Next, we elaborate on the different characteristics and formulate concrete hypotheses.

[FIGURE 1 ABOUT HERE]

Sociodemographic Factors

Basic individual characteristics such as age, gender and education have been associated with the dissemination of misinformation. In previous studies older social media users have been found to be more likely to engage with possibly misleading content (Grinberg et al., 2019; Guess et al., 2019; Osmundsen et al., 2020). On the other hand, Chadwick and Vaccari (2019) found that rather younger British people (younger than 45) would share misinformation. Thus, research on the role of age in the context of misinformation sharing is still inconclusive. Additionally, research has shown that men are more likely to engage with misinformation than women (Chadwick & Vaccari, 2019; Grinberg et al., 2019). This effect might be explained by the gender gap in general online behavior. According to recent research, women tend to be less likely to comment on political news online and men generally tend to share more news on social media (Chadwick & Vaccari, 2019; Van Duyn et al., 2021). Other findings suggest that next to age and gender, education plays a crucial role in the dissemination of misinformation on social media. Higher educated individuals are less prone

to disseminating false information (Pop, 2019). Following the findings from misinformation research and research on general social media behavior, we assume that these individual factors have a significant impact on the engagement with misinformation across issues and various populations.

Hypothesis 1a: Men are more likely to disseminate misinformation on social media than women are.

Hypothesis 1b: Older individuals are more likely to disseminate misinformation on social media than younger individuals are.

Hypothesis 1c: Lower educated individuals are more likely to disseminate misinformation on social media than higher educated individuals are.

Personality Traits

Personality traits have shown to be an important predictor for studying general social media use (Chen, 2016), and very recently, scholars begun to study the influence of personality traits on propagating online misinformation (Buchanan, 2020; Buchanan & Benson, 2019). To answer the question of what drives the dissemination of misinformation, it is important to understand what role aversive personality traits play in the dissemination of those messages. In particular, the Dark Triad of personality traits has been identified as a factor that explains why people express malicious online behavior (Buckels et al., 2014; Craker & March, 2016; Lopes & Yu, 2017). The Dark Triad consists of three components: psychopathy, narcissism, and Machiavellianism. Psychopathy describes personalities with a lack of empathy, remorse, and anxiety as well as high impulsivity and thrill-seeking behavior. It consists out of two main elements: deficits in self-control and affect. Narcissism is characterized by feelings of dominance, grandiosity, and superiority. The driver behind narcissistic behavior is ego-reinforcement, whereas psychopathy and Machiavellianism are driven by instrumental gain. Machiavellianism consists of the tendency to manipulate other

people in a strategic, calculating way. The impulsivity attributed to psychopathy is central in distinguishing it from Machiavellianism. Machiavellians are, in contrast to psychopaths, concerned about their reputation and tend to plan ahead (Jones & Paulhus, 2014; Paulhus & Williams, 2002). Because the three constructs are slightly intercorrelated, they share some key aspects, such as aggressiveness, emotional coldness, self-promotion, and general antisocial behavior (Jonason & Webster, 2010; Jones & Paulhus, 2014; Paulhus & Williams, 2002; Rauthmann & Kolar, 2013).

We assume that for individuals who exhibit a dark personality, the veracity of online information does not play a central role but the impact of possibly false and misleading information does. For example, these individuals intentionally disseminate this kind of information to attract attention or alienate others. Personality traits can therefore contribute to the understanding of why people would generally engage with misinformation.

Hypothesis 2a: Individuals with narcissistic personality traits are more likely to disseminate misinformation than individuals without narcissistic traits are.

Hypothesis 2b: Individuals with psychopathic personality traits are more likely to disseminate misinformation than individuals without psychopathic traits are.

Hypothesis 2c: Individuals with Machiavellian personality traits are more likely to disseminate misinformation than individuals without Machiavellian traits are.

Political Orientation

Previous studies have highlighted the role of party affiliation and political orientation in connection with misinformation sharing (e.g., Bennett & Livingston, 2018; Chadwick & Vaccari, 2019; Grinberg et al., 2019; Guess et al., 2019; Van Bavel et al., 2021). Osmundsen et al. (2020) found that individuals rather share false information on social media if it is in line with the positions of their party. This is also a possible explanation for the discovered party divides: Studies focusing on the U.S. indicate a significant asymmetry exists between

Republicans and Democrats when it comes to the sharing of misinformation or fact-checks. In general, conservatives were more likely to disseminate inaccurate information and were less likely to engage with fact-checking messages (Guess et al., 2019; Osmundsen et al., 2020; Shin & Thorson, 2017). This is consistent with research in the United Kingdom, where conservatives were found to be more likely to spread misinformation, whereas left-leaning citizens rather corrected others (Chadwick & Vaccari, 2019).

These findings indicate that political orientation is an important predictor of online misinformation sharing. Previous research suggests that misinformation tactics are frequently connected to right-wing actors and that misinformation is not exclusively, but predominately right-leaning (Bennett & Livingston, 2018; Ognyanova et al., 2020). Although the fabricated social media posts used in this study do not all have a unidimensional right-wing political orientation (e.g., the one on the coronavirus and on climate protestors), it can be assumed that right-leaning individuals are more likely to support and disseminate this content.

Hypothesis 3: Individuals with a right-leaning political orientation are more likely to disseminate misinformation.

Attitudinal Congruence

Following the argument that social media users are more inclined to share misinformation if it is consistent with their political orientation, another central predictor is attitudinal congruence (e.g., Buchanan, 2020; Hameleers et al., 2020). The concept of attitudinal congruence dates back to the beginning of cognitive consistency theories and is related to confirmation bias (Festinger, 1957). Individuals actively or unconsciously tend to select content that is in line with their existing beliefs and avoid uncongenial information to reduce cognitive dissonance (Hameleers, 2019; Iyengar & Hahn, 2009). Sharing attitudinally congruent information can reduce "states of negative dissonance incurred by the existence of contradictory information, particularly as it pertains to one's in-group" (Hopp et al., 2020, p.

6). In general, this belief-based content selection on social media results in individuals mainly engaging with attitude-congruent social media posts. Even if people are not sure whether the information is true or partly true, they might uncritically decide to share it to support the views of their in-group or community (von Hohenberg, 2019; Hameleers, 2019). In contrast, the willingness to express support for a (misleading) social media post decreases when individuals assume incongruity within their network (Nekmat & Ismail, 2019). This finding indicates social media users decide what to disseminate and support based on their perceptions of the topic and on preexisting attitudes.

Against this backdrop, attitudinal congruence is of high importance when it comes to disseminating misinformation. We assume that people are more likely to disseminate false social media content when the message is in line with their preexisting attitudes:

Hypothesis 4: The stronger the attitudinal congruence regarding a specific issue, the higher the willingness to disseminate misinformation.

Issue Salience

Closely related to attitudinal congruence is the concept of issue salience or issue importance. Issue salience has been studied extensively as part of agenda-setting research, (e.g., McCombs & Shaw, 1972; Tan & Weaver, 2007; Wanta et al., 2004). In general, salient issues increase people's cognitive and emotional engagement while they process a message (Eberl et al., 2020). In the context of social media, the individually ascribed salience of an issue influences how users react toward related social media posts (Waddell, 2018).

Previous research has shown that a higher personal importance attributed to an issue leads to individuals having greater willingness to express their support and share corresponding information on social media platforms (Nekmat & Ismail, 2019). The increased involvement triggered by the topic's importance thus influences user behavior on social

media. We expect an effect of issue salience on the individual motivation to engage with false or misleading information on social media.

Hypothesis 5: The higher the perceived salience of an issue, the higher the willingness to disseminate misinformation.

Social Media Behavior

Because misinformation spreads easily through social media, it is crucial to take users' general social media behavior into account when investigating their propensity to disseminate false or misleading content. When it comes to individual social media use, previous research has postulated significant correlations between the scale of the social media use (e.g., in terms of liking and sharing news) and the likelihood of sharing false information (Buchanan, 2020). Because social media activity is seen as active rather than passive behavior, we expect that individuals who generally engage with social media content frequently are more inclined to like, share, or comment on online misinformation. Moreover, higher levels of trust in news on social media can lead to greater engagement with social media content in general (Sterrett et al., 2019). Aside from making people more active, research shows that online trust makes people less cautious in their sharing behavior. For instance, in their study on news sharing on WhatsApp, Talwar et al. (2019) found that those who trusted news and information on social media more were more likely to spread false news stories and less likely to authenticate the news story. Against this backdrop, we assume that active social media users and individuals who trust news on social media are more willing to spread misinformation.

Hypothesis 6a: Individuals who use social media more frequently and are more active on these platforms are more likely to disseminate misinformation than less active individuals are.

Hypothesis 6b: Individuals who trust news on social media more are more likely to disseminate misinformation than less trustful individuals are.

Methods

Design. To be able to make claims about individuals in different information environments, we conducted representative surveys in six Western democracies (Switzerland, Belgium, France, Germany, the United Kingdom and the United States.[1]) to investigate the dissemination of misinformation related to three issues (immigration, climate change and COVID-19). We argue that these three topics are well suited for the study of misinformation, because they had been connected to false and misleading messages circulating widely on social media in the months and weeks prior to the survey (Mimikama, 2019; Petersen et al., 2018) and are highly polarized. These issue characteristics allowed us to examine the roles of political attitudes and issue salience in the context of the dissemination of such content. The polling company Respondi recruited representative samples of social media users (usage of at least once a month) in all six countries under study based on country-specific census data (see Appendix D[2]). A detailed description of the procedure and the vignettes used in this study can be found in Appendix F[3].

Sample. After removing careless respondents and other outliers based on response time and quality fail questions, we secured a sample of 7,006 respondents (quotas for age: $M = 43.87$, $SD = 14.69$; gender: female = 51.7%, male = 48.3%, education: lower = 27.7%, moderate = 40.1%, higher = 32.1%). We are interested in any type of engagement with misinformation and subsequently in any type of dissemination. However, we excluded respondents who indicated they would *comment* on the social media post to signal disagreement (climate change post, $n = 735$; immigration post, $n = 486$; COVID-19 post, $n = 626$) which resulted in a final sample size of $N = 5,791$. We see commenting to disagree with the post as a way of combatting misinformation (e.g., by warning others), whereas liking or sharing the post to

[1] The data used in this study are connected to a large-scale research project. These countries were chosen to test different contextual factors that create opportunity structures for the dissemination of online misinformation. This study does not focus on these factors or on specific country differences, rather, we aimed to find generic factors that matter across (Western) countries.
[2] The Online Appendix can be accessed here: http://www.disinformation-project.com/data
[3] The Online Appendix can be accessed here: http://www.disinformation-project.com/data

signal disagreement is mostly well intended but can unwillingly contribute to the message's dissemination.

Dependent Variable. All participants were shown three fabricated social media posts, one for each issue. The created vignettes resembled news articles posted on Facebook by a fictional news outlet (news.com). The participants were told a cover story at the beginning of the survey stating that the aim of this study was to assess their opinions on different social media posts, political issues, and actors as well as their social media use. Before they were exposed to the fabricated posts, the participants were told to imagine that the following posts would appear on their newsfeed and to read them carefully.

Willingness to interact with the social media posts was measured with three items. On a 7-point Likert scale (1 = very unlikely, 7 = very likely), participants had to answer how they would usually react to the presented post, specifically whether they would "like the post," "share the post," or "leave a comment.". Because the three types of user engagement with the post were correlated strongly (Cronbach's $\alpha = .85$), we built mean indices across all types of reactions (like, share, and comment) for each topic (climate change: $M = 2.43$, $SD = 1.67$; immigration: $M = 2.13$, $SD = 1.67$; COVID-19: $M = 2.28$, $SD = 1.74$).

In our sample, between 10% and 37% of the participants in a specific country stated that they likely would engage with the presented post. Table 1 shows that, across countries, the post that contained the claim regarding climate protesters led to the highest willingness to engage, followed by the posts related to immigration and finally coronavirus (climate change: $n = 1{,}930$, immigration: $n = 1{,}073$, COVID-19: $n = 1{,}563$).

Across countries and types of interaction, about 12.1% of the participants signaled they would react to all three of the fabricated posts, 13.6% stated they would engage with two of the three posts and 19.4% would only engage with one of the three posts. This already

indicates a substantial overlap between the interactions with the posts on all three issues.

[TABLE 1 ABOUT HERE]

Independent Variables

Personality Traits. Based on the literature on the Dark Triad of personality traits (see e.g., Jonason & Webster, 2010; Jones & Paulhus, 2014; Paulhus & Williams, 2002), we focus on its three components: narcissism, psychopathy, and Machiavellianism. The constructs were measured on 7-point Likert scales, based on the studies by Jonason and Webster (2010) and Jones and Paulhus (2014). Narcissism was measured with four statements (e.g., "I tend to want others to admire me" and "I tend to want others to pay attention to me"), Cronbach's α = .88, M = 2.96, SD = 1.55. Psychopathy was measured through three items (e.g., "I tend to lack remorse" and "I tend to be callous or insensitive"), Cronbach's α = .67, M = 2.89, SD = 1.39. The Machiavellianism scale consisted of four items (e.g., "Make sure your plans benefit you, not others" and "Most people can be manipulated"), Cronbach's α = .68, M = 3.70, SD = 1.32. The complete scales can be found in Appendix B[4].

Political Orientation. The participants had to indicate where they would place themselves on an 11-point ideological scale (0 = extreme left, 10 = extreme right), M = 6.03, SD = 2.46.

Attitudinal Congruence. Attitudinal congruence was measured through agreement with statements about the three issues. For immigration and climate change we worked with existing Likert items that are often used in survey research (see Appendix C[5]). We built mean indices for each issue (climate change, Cronbach's α = .70; immigration, Cronbach's α = .81). For COVID-19 we used one statement stating that the weak response of the Chinese authorities has caused the coronavirus to become a worldwide pandemic. The respondents had to indicate on a 7-point scale (1 = strongly disagree, 7 = strongly agree) if they agreed with

[4] The Online Appendix can be accessed here: http://www.disinformation-project.com/data
[5] The Online Appendix can be accessed here: http://www.disinformation-project.com/data

the statement shown (climate change: M = 3.33, SD = 1.40; immigration: M = 4.32, SD = 1.50; COVID-19: M = 5.29, SD = 1.70).

Issue Salience. To measure each issue's salience, the participants were asked, "How important do you consider the following issues in [country] at the moment?" (1 = not at all important, 7 = very important). We presented several issues but focus here on climate change (M = 5.27, SD = 1.66), immigration (M = 5.09, SD = 1.66), and finally the broader label of health and medical issues to measure the importance of the COVID-19 pandemic (M = 6.28, SD = 1.06).

Social Media Variables. To measure the social media use, we asked the respondents how frequently they used Twitter, Facebook or Instagram for reasons like entertainment, work, or information seeking on a 5-point scale (1= *never*, 2 = *less often*, 3 = *monthly*, 4 = *weekly*, 5 = *daily*), *M* = 2.73, *SD* = 2.33. Furthermore, we tested for general social media activity. The participants were asked how often they responded to personal posts of friends or family members via likes, shares or comments (1 = *never*, 7 = *very often*), *M* = 4.62, *SD* = 1.97. To measure the perceived trustworthiness of online news, we asked the participants to indicate if they thought they could trust the news on social media (1 = *strongly disagree*, 7 = *strongly agree*), *M* = 3.13, *SD* = 1.53. The means of all independent variables across the six countries can be found in Appendix E[6].

Results

To answer the question of what drives the dissemination of online misinformation, we ran multilevel regressions with random effects to account for the nested data structure. Each participant saw one post for each issue (three posts in total), so that individual willingness to engage with a certain post was nested within respondents. In a first step, we investigated the impact of sociodemographic factors on the willingness to engage with misinforming content

[6] The Online Appendix can be accessed here: http://www.disinformation-project.com/data

(H1a-H1c). In a second step, we entered factors into our models that postulated a connection between the disseminating behavior and certain personality traits (H2a-H2c). Third, we measured the influence of political orientation, specific issue attitudes and the perceived issue salience on the willingness to engage with the fabricated posts (H3-H5). Last, we tested for general social media behavior (H6a-H6b). Although, we expected that our hypotheses would work across countries, we controlled for country differences.

In model I (Table 2) we observed that gender and education were significant predictors. Furthermore, the coefficients stay significant throughout all models, and age becomes significant in model II and model IV, although with a marginal effect (B = .00, SE = .00, $p < .001$). In support of H1, the findings showed that male, older, and less educated individuals were generally more likely to engage with the post (model IV: gender: B = .19, SE = .03, $p < .001$, age: B = .00, SE = .00, $p < .001$, education: B = -.19, SE = .02, $p < .001$). Results of the second model indicated a greater willingness to engage with misinformation if individuals showed darker personality traits (narcissism: B = .11, SE = .01, $p < .001$, psychopathy: B = .10, SE = .01, $p < .001$, Machiavellianism B = .03, SE = .01, $p < .05$). The significant effect of Machiavellianism disappeared in the following models, which implied correlations with the added predictors. People with stronger degrees of narcissism and psychopathy indicated more often that they would react to the post, in contrast to people without these traits. This result supported H2a and H2b but not H2c.

In the third model, attitudinal and socio-political predictors were included, namely political orientation, issue attitudes and issue salience. In line with our hypothesis (H3), the data showed that the more right-leaning individuals are, the more likely they are to engage with the misinforming content (B = .06, SE = .00, $p < .001$). Findings, however, also indicated that individuals were more likely to disseminate the posts when they were in line with preexisting issue attitudes (B = .04, SE = .00, $p < .001$). In support of Hypothesis 4, we found

that the stronger the preexisting attitudes towards the presented topic were, the higher the chances were that individuals would like, share, or comment on the message. We additionally tested the influence of perceived issue salience on the engagement with misleading social media content, assuming that the more salient a topic was perceived to be, the higher the motivation to disseminate the corresponding post. In model III, issue salience had a positive significant effect (B = .07, SE = .00, $p < .001$). This finding supported Hypothesis 5.

Model IV further included social media use and the activity on social media. The results led us to accept our sixth hypothesis as well (B = .06, SE = .01, $p < .001$). People who tended to engage with posts from friends and family were more willing to disseminate the post. The strongest effect was found for general social media use. Heavy social media users were generally more willing to engage with the misinforming post compared to people with a lower use (B = .18, SE = .01, $p < .001$). Furthermore, model IV showed that trust in social media news had a significant effect on the willingness to disseminate the posts (B = .12, SE = .01, $p < .001$). The data fit improved stepwise with each model though the inclusion of the different sets of variables, with an explained variance of 18% in the most comprehensive model IV.

[TABLE 2 ABOUT HERE]

In the next step, we aimed to detect issue differences and additionally tested three separate interaction effects with political orientation, issue attitudes, and issue salience. The comparison among the three issues was relevant as not all of them could be connected tightly to a right-leaning ideology. This is especially the case with the post regarding COVID-19. Our survey indicates that individuals with different, even opposing, political ideologies was highly critical of the role China played in this health crisis[7]. Furthermore, the post regarding

[7] We measured people's opinions toward the Chinese government regarding the pandemic by presenting the following statement: "The weak response of the Chinese authorities has caused the coronavirus to become a worldwide pandemic" (1 = strongly disagree, 7 = strongly agree). The statement had a high agreement overall (M =

climate protesters leaving garbage behind in a public space can infuriate individuals from both sides of the political spectrum. Put differently, a climate change sceptic and a climate change believer might both be triggered by green protesters littering a park. One because of the hypocrisy and the other because of the sheer littering and its consequences for the environment. Based on this reasoning, it was relevant to explore these three issues in more detail by consulting interaction effects. Table 3 shows the complete models and the corresponding interaction effects. The two-way interaction effects of the different issues and political orientation (model I) illustrate that the issue of immigration differs significantly from the issue of climate change. A more outspoken right-leaning political orientation seemed to have a bigger impact on the willingness to engage with the immigration post than with the climate change post. Regarding the political orientation, we could not find any differences between the issues of COVID-19 and climate change. Second, the interaction effects of issues and issue attitudes were positive and significant for the topics of COVID-19 and immigration (model II). Both issues varied significantly from climate change with regards to preexisting attitudes, whereas the effect for immigration was stronger than for COVID-19 (B = .08, SE = .01, $p < .001$ & B = .04, SE = .01, $p < .001$). Last, we observe a negative significant interaction effect between issues and issue salience for COVID-19 (B = -.04, SE = .01, $p < .05$) in model III.

[TABLE 3 ABOUT HERE]

Discussion

Although research on misinformation is on the rise, we know little about what is driving people to engage with this type of content on social media (Pennycook et al., 2021; Pennycook & Rand, 2019). As a key contribution to this strand of research, we aimed in this study to determine whether the process of disseminating online misinformation depends on

5.29, SD = 1.70), and across the political spectrum (M_{left} = 4.84, SD = 1.81; M_{right} = 5.78, SD = 1.56; on an eleven-point scale 1-4 was considered left, 9-11 was considered right).

specific attitudes toward issues or is determined by more general characteristics and behavior, such as personality traits, political orientation, and social media behavior. By combining several possible drivers, structured in a funnel of factors, we aimed to examine whether individuals with certain overriding characteristics contribute willingly or unwillingly to the dissemination of misinformation.

The results of surveys in six countries showed that sociodemographic characteristics matter and are hardly affected by other factors. In line with previous research (Chadwick & Vaccari, 2019; Guess et al., 2019), men and less educated individuals are most likely to engage with misinformation. Furthermore, our findings indicate that personality traits are of great importance in the context of misinformation dissemination. Individuals who showed stronger manifestations of narcissism and psychopathy were more prone to disseminate the misinforming social media post. Moreover, general social media use and activity is a focal predictor when it comes to the interaction with online misinformation suggesting that active social media users are more willing to disseminate misinformation. We found that participants who frequently use social media, generally like, share, or comment on the posts of friends and family members, and have higher levels of trust in news on social media were more likely to engage with possibly false or misleading content. These results are in line with previous studies showing that belief in the content of misinformation is less important for its spread than general social media behavior (Pennycook et al, 2021; Pennycook & Rand, 2019).

Further, in line with previous studies (e.g. Chadwick & Vaccari, 2019; Guess et al., 2019) we observed that political orientation is a strong predictor for spreading misinformation. Although individuals with a right-leaning worldview seem more willing to disseminate misleading messages, it makes sense to consider more specific attitudes related to the issue of the post. In particular, this study shows that attitudinal congruence and issue salience help to explain why people disseminate online misinformation. The more congruent

the message was with preexisting attitudes, and the higher the personal importance of an issue, the more likely people were to engage with a post on that issue, even if the content is false or unproven.

By considering the three issues separately regarding political orientation, issue attitudes and salience, minor, but relevant differences came to light. On average, right-leaning individuals were more likely to engage with the misinforming post about immigration, than with the climate change post. In addition, issue congruence mattered more for the issue of immigration, than for the other two issues. This means that specific attitudes towards the issue are more important for the willingness to engage with the post about immigration than for the other two topics. In line with previous studies on selective sharing (Johnson et al., 2020), this finding suggests that existing attitudes on a polarizing issue such as immigration are particularly important to explaining why people engage with misinformation on immigrants and refugees. However, we must also consider the specific elements of the presented posts on the different issues. For instance, the post on climate change blamed climate change protesters for leaving garbage behind, meaning that being willing to disseminate this post does not mean that individuals question climate change itself, but rather the irresponsible behavior of environmental activists. Thus, we conclude that specific issue attitudes play an important role regarding all issues but are most important for the topic of immigration.

Our study bears some limitations, which must be acknowledged. As a first key limitation, a precise and elaborate measure of attitudinal congruence is very challenging. In this study, we operationalized attitudinal congruence as the agreement with single items regarding the issues. These items were kept very general and did not necessarily reflect the message and specifics of the claims presented to the respondents, except for the post on COVID-19. For a more elaborate measure of attitudinal congruence, future researchers should consider specific stimuli-oriented attitudes toward issues. Second, we used a non-existent

news outlet as the source of the fabricated posts to keep the conditions consistent in each country. However, by doing so we neglected the effect of trustworthy or doubtful sources. To avoid this situation, a variety of country specific news outlets should be tested in future research. Third, we used three claims in this study which have been disseminated in various countries. Future research, however, should examine a broader range of issues that bring different ideologies to the fore and appeal to different populations. Fourth, since we presented respondents with multiple cases, we did not ask credibility questions about each post to avoid priming respondents about the intentional misleading/false character of the message (Klar et al., 2020). However, we acknowledge that belief in misinformation is a valid factor for researching the willingness behind the dissemination of misinformation online. Therefore, future studies that focus on a single issue should delve deeper into the importance of the perceived truthfulness or accuracy of a message. Finally, we included individuals in our analysis who indicated they would like or share the posts to signal disagreement because we were interested in the dissemination of misinformation. For the sake of the interpretation of our results, we excluded individuals who indicated they would comment on the posts to signal disagreement. By commenting to disagree, individuals may try to correct the misinformation or warn others about the misleading message. Future research should therefore focus on this on every level of social media reaction.

Despite these limitations, this study provided important insights into which group of people are disseminating online misinformation and which characteristics they share. This is not only helpful for scholars working on this topic, but also for policy makers and organizations combatting misinformation. Weeks and Gil de Zúñiga (2021) suggest that corrective actions should have a persuasive approach to work. We argue that, in addition to more influential attempts at correction, it is also important to target groups of individuals who potentially spread misinformation. Our study shows that there is an overreaching ‘profile’ of

people who can be considered more vulnerable to (un)consciously disseminating false (political) information. Moreover, we also find proof that specific issue attitudes and perceived issue salience explain why individuals would engage with misinforming information. This implies that efforts to limit the spread of misinformation need to target specific groups of individuals which might be caught in social media fringe bubbles (Barkun, 2017). Heavy social media users with strong political opinions and a distinct desire to express themselves form a vocal minority that contributes significantly to the spread of misinformation. Finally, the problem of growing misinformation is likely to continue if people's attitudes become more radical and polarized. With our study, we want to contribute to the literature on misinformation by identifying various drivers for the spread of misinformation, which is particularly relevant in a time of crisis, when untruth is a central threat to societies around the world.

References

Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, *31*(2), 211–236. https://doi.org/10.1257/jep.31.2.211

Barkun, M. (2017). President Trump and the "fringe." *Terrorism and Political Violence*, *29*(3), 437–hin443. https://doi.org/10.1080/09546553.2017.1313649

Bennett, W. L., & Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. *European Journal of Communication*, *33*(2), 122–139. https://doi.org/10.1177/0267323118760317

Buchanan, T. (2020). Why do people spread false information online? The effects of message and viewer characteristics on self-reported likelihood of sharing social media disinformation. *PLOS One*, 1–33.

Buchanan, T., & Benson, V. (2019). Spreading disinformation on Facebook: Do trust in message source, risk propensity, or personality affect the organic reach of "fake news"? *Social Media + Society*, *5*(4), 1–9. https://doi.org/10.1177/2056305119888654

Buckels, E. E., Trapnell, P. D., & Paulhus, D. L. (2014). Trolls just want to have fun. *Personality and Individual Differences*, *67*, 97–102. https://doi.org/10.1016/j.paid.2014.01.016

Calvillo, D. P., Ross, B. J., Garcia, R. J. B., Smelter, T. J., & Rutchick, A. M. (2020). Political Ideology Predicts Perceptions of the Threat of COVID-19 (and Susceptibility to Fake News About It). *Social Psychological and Personality Science*, *11*(8), 1119–1128. https://doi.org/10.1177/1948550620940539

Chadwick, A., & Vaccari, C. (2019). News sharing on UK social media: Misinformation, disinformation, and correction. *Loughborough: Online Civic Culture Centre*.

Chen, X. (2016). The influences of personality and motivation on the sharing of misinformation on social media. *iConference 2016 Proceedings*. iConference 2016: Partnership with Society, Philadelphia, USA. https://doi.org/10.9776/16145

Craker, N., & March, E. (2016). The dark side of Facebook®: The dark tetrad, negative social potency, and trolling behaviours. *Personality and Individual Differences*, *102*, 79–84. https://doi.org/10.1016/j.paid.2016.06.043

Eberl, J.-M., Tolochko, P., Jost, P., Heidenreich, T., & Boomgaarden, H. G. (2020). What's in a post? How sentiment and issue salience affect users' emotional reactions on Facebook. *Journal of Information Technology & Politics*, *17*(1), 48–65. https://doi.org/10.1080/19331681.2019.1710318

Esser, F., & Vliegenthart, R. (2017). Comparative research methods. In J. Matthes, C. S. Davis, & R. F. Potter (Eds.), *The International Encyclopedia of Communication Research Methods* (pp. 1–22). Wiley. https://doi.org/10.1002/9781118901731

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Grinberg, N., Joseph, K., Friedland, L., Swire-Thompson, B., & Lazer, D. (2019). Fake news on Twitter during the 2016 U.S. presidential election. *Science*, *363*(6425), 374–378. https://doi.org/10.1126/science.aau2706

Guess, A., Nagler, J., & Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. *Science Advances*, *5*(1), 1–8. https://doi.org/10.1126/sciadv.aau4586

Hameleers, M. (2019). To like is to support? The effects and mechanisms of selective exposure to online populist communication on voting preferences. *International Journal of Communication*, *13*, 2417–2436.

Hameleers, M., Powell, T. E., Van Der Meer, T. G. L. A., & Bos, L. (2020). A picture paints a thousand lies? The effects and mechanisms of multimodal disinformation and rebuttals disseminated via social media. *Political Communication*, *37*(2), 281–301. https://doi.org/10.1080/10584609.2019.1674979

Hopp, T., Ferrucci, P., & Vargo, C. J. (2020). Why do people share ideologically extreme, false, and misleading content on social media? A self-report and trace data–based Analysis of countermedia content dissemination on Facebook and Twitter. *Human Communication Research*. https://doi.org/10.1093/hcr/hqz022

Humprecht, E. (2019). Where 'fake news' flourishes: A comparison across four Western democracies. *Information, Communication & Society*, *22*(13), 1973–1988. https://doi.org/10.1080/1369118X.2018.1474241

Iyengar, S., & Hahn, K. S. (2009). Red media, blue media: Evidence of ideological selectivity in media use. *Journal of Communication*, *59*(1), 19–39. https://doi.org/10.1111/j.1460-2466.2008.01402.x

Johnson, B. K., Neo, R. L., Heijnen, M. E. M., Smits, L., & van Veen, C. (2020). Issues, involvement, and influence: Effects of selective exposure and sharing on polarization and participation. *Computers in Human Behavior*, *104*, 106155. https://doi.org/10.1016/j.chb.2019.09.031

Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: A concise measure of the dark triad. *Psychological Assessment*, *22*(2), 420–432. https://doi.org/10.1037/a0019265

Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A Brief Measure of Dark Personality Traits. *Assessment*, *21*(1), 28–41. https://doi.org/10.1177/1073191113514105

Klar, S., Leeper, T., & Robison, J. (2020). Studying identities with experiments: Weighing the risk of posttreatment bias against priming effects. *Journal of Experimental Political Science*, *7*, 56–60.

Lopes, B., & Yu, H. (2017). Who do you troll and why: An investigation into the relationship between the dark triad personalities and online trolling behaviours towards popular and less popular Facebook profiles. *Computers in Human Behavior*, *77*, 69–76. https://doi.org/10.1016/j.chb.2017.08.036

McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, *36*, 176–187.

Mimikama. (2019). *Fake: Falsche Bilder zur FridaysforFuture-Demo!* https://www.mimikama.at/aktuelles/fridaysforfuture-demo/

Nekmat, E., & Ismail, I. (2019). Issue-based micromobilization on social media: Mediated pathways linking issue involvement and self-network opinion congruity to expressive support. *Computers in Human Behavior*, *101*, 51–59. https://doi.org/10.1016/j.chb.2019.07.008

Ognyanova, K., Lazer, D., Robertson, R. E., & Wilson, C. (2020). Misinformation in action: Fake news exposure is linked to lower trust in media, higher trust in government when your side is in power. *Harvard Kennedy School Misinformation Review, 1*(4), 1–19. https://doi.org/10.37016/mr-2020-024

Osmundsen, M., Bor, A., Vahlstrup, P. B., Bechmann, A., & Petersen, M. B. (2020). *Partisan polarization is the primary psychological motivation behind "fake news" sharing on Twitter* [Preprint]. PsyArXiv. https://doi.org/10.31234/osf.io/v45bk

Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, *36*(6), 556–563. https://doi.org/10.1016/S0092-6566(02)00505-6

Pennycook, G., Epstein, Z., Mosleh, M., Arechar, A. A., Eckles, D., & Rand, D. G. (2021). Shifting attention to accuracy can reduce misinformation online. *Nature*. https://doi.org/10.1038/s41586-021-03344-2

Pennycook, G., & Rand, D. G. (2019). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, *188*, 39–50. https://doi.org/10.1016/j.cognition.2018.06.011

Petersen, M. B., Osmundsen, M., & Arceneaux, K. (2018). *The "Need for Chaos" and Motivations to Share Hostile Political Rumors* [Preprint]. PsyArXiv. https://doi.org/10.31234/osf.io/6m4ts

Pop, M.-I. (2019). Influence of the educational level on the spreading of fake news regarding the energy field in the online environment. *Proceedings of the 13th International Conference on Business Excellence 2019*, *13*, 1108–1117.

Rauthmann, J. F., & Kolar, G. P. (2013). The perceived attractiveness and traits of the dark triad: Narcissists are perceived as hot, Machiavellians and psychopaths not. *Personality and Individual Differences*, *54*(5), 582–586. https://doi.org/10.1016/j.paid.2012.11.005

Rossini, P., Stromer-Galley, J., Baptista, E. A., & Veiga de Oliveira, V. (2020). Dysfunctional information sharing on WhatsApp and Facebook: The role of political talk, cross-cutting exposure and social corrections. *New Media & Society*, 1–22. https://doi.org/10.1177/1461444820928059

Shin, J., & Thorson, K. (2017). Partisan selective sharing: The biased diffusion of fact-checking messages on social media: Sharing fact-checking messages on social media. *Journal of Communication*, *67*(2), 233–255. https://doi.org/10.1111/jcom.12284

Sterrett, D., Malato, D., Benz, J., Kantor, L., Tompson, T., Sonderman, J., & Loker, K. (2019). Who shared it?: Deciding what news to trust on social media. *Digital Journalism*, *7*(6), 783–801.

Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people share fake news? Associations between the dark side of social media use and fake news sharing behavior. *Journal of Retailing and Consumer Services*, *51*, 72–82. https://doi.org/10.1016/j.jretconser.2019.05.026

Tan, Y., & Weaver, D. H. (2007). Agenda-Setting Effects among the Media, the Public, and Congress, 1946–2004. *Journalism & Mass Communication Quarterly*, *84*(4), 729–744. https://doi.org/10.1177/107769900708400405

Van Bavel, J. J., Harris, E. A., Pärnamets, P., Rathje, S., Doell, K. C., & Tucker, J. A. (2021). Political psychology in the digital (mis)information age: A model of news belief and sharing. *Social Issues and Policy Review*, *15*(1), 84–113. https://doi.org/10.1111/sipr.12077

Van Duyn, E. V., Peacock, C., & Stroud, N. J. (2021). The gender gap in online news comment sections. *Social Science Computer Review*, *39*(2), 181–196.

Waddell, T. F. (2018). What does the crowd think? How online comments and popularity metrics affect news credibility and issue importance. *New Media & Society*, *20*(8), 3068–3083. https://doi.org/10.1177/1461444817742905

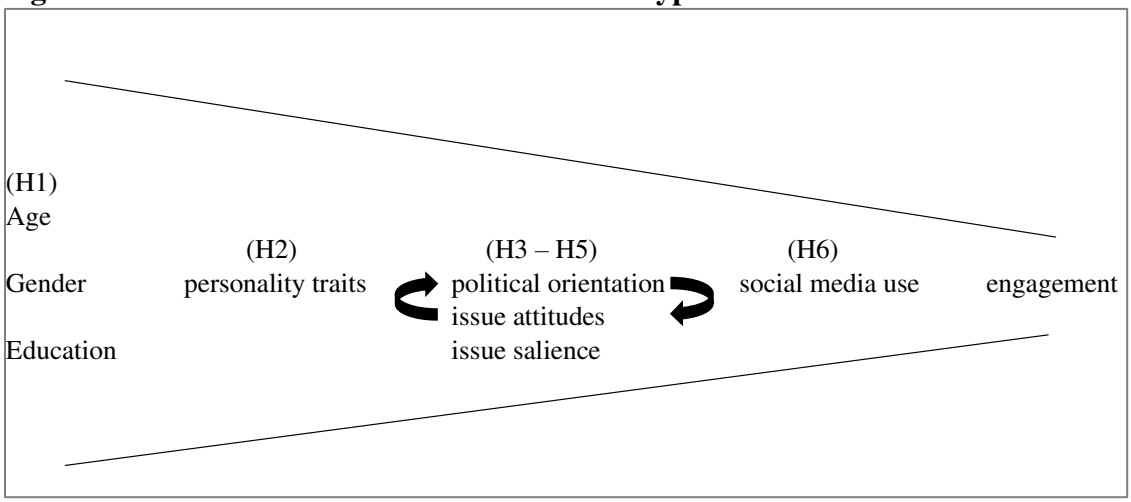
Wanta, W., Golan, G., & Lee, C. (2004). Agenda setting and international news: Media influence on public perceptions of foreign nations. *J&MC Quarterly*, *81*(2), 364–377.

Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework for research and policy making* (DGI [2017] 09; Council of Europe Report). Council of Europe Report.

Weeks, B. E., & Gil de Zúñiga, H. (2021). What's Next? Six Observations for the Future of Political Misinformation Research. American Behavioral Scientist, 65(2), 277–289. https://doi.org/10.1177/0002764219878236

Figures

Figure 1. Model of the funnel-like order of the hypotheses



Tables

Table 1. Distributions of people who indicated they would interact with the social media post in percentages

	Climate Change	Respondents (*n*)	Immigration	Respondents (*n*)	COVID-19	Respondents (*n*)
BE	32.0%	313	19.0%	186	23.3%	229
CH	22.8%	270	10.7%	127	16.3%	193
DE	23.8%	222	17.6%	164	21.2%	197
UK	26.3%	342	13.2%	171	21.5%	279
FR	37.4%	443	17.9%	212	29.1%	345
US	36.3%	340	22.7%	213	34.2%	320
N		1930		1073		1563

Note: Percentages in the table represent people who answered 5-7 on a seven-point scale on how likely it is that they would like, share or comment on the post.

Table 2. Random effect models predicting the willingness to disseminate misinformation

	Model I		Model II		Model III		Model IV	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
(constant)	7.41***	.45	6.80***	.45	5.65***	.44	3.50***	.43
Sociodemographic factors								
Sex	.26***	.03	.16***	.03	.15***	.03	.19***	.03
Age	.00	.00	.00***	.00	.00	.00	.00***	.00
Education	-.25***	.02	-.26***	.02	-.24***	.02	-.19***	.02
Personality traits								
Narcissism			.11***	.01	.12***	.01	.05***	.01
Psychopathy			.10***	.01	.10***	.01	.09***	.01
Machiavellianism			.03**	.01	.02	.01	.02	.01
Political orientation					.06***	.00	.06***	.00
Issue attitudes					.04***	.00	.05***	.00
Issue salience					.07***	.00	.06***	.00
Social media variables								
Social media use							.18***	.01
Social media activity							.06***	.00
Trust in social media news							.12***	.01
Country controls								
CH	-.35***	.05	-.36***	.05	-.30***	.05	-.19***	.05
DE	-.28***	.05	-.27***	.05	-.23***	.05	-.18***	.05
UK	-.19***	.05	-.11*	.05	-.08	.05	-.06	.05
FR	-.01	.05	-.01	.05	.02	.05	-.00	.05
US	.20***	.05	.26***	.06	.27***	.05	.25***	.05
R^2		.05		.08		.10		.18
N		5791		5784		5775		5775

Note: Unstandardized regression weights (B). Reference category for county controls is Belgium. *p < .05. **p < .01. ***p < .001.

Table 3. Interaction effects for political orientation, issue attitudes and issue salience with issues

	Model I: Interaction effects political orientation		Model II: Interaction effects issue attitudes		Model III: Interaction effects issue salience	
	B	SE	B	SE	B	SE
(constant)	3.61***	.42	3.70***	.42	3.37***	.42
Sociodemographic factors						
Sex	.18***	.03	.18***	.03	.19***	.03
Age	.00***	.00	.00***	.00	.00	.00
Education	-.19***	.02	-.19***	.02	-.19***	.02
Personality traits						
Narcissism	.05***	.01	.05***	.01	.05***	.01
Psychopathy	.09***	.01	.09***	.01	.09***	.01
Machiavellianism	.02	.01	.02	.01	.02	.01
Political orientation	.04***	.00	.05***	.00	.05***	.00
Issue attitudes	.04***	.00	.00	.01	.05***	.00
Issue salience	.05***	.00	.04***	.00	.07***	.00
Social media variables						
Social media use	.18***	.01	.18***	.01	.18***	.01
Social media activity	.05***	.00	.06***	.00	.06***	.00
Trust in social media news	.12***	.00	.12***	.00	.12***	.00
Interaction effects						
COVID-19 x political orientation	.01	.00				
Immigration x political orientation	.03***	.00				
COVID-19 x issue attitudes			.04***	.01		
Immigration x issue attitudes			.08***	.01		
COVID-19 x issue salience					-.04*	.01
Immigration x issue salience					-.01	.01
R^2		.18		.18		.18
N		5775		5775		5775

Note: Unstandardized regression weights (B). Reference category and for the issue it is climate change. *p < .05. **p < .01. ***p < .001