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Avoid or Authenticate? A Multilevel Cross-Country Analysis of the Roles of Fake News Concern and News Fatigue on News Avoidance and Authentication

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ABSTRACT

Citizens these days feel inundated with news online and are worried about its veracity. This study examines if these concerns in the digital news environment led to greater news avoidance and news authentication behaviors. The relationships were tested across 16 countries by combining individual-level survey data from the Reuters Institute Digital News Report ($N=34,201$) with country-level data based on comparative media systems research. Analysis from multilevel modeling showed that concern with fake news was related to news authentication and news fatigue was related to news avoidance. High news fatigue also accentuated the influence of concern with fake news on news avoidance while low fatigue attenuated the relationship. Additional cross-level interactions further contextualized the findings according to media system, showing how the relationships can vary under different conditions of press market, political parallelism, journalistic professionalism, and public service broadcasting. This study demonstrates the utility and importance of considering the contextual role of media system to understand individuals' perceptions of news they receive online and subsequent news engagement, especially in the context of fake news research because its prevalence and deleterious impact varies across countries.

KEYWORDS

Fake news; news fatigue; news avoidance; news authentication; media system; multilevel analysis

The digital news media environment in many developed democracies is characterized by an abundance of choice. It also contains information that presents an interpretation of "reality" that benefits a communicator's agenda and subverts the interests of the target audience. Some people respond to the rapidly changing media environment with vigilance by verifying the news they consume (Tandoc et al. 2018) even though such acts can be psychologically tiring (Song, Jung, and Kim 2017). Others selectively avoid the news (Villi et al. 2021) while others alternate between avoidance and authentication (Wenzel 2019). The actual or perceived prevalence of fake news in an information-saturated environment, its potential to polarize society, and the ways in which people engage or withdraw from news thus poses challenges to democratic

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functioning since normative theories of democracy posit a pivotal role of the media to engender a citizenry that is informed with the same set of facts (Bennett and Livingston 2018; Van Aelst et al. 2017). Yet, perceptions of fake news and how people respond to it are not uniform across countries because varying structural, social, and political forces shape the “cultures of news consumption” (Toff and Kalogeropoulos 2020) that can affect fake news dissemination, perception, and effects in different ways. We build on this perspective by adopting the dimensions of the comparative media systems framework (i.e., press market, political parallelism, journalistic professionalism, and public service broadcasting) (Hallin and Mancini 2004) as contextual factors. Specifically, we first explicate at the individual level the roles of concern for fake news and news fatigue on news avoidance and news authentication behaviors. We then examine how the media system dimensions serve as contextual factors to predict news avoidance and news authentication behaviors and moderate the individual level relationships by analyzing survey data across 16 countries, including the US and Europe.

Waisbord (2019) defined digital journalism as “the networked production, distribution, and consumption of news and information about public affairs” (p. 352). By adopting a multilevel comparative approach, we can better understand whether the media systems framework is still relevant to explain cross-national differences in digital news media environments, and which dimensions have more prominent roles in shaping individual-level perceptions of news and subsequent news avoidance and authentication behaviors. This can inform future comparative studies on digital journalism more generally.

Literature Review

Antecedents: Concern with Fake News and News Fatigue

Misinformation broadly refers to content that is “inaccurate, incorrect, or misleading” (Jack 2017, 2). In academia, *fake news* is considered a specific type of misinformation because it comprises misleading content that is packaged to look like “real” news (Tandoc 2019), which can be shared by others with good intentions without knowing the content is misleading. Other scholars prefer the term *disinformation* to account for the intentional use of misinformation and/or fake news by some actors to further specific political, social, and economic agendas that can undermine democracy (Bennett and Livingston 2018; Freelon and Wells 2020). In the political sphere, “fake news” has also been appropriated by some politicians to refute facts that they find disagreeable (Wardle and Derakhshan 2017). Fake news is thus an evolving and contested concept, and it is intertwined with the bigger debate in academia, media, and journalists on what exactly is “news,” i.e., whether it is a media genre, content produced by journalists, or it is whatever the audience conceives it to be (see Edgerly and Vraga 2020). We adopt “fake news” for this study in line with Tandoc’s (2019) definition and it is also closer to audiences’ conception of the term, i.e., news that is “made-up” (Mitchell et al. 2020).

What makes fake news particularly effective and enticing for actors with nefarious agendas is its virality in the digital space and the scale of dissemination through

sharing and reposting via social media platforms and messaging apps (Rhodes 2021). Previous studies have primarily focused on individual's reception of and willingness to share fake news (e.g., Pennycook and Rand 2019). Less work has examined people's attitudes toward fake news. Our emphasis on *concern* is important because there is still debate on the actual scale of fake news in the overall information ecosystem (Allen et al. 2020) and the extent to which people actually come across or share fake news (Nelson and Taneja 2018; Guess, Nagler, and Tucker 2019). Yet, a survey in the United States showed that half of respondents said that made-up news "is a very big problem in the country today" (Mitchell et al. 2020, 3), placing it above other pertinent issues such as violent crime, climate change and racism. Rather than being a threat to democracy by misleading the public, the more substantive threat of fake news is perhaps its further undermining of media trust and journalism in general, so that even news from credible outlets or news in countries that traditionally have high levels of media trust can be viewed with skepticism by audiences. Indeed, among the 16 countries in this study, 49% on average agreed that one "can trust most news most of the time" with a range of 29% for the US to 61% for Portugal (Newman et al. 2021).

Compounding these concerns is the sheer quantity of online news available to audiences that outstrip their limited cognitive resources to store, process, and retrieve information (Eppler and Mengis 2004). Social media platforms and mobile media technologies have engendered information environments where news is ever omnipresent and available. Even when one is not actively seeking the news it can appear uninvited through mobile alerts that demand attention (what is it?) and action (read it or not?). This "news content surplus" can create news overload (Holton and Chyi 2012) that leads to psychological strain. One type is *news fatigue*, which is defined as "the subjective, self-evaluated feeling of being tired of news consumption" (Song, Jung, and Kim 2017, 1179). Recent surveys in the United States suggest that news fatigue is prevalent as two-thirds of citizens reported that they were "worn out" by the amount of news (Gottfried 2020) while a third of citizens in the United Kingdom agreed that "there is too much news" (Fletcher, Kalogeropoulos, et al. 2020). This suggests that concerns with fake news and weariness of news generally will have important roles on audiences' subsequent news engagement.

Outcomes: News Avoidance and News Authentication

The information science literature posits "filtering" and "withdrawing" strategies as possible responses to information overload (Savolainen 2007). Withdrawal strategies entail efforts to avoid or minimize exposure to news. As noted by Skovsgaard and Andersen (2020) previous research generally focused on identifying news avoiders based on relative or absolute cutoff points of their "low" frequency of news consumption relative to the rest of the population. More recent studies however have operationalized news avoidance as a specific behavior that involves the intentional and intermittent need to avoid the news (Song, Jung, and Kim 2017; Toff and Kalogeropoulos 2020). This behavior is delineated from general news consumption such that even those who follow the news frequently may on occasion avoid the news to alleviate mental fatigue. Research following this operationalization showed

that it is prominent among younger people, women, and those with lower internal efficacy and lower trust in news (Toff and Kalogeropoulos 2020). Song, Jung, and Kim (2017) study of Korean citizens also provided evidence of a moderately strong relationship between news fatigue and news avoidance ($B = .48$). Avoiding the news can also be a strategy for those who are concerned with fake news. Applying Ball-Rokeach's (1973) concept of pervasive ambiguity, Wenzel's (2019) focus group interviews revealed that worries about fake news often lead to "checking out" behaviors to reduce stress. This is consistent with the notion that even dedicated news consumers sometimes need to disengage with the news to maintain their psychological well-being. With this in mind, we raise the following hypothesis:

H1: (a) Concern with fake news and (b) news fatigue are positively related to news avoidance.

Filtering strategies involve the weeding out of useless or irrelevant news or sources. In the digital news environment, audiences can personalize their consumption through news curation practices by tailoring platform settings (Lee et al. 2019). Interviews with news audiences showed a general distrust and perception of deteriorating quality toward the news media landscape, which compels them to be more alert of the news they come across and engage in a variety of authentication behaviors (Wenzel 2019). These include fact-checking by triangulating the news from sources that are ideologically different, and relying on people who they know are credible on social media to judge whether the news item is true or not (Wenzel 2019). A conceptual framework proposed by Tandoc et al. (2018) further synthesized and categorized these behaviors. The key distinction in their framework is between "internal" and "external" acts of authentication. Internal acts are those in which individuals use their own judgment of a news item's veracity based on their own personal experiences and knowledge. Our focus is on external acts, which include cross-checking and validating news with interpersonal sources (e.g., trusted friend) and/or institutional sources (e.g., other news outlets). Given the consistent qualitative evidence showing that concerns about the veracity of news lead news audiences to use filtering strategies to authenticate the news, we pose the following hypothesis:

H2: Concern with fake news is positively related to news authentication.

News fatigue on the other hand may lead to a withdrawal strategy because individuals who are already weary of the news may not want to expend anymore cognitive resources to engage in news authentication behaviors (Edgerly et al. 2020). Therefore, we propose that:

H3: News fatigue is negatively related to news authentication.

As described earlier, separate surveys suggested that news audiences were concerned with fake news and are mentally exhausted by the amount of news. When these insights are combined, it is logical and feasible that the two antecedents can vary concurrently within the same individuals. Those who are already concerned with fake news may be compelled to avoid the news even more if they are already worn-out by news in general. This raises the potential for joint interaction of the two

antecedents on subsequent news engagement. To consider this possibility we raise an exploratory research question as follows:

RQ1: To what extent does news fatigue moderate the relationship between concern with fake news and news avoidance/news authentication?

We now turn to the role of media system that may elucidate macro-level influences that shape the perceptions of news and subsequent engagement at the individual level.

Contextual Factor: The Role of Media System Dimensions

Media systems in today's societies are characterized by the complex interplay of dynamic information flows among political actors, media organizations, and citizens through a variety of technologies and channels. These "political communication ecosystems" determine the structural, cultural, and situational contexts that shape individual-level behaviors (Esser and Pfetsch 2020) as well as digital journalism more generally. Each country's political communication ecosystem has its own distinct configuration, and an important task of comparative research is to elucidate which dimensions or factors can influence individuals' news engagement behaviors. Toff and Kalogeropoulos (2020) multilevel study comprising 35 countries showed that individuals were more likely to avoid the news in countries that have lower press freedoms and greater political instability. A possible explanation was that countries that are less free and unstable engenders an environment conducive for disseminating news that are less useful and trustworthy. Humprecht, Esser, and Van Aelst (2020) further explicated the concept of "resilience" and the notion that certain contextual characteristics within countries serve to amplify or constrain the dissemination and reception of fake news. Their analysis found that resilient countries were generally those marked by low levels of political polarization, high levels of trust and strong public service broadcasting (PSB). Presumably, in these countries (mostly those in Northern and Western Europe) news audiences have fewer reasons to avoid the news because of the prevalence of credible and less partisan new media. Conversely, the authors found countries in Southern Europe to be less resilient as they were marked by political polarization, low trust and weak PSB. While insightful, the study examined only country-level factors so their implications for news avoidance and news authentication at the individual level is unclear.

We build on these findings by combining our individual-level measures specified earlier and the four structural factors based on Hallin and Mancini (2004) classic typology that was subsequently expanded and revised with updated operationalizations by Brüggemann et al. (2014). The first factor *press market* refers to the degree of reach and inclusiveness of the news media to a broad audience across different demographics. The second is *political parallelism* and the degree to which different media has certain political orientations and where the work of journalists is shaped by their personal political ideologies and advocacy. The third is *journalistic professionalism* that comprises journalists' professional autonomy, their adherence to journalistic norms, and orientations toward serving the public interest. The fourth is the *role of the state* and the degree of state intervention in the media system. For the latter we focus on

PSB as this has been the focus of previous research on fake news and news avoidance (e.g., Humprecht, Esser, and Van Aelst 2020; Toff and Kalogeropoulos 2020).

Extant research suggested that these media system dimensions can shape individual-level attitudes and behaviors in different ways. The benefits of strong PSB are often emphasized in the literature because it engenders a news information environment with more hard news that has been shown to increase citizens' knowledge of political and civic affairs (Aalberg et al. 2013; Fraile and Iyengar 2014). Correlated with the degree of PSB in a country is the level of journalistic professionalism and the associated norms and practices that news media organizations and journalists adhere to in their news reporting. For example, Esser and Umbricht (2013) content analysis of newspapers from the US, UK, Germany, Switzerland, France, and Italy found cross-country differences in levels of opinionated journalism, objectivity, and negativity in their news reporting, such that German and Swiss newspapers focused more on objective reporting while Italian newspapers tended to be more opinionated and negative. Taken together, because strong PSB and high level of journalistic professionalism generally equate to more credible and objective news, we expect individuals in countries with these characteristics to avoid the news less and have less need to engage in news authentication behaviors compared to individuals in countries with weak PSB and journalistic norms of opinion and negativity. We raise the following hypotheses:

H4: Public service broadcasting is related to less (a) news avoidance and (b) news authentication.

H5: Journalistic professionalism is related to less (a) news avoidance and (b) news authentication.

Political parallelism originally referred to the extent to which the structure of the media system paralleled with the party system (Hallin and Mancini 2004), such that the news generally reflected the ideology and interests of the aligned political party or coalition. While rapid commercialization of media systems has weakened the party-press relationship in recent decades a form of parallelism can still exist in media environments marked by entrenched opposing ideologies that mirror the political sphere (Mancini 2012). Conceptually, political parallelism is inversely related to journalistic professionalism because the emphasis on political ideology and advocacy generally opposes the norms of journalistic neutrality and objective reporting. Previous research has also highlighted the negative consequences of political parallelism. These include greater news audience polarization (Fletcher, Cornia, et al. 2020) and social polarization (Levendusky 2013) because a polarized news media environment can amplify already strong and opposing political attitudes and beliefs further toward the extremes. As noted by Humprecht (2019) such an environment creates a fertile ground for the dissemination and reception of fake news because citizens are more likely to hold negative feelings about the 'other side' and believe news that casts their political and social beliefs positively while dismissing news that casts them negatively. Thus, while media systems with high public service broadcasting and journalistic professionalism attenuate the need for individuals to avoid or authenticate the news, media systems characterized by political and social polarization may mean that citizens are more wary of the news they come across online and so they avoid the news more. At

the same time, it is possible that such a polarized environment may also instill greater vigilance among people to check the veracity of the news even though some may end up being fatigued in the process (Wenzel 2019). Thus:

H6: Political parallelism is related to more (a) news avoidance and (b) news authentication.

The role of press market is less certain. A more inclusive press means that news reaches a broader mass audience, which may provide greater potential for fake news to disseminate across news audiences. Yet, a more fragmented press can also engender more entry points for fake news to spread that goes unchallenged or uncorrected (Humprecht, Esser, and Van Aelst 2020). We therefore raise the exploratory question:

RQ2: What is the role of press market on news avoidance and news authentication?

Our final research question integrates the hypotheses and research questions raised at the individual and country levels. For example, if public service broadcasting does reduce news avoidance, it stands to reason that it may also attenuate the relationship between concern with fake news and news avoidance (i.e., a two-way interaction). Moreover, if high concern for fake news and high news fatigue jointly leads to greater news avoidance, it is possible that the interaction is even stronger under high levels of political parallelism because such a media system dimension is assumed to be more conducive to fake news dissemination in society (i.e., a three-way interaction). Given these are other possibilities, we ask:

RQ3: To what extent do the relationships between concern with fake news/news fatigue and news avoidance/news authentication vary across the media system dimensions?

Method

Sample and Country Selection

For the analysis we utilized the 2019 dataset of the *Reuters Institute Digital News Report* (DNR) (Newman et al. 2019). The sample comprised 16 countries that were included in Brüggemann et al. (2014) four-system typology of Western media systems, which was in turn derived from Hallin and Mancini (2004) earlier three-system typology. They comprised Denmark, Finland, Norway and Sweden (Northern cluster); Austria, Germany, Switzerland, and the United Kingdom (Central cluster); Belgium, Netherlands, Ireland, the United States, and Portugal (Western cluster); and Italy, France, and Spain (Southern cluster).¹ All surveys were administered in their native languages by YouGov during January/February 2019. Quota sampling was adopted so that each sample was representative of the age, gender, and educational levels of that country's online population who accessed the news at least once a month. The final sample size was $N=34,201$ with range from $N=2005$ (France and Spain) to $N=2386$ (Switzerland). Descriptive statistics of country demographics and study variables are available in the online appendix (Table S1). All the analyses were weighted by age, gender and education.

Dependent Variables

For *news avoidance* respondents answered the question "Do you find yourself actively trying to avoid news these days?" according to a 4-point scale (1 = Never, 2 = Occasionally, 3 = Sometimes, 4 = Often) ($M = 2.0$, $SD = 0.9$). For *news authentication* behaviors respondents answered the following question: "Have you done of any of the following in the last year? Please select all that apply." Three answers included: (1) "I started relying more on sources of news that are considered more reputable," (2) "I checked a number of different sources to see whether a news story was reported in the same way"; and (3) "I discussed a news story with a person I trust because I was unsure about its accuracy." Affirmative answers were combined to form an index of news authentication behaviors ($M = 1.4$, $SD = 1.5$). Figure 1 shows the percentage of respondents who answered "sometimes" or "often" for news avoidance and the figure ranged from 15% for Denmark to 41% for the US. Those who engaged in two or more news authentication behaviors ranged from 11% for the Netherlands to 39% for the US. The two variables were weakly correlated ($r = .01$, $p = .02$).

Individual Level: Independent and Control Variables

For *news fatigue* and *concern with fake news* respondents indicated their level of agreement to the statements: "I am worn out by the amount of news there is these days" and "Thinking about online news, I am concerned about what is real and what is fake on the Internet." Answers were based on a 5-point scale (1 = Strongly disagree, 2 = Tend to disagree, 3 = Neither agree nor disagree, 4 = Tend to agree, 5 = Strongly agree) ($M = 2.9$, $SD = 1.9$ and $M = 3.5$, $SD = 1.0$, respectively). Figure 1 shows the percentage of respondents who answered "tend to agree" or "strongly agree." For concern with fake news the figure ranged from 31% for the Netherlands to 75% for Portugal. For news fatigue the figure ranged from 20% for Denmark to 41% for Portugal and the US. The two variables were weakly correlated ($r = .17$, $p < .001$).

Control variables included *news interest*, *news trust*, *news use frequency*, *social media use for news*, and *social media as main source of news*. For news interest respondents indicated their level of interest to the question: "How interested, if at all, would you say you are in news?" along a 5-point scale (1 = Not at all interested, 2 = Not very interested, 3 = Somewhat interested, 4 = Very interested, 5 = Extremely interested) ($M = 3.7$, $SD = 0.9$). For news trust respondents indicated their level of agreement to four statements along a 5-point scale (1 = Strongly disagree, 2 = Tend to disagree, 3 = Neither agree nor disagree, 4 = Tend to agree, 5 = Strongly agree): (1) "I think you can trust most news most of the time," (2) "I think I can trust most of the news I consume most of the time," (3) "I think I can trust news in social media most of the time," and (4) "I think I can trust news in search engines most of the time." Items were average to form a scale ($M = 3.0$, $SD = 0.8$, alpha = .79). For news frequency respondents answered the question: "Typically, how often do you access news? By news we mean national, international, regional/local news and other topical events accessed via any platform" along a 10-point scale (1 = Never to 10 = More than 10 times a day) ($M = 7.8$, $SD = 1.4$; 8 = Between 2 and five times a day). For social media use for news respondents answered the question: "Which, if any, of the following have you used in

Concern with fake news, news fatigue, avoidance and authentication in the 16 countries

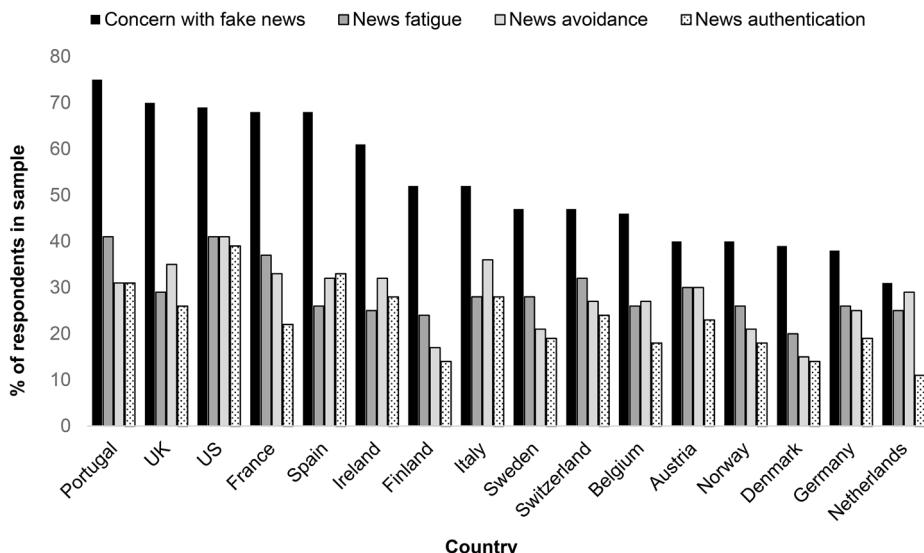


Figure 1. Concern with fake news, news fatigue, avoidance and authentication in the 16 countries. Concern with fake news and news fatigue = % respondents answering “tend to agree” or “strongly agree.” News avoidance = % respondents answering “sometimes” or “often.” News authentication = % respondents engaged in two or more behaviors.

the last week as a source of news? Please select all that apply.” Of the whole sample 44.7% selected “social media.” For social media as main source of news respondents answered the question: “You say you’ve used these sources of news in the last week, which would you say is your MAIN source of news?” From the sample 11.7% answered social media. Finally, demographic data included gender, age in years, and highest education level obtained to date (1 = “I did not complete any formal education to 10 = “Doctoral or equivalent level degree”).

Macro Level: Media System Dimensions

For media system indicators we directly adopted the *Dimension Index Values* from Brüggemann et al. (2014), which are composite values consisting of z-scores for each of the four media system dimensions (press market, political parallelism, journalistic professionalism, public service broadcasting) for each country (see Online appendix Table S1). The values of each dimension were derived through a series of correlational and clustering analysis of diverse indicators among different comparative European and international datasets, such as the European Media Systems Survey, Worlds of Journalism Survey, and World Values Survey (see Brüggemann et al. for more details on the procedure). All the values are relative. For example, Spain ranked highest in the dimension of political parallelism ($z = 2.10$) and Finland ranked the lowest ($z = -1.36$), whereas Denmark ranked the highest for journalistic professionalism ($z = 1.31$) and Italy ($z = -2.00$) ranked the lowest.

Table 1. Multilevel models predicting news avoidance and news authentication.

| | News avoidance | | | News authentication | | |
|--|----------------|----------|----------|---------------------|----------|---------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Fixed effects – Intercept | 1.951*** | 1.967*** | 1.968*** | .854*** | .885*** | .885*** |
| <i>Level 2 – Media system</i> | | | | | | |
| Press market | .008 | .003 | | .043 | .043 | |
| Political parallelism | .006 | .035 | | .016 | .010 | |
| Journalistic professionalism | −.057 | −.058 | | −.090* | −.100* | |
| Public service broadcasting | −.075*** | −.070*** | | −.080** | −.092*** | |
| <i>Level 1 – Individual</i> | | | | | | |
| Gender | .044*** | .045*** | | −.074*** | −.074*** | |
| Age | −.005*** | −.005*** | | −.003*** | −.003*** | |
| Education | −.000 | −.000 | | .042*** | .042*** | |
| News interest | −.098*** | −.098*** | | .152*** | .152*** | |
| News trust | −.071*** | −.071*** | | −.036*** | −.036*** | |
| News use frequency | −.007 | −.007 | | .040*** | .040*** | |
| Social media use for news | −.035*** | −.035*** | | .289*** | .289*** | |
| Social media as main news source | .126*** | .126*** | | −.107*** | −.107*** | |
| Concern with fake news (CFN) | .002 | .001 | | .140*** | .139*** | |
| News fatigue (NF) | .269*** | .268*** | | .006 | .007 | |
| CFN × NF | .042*** | .042*** | | .003 | .003 | |
| <i>Two-way cross-level interaction</i> | | | | | | |
| CFN × Press market | | −.011 | | | −.003 | |
| CFN × Political parallelism | | −.013 | | | −.008 | |
| CFN × Journalistic professionalism | | .009 | | | −.009 | |
| CFN × Public broadcasting | | .011 | | | −.036** | |
| NF × Press market | | −.019 | | | −.007 | |
| NF × Political parallelism | | −.063** | | | .003 | |
| NF × Journalistic professionalism | | −.001 | | | .007 | |
| NF × Public broadcasting | | .004 | | | .005 | |
| <i>Three-way cross-level interaction</i> | | | | | | |
| CFN × NF × Press market | | −.015* | | | −.008 | |
| CFN × NF × Political parallelism | | .003 | | | .021* | |
| CFN × NF × Journalistic prof. | | .016 | | | .024** | |
| CFN × NF × Public broadcasting | | −.010* | | | .003 | |
| <i>Random effects</i> | | | | | | |
| Residual | .848*** | .709*** | .708*** | .758*** | .673*** | .672*** |
| Intercept | .026** | .004* | .003* | .037** | .005** | .001** |
| Concern with fake news | .001*** | .001* | | .002* | .000 | |
| News fatigue | .004*** | .001* | | .000 | .000 | |
| N | 31940 | 31491 | 31491 | 32819 | 32127 | 32127 |

*** = $p < .001$, ** = $p < .01$, * = $p < .05$.

Analysis and Results

Analytic Strategy and Preliminary Findings

The presence of individual and country-level variables require the use of multilevel modeling to predict news avoidance and news authentication. In the first step, we tested two random intercept null models (see Table 1, Models 1 and 4) using SPSS 25 and the combined intercepts for both baseline models were significant (Model 1: $Z=2.78$, $p = .01$; Model 4: $Z=2.80$, $p = .01$). This indicated that there were differences in news avoidance and news authentication across countries and that further multi-level modeling analysis were appropriate. The intraclass correlation coefficient (ICC) showed that countries accounted for 3% of the total variance for news avoidance and 5% for news authentication. Furthermore, given the large number of statistical tests in the full models (27 variables), we used the Benjamini and Hochberg (1995) method to

correct for possible false positive findings using a conservative false discovery level of .05.

We extended the baseline models by adding the four media system dimensions and individual-level predictors as fixed effects (Models 2 and 5). Concern with fake news and news fatigue were also allowed to vary as random effects to account for possible additional variance explained for news avoidance and authentication because the measures may vary between individuals as well as between countries. All independent variables were grand-mean centered (i.e., subtracting the sample mean from each individual score) for easier interpretation of the fixed intercepts of news avoidance (Min. = 1, Max. = 5) and news authentication (Min. = 0, Max. = 3).

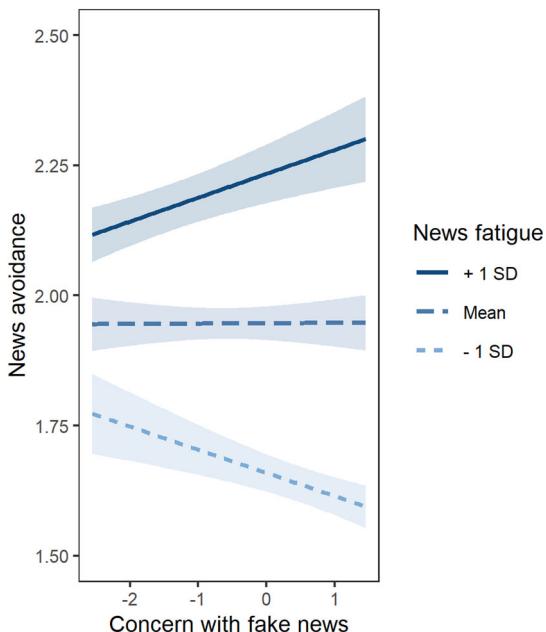
Examination of the covariates showed that females, younger people, and those with lower interest and trust in news were more likely to avoid the news. Moreover, those who use social media for news were less likely to avoid news, but those who use social media as their main source of news are more likely to do so. In terms of news authentication, such behaviors were more prominent among those who were male, younger, more educated, and had greater news interest and less news trust. Moreover, those who used social media for news were more likely to authenticate news, but those who use social media as their main source of news were less likely to do so.

Hypotheses Testing and Research Questions

Results related to our hypotheses showed that after controlling for covariates and between-country differences, concern with fake news did not predict news avoidance ($b = .00, p = .87$), but news fatigue did ($b = .27, p < .001$). H1a was rejected and H1b was supported. Conversely, concern with fake news predicted news authentication ($b = .14, p < .001$), but news fatigue did not ($b = .01, p = .17$). H2 was supported and H3 was rejected. To test the interaction effect of concern with fake news and news fatigue on subsequent news behaviors we added the interaction term to the model (RQ1). The interaction was significant for news avoidance ($b = .42, p < .001$), but not for news authentication ($b = .00, p = .41$). [Figure 2](#) visualizes the interaction. Follow-up slopes analysis showed that higher levels of news fatigue accentuated the positive relationship between concern with fake news and news avoidance ($b = .05, p < .001$) whereas lower levels attenuated the relationship ($b = -.04, p < .001$). The relationship did not vary at middle levels of news fatigue ($b = .00, p = .95$).²

An inspection of the media system dimensions showed that higher levels of public service broadcasting was related to less news avoidance ($b = -.07, p < .001$) and news authentication ($b = -.09, p < .001$). H4a and H4b were supported. Higher journalistic professionalism was not related to less news avoidance ($b = -.06, p = .10$), but it was related to less news authentication ($b = -.10, p = .03$). H5a was not supported while H5b was supported. Altogether, the fixed effects in Model 2 explained 17% of the variance while Model 5 explained 11%. None of the coefficients were significant for political parallelism (H6a and H6b) nor press market (RQ2).

2-way interaction plot predicting news avoidance.

**Figure 2.** Two-way interaction plot predicting news avoidance.

Testing Cross-Level Interactions

To examine the moderating roles of media system dimensions (RQ3) on the individual-level relationships we added two-way interaction terms that crossed concern with fake news and news fatigue with each dimension ($N=8$). Furthermore, we added three-way interaction terms to examine whether the two-way interactions varied by media system dimensions ($N=4$). Models 3 and 6 in Table 1 summarized the results.

Two-Way Interactions

Of the 16 two-way interactions only two were significant: the interaction for news fatigue/political parallelism on news avoidance ($b = -.06, p = .01$) and concern with fake news/public service broadcasting ($b = -.04, p = .002$) on news authentication. Follow-up slopes analysis revealed that the magnitude of the positive relationship between news fatigue and news avoidance was higher at lower levels of political parallelism ($b = .32, p < .001$) compared to middle ($b = .26, p < .001$) and higher levels ($b = .21, p < .001$). Also, the positive relationship between concern with fake news and news authentication was stronger in the condition of low public service broadcasting ($b = .17, p < .001$) compared to middle ($b = .14, p < .001$) and low levels ($b = .11, p < .001$). Figures S2 and S3 in the online appendix visualize the interactions.

Three-Way Interactions

Two of the three-way interactions were significant for news avoidance, including press market ($b = -.02, p = .01$) and public service broadcasting ($b = -.01, p = .03$).³ For

Table 2. Slopes analysis results of significant three-way interactions across media system dimensions with concern with fake news as the focal predictor.

| | News fatigue | | |
|------------------------------|--------------|--------|--------|
| | Low | Middle | High |
| DV = News avoidance | | | |
| Press market | | | |
| Low | -.05** | ns | .07*** |
| Middle | -.05*** | ns | .05*** |
| High | -.04* | ns | ns |
| Public service broadcasting | | | |
| Low | -.07*** | ns | .04* |
| Middle | -.05*** | ns | .05*** |
| High | ns | ns | .05** |
| DV = News authentication | | | |
| Political parallelism | | | |
| Low | – | – | – |
| Middle | – | – | – |
| High | .11*** | .13*** | .16*** |
| Journalistic professionalism | | | |
| Low | – | – | – |
| Middle | – | – | – |
| High | .10*** | .13*** | .16*** |

*** = $p < .001$, ** = $p < .01$, * = $p < .05$, ns = not significant.

Low, middle, and high values are based on the mean and ± 1 standard deviation of the distributions. The 2-way interaction of concern with fake news and news fatigue was only significant at higher levels of political parallelism and journalistic professionalism.

news authentication there were significant three-way interactions with political parallelism ($b = .02, p = .01$) and journalistic professionalism ($b = .02, p = .01$) as the focal moderators. Table 2 further summarizes the slopes analysis of the interactions. For ease of interpretation, we situated concern with fake news as the focal predictor, so the table shows how its relationship with the dependent variables (avoidance and authentication) varied according to different levels of news fatigue and the media system dimensions.

For news avoidance, the relationship was more positive under conditions of lower press market and high news fatigue, but negative under conditions of higher press market and lower news fatigue. The pattern of results was slightly different for public service broadcasting. The relationship between concern for fake news and news avoidance was positive under all conditions of public service broadcasting when news fatigue was high. But, at lower levels of public service broadcasting, the relationship was negative under conditions of low news fatigue. Our previous analysis shown in Model five did not reveal a significant interaction between concern with fake news and news fatigue on news authentication. However, the three-way interactions did show that the interaction varied according to political parallelism and journalistic professionalism. At high levels of political parallelism and journalism professionalism, the relationship between concern with fake news and news authentication was positive at all levels of news fatigue, with the figures suggesting a stronger relationship as news fatigue increases. Figures S4–S7 in the online appendix visualize the interactions. We synthesize and summarize the findings next along with their implications.

Discussion

The sheer quantity of information in today's digital news media environment presents demands for attention and cognitive resources from news consumers. Recent research based suggested that fake news is not as pervasive online as often espoused by the news media, politicians, and other actors (Allen et al. 2020; Nelson and Taneja 2018; Guess, Nagler, and Tucker 2019). Yet, the deleterious effects of fake news may not necessarily derive from direct exposure, but how it is *perceived*, which then form the basis of subsequent news engagement behaviors that may be beneficial (i.e., greater news authentication) or harmful (i.e., greater news avoidance) for an informed citizenry.

This article fills a gap by integrating cross-national individual-level data with the comparative media systems framework to elucidate the systematic role and influence of media system dimensions on perceptions and behaviors related to fake news, news fatigue, and news engagement. Our multilevel analysis provides three general insights. First, the descriptive analysis showed that a substantive number of citizens in the countries were concerned with the veracity of the news they come across online and felt overwhelmed by the amount of news. As shown in [Figure 1](#) a sizable number of them actively avoided the news and engaged in two or more news authentication behaviors. There were variations across the countries that may be indicative of the amount, nature, and perceptions of fake news in their respective information environments (Humprecht 2019). For example, concerns with fake news online, news avoidance, and news authentication were among the highest in Portugal, Spain, Italy, and France, which are considered "polarized-pluralist" media systems; and lower in Nordic countries like Sweden, Norway, Finland, and Denmark, which are considered "Democratic Corporatist" or "Northern" media systems (Hallin and Mancini 2004; Brüggemann et al. 2014). As pointed out by Humprecht, Esser, and Van Aelst (2020) different media systems engender certain structural characteristics that make some countries more "resilient" to fake news than others. Therefore, it is possible that concerns for fake news online are higher in polarized-pluralist countries because it is more pervasive and therefore motivates greater avoidance and necessitates more authentication. This has some tentative support from our multilevel models that showed significant between-country differences for concern with fake news and news fatigue on news avoidance. Interestingly, the US sample scored highest for news fatigue, avoidance, and authentication. Again, this aligns with Humprecht, Esser, and Van Aelst (2020) finding that the US is somewhat unique among Western democracies in that its structural characteristics of "low trust, politicized and fragmented environment" (p. 506) provided an ideal environment for the creation and dissemination of fake news.

Second, we showed at the individual level that concerns with fake news and news fatigue predicted news avoidance and news authentication. We replicated previous findings on news avoidance and showed that it was predicted by younger age, being female, having lower trust in news, using social media for news less, and using social media as the main source of news (Toff and Kalogeropoulos 2020). Moreover, we expanded the significant findings of Song, Jung, and Kim (2017) by showing that news fatigue was a significant predictor of news avoidance in the US and European

countries. News fatigue also played a significant role as a moderator on the influence of concern with fake news on news avoidance. This is consistent with previous qualitative findings suggesting that people who were already worried about fake news and were weary of news were more likely to avoid the news so as to protect their personal well-being (Wenzel 2019). Interestingly, low levels of news fatigue attenuated the relationship between concern with fake news and news avoidance. This suggests that people who were not fatigued by the news might feel less need to avoid it as they have the cognitive capacity to deal with any potential fake news they may come across. In general, our individual-level findings suggested that avoiding the news intermittently and engaging in news authentication behaviors were not necessarily mutually exclusive behaviors. In fact, they can even be considered complementary behaviors and comprise part of news audiences' "media and communication practices" in coping with the complex news information environment (Wenzel 2019; Van Aelst et al. 2017).

Our third set of insights derives from the role of media system dimensions and their contingent role on the individual-level relationships. The interaction between concern with fake news and news fatigue on news avoidance was stronger in countries marked by lower inclusiveness of the market and higher levels of public service broadcasting. Press markets that are not inclusive to a mass audience generally cater to smaller or niche news audiences, which results in fragmented media environments that engenders more "entry points" for fake news to take hold and prosper (Humprecht, Esser, and Van Aelst 2020). Such environments may amplify news avoidance tendencies for those who were already news fatigued. As expected, public service broadcasting was negatively related to news avoidance given that the quality of news from public service broadcasting is generally higher and more trusted. Yet, the cross-level interactions added more nuance to this relationship. In countries with high public service broadcasting, higher concerns with fake news were related to news avoidance at all levels of news fatigue. One possible explanation is that coverage of fake news and efforts by public broadcasters to educate audiences about its deleterious effects might have accentuated news audiences' concerns with the veracity of the news they consume, which engendered avoidance.

The individual-level analysis did not reveal any interaction effects of concern with fake news and news fatigue on news authentication. However, analysis with media system dimensions as focal moderators showed that the two-way interaction on news authentication was significant at higher levels of political parallelism and journalistic professionalism. This raises an interesting question of why individuals were willing to expend time and effort on news authentication behaviors even when they were concerned with fake news and felt worn out by the news in general? High political parallelism is generally characterized by partisan and opinionated journalism. Therefore, in countries like Spain, Portugal, and Italy (ranked second to fourth after the US) checking the veracity of the news could be a matter of routine and necessity for news audiences despite their concerns and weariness. For journalistic professionalism, journalists that adhere to norms of objectivity and professionalism are more likely to engage in fact-checking and raise audiences' awareness of the antecedents and consequences of fake news (Mena 2019), which raises not only the importance of news authentication,

but the ways in which people can authenticate the news. Again, it is important to contextualize these explanations in relative terms because overall news authentication behaviors are still higher in countries with lower journalistic professionalism.

Limitations and Future Research

Before concluding this study, it is necessary and important to address its various limitations that also point to several avenues of future work. As with any research using secondary data our measures of the key study variables were limited to the availability of data. Thus, this study was only able to tap into specific types of news behaviors. Skovsgaard and Andersen (2020) for example distinguished intentional and unintentional forms of news avoidance, of which this study only examined the intentional causes of trust and news fatigue. As they noted individuals can also avoid the news unintentionally by curating their personalized news information environments that prioritizes certain sources of news and excludes others (Thorson and Wells 2016). Similarly, we only examined the “external” forms of authentication behaviors based on Tandoc et al. (2018) conceptual framework of news authentication, which also comprise “internal” acts that involve audiences’ initial contact with news and subsequent authentication strategies based on a combination of their personal experience, knowledge and intuition. After all, if individuals’ personal experiences (i.e., news literacy) are sufficient to determine the veracity of fake news then further external authentication would not be necessary.

Another limitation is the availability of country-level data, which is a perennial challenge for multilevel cross-country comparative research. As we were limited to Brüggemann et al. (2014) composite measures of media system dimensions in their 17-country study our sample consisted only the US and countries in Europe. Moreover, their country data was originally derived from secondary sources that are over a decade old so the media system dimensions may not be reflective of the current media and political dynamics in the respective countries. Indeed, media systems are constantly evolving, and new forms of news creation, content and delivery shape and alter the relationship and dynamics between producers and consumers of news across multiple channels and platforms. While Hallin and Mancini (2004) typology provides a tried and tested framework it still requires constant updating to reflect changes in the news media environment, such as the case of Mattoni and Ceccobelli (2018), which added new ways to measure the dimensions by adding ICT-related measures. These developments however do not diminish the utility of Brüggemann et al’s measures as they have been successfully applied to delineate different media system dimensions and their proposed consequences in other comparative studies (e.g., Humprecht 2019). This suggests that the measures have been quite robust to elucidate differences between media systems in the digital age. Moreover, several data sources that form Brüggemann et al’s composite measures have since been updated with more recent versions, such as the European Election Studies (ESS), Worlds of Journalism (WJS), and World Values Survey (WVS) surveys. Therefore, the use of these more recent data sources can further extend the utility of Brüggemann et al’s composite measures, and be more reflective of the changing political, social and media environments that shape

online news dissemination, consumption, and attitudes. Longitudinal analyses of these measures may also provide a proxy to gauge over time stability or fluctuations in media system dimensions across countries. Finally, future studies should consider the normative implication of news avoidance and the implicit assumption adopted in this study and others that intermittent avoidance of news may be undesirable for democracy and therefore requires fixing with some “solutions” (Skovsgaard and Andersen 2020). After all, induced stress or anxiety from heightened concerns for fake news and news fatigue can also lead to negative health consequences that are undesirable for society. Therefore, later work that develop more elaborate models to explain news avoidance and authentication should also consider their implications for peoples’ subjective well-being and psychological functioning.

Despite these limitations this study makes an important contribution. Returning to Waisbord’s (2019) definition of digital journalism (i.e., production, distribution, and consumption of news about public affairs), we showed how various macro-factors together with individual-level attitudes about the news can influence both normatively desirable and undesirable news-related behaviors. Future research on fake news should therefore not only focus on individuals’ actual exposure to fake news, but also their attitudes toward fake news because such attitudes in turn can affect trust in “factual” news content produced and disseminated online by the media and journalists. This also means that future theorizing on digital journalism more generally should incorporate perspectives that emphasize audiences’ conception of and attitudes toward online news.

Notes

1. Although the Reuters dataset comprised 38 countries around the world, our sample selection was constrained by the availability of macro-level data from Brüggemann et al. (2014) that matched the Reuters data. Greece was featured in both Brüggemann et al. and the Reuter’s dataset, but certain questions required for this study were not asked in the Greek sample of the Reuter’s dataset.
2. In all moderation analysis we adopted values of the moderators based on the mean and ± 1 standard deviation of their distributions as indicators of “low,” “middle,” and “high” levels.
3. The three-way interaction for journalistic professionalism was also significant ($b = .02$, $p = .044$). However, our application of the Benjamini-Hochberg (BH) procedure showed that the p value exceeded the BH critical value (.024), which suggested a possible false positive result.

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