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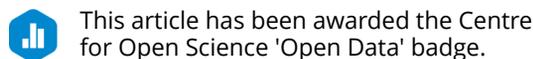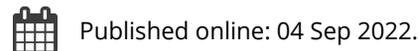
The Effects of the COVID-19 Outbreak on Selective Exposure: Evidence from 17 Countries

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ABSTRACT

A widely believed claim is that citizens tend to selectively expose themselves to like-minded information. However, when individuals find the information useful, they are more likely to consume cross-cutting sources. While crises such as terror attacks and pandemics can enhance the utility of cross-cutting information, empirical evidence on the role of real-world external threats in selective exposure is scarce. This paper examines the COVID-19 pandemic as a case study to test the extent to which citizens were exposed to information from cross-cutting sources on traditional and social media after the outbreak. Utilizing a two-wave panel survey among 14,218 participants across 17 countries – conducted before and after the initial outbreak – we show that citizens concerned about COVID-19 were more exposed to cross-cutting information on traditional and social media. The positive relationship with cross-cutting exposure to traditional news was stronger in countries where governments adopted less stringent policy responses, and in countries with greater pandemic severity and weaker democratic institutions. Our comparative approach thus sheds light on the social and political contexts in which cross-cutting exposure can occur.

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Modern technological developments have resulted in a high-choice information environment in which citizens can choose between many information sources (Van Aelst et al., 2017). Scholars often argue that this abundance of available information strengthens people's tendencies to selectively expose themselves to attitude-consistent information and like-minded news sources (e.g., Garrett, 2009; Stroud, 2008). However, scholars also show that individual-level (e.g., political interest; Castro-Herrero et al., 2018) and contextual factors (e.g., social endorsements; Messing & Westwood, 2014) can attenuate citizens' preference for like-minded exposure.

Prior research suggests that information utility is an essential concept for understanding when individuals have greater incentives for cross-cutting exposure (Knobloch-Westerwick, 2014; Knobloch-Westerwick & Kleinman, 2012; Sears & Freedman, 1967). When individuals believe the information is useful to handle a particular issue, they are more likely to consume cross-cutting information sources (Mummolo, 2016; Valentino et al., 2009; Wagner, 2017). In this sense, external threats such as terror attacks, natural disasters, and pandemics can increase the usefulness of information, even if it comes from cross-cutting sources: relevant and useful information allows citizens to monitor the threat and provide them guidance on how to behave (Knobloch-Westerwick & Kleinman, 2012).

However, empirical evidence on the role of sudden exogenous real-world shocks on citizens' exposure to cross-cutting information is scarce (but see Barberá et al., 2015). The outbreak of COVID-19, which rapidly became a severe worldwide crisis, offers an important opportunity to remedy this as the pandemic allows us to examine changes in citizens' information consumption habits due to this sudden and unexpected threat. Recent studies show that individuals, especially in the early stages of the outbreak, sought information from various sources to assist them in coping with the threat (Bento et al., 2020; Sabat et al., 2020; Van Aelst et al., 2021). But while this emerging literature points to citizens' information seeking in general, less attention has been devoted to the nature of the information consumed, specifically whether it came from like-minded or cross-cutting sources.

This paper also contributes to the existing literature by examining selective exposure from a comparative perspective. While previous studies have usually examined cross-cutting exposure in limited political and cultural contexts (but see Castro-Herrero et al., 2018; Goldman & Mutz, 2011; Steppat et al., 2022), we exploit the global nature of the COVID-19 outbreak to examine how it shaped citizens' exposure to cross-cutting information across 17 democratic countries. This comparative approach allows us to test the relationship between individual-level factors – specifically, concern over COVID-19 – and cross-cutting exposure, and how this relationship varies as a function of pandemic-specific and political-system factors at the country level.

Utilizing a two-wave panel survey among 14,218 participants across 17 countries – conducted before and after the initial outbreak – we find that citizens who were more concerned by COVID-19 were more likely to be exposed to cross-cutting information on traditional and social media. These results indicate that the intensity of the pandemic and its personal relevance to citizens made the political identity of information sources less important to news consumers. Results also show that the positive relationship between pandemic concern and cross-cutting exposure to traditional news outlets was moderated by several country-level factors: in countries where governments adopted less stringent policy responses, concerned citizens were exposed to a greater extent to cross-cutting news outlets.

We also find evidence that greater pandemic severity and weaker democratic institutions strengthen the positive association between COVID-19 concern and cross-cutting exposure.

Cross-Cutting Exposure in Modern Information Environments

The rise of the new information technologies and social media platforms has increased people's tendency to selectively expose themselves to like-minded information that confirms their preexisting attitudes (Garrett, 2009; Stroud, 2008). The basic premise behind the selective exposure hypothesis lies within individual-level explanations, mainly the cognitive dissonance theory (Festinger, 1957): like-minded information evokes positive feelings, while cross-cutting information leads to discomfort. Since people want to minimize such discomfort, they adopt certain strategies when encountering attitude-challenging information: they can counter-argue this information or seek attitude-reinforcing information.

    Scholars over the years, however, have raised doubts on the extent to which citizens limit themselves to like-minded information. Research has found that although individuals prefer like-minded information, this does not mean that they necessarily avoid attitude-discrepant information (e.g., Garrett, 2009). Research suggests that individuals can be exposed to diverse opinions and cross-cutting information, especially in the online media environment (Bakshy et al., 2015; Cardenal et al., 2019; Castro-Herrero et al., 2018; Messing & Westwood, 2014). Equally important is the understanding that people's exposure to cross-cutting exposure is not static. Instead, citizens' tendency to expose themselves to cross-cutting sources increases the more the information is useful for dealing with uncertainties (Knobloch-Westerwick, 2014; Matthes, 2006) and the more it is personally relevant for them (Mummolo, 2016). In light of this, the outbreak of COVID-19 represents an important case to examine how a threatening exogenous shock with extremely high relevance to citizens affects cross-cutting exposure.

Cross-Cutting Exposure in Times of Crises

Crises such as pandemics and terror attacks generally increase citizens' tendencies to seek relevant information (e.g., Althaus, 2002). This tendency results from people's emotional systems that sense an external threat, thus motivating a person to be more attentive and collect more relevant information (Marcus et al., 2000). Past work has also referred to the concept of "need for orientation" (NFO), according to which people hold a psychological tendency to seek more information in the news when encountering unfamiliar circumstances (Matthes, 2006). These sudden exogenous shocks do not only increase citizens' information seeking in general but can also affect the nature of information citizens are exposed to, specifically whether it is in line with their predispositions. According to this line of research, external threats can increase the utility of information from diverse sources and potentially increase incentives for cross-cutting exposure (Knobloch-Westerwick, 2014; Sears & Freedman, 1967). However, empirical evidence on the role of sudden exogenous real-world shocks on cross-cutting exposure is scarce (but see Barberá et al., 2015). The outbreak of the COVID-19 pandemic offers a natural experiment to examine this issue.

According to Knobloch-Westerwick (2014, p. 169), there are three components of threats that increase the utility of related information, regardless of the political affiliation of the source: their perceived magnitude, the likelihood of their materialization, and how immediate they are. In the case of COVID-19, all these components were especially relevant and are thus expected to increase the perceived utility of information related to the pandemic. Indeed, recent comparative work found that the initial phases of the pandemic increased citizens' media consumption in general, specifically via information channels that provide more immediate coverage of the pandemic, such as TV, social media, and online news websites (Sabat et al., 2020; Van Aelst et al., 2021).

We argue that citizens concerned by the pandemic are expected not only to consume more information in general but particularly to seek diverse information and varying viewpoints (Marcus et al., 2000; Valentino et al., 2008). In terms of information utility, cross-cutting exposure during the pandemic can accomplish goals such as surveillance, monitoring the threat, or guidance on how to behave (Knobloch-Westerwick & Kleinman, 2012). Specifically, individuals who feel highly anxious and concerned are expected to seek more cross-cutting information since it is useful in dealing with their high levels of uncertainty (Gadarian & Albertson, 2014; Valentino et al., 2009). One example might be information that presents both criticisms and appraisals of a country's policy measures to handle the pandemic crisis. Concerned citizens would benefit not only from knowing about planned civic restrictions but also from exposure to alternative viewpoints that discuss the chances of success of such measures.

We stress that cross-cutting information is not expected to be equally useful to all citizens. Instead, we expect it to be most beneficial among those who are highly concerned over COVID-19. Recent evidence shows that the pandemic did not affect citizens' concerns uniformly and that some were more worried than others (Dryhurst et al., 2020; also evident in our data, as shown in Online Appendix C). Feelings of fear and anxiety tend to increase individuals' attentiveness to a given threat and their desire to look for new and cross-cutting information besides their own view (Marcus et al., 2000; Valentino et al., 2009). In other words, greater concern over a threat leads the information utility to prevail over the tendency to avoid cross-cutting information (Gadarian & Albertson, 2014). Therefore, we expect that the more people were concerned about the pandemic, the more likely they were to perceive cross-cutting information as useful in coping with the threat, and the more likely they were to consume it in order to reduce uncertainties.[1] Hence, our first hypothesis is:

H1: The more a person is concerned about the COVID-19 pandemic, the more she will be exposed to cross-cutting information.

Country-Level Pandemic Conditions

Citizens' information-seeking behavior should not be studied in isolation from their political and social surroundings (Van Aelst et al., 2017). People consume information via traditional and social media not only according to individual-level preferences (e.g., interest in politics) but also due to country-level factors (e.g., Banducci et al., 2017; Shehata & Strömbäck, 2011). While such a comparative approach to investigating cross-cutting exposure remains scarce, recent evidence points to variations in selective exposure across

countries (Steppat et al., 2022). For example, public service broadcasting in a given country can increase exposure to cross-cutting information as the supply of more balanced news is larger (Castro-Herrero et al., 2018).

Nonetheless, our understanding of the different contextual factors that shape cross-cutting exposure is still relatively limited. The global nature of the COVID-19 crisis makes it a unique case study to examine how the relationship between pandemic concern and cross-cutting exposure varied across different countries – by exploring both pandemic-specific and political-system factors that can moderate this relationship.

In this section, we focus on pandemic-specific factors. We expect a greater severity of the outbreak to strengthen the relationship between individual-level concern and cross-cutting exposure. Where COVID-19 was more severe, the issue was more salient due to the media's tendency to cover more negative pandemic stories (Sacerdote et al., 2020). Thus, cross-cutting information would have had even more utility in the eyes of concerned citizens (Knobloch-Westerwick, 2014), which in turn could have attenuated partisan biases in seeking and evaluating information (Druckman et al., 2021; Schraff, 2020). Based on this reasoning, our second hypothesis is:

H2: The positive association between concern over COVID-19 and cross-cutting exposure will be greater in countries with greater pandemic severity.

Aside from the local outbreak severity, the policy measures taken by national governments might also have had a distinct effect on citizens' attitudes during the COVID-19 outbreak, as countries responded to the crisis in varying ways (Engler et al., 2021; Hale et al., 2021). For example, in the initial phase of the pandemic, citizens in multiple countries perceived strong policy measures (e.g., civic restrictions such as closures and lockdowns) as necessary to fight the pandemic and evaluated their governments more positively when the latter initiated stronger restrictions (Bol et al., 2021; Fetzer et al., 2020). This support for strong policies was especially pronounced among citizens who were more concerned about the pandemic (Jørgensen et al., 2021). It was evident even among groups who were the most vulnerable to the consequences of such policies (Bækgaard et al., 2020). Therefore, we expect that government reactions will moderate the relationship between pandemic concern and media exposure: in countries with less severe policy measures, the threat is expected to be translated to other behavioral outcomes among concerned individuals, specifically their need to collect new information and alternative viewpoints to deal with the pandemic – thereby leading to more cross-cutting exposure. Hence, our third hypothesis is:

H3: The positive association between concern over COVID-19 and cross-cutting exposure will be greater in countries with weaker government reactions to the pandemic.

Quality of Democracy

Previous comparative works show that political-system factors – specifically the features of a country's political institutions – shape both the nature of information available to citizens and their information-seeking behavior (e.g., Nir, 2012; De Vreese et al., 2017). In the context of COVID-19, we argue that the level of democracy within a country is an essential

country-level moderator. Despite the importance of transparent decisions in democratic systems, the rapid spread of the pandemic led to policy decisions, including restrictions on individual freedoms, that "have often been made quickly, with little involvement of stake-holders in the deliberation about which policies to pursue" (Norheim et al., 2021, p. 10). Therefore, consuming diverse information from cross-cutting sources can be very useful to citizens as it allows them to better evaluate the restrictive policy measures, especially in contexts where political decisions are made with less transparency.

We focus on the quality of democratic institutions within countries, i.e., the emphasis of individual liberties, pluralism, the rule of law, and greater deliberation in the decision-making process (Engler et al., 2021; Sebhatu et al., 2020). In the initial phases of the outbreak, countries with stronger democratic institutions used less restrictive policies (Sebhatu et al., 2020) due to a stronger sense of accountability among government officials, who "feel a stronger necessity to justify the measures towards citizens and civil society organizations" (Engler et al., 2021, p. 6). Because of this greater public scrutiny, COVID-19 related decision-making in stronger democracies can be expected to have been more transparent to citizens, especially since it involved severe measures of restricting individual freedoms (Engler et al., 2021). In contrast, countries with weaker democratic institutions can be expected to have been less transparent in their crisis management (e.g., less up-to-date statistics on confirmed cases; see, Moon, 2020). This lack of transparency is expected to moderate the extent to which concerned citizens seek new information from cross-cutting sources (Knobloch-Westerwick, 2014). In other words, we expect stronger associations in countries with weaker, compared to stronger, democratic institutions: in the former, concerned citizens were more prone to seek cross-cutting and alternative information to overview their government's decision making – e.g., to examine whether these policy responses went too far, or alternatively if there was a need for stronger measures. Thus, our final hypothesis is:

H4: The positive association between concern over COVID-19 and cross-cutting exposure will be greater in countries with weaker democratic institutions.

Method

We rely on a multi-country two-wave panel survey to examine citizens' cross-cutting exposure during the COVID-19 pandemic. The 17 countries included are Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Israel, Italy, the Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, and the United Kingdom. Data was collected between December 2019 (Wave 1; before COVID-19) and May and June 2020 (Wave 2; after the outbreak). As Wave 2 was conducted immediately after the peak of the first COVID-19 eruption, pandemic severity was gradually decreased across the countries in our sample (Dong et al., 2020). All surveys were performed online across countries (field-work was conducted by Dynata).

A total of 28,317 respondents participated in Wave 1. Among them, 14,218 participants continued in Wave 2, with an average recontact rate of 50.16 across countries (see Online Appendix A for details on the sample composition per country). The average age in Wave 2 was 45.3, and 52.5% of the sample were females. Sample size in Wave 2 per country ranged from $N = 641$ (Norway) to $N = 1002$ (United Kingdom).

Dependent Variable: Cross-Cutting Exposure

We measured exposure to cross-cutting and like-minded information on traditional news outlets and social media via self-reported measures and an expert survey. We used separate analyses for traditional and social media due to the fundamental differences between the two regarding how citizens process the news and which contents are available to them in each medium (e.g., Andersen & Strömbäck, 2021).

First, to operationalize exposure to traditional news outlets, we asked respondents in each country to answer how much they consume news via a set of national news outlets. Media brands selected in the survey included four television channels (two public service media and two commercial media), four radio stations (two public service media and two commercial media), and four newspapers (two broadsheets and two tabloids) per country. Response options ranged between 1 ("Daily basis") and 6 ("Never"), and responses were reverse-coded so that higher categories represent more frequent exposure. Since the dependent variables (exposure to traditional and social media, as described below) were measured on different scales, they were all recoded to a scale from 0 to 1 to allow comparison between effect sizes.

To determine whether respondents were exposed to cross-cutting and like-minded news sources, we first identified the ideological leaning of each respondent by relying on their ideological self-placement. We asked the following question: "In politics, people sometimes talk of 'left' and 'right.' Where would you place yourself on this scale, where 0 means the left and 10 means the right?." We coded responses of 0–4 as left- and 6–10 as right-leaning citizens. We excluded respondents who answered the middle category (5) from the analyses as they cannot be attributed to either side (see Knobloch-Westerwick & Kleinman, 2012).[2]

Next, we determined the ideological leaning of national news outlets in each country by using expert judgments (Bakker et al., 2015). In each of the 17 countries, we asked three academic experts, all from the communication and political science disciplines, to place the respective national news outlets on a 5-categories ideological scale, ranging between 1 (left) and 5 (right). We averaged the three expert responses into one overall score per news outlet.[3] News outlets with an average score below three were coded as left-leaning, while outlets with a score above it were coded as right-leaning. Outlets located at the center (with an average score of 3) were excluded from the analyses.[4] The main advantage of this approach is that it allows identifying the ideological position of dozens of news outlets across 17 countries while assuring both familiarity with the local context and independence from respondents' consumption habits, as tapped in our panel survey. We report in Online Appendix C the news outlets asked in each country and their ideological leaning.

After identifying the ideological placement of each outlet, we aggregated respondents' exposure scores for both types of news outlets – one score for cross-cutting and another score for like-minded exposure – by averaging their exposure to each of the news outlets that belong to the same ideological group. For example, for a left-leaning Dutch respondent, the cross-cutting score was based on the average exposure to right-wing outlets such as *De Telegraaf* and *RTL4*, while her like-minded score was based on the average exposure to left-leaning outlets such as *De Volkskrant* and *NPO Radio 1*. Across countries, the average cross-cutting exposure to news in Wave 2 ($M = .27$; $SD = .26$) remained stable compared to Wave 1 ($M = .27$; $SD = .25$). Like-minded exposure to news in both waves was also stable on

average (Wave 1: $M = .32$, $SD = .26$; Wave 2: $M = .32$, $SD = .27$). While these raw means shed light on information consumption habits in general before and during the pandemic, they do not take into account cross-country differences nor the main independent variable of this paper, individual-level concern over the pandemic, which can shape citizens' behavior (Dryhurst et al., 2020). We model these factors in our analyses in the Results section.

We also examined selective exposure to cross-cutting and like-minded information on social media by utilizing self-reported measures. We asked respondents the following questions: "When using social media, how often do you come across information about politics posted/shared by people sharing political information and messages [opposed to your views/in line with your political views]." For both questions, the response scale ranged from 1 ("Several times a day") to 7 ("Never"). The answers were recoded to a scale of 0 to 1 and reverse coded so that higher values represent more frequent exposure. The average exposure to cross-cutting information on social media in Wave 2 ($M = .36$; $SD = .31$) was higher than in Wave 1 ($M = .31$; $SD = .29$; $p < .001$). Like-minded exposure on social media was also slightly higher after the start of the pandemic (Wave 1: $M = .30$; $SD = .28$; Wave 2: $M = .34$; $SD = .30$; $p < .001$). We present descriptive statistics in Online Appendix C for all dependent and independent variables.

Independent Variable: Concern Over the COVID-19 Pandemic

To gauge how much citizens were concerned by the pandemic, we rely on several survey items measured in Wave 2. These items tap citizens' health and economic concerns, two dimensions with a high impact on their well-being during the pandemic (Bareket-Bojmel et al., 2020). First, we asked respondents the extent to which they are worried that the coronavirus will infect them or anyone in their family. Second, we asked how much they are worried about the economic consequences of the coronavirus crisis for them personally and the country (asked separately). All three items were measured on a 7-point scale, and we constructed an overall COVID-19 concern index by averaging the three items. The final index was recoded to a scale from 0 to 1 ($M = .66$; $SD = .21$; Cronbach's α = .68).

Moderators

Severity of COVID-19

We measured the severity of the outbreak in each country based on data collected by the 2019 Novel Coronavirus Visual Dashboard operated by the Johns Hopkins University Center for Systems Science and Engineering (Dong et al., 2020). Specifically, we accounted for the number of confirmed COVID-19 cases per 100,000 persons during each day per country (Schraff, 2020), which allows us to compare the severity of the pandemic across countries. Recent studies found that citizens in the earlier stages of the outbreak preferred news sources that offer immediate and fast coverage of pandemic-related information (e.g., online news; Van Aelst et al., 2021). Therefore, as we expect citizens to monitor the most updated information during the initial stages of the pandemic, we measured the number of confirmed cases one day before a respondent filled out the survey.

National Government Response to COVID-19

To measure the national government's response to COVID-19, we utilized the *Oxford COVID-19 Government Response Tracker*, which collects comparative data on countries' policy measures in response to the pandemic on a daily basis (Hale et al., 2021). Specifically, we used the "Government Response Index," a holistic index tapping 20 policy indicators at the national level, such as disease surveillance (e.g., testing and contact tracing), containment and closure (school and workplace closing, restrictions on gatherings), or economic responses (e.g., income support). This normalized index ranges from 0 to 100, with higher values indicating that the national government took stronger policy measures on a given day to fight the pandemic (e.g., more restrictions on citizens' behavior in the form of lockdowns or closures). We used a one-day lag and measured the government response scores one day before each respondent filled the survey.

Quality of Democracy

To measure each country's level of democracy, we used the 2019 *Freedom House* index, an annual report composed of experts' assessments of various indicators such as civil liberties, political rights, the rule of law, and government functioning.[5] The index ranges from 0 ("not free") to 100 ("free"). Higher values indicate more freedom, i.e., stronger democratic institutions.

Control Variables

We controlled for the following variables, measured in the second wave, which are considered relevant to explaining variations in information seeking (e.g., Castro-Herrero et al., 2018): age, gender, level of education, political interest, political knowledge, and left-right ideology. We also controlled for respondents' general news consumption both on traditional media (e.g., how often they watch or read news on the internet) and on social media (e.g., Facebook or Twitter).[6] The full question wording and descriptive statistics can be found in Online Appendices B and C.

Analytical Strategy

Since our dataset includes two levels – respondents nested in countries – we used multilevel mixed-effects linear regressions with country-level random effects. This allowed us to account for country-level variations. As we examine four outcome variables measured in Wave 2 (cross-cutting and like-minded exposure on traditional and social media), we used separate regression models for each outcome while controlling for the same outcome as measured in Wave 1. Controlling for a lagged dependent variable allows us to account for the longitudinal differences between exposure behavior at both time points. We first test for the relationship between COVID-19 concern and media exposure. Later, we add country-level variables and cross-level interactions to test our hypotheses regarding the moderating role of pandemic severity, national government response, and the quality of democracy.

Results

We will begin by examining the relationship between individual-level concern over COVID-19 and media exposure. Our first hypothesis posited that the more citizens are concerned about the pandemic, the more they will be exposed to cross-cutting information. Table D1 in Online Appendix D presents the results of multilevel linear regressions estimating exposure to cross-cutting news outlets (Model 1) and cross-cutting information on social media (Model 2). Findings show a positive and significant association between pandemic concern and cross-cutting exposure to traditional ($b = .053$; $p < .001$) and social media ($b = .064$; $p < .001$). In other words, moving from the minimum to maximum COVID-19 concern is associated with a five percentage points increase in cross-cutting exposure on traditional media and a six percentage points increase in cross-cutting exposure on social media. While the effect sizes are relatively modest ($d = .13$ and $d = .10$, respectively),[7] they are similar in size to existing evidence of the impact of information utility on cross-cutting exposure (e.g., Knobloch-Westerwick & Kleinman, 2012). Models 3 and 4 in Table D1 show, in parallel, that concern over the pandemic also significantly increases like-minded exposure both on traditional ($b = .055$; $p < .001$; $d = .12$) and social media ($b = .04$; $p < .001$; $d = .06$). In other words, whereas concerned citizens may have relied on like-minded information to keep up with the latest events, they did not avoid cross-cutting sources and different viewpoints to fulfill their need for information, as anticipated. Focusing on the covariates, the results show that greater interest in politics is associated with increased exposure to both like-minded and cross-cutting information (Castro-Herrero et al., 2018; Garrett, 2009).

Country-Level Moderators: COVID-19 Factors

H2 posited that the positive association between concern over COVID-19 and cross-cutting exposure would be greater in countries with greater pandemic severity. The results of the multilevel regressions predicting cross-cutting and like-minded exposure, with the addition of cross-level interactions between pandemic concern and country-level moderators, are presented in Table D3 in Online Appendix D. Findings show that in the case of exposure to cross-cutting news sources, the interaction term is positive and significant ($b = .0002$; $p < .05$; see Model 1 in Table D3). To facilitate interpretation, the left graph in Figure 1 indicates that in countries with greater pandemic severity (purple line), COVID-19 concern is associated with more cross-cutting exposure. This positive association decays when the number of confirmed cases within a country is low (green line). In contrast, the interaction term is insignificant in the case of cross-cutting exposure on social media (Model 2 in Table D3). H2 is therefore only partially supported. Focusing on like-minded exposure, the interaction is only significant for exposure to like-minded news outlets ($b = .0003$; $p < .05$; Model 3 in Table D3), indicating that individual-level concern is associated with more like-minded exposure to traditional media, especially in countries with higher numbers of confirmed cases.

According to H3, the positive association between concern over COVID-19 and cross-cutting exposure will be greater in countries with weaker government reactions to the pandemic. Models 1 and 2 in Table D3 suggest that this was the case only for cross-cutting exposure on traditional, but not social, media. Thus, the third hypothesis is only partially
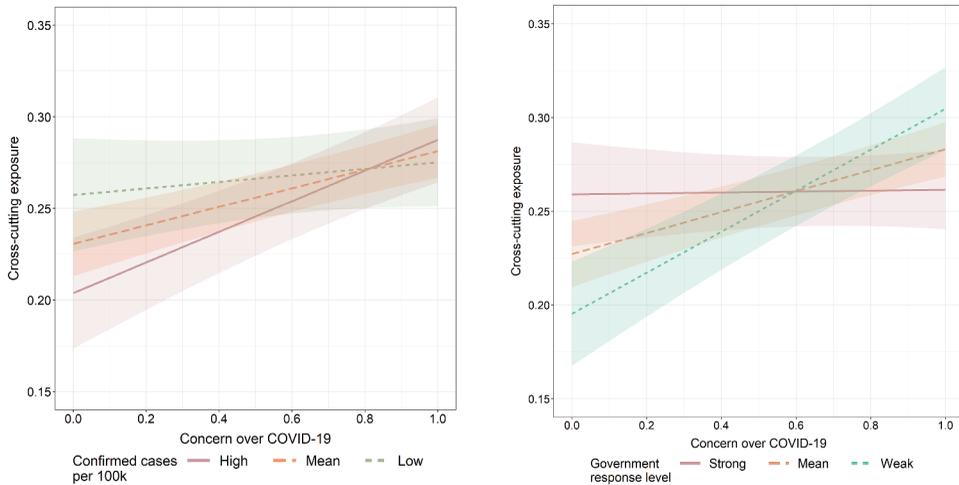
Figure 1. The association between concern over COVID-19 and exposure to cross-cutting news outlets, moderated by the severity of the outbreak (left graph) and levels of government response to the pandemic (right graph). Higher values on the y-axis indicate more frequent exposure to cross-cutting news outlets. The graphs are based on Model 1 in Table D3. The "High" and "Low" (left graph) and "Strong" and "Weak" categories (right graph) represent one standard deviation above and below the mean, respectively.

supported. The right graph in Figure 1 illustrates the statistically significant interactive effect on exposure to cross-cutting news outlets, above and beyond the impact of the confirmed cases in a country. It shows that greater concern over the pandemic was associated with more cross-cutting news exposure, especially when governments adopted less stringent policy measures to fight the pandemic in its earlier stages (e.g., less disease surveillance and weak containment; green line). However, the more national governments adopted intense policy responses, the positive association between individual-level concern and cross-cutting exposure decayed (orange and purple lines). In parallel, less stringent policies also increased exposure to like-minded information on traditional but not social media (Models 3 and 4, Table D3).

Country-Level Moderators: Democracy Level

We also tested for the moderating effect of a country's level of democracy. H4 posited that the positive association between concern over COVID-19 and cross-cutting exposure would be greater in countries with weaker democratic institutions. Table D3 indicates that this interaction is statistically significant only in the case of traditional news outlets (Model 1). The interactive term is not significant when the outcome is cross-cutting exposure on social media (Model 2). H4 is, therefore, only partially supported. Figure 2 facilitates the interpretation of the interaction results in the context of cross-cutting exposure to traditional media: the left-hand graph, presenting country-specific slopes, shows that in countries with weaker democratic institutions (e.g., Hungary and Romania), the more citizens were concerned by the pandemic, the more they consumed cross-cutting news sources ($p < .001$). This positive association was weaker in countries with
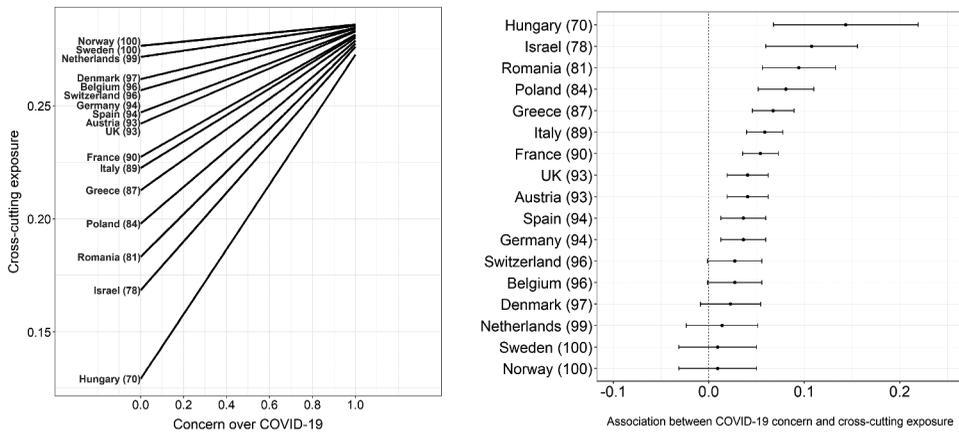
Figure 2. The association between concern over COVID-19 and exposure to cross-cutting news outlets, moderated by the level of democracy. The left graph presents separate slopes per country (higher values on the *y*-axis indicate more frequent exposure to cross-cutting news outlets), and the right graph indicates the coefficient size. Countries are ordered according to their democracy level (a country's *Freedom House* score is in parentheses). The graphs are based on Model 1 in Table D3.

stronger democratic institutions (e.g., Austria and Spain; $p < .001$) and statistically insignificant in countries with the highest scores in the *Freedom House* index (Norway and Sweden; $p > .05$). Moreover, the left graph suggests that cross-cutting exposure among citizens with the highest levels of concern over COVID-19 was similar across all countries. In other words, highly concerned citizens in less democratic countries do not exhibit more cross-country exposure than those living in stronger democracies. This suggests that even though cross-cutting news exposure may facilitate concerned citizens in times of crisis, it is still limited only to a certain extent.

These interactions are also evident in the right graph in Figure 2, which presents greater coefficient sizes in countries such as Hungary and Poland, as opposed to smaller and insignificant effect sizes in Norway and the Netherlands. The association between pandemic concern and cross-cutting exposure to traditional media is significant or marginally significant ($p \leq .06$) for 13 out of the total 17 countries. Finally, Table D3 shows that democracy levels do not moderate the relationship between pandemic concern and like-minded exposure.

Robustness Tests

We performed additional robustness tests, the results of which are presented in Online Appendix E. We utilized two alternative measures for the level of democracy, tapping transparency and corruption levels per country. Additional robustness tests – including using different time lags, parsimonious models, and measuring the dependent variable as the absolute change between Wave 1 and 2 – support our original conclusions.[8] We also tested whether the relationship between concern over COVID-19 and cross-cutting exposure varied among left- and right-wing supporters across the 17 countries. Results, presented in Online Appendix E, indicate that this relationship holds for left- and right-wing supporters.

Since the countries in our sample are characterized by different political and media systems (Hallin & Mancini, 2004), the availability of partisan news outlets and the opportunity structures for politically motivated selective exposure (Skovsgaard et al., 2016) vary across countries, which can confound the relationship between COVID-19 concern and cross-cutting exposure. Previous research suggests that polarized media environments, characterized by greater numbers of partisan outlets, can increase incentives for partisan selective exposure (Goldman & Mutz, 2011; Steppat et al., 2022). We thus examined whether our original findings are confounded by media fragmentation in several ways (see Online Appendix E). First, we controlled for the total number of partisan outlets asked in our surveys. We also controlled for political polarization within each country. Moreover, we modeled the interaction between concern over COVID-19 and the number of partisan outlets in each country. Results show that the main relationship between pandemic concern and cross-cutting exposure as well as the interactions remain stable. Moreover, we ran separate analyses for countries with either a low or high number of available partisan sources (we performed a median split). This did not affect our original conclusions. In other words, we do not find evidence that our original findings are driven by the availability of partisan outlets in a given country.

Finally, due to the relatively limited number of countries in our sample ($N = 17$), we re-ran the original regression models predicting cross-cutting exposure while excluding each time a single country from the analysis (for full results, see Online Appendix E).[9] While the main association between concern over COVID-19 and cross-cutting exposure remains stable for traditional and social media, we find that two moderating variables – number of confirmed cases and democracy level – become insignificant when excluding Denmark from the analysis. The effect of the third country-level moderator, government responsiveness, remains stable in all models. Although excluding countries from the analysis reduces the (already low) statistical power at the country level, exploring these moderators provide an important contribution to understanding cross-cutting exposure from a comparative perspective. This approach has received only scarce attention so far. We encourage future studies to continue this effort and include more countries in order to explore contextual moderators of selective exposure further.

Discussion

Exogenous threats, such as terror attacks and natural disasters, are known in the literature for their implications on citizens' general tendency to seek more information. However, less is known about how such external shocks affect selective exposure, i.e., citizens' consumption of information sources that are not in line with their existing political predispositions. We examined this issue in light of the COVID-19 emergence, using it as a natural experiment that allowed testing how the pandemic affected cross-cutting exposure. Utilizing a two-wave panel survey among 14,218 participants across 17 countries, conducted before and after the initial outbreak, we show that citizens who were more concerned by COVID-19 were also more exposed to cross-cutting information via traditional and social media. Like-minded exposure was also apparent among concerned citizens. In other words, the external threat caused by the pandemic led citizens to consume not only more information, but also to consume more cross-cutting sources (Knobloch-Westerwick & Kleinman, 2012). We argue that this finding was driven by the high utility of information during the initial

stages of the pandemic, which led concerned citizens to turn not only to their trusted like-minded sources but also to seek alternative viewpoints to reduce their concerns (Valentino et al., 2009).

We find that the association between concern over COVID-19 and exposure to cross-cutting information was evident both on traditional and social media. In the case of the former, the identity of a news source, specifically its ideological leaning, is known to significantly affect whether people would consume it or not (Iyengar & Hahn, 2009). Our findings, however, indicate that the intensity of the external threat and the personal relevance of the pandemic to citizens reduce partisan biased news seeking (see also Knobloch-Westerwick, 2014; Mummolo, 2016).

The fact that greater pandemic concern was associated with more cross-cutting exposure on social media is worthy of attention. Compared to news outlets – whose ideological signal is usually clearer to the audiences in many countries, which in turn affects whether citizens will consume them (Iyengar & Hahn, 2009; Kalogeropoulos et al., 2019) – scholars have raised concerns that exposure to information on social media may be less in the hands of citizens and more affected by online algorithms. Such algorithms can shape which contents will be visible to users based on their social networks, previously shared content, or search behavior (Bucher, 2017). However, recent empirical evidence has found that the role of online algorithms in creating homogeneous online echo chambers is limited (e.g., Bakshy et al., 2015), and that the information presented to and consumed by users is also based on their conscious decisions and preferences (Bodó et al., 2019). The current study cannot determine the role of algorithms in spreading cross-cutting information to citizens. However, as this body of research demonstrates, it is plausible that social media news consumption during the pandemic has been altered not just due to passive and incidental exposure to cross-cutting information but also due to people's conscious attempts to reduce uncertainty.

This study also sheds light on country-level differences in cross-cutting exposure during the pandemic. We find that pandemic-related factors impacted cross-cutting exposure on traditional, but not social, media. A consistent moderator was government responsiveness to the pandemic. When national governments adopted less stringent policy responses, concerned citizens relied on cross-cutting news sources more than in countries with more substantial restrictions on citizens' freedom during the pandemic. We argue that weaker government responses might have led concerned individuals to perceive the pandemic as more threatening, thereby increasing incentives to consume alternative and diverse viewpoints.

Moreover, our findings show that the relationship between pandemic concern and cross-cutting exposure to news sources was stronger in countries with greater severity of the pandemic and weaker democratic institutions. This suggests that the public's information-seeking behavior during the outbreak was affected not just by statistics on infected cases but also by the governments' responses and the way they communicated their policy measures to citizens in a transparent manner (see also Grossman et al., 2020; Jørgensen et al., 2021; Moon, 2020). We note, however, that cross-cutting exposure among citizens who were the most concerned by the pandemic was relatively similar across countries, indicating that cross-cutting news exposure may assist citizens in monitoring external threats but only to a certain extent.

This study contributes to the existing literature in several ways. First, it broadens our understanding of the limitations of partisan selective exposure, specifically after sudden external threats such as natural disasters, terror attacks, or wide-scale pandemics. We provide empirical evidence that external crises can decrease the importance of source cues, specifically the source's political affiliation, the more citizens are concerned by the crisis. Instead of following only like-minded information sources on traditional and social media, the greater concern is associated with more exposure to cross-cutting sources since they can provide useful information to citizens, including varying viewpoints that help monitor unexpected events.

Recent studies suggest that, as opposed to the American context, the pandemic was far less divisive across party lines in Europe in its earlier stages (Bol et al., 2021; Louwerse et al., 2021). This raises the question of how diverse the coverage of like-minded and cross-cutting news sources was. Although we did not analyze the content of the news outlets used in this study, we argue that consumption of cross-cutting news sources during the pandemic could increase potential exposure to diverse and alternative viewpoints on various social and political issues for two reasons. First, alternative viewpoints about COVID-19 are not limited only to a binary presentation of reality that either downplays or stresses the severity of the pandemic. Instead, news sources can offer varying perspectives about governments' past or future efforts to fight the pandemic or use different frames to cover the crisis (Krawczyk et al., 2021). Second, because this external crisis eroded the importance of source cues, specifically their political affiliation, citizens had greater chances for incidental exposure to additional cross-cutting information from a given source on other political issues. Such incidental exposure can increase the learning of opposing perspectives, which is less common in routine periods when source cues play a significant role (Knobloch-Westerwick, 2014).

The second contribution of this study lies in its comparative perspective to examine selective exposure. While most existing studies typically assume that cross-cutting exposure is uniform across countries, the rapid spread of COVID-19 across multiple countries allows us to examine information seeking across 17 countries with varying political, social, and health conditions. Our findings suggest that citizens' motivations to consume cross-cutting information are shaped not just by individual-level factors (i.e., concern over the pandemic) but also according to system-level conditions – either crisis-related (e.g., government responses) or political system factors (i.e., democracy level).

Third, this study also contributes to our knowledge of citizens' behavior during the initial stages of the COVID-19 pandemic, which was an unprecedented event. Recent studies suggested that individuals had sought more information – primarily via immediate information sources such as the internet and television – to assist them in monitoring the threat (Bento et al., 2020; Sabat et al., 2020; Van Aelst et al., 2021). Our study points to a more nuanced understanding of the nature of information consumed, specifically by showing that it came not just from like-minded but also cross-cutting sources. These results have important implications in the context of the COVID-19 pandemic, which faced public officials with the need to find a balance between restrictions on individual freedoms and public health. Since cross-cutting exposure increases public satisfaction with governments' decision-making (Esterling et al., 2015), it can foster citizens' compliance with stricter policy measures, which are necessary to fight the pandemic.

Some limitations of this study should, however, be noted. First, while we focus on exposure to cross-cutting information, we cannot tell how citizens *processed* it during the pandemic. For example, when encountering attitude-discrepant information, citizens tend to counter-argue with it more or simply ignore it (Taber & Lodge, 2006). Second, while we stress the consequences of consuming alternative viewpoints during the crises, we did not analyze the actual contents of the news outlets used in this study. This limits our ability to determine how diverse the coverage was in each country. Another limitation lies in the relatively low number of countries in our sample ($N = 17$), which reduces statistical power at the country level and potentially raises concerns of possible confounders or findings that might depend on single countries (see the Robustness tests section above). We encourage future studies to examine selective exposure by studying more countries, contexts, and different types of external crises to understand further how contextual factors influence cross-cutting and like-minded exposure.

Moreover, scholars raise concerns over using self-reported measures for news consumption, which may be prone to biases (e.g., Scharkow, 2019). In the context of social media exposure measures, we explicitly asked respondents to recall whether they encountered cross-cutting information. This may lead to biased answers across countries, which potentially attenuate the effects of the country-level moderators in the case of exposure on social media. We note, however, that since our goal was to capture information consumption across a combination of media types (print and online newspapers, TV, radio, and social media), alternative measures such as trace data cannot fully tap this rich information environment and are prone to biases and limitations of their own (Jürgens et al., 2020).

Despite these limitations, we believe that our findings shed important new light on how the unprecedented COVID-19 pandemic shaped citizens' information consumption habits across multiple social contexts, specifically by removing barriers to exposure to information sources that do not necessarily confirm individuals' prior beliefs

Notes

1. The relationship between individual pandemic concerns and greater cross-cutting exposure may be reciprocal. While existing observational and experimental evidence indicates that uncertainty under perceived threats increases citizens' tendency to seek relevant information (e.g., Goodall & Reed, 2013; Van Aelst et al., 2021), others point to a reversed causal order, suggesting that intense media exposure can increase anxiety (e.g., Garfin et al., 2020). However, in this article, we focus on exposure to cross-cutting (rather than general) information. Based on previous studies, we posit that during external threats, cross-cutting exposure helps increase – rather than decrease – citizens' orientation in response to the new environment (e.g., Knobloch-Westerwick & Kleinman, 2012; Valentino et al., 2009; Wagner, 2017). Nonetheless, we are more cautious in making strong causal claims as our two-panel design cannot fully account for the causal order. We encourage future research to help disentangle and provide more fine-grained analyses of such complex relationships.
2. In total, 4,470 respondents identified themselves as left-leaning and 5,203 as right-leaning; 3,241 located themselves at the ideological center.
3. The overall agreement among the three experts across counties was acceptable (67%). In some countries, however, agreement scores were below 70%, indicating higher variability in the experts' assessment of each news outlet. Therefore, we utilized an alternative measure to

determine a news outlet's ideology: instead of the original average score among the three experts, we marked a news outlet's political affiliation according to the majority's coding. Findings, which are reported in Online Appendix E, show that our original conclusions remain the same.
4. Out of 194 news outlets in total, 52 were left-oriented, 70 were right-oriented, and 72 were coded at the ideological center by all three expert coders.
5. https://freedomhouse.org/.
6. The two consumption variables are only moderately correlated (r = .26; no collinearity was observed in the regression models).
7. We follow the conventions of Cohen (1988) for interpretation of effect sizes (small: d = .20; medium: d = .50; large: d = .80)
8. The only exception is the interactions for predicting like-minded exposure on traditional media. Although the interaction terms are in the same direction, they are insignificant.
9. We are thankful to the anonymous reviewer for suggesting this additional test.

Open Scholarship

This article has earned the Center for Open Science badge for Open Data. The data are openly accessible at https://osf.io/w473m/

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