Universiteit Antwerpen

This item is the archived peer-reviewed author-version of:

Does a crisis change news habits? A comparative study of the effects of COVID-19 on news media use in 17 European countries

Reference:
Van Aelst Peter, Toth Fanni, Castro Laia, Stetka Vaclav, de Vreese Claes, Aalberg Toril, Cardenal Ana Sofia, Corbu Nicoleta, Esser Frank, Hopmann David Nicolas, ...- Does a crisis change news habits? A comparative study of the effects of COVID-19 on news media use in 17 European countries
Digital journalism - ISSN 2167-0811 - Abingdon, Routledge journals, taylor & francis ltd, 9:9(2021), p. 1208-1238
Full text (Publisher's DOI): https://doi.org/10.1080/21670811.2021.1943481
To cite this reference: https://hdl.handle.net/10067/1804290151162165141

uantwerpen.be
Institutional repository IRUA

Does a crisis change news habits? A comparative study of the effects of COVID-19 on news media use in 17 European countries

Abstract
Exogenous shocks like the COVID-19 pandemic unleashes multiple fundamental questions about society beyond public health. Based on the classical concept of 'need for orientation' and the literature on the role of the media in times of crisis, we investigate to what extent the COVID-19 pandemic affected news consumption in comparative perspective. Based on a two-wave panel survey in 17 mostly European countries, our study targets the role of both legacy news brands (TV, radio, newspapers) and so-called contemporary news media (Internet-based and social media) during this global health crisis. Our results show an overall rise of news use across countries, but only for some types of news media. We find an increase of TV news consumption, and a higher reliance on social media and the Internet for news and information. This indicates that in times of crises and an unusually strong need for orientation, people mainly turn to news sources that are easily available and offer a more immediate coverage. Furthermore, we find the rise in news use to be mainly present among those who already have a higher level of trust in legacy media and among people that were more concerned about the impact of the pandemic.

Key words
Media use, health crisis, comparative survey, media trust

1. Introduction

Over the last decades, the information environments in most countries across the globe have fundamentally transformed. With the proliferation of digital, social, and mobile media, the total supply of information sources has greatly expanded and put increasing pressure on traditional news media. In contemporary high-choice media environments, these no longer have monopoly on the production and distribution of news, and face tougher competition for audience attention than ever (Chadwick, 2017; Prior, 2007; Van Aelst et al. 2017). In the past, when major crises occurred, people used to turn to traditional news media to get the latest information. Thereby, these media benefitted from the increasing need for orientation (McCombs & Weaver, 1973) that major crises spur. The question is whether this holds true also in contemporary high-choice media environments, or whether people rather turn to and thereby strengthen digital media in the competition for audience attention?

To investigate this, this study considers the COVID-19 pandemic as an exogenous shock and draw on the literature that has examined the impact of such critical events on news consumption. Althaus (2002) showed, for example, that in the week after the 9/11 terrorist attacks, the television network audience doubled. Multiple other studies, on a range of dramatic events, confirm that people turn to the news in times of crisis (Boomgaarden & de Vreese, 2007; Casero-Ripollés, 2020; Westlund & Ghersetti, 2015). In addition, there is some evidence that digital news sources and search platforms like Google also received a sudden increase in visitors in the aftermath of the September 11 attacks (Wiggings, 2001; Pew Research Center, 2002). The general mechanism behind this surge in use is related to a 'need for information'. The news media fulfill different functions, and can satisfy different needs, but during a crisis the demand for more and accurate information usually increases. Westlund & Ghersetti (2015: 134) argue that this need for information varies depending on the nature of the crisis. They state that "*Sudden and acute events, such as wildfires and terrorist attacks, create a need for immediate news that guides people on how to reach safety. Slowly evolving economic crises or insidious epidemics, on the other hand, rather call for in depth information on underlying causes and long-term consequences.*" The peculiarity of the coronavirus epidemic, however, is that it appears to have created a need for both: people were worried and wanted to know more about the immediate dangers of this 'external threat'; in addition, the need for a deeper understanding of the virus and its impact on society increased (Bento, et al., 2020).

Although there is ample evidence that unexpected events or external shocks can boost news consumption, many questions remain unanswered. The first set of questions relate to the changing news environment and the potential variation between different types of news media use. Did the COVID-19 pandemic lead to a surge in use of newer digital media or to an increase in the use of traditional legacy media? There are reasons to expect that people might 'return' to older news sources as journalistic reputation might be more important in times of crisis. On the other hand, digital and social media have become integrated in our daily lives and leave ample room to look for specific information related to the crisis, its dangers and consequences. Second, we know little about whether a crisis impacts the habits of news consumers differently. Is trust in news media a prerequisite to start consuming more news? And is this 'positive' effect contingent on how worried people are about the specific threat of the crisis? Put differently, is some sort of anxiety about the consequences of the crisis driving the need for information? Third, as most previous work on crisis events and news consumption are single-country studies, we have

virtually no knowledge about how such dynamics apply cross-nationally. Finally, what conclusions can we draw for the role of news journalism in the everyday life of its users during a crisis? Do we find evidence for an undiminished relevance of journalistic services, at least in crisis situations, even under conditions of digital abundance?

Based on the classical concept of 'need for orientation' and the literature on the role of the media in times of crisis, we will try to address these questions. Empirically, we will draw upon a comparative panel survey, with detailed measures of news media usage, measured both before and after the outbreak of the pandemic. We fielded a survey in December 2019 in 17 mostly European democracies (Sweden, Denmark, Norway, Belgium, the Netherlands, Germany, Switzerland, Britain, Spain, Israel, Romania, France, Austria, Italy, Poland, Hungary, Romania). The initial goal of this survey was to study the demand for political news and information in countries in relative similar countries in terms of television landscape with both developed public and private broadcasters.

A second wave of this panel survey was fielded in May 2020, when most of these countries had started to slowly recover from the first wave of the pandemic. Interviewing the same people in panel wave 1 and panel wave 2 allows for a compelling test, both at the country and the individual level, of changing patterns in news consumption in response to the pandemic. In each country approximately 800 respondents participated in both waves of the panel survey. Our design allows us to investigate this cross-national dynamic, and to identify in particular for which groups and in which contexts change was visible. This research offers a unique opportunity to understand the role of both legacy news brands (TV, radio, newspapers) and so-called contemporary news media (Internet-based and social media) during a contemporary, global crisis. Our results indicate that there was an overall increase of news use across countries, but only for some types of media. Furthermore, we find the rise in news use to be present mainly among those who already had a higher level of trust in legacy media and people that were more concerned about the impact of the pandemic.

2. Theory and hypotheses

Our starting point is that, for citizens, an unexpected and dramatic event can induce an increased need for information. This need for information is closely related to the classical concept 'Need for Orientation' (NFO), most often used in the context of agenda-setting research (for an overview, see Matthes, 2006). Inspired by an information-seeking or uses and gratifications approach, McCombs and Weaver (1973) introduced the concept to stress the variation among individuals in their need to be informed about a topic in the news media. They assumed that all people have some need for orientation to understand their social environment, but that the perceived relevance and uncertainty of a situation could induce this need. For instance, people who believe the election matters a lot (high relevance), but are still undecided on who to vote for, (high uncertainty), are expected to seek more information (in the news) and therefore be more susceptibility to the media's (agenda setting) influence (Matthes, 2006) than people who do not think the election matters (low relevance) or already know whom to vote for (low uncertainty).

Our reliance on the NFO concept aligns with the work of scholars that have used the (micro) Media System Dependency theory to document the increased individual use of news media in times of crisis (Lowery, 2004; Hu & Zhang, 2014; Towers et al., 2015). As noted by Lowery

(2004: 339),*"During a severe social disruption there is an unusually high need for information and sense-making by individuals. According to media systems dependency theory, the mass media are generally perceived to best satisfy these needs, as they offer speed of transmission and structural connectedness to "expert" sources of information*". In other words, this theory suggests the importance of news media as they are seen as a reliable source for fast and accurate expert information, in particular in times of high uncertainty and social unrest.

As the NFO concept has mostly been studied in election contexts, the uncertainty for people has often been related to making their mind up related to a complex issue or a new political candidate. In the case of a health crisis, however, it is reasonable to assume that the uncertainty is mainly related to the degree of anxiety or concern related to both the health and economic consequences of the crisis. Previous studies have suggested that during a crisis, uncertainty can trigger anxiety which people try to reduce by seeking for more information (Lachlan, et al. 2016). Before we develop this idea of concern related to news use in times of crisis, we will formulate concrete expectations related to the variation between media types and the diverging level of trust in media. At the most general level, the research question we ask is:

RQ1: How did the COVID-19 crisis affect the intensity of news use across different media types?

In line with previous studies on unexpected dramatic events, and health crises in particular, we expect that the COVID-19 pandemic led to a general increase in the use of both legacy and contemporary media (Althaus, 2002; Lowery, 2004; Hu & Zhang, 2014; Towers et al. 2015; Westlund & Ghersetti, 2015). With legacy news media we henceforth refer to traditional television and radio news brands, and newspapers, both their offline and online versions. With contemporary news media use, we refer to social media and the Internet in general as a source for news (Westlund & Ghersetti, 2015). We argue that both types of media can be expected to be used more during a crisis and should be seen as complementary. For instance, Lu (2018) found that in the wake of an earthquake in China, people supplemented traditional news channels with the Web to acquire additional information and confirm developments.

Since we deal with a global pandemic that left no region in the world unaffected, we expect increases in news use to be present across countries. First reports also indicated that at the first peak of this health crisis, media use increased. For instance, data from a survey from Reuters Institute which included six countries (UK, USA, Germany, Spain, South Korea, and Argentina) in early April 2020 showed increased consumption of traditional sources of news, especially television, but also some online news sources. The increase was, however, not spectacular, and for some media types almost non-existent or even negative for newspapers. More specific data for the UK show that the number of TV news viewers peaked in April 2020, at the height of the first wave of the pandemic in the UK; and while the average viewing time subsequently declined over the following months (having previously reached the highest levels since 2015), the number of people watching TV news spiked again in September 2020, coinciding with another COVID-19 briefing by the Prime Minister (Ofcom 2020a). In the U.S., the total TV use jumped by 28% during the lockdown in Spring 2020, according to Nielsen's ratings (Porter, 2020). In sum, based on previous studies, and recent reports on the COVID-19 crisis, we expect a general increase in news use across countries:

H1: Ceteris paribus, the COVID-19 pandemic led to an average increase in news media use

Although we hypothesize that the need for information leads to an overall increase in news media use, there are reasons to expect that the strength of the effects might vary across media types and countries. In the first place, we do not expect that all types of media 'benefitted' to a similar degree. Previous studies have indicated that in times of crisis, people tend to rely on media that can provide 'immediate' news updates such as television and radio, and more recently online news sources (Westlund & Ghersetti, 2015). Newman et al. (2020) suggest that in particular the 'live' aspect of television news played a role during the COVID-19 pandemic, as political leaders opted to directly address the nation or held daily press conferences. As the authors observe, the TV address by the British Prime Minister Boris Johnson on 23 March 2020, in which he asked the nation to stay home, "was one of the most-watched broadcasts in UK television history, with 27 million tuning in live" (Newman et al. 2020: 11). Such findings underlie the traditional status of television as the primary source of information for the majority of people, as well as its ability to facilitate a shared experience of virtual participation for the national audiences, by making the live broadcasts of government's announcements a "media event" (Mihelj et al., 2020). Based on this, we expect that:

H1a: The COVID-19 pandemic led to a significant increase in television news use

Since the informational role of television – especially when it comes to "hard news" – is traditionally associated with the institution of public service broadcasting, rather than with the commercial model (Aalberg and Cushion, 2016), we expect that the overall increase in television news use benefitted public broadcasters in particular. The provision of high-quality, in-depth information in the public interest, as well as political balance and pluralism, are landmark characteristics of public service media's remit (McQuail, 1992), which puts them into a position of advantage when it comes to the need to deliver accurate and unbiased news that is essential for the health and safety of the nation. In many European democracies, public broadcasters have lost viewers, but they remain a highly trusted institution (Schulz et al., 2019; Newman et al., 2020), which is likely to help guide viewers' choice in times of crisis. This has been confirmed by data from countries like the UK, where broadcasters with public service remit (BBC, ITV, STV, Channel 4 and Channel 5) achieved the highest combined monthly share of broadcast TV viewing (59%) in six years during the lockdown in March (BBC, 2020). According to an internal report by the European Broadcasting Union, the daily viewing time of PSB channels during Spring 2020 went up by 14%, while the reach of their evening news bulletins doubled (EBU, 2020). All this leads us to the hypothesis that:

H1b: The increase in television news use was higher for public service TV channels than for commercial TV channels.

While the newspaper market is more diverse than the TV sector in terms of formats and genres, a similar dichotomy has frequently been made between newspapers that give preference to hard news (referred to as broadsheets, upper-market, elite or quality press) versus those that devote more attention to soft news (tabloid, mass-market, popular press) (Lehman-Wilzig & Seletzky, 2012; Magin, 2019). In general, the elite press is being generally attributed higher journalistic standards as well as a reputation of factuality and reliability (Magin, 2019: 4). These qualities are likely to be in more demand during crisis times when people are seeking reliable information and guidance. Therefore, we expect that:

H1c: The use of elite newspapers increased more than the use of popular press.

Studies indicate that in times of crisis, the use of contemporary media such as social media and Internet-based news sources will also increase (Westlund & Ghersetti, 2015). The immediacy of contemporary media, as well as their participatory character, make them natural communication platforms for crisis situations. Social media seem particularly well-suited for that purpose, which is arguably why they are being adopted by governments and other state actors as important channels of crisis communication (Jin & Austin, 2014). It is also well-documented that during various crisis events across the world – be it the 2010 Duisburg Love Parade tragedy (Schwarz, 2012), the 2011 Fukushima nuclear disaster (Utz, 2013), or the terrorist attack in Brussels in 2016 (Mirbabaie & Zapatka, 2017) – people turned to social media to receive breaking news, to follow governments' and other officials' accounts, or to check on the safety and wellbeing of their families and friends.

The COVID-19 pandemic created an unprecedented demand for instant access to information globally as well as heightened need for distance communication, which led to the increase in Internet and social media usage. Data from the British market (Ofcom 2020b) suggest that the average time spent online increased substantially between February and April 2020, across all age groups. That increase concerned social media use as well, with Facebook and Messenger use increasing from 24 to an average of 31 minutes per day, and WhatsApp use from 7 to 10 minutes (Ofcom 2020b). An increase in the use of Internet-based news sources and social media has also been recorded in other countries in relation to the first wave of COVID-19 pandemic; according to data collected in six countries (UK, USA, Germany, Spain, Argentina, and South Korea) by the Reuters Institute (Nielsen et al. 2020), the use of social media for news went up by 5% on average between January and April, while online use (including social media) increased with 2% across the six countries. WhatsApp saw the biggest growth in general, with increases of around ten percentage points in some countries. A Kantar survey (2020) in 30 countries in late March 2020 reported even more substantial increases of Internet browsing and social media engagement in this first stage of the pandemic. Based on this, we expect that:

H1d: The COVID-19 pandemic led to a significant increase in contemporary (Internet-based and social media) news use.

As in all cases related to media use, it is also important to take media trust into account. Several studies have shown that perceived news credibility or media trust is related to people's media use (for a recent review, see Strömbäck et al, 2020). For example, research shows that news credibility influences information-seeking behavior (Turcotte et al., 2015) and that trust in and use of traditional news media are positively related (Ladd, 2011; Nelson & Kim, 2020; Jackob, 2010; Tsfati & Ariely, 2014; Tsfati & Cappella, 2003). Several studies have also shown that media skepticism is related to greater use of non-traditional media (Jackob, 2010; Tsfati, 2010; Tsfati & Cappella, 2003). Among these is a study by Fletcher and Park (2017), which found that "very low trust is significantly associated with a preference for non-mainstream news sources" (p. 1291). Similarly, Kalogeropoulos et al. (2019) found that media trust was associated with use of traditional news media but negatively associated with using social media and digital-born news websites as main sources of news. What this research then suggests is that people tend to use the media they trust – in particular when they have a high need for cognition and information (Tsfati & Cappella, 2005). This could by extension be expected to have an impact on changes in media use when people have an increased need for reliable and accurate information, such as during the COVID-19 pandemic. More specifically, among those who trust mainstream

news media to begin with, it is reasonable to assume that they would increase their use of such media when experiencing a greater need for information. On the other hand, those with lower pre-existing trust in legacy media might be comparatively less likely to increase their usage of these sources. Following these arguments, we expect that:

> *H2: The increase in legacy news use was higher for people with higher existing levels of trust in (legacy) news media compared to people with lower levels of media trust.*

RQ2: Were the changes in news use affected by people's concerns about COVID-19?

There are good reasons to assume that some people might be impacted more than others, and/or more concerned that they will be affected. Just as the pioneers in agenda-setting research suggested that the more uncertain people are, the higher their need for orientation, we argue that people who are uncertain and concerned about the health and economic consequences of the COVID-19 pandemic will have a higher need for information. As Lachan et al (2016) argue, during times of crisis and uncertainty, people tend to rely more than usual on the media for recommendations and risk assessment information. In the psychology literature that deals with health crises and collective traumas (e.g., after terrorist attacks), a clear link between use of media and feelings of anxiety has been established. The relationship can work both ways, as people who feel concerned and anxious about dramatic events may seek information from the news media, which in turn might lead to more distress (Thomson et al., 2019; Garfin et al., 2020; Lachlan et al., 2009). For example, in a study on news use after the terrorist attacks of 9/11, Lowery (2004) found that citizens who perceived the events as more threatening relied more on the news media. Lowery defines threat as a disruption of "the everyday world as well as the routines necessary to survive in this world. Individuals require information to resolve the ambiguity that results from this disruption" (2004: 344). The study also showed that during a large and unprecedented crisis, such as the 9/11 attacks, the vast majority of citizens are "in the same boat". In the case of the COVID-19 pandemic, we expect however that the concern for the health consequences was more prevalent among older citizens, and we will therefore control for age. Based on the above reasoning, our final hypothesis is:

> *H3: People who had higher concerns about the impact of COVID-19 increased their news consumption more than those who were less concerned.*

3. Data and Methods

Data and measurement

To investigate the above hypotheses and research questions, we will use originally collected data from a two-wave panel survey fielded in 16 European countries and Israel (Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, and the UK). The study was designed as a two-wave survey with the original goal to map contemporary political information environments from an audience perspective. Wave 1 was conducted in December 2019, wave 2 in May and June 2020. This was in the period that most countries under study were ending or no longer had any lockdowns, but still stringent measures limiting social life and public interaction. In light of the COVID-19 pandemic, we repeated several measures in the second wave to investigate change. The fieldwork was conducted by Dynata and quotas were used for age, gender and metropolitan region. A total of 28,317 respondents completed the online survey in wave 1. The sample size per country ranges from 1,600 to 1,723 cases. The average age in wave 1 was 42 and 55.4% of the sample were female. 14,218 respondents completed the online survey in wave 2. The sample

size per country ranges from 641 to 1,002 cases. The average age in wave 2 was 45 and 52.4% of the sample were female. The sample in each country is fairly representative of the population at large, although lower-educated and older citizens are slightly underrepresented. The retention rate ranged from 39.9-60.6% (Re-contact rates per country are shown in Appendix L). As for changes in sample composition between the waves, the distribution of respondents by education and gender group barely changes, and the sample surveyed the second wave is slightly older than the initial sample in wave 1 (see appendix for tables showing respondents' distributions w1 and w2 for the overall sample; and country-by-country distributions compared to the population).

Dependent variables

The survey contains a comprehensive battery of questions on different types of news use. The main dependent variables assess the change of frequency with which respondents were exposed to news in the media, measuring the difference of news consumption from wave 1 (t-1) to wave 2 (t) of the survey as follows:

$$\Delta X = X_t - X_{t-1}$$

Frequency of news use is measured for the following three legacy news platforms: television, radio, and newspapers. In addition, we measure contemporary news use by Internet-based and social media consumption. The legacy news categories are operationalized through questions asking respondents how many days they consume a particular media brand, offline or online, during a typical week. Although we are aware that the first months during the pandemic were not 'typical', we decided to keep the question identical in both waves for the sake of comparability. 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, as well as an open-ended option for each media category, where respondents could insert a brand of their choice and indicate the frequency with which they use it.[1]

In addition to using measurements of these three platforms separately, we also use several recoded versions in the analysis. First, the average of each respondent's television, radio and newspaper consumption was computed to create a new variable showing each respondent's average "legacy media" use. Second, we also compare changes in consumption of specific types of legacy media (public service broadcasters versus commercial broadcasters and elite versus popular press), using the respective brands from the questions measuring television and newspaper usage.

Additionally, consumption of contemporary media is measured by looking at frequency of use of Internet-based news sources and social media. Unlike the questions asking about legacy media, these variables reflect respondents' general consumption, asking about the weekly frequency of watching or reading news on the Internet, and of following news on social media (e.g. Facebook, Twitter, Instagram or WhatsApp), instead of specifying particular brands.

For each of these variables, we coded frequency on a 0 to 5 scale (ranging from 0 =never to 5 = several times a day or daily consumption), measured in both wave 1 and wave 2. For the brand-specific variables (television, radio and newspaper), as well as the aggregate legacy media variable, we computed the average frequency over all brands. To measure change in media use, in each case we subtracted the result in wave 1 from the result in wave 2 (see formula above), so

[1] Except for Belgium, Denmark, Sweden and Switzerland, where 3 TV channels were selected, Norway, where 2 TV channels and 2 radio stations were considered, and the UK, where 3 radio stations were selected. For Sweden, respondents were shown TV news shows instead of (less well-known) TV channels.

that each variable ranges from -5 to 5.[2] This gives us the average *change* of news consumption for each respondent from prior to the outbreak of the pandemic to the middle of the lockdown period.

Independent variables

The first main independent variable looks at respondents' trust in legacy news media before the start of the pandemic (wave 1). The corresponding survey questions ask respondents their evaluation of the trustworthiness of political information from a number of sources, including four television channels (two public service media and two commercial media), two radio stations (one public service media and one commercial media) and four newspapers (two broadsheets and two tabloids) in each country.[3] Each brand was rated on a 1-7 scale (ranging from 1 = "not at all trustworthy" to 7 = "completely trustworthy"), and the overall trust score for each respondent was calculated through an additive scale that takes the mean score across all brands. Based on these averages, we created a categorical variable that classifies each respondent into "low trusters" (average score of 2 or less), "high trusters" (average score of 6 or higher) and "average trusters" (scores between 2 and 6). This gives an overview of people's trust in media under non-crisis circumstances. Since we lack reliable measures of trust of contemporary media, we only focus on the role of trust in legacy media.

Finally, a mean-score index measuring concern over the COVID-19 pandemic was constructed from three survey items tapping people's worry that they or anyone in their family gets infected by the virus; their personal economic consequences and the economic consequences for their country (M = 4.95; SD = 1.28; Cronbach's α = .68). See Appendix H for question wording and summary statistics.

Control variables

Political interest (responses ranging from 1 = Not at all, to 7 = Very interested), age, gender and education were included in our models. To assess education, we used the European Social Survey (2016) question wording which contains different lists of educational levels by country. Categories were harmonized using ISCED correspondences and re-coded to a 3-point scale (1 = low, 2 = medium, 3 =high). Additionally, we also controlled for respondents' initial level of news consumption prior to the outbreak of the pandemic (overall news consumption variable, wave 1).

Methods of data analysis

All regression analyses were conducted using a multilevel mixed-effects linear regression with a maximum likelihood model fit, with country-level random effects.

4. Results

Turning to the results, the analysis will proceed in three parts. First, we will look at a number of descriptive graphs to determine the patterns of change of news consumption from pre-pandemic times to times of a health pandemic in order to address hypothesis 1 on increases in overall news use and hypotheses 1a-d on changes in TV use, and PSB v. commercial, and elite v. popular and contemporary news use. Second, we will explore the relationship between existing levels of trust in legacy media and change of consumption of news media during a pandemic (H2). Lastly, we

[2] Except for change in frequency of radio consumption, which in actuality only ranges from -4.2 to 5.

[3] Except for Belgium, Denmark and Israel, where 3 TV channels were selected, Norway, where 2 TV channels were considered, and Sweden, where 3 TV channels and 2 radio stations were listed. For Sweden, respondents were shown TV news shows instead of (less well-known) TV channels.

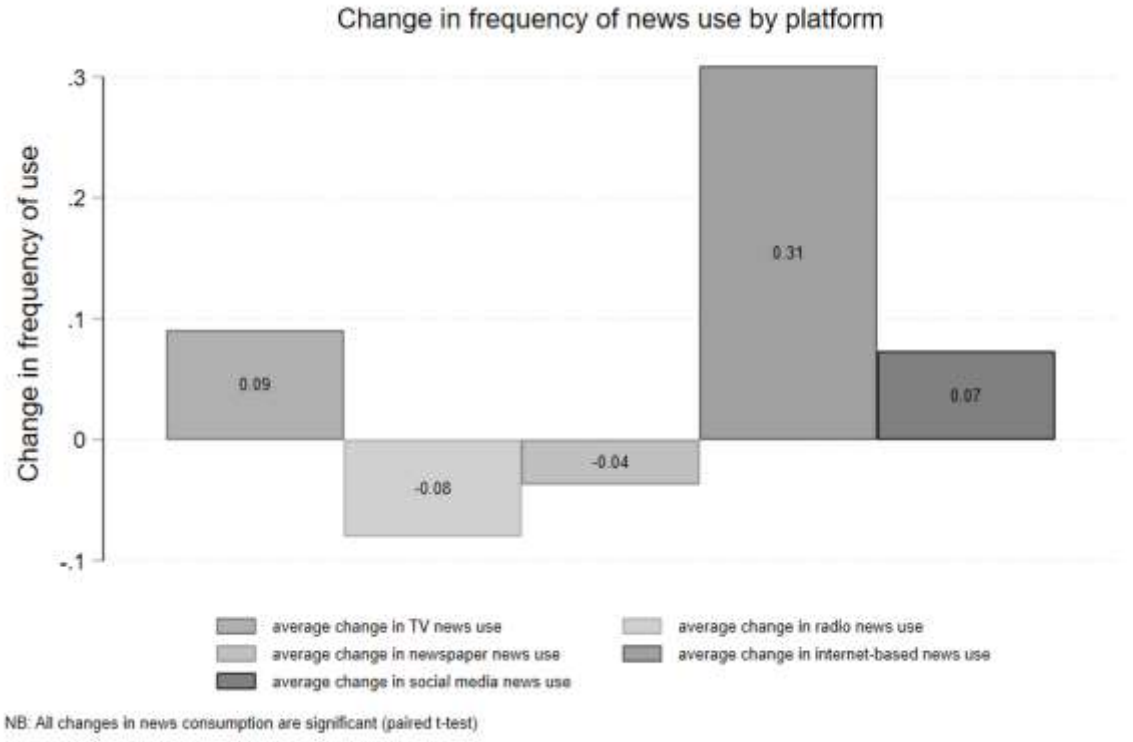
will enter measures of people's concerns over the COVID-19 pandemic and explore whether this was positively associated with average news consumption (H3).

Changes in news consumption amidst of the corona outbreak

Figure 1 examines the change in news media consumption from wave 1 to wave 2 by platform type: tv, radio, newspaper, online and social media news. The largest change can be seen in the average use of online news sources, which increased by 0.31 points from wave 1 (M = 3.99, SD = .01) to wave 2 (M = 4.3, SD = .01, t[14217] = 28.46, $p < .001$). This is a small but significant increase on the -5 to 5 scale of change. Additionally, use of social media also increased by 0.07 from wave 1 (M = 2.96, SD = .02) to wave 2 (M = 3.04, SD = .02, t[14217] = 5.21, $p < .001$). Together, these results support hypothesis H1d, showing that, on average, contemporary news use has increased across all countries studied. Similarly, average television news use increased by 0.09 points from wave 1 (M = 2.12, SD = .01) to wave 2 (M = 2.21, SD = .01, t[14217] = 11.86, $p < .001$), supporting hypothesis H1a.

In contrast, consumption of both radio and newspapers decreased, with the former seeing a larger decrease of 0.08 points from wave 1 (M = 1.24, SD = .01) to wave 2 (M = 1.16, SD = .01, t[14217] = -12.52, $p < .001$), and the latter showing a decrease of 0.04 from wave 1 (M = 1.3, SD = .01) to wave 2 (M = 1.26, SD = .01, t[14217] = -5.34, $p < .001$). This indicates that whilst the pandemic led to an increase in the consumption of certain platforms of media, the increase in news media use was not consistent across the board, thus only partially supporting Hypothesis 1.

Figure 1

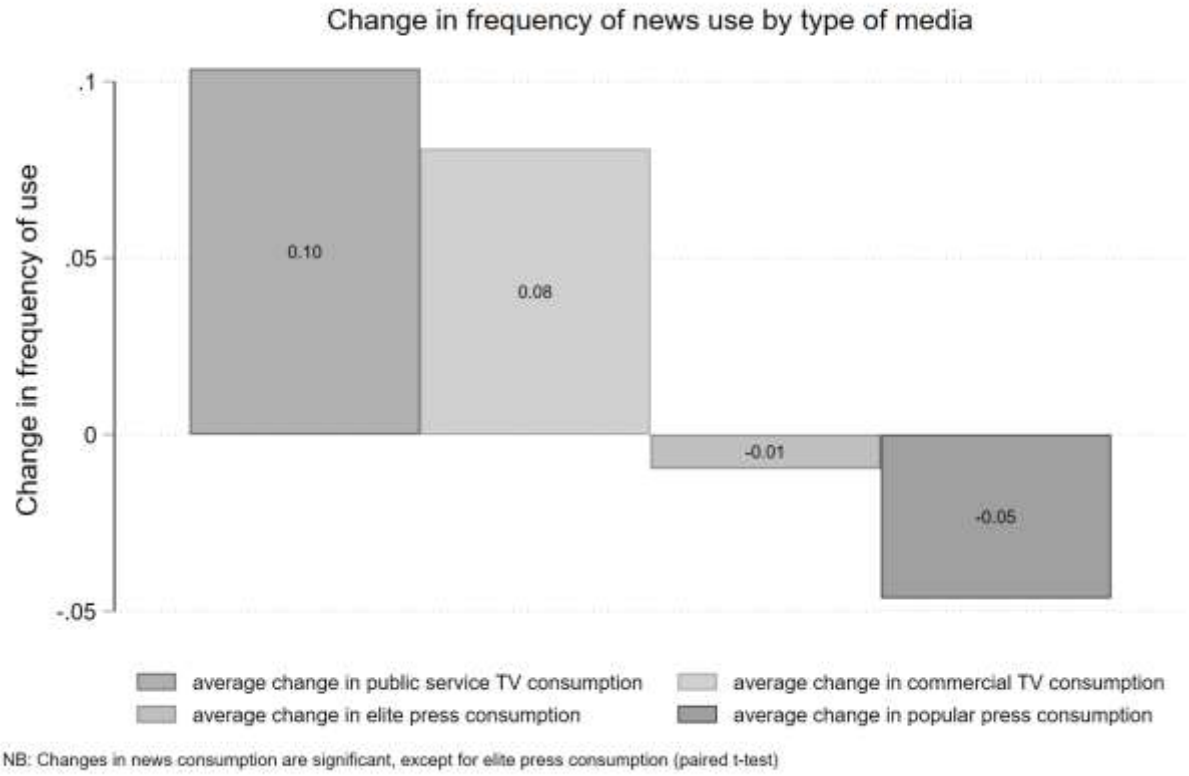


Do these changes hold across countries? For Internet-based news use, the answer is affirmative: in all 17 countries there was a significant increase, ranging from 0.18 in Norway to 0.44 in Hungary. For TV news, there was also an across-the-board effect, with a (modest) increase in a majority of the countries. Only in Poland, the country with the highest average time of TV news viewing, was there a small significant decrease (0.08). A similar, but opposite, across country effect is present for radio news, which decreased slightly in all countries except Germany. For social media, the picture is more diverse with five countries diverging from the general picture by showing a decrease. The decline of newspaper use is also a bit more diverse across countries, with four countries showing a small increase. Overall, we can conclude that news use increased in all countries, although this rise was not significant in Norway, Romania and Italy (see Appendices A-E for a more detailed account of country-by-country patterns).

To explore changes in news consumption of legacy media types more in-depth (H1b and H1c), we also looked at the patterns of change by public service versus commercial television, and elite press versus popular press. Figure 2 shows the changes for each media type during the pandemic. In terms of televised media, the overall pattern across all countries shows that both public service and commercial media channels experienced an increase in viewership, although the former was slightly larger, with average consumption increasing by 0.1 points from wave 1 (M = 2.06, SD = .01) to wave 2 (M = 2.16, SD = .01, t[14217] = 10.78, $p < .001$), whilst the latter increased by an average of 0.08 points from wave 1 (M = 2.15, SD = .01) to wave 2 (M = 2.23, SD = .01, t[14217] = 7.82, $p < .001$).

In contrast, the use of newspapers decreased. On the one hand, average elite press consumption decreased by 0.01 points from wave 1 (M = 1.06, SD = .01) to wave 2(M = 1.05, SD = .01, t[14217] = -1.2, p > .05), though this change is not significant, indicating that in overall terms, consumption did not really change. On the other hand, use of popular press decreased significantly by an average of 0.05 points from wave 1 (M = 1.36, SD = .01) to wave 2 (M = 1.31, SD = .01, t[14217]= -5.33, p < .001).

Figure 2

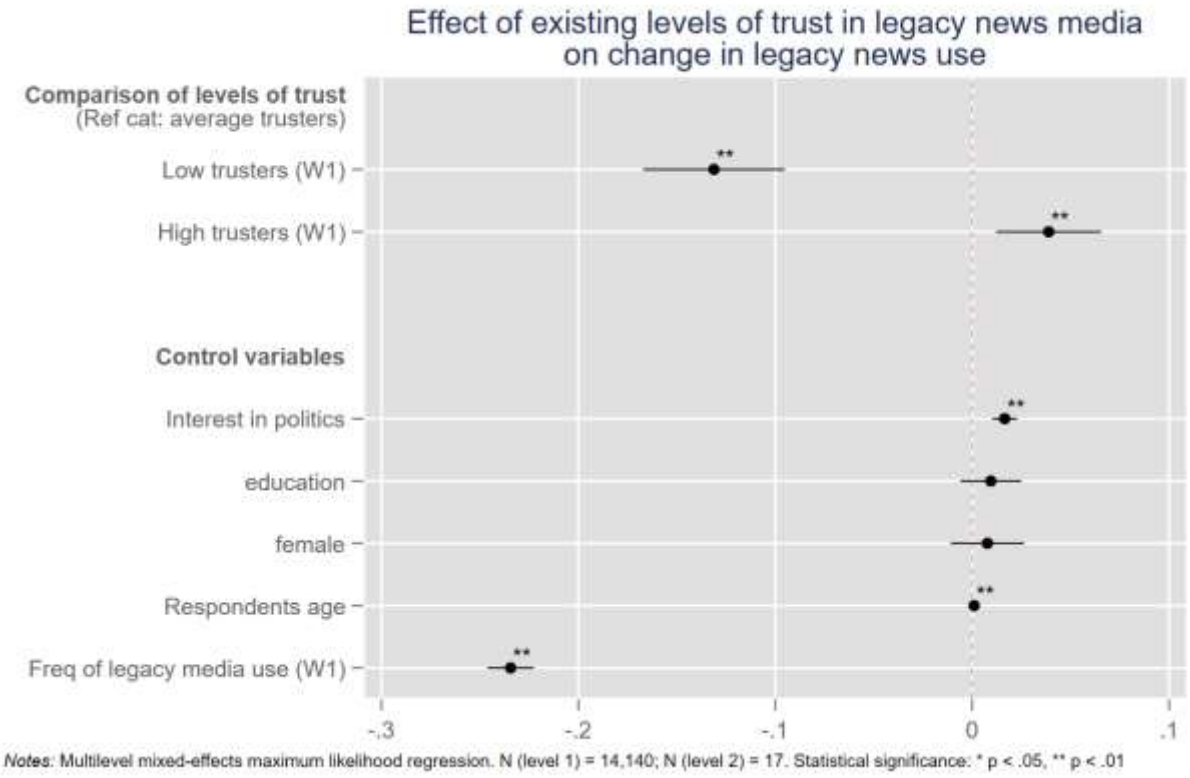


Following a descriptive exploration of news consumption patterns, we will now turn to exploring the relationship between trust in media and change in news consumption during the pandemic. Figure 3[4] outlines the results of a multilevel mixed-effects regression. We hypothesized (H2) that the increase in legacy media use would be more pronounced among people who have a higher degree of trust in legacy news media. The plot shows that people exhibiting higher trust in legacy news in non-crisis times in fact were more likely to increase their news use consumption than their average trust-levels counterparts, whereas people whose pre-pandemic trust levels were 'low' changed their consumption less than 'average' trustors.

The significant coefficients of the control variables also show that political interest and age were positively correlated with an increased consumption, while education and gender were not significantly associated with a change in legacy media consumption during the pandemic. The strongest effect, however, is related to the frequency of legacy media use prior to the pandemic. This negative correlation may be partly due to a "ceiling effect", with the bulk of the coefficient being driven by respondents who previously had low average consumption which they increased considerably, whilst high frequency users could not increase their maximum score. More substantially, this suggests that the gap between frequent and more occasional news users might become smaller during a crisis. This finding is in line with the study by Westlund and Ghersetti (2015), who suggest that during a crisis, all people experience a need for additional information, turning both daily and more seldom users into news omnivores. Thus, there is more homogeneity across people with regards to time spent on media use during a crisis.

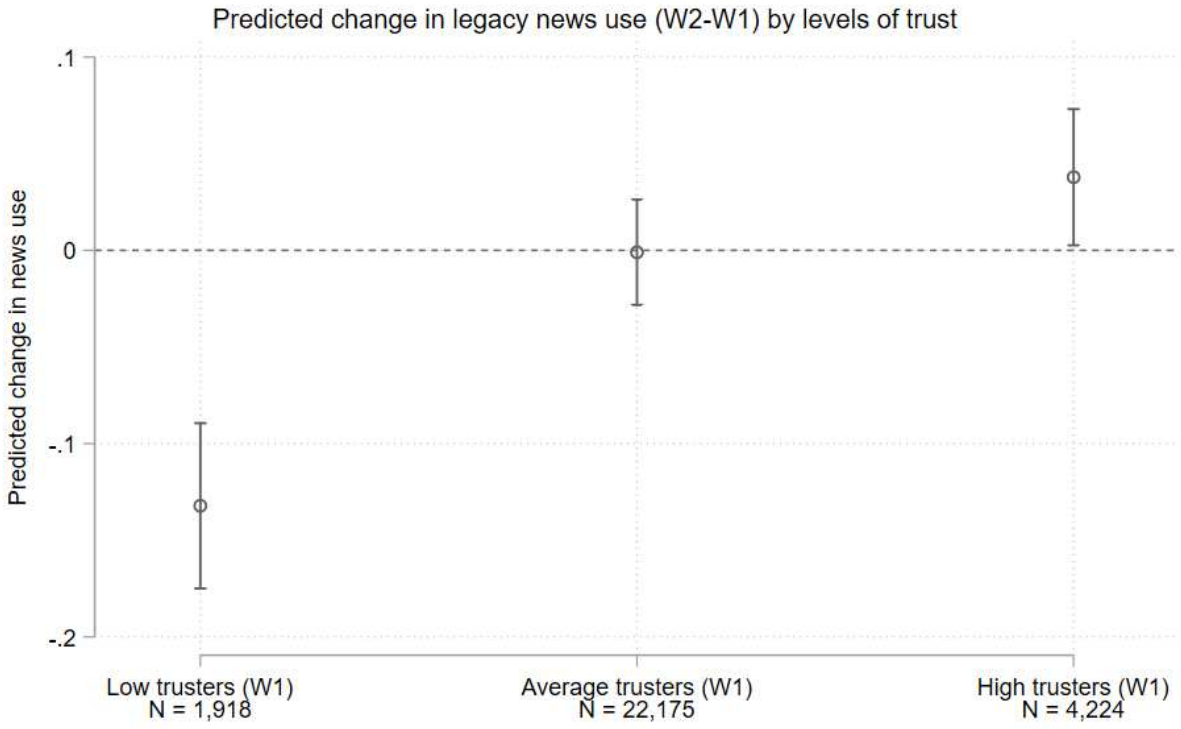
Figure 3

[4] See full coefficient table in Appendix J.



Given that Figure 3 only shows the *relative* values of change among those who have low and high trust is in legacy media, as compared to average trusters, we show the predicted margins for each level of trust in Figure 4. Here, it is clear that low trusters are predicted to *decrease* their consumption of legacy media during the pandemic, whereas average and high trusters are predicted to *increase* their average frequency of media use. These results are consistent with H2, confirming that increase in legacy news use is higher for people with higher pre-pandemic levels of trust in legacy news media, when compared to people with lower levels of media trust in times of non-crisis. The figure confirms that the negative effect for low trusters is on average larger than the positive effect for high trustors.

Figure 4

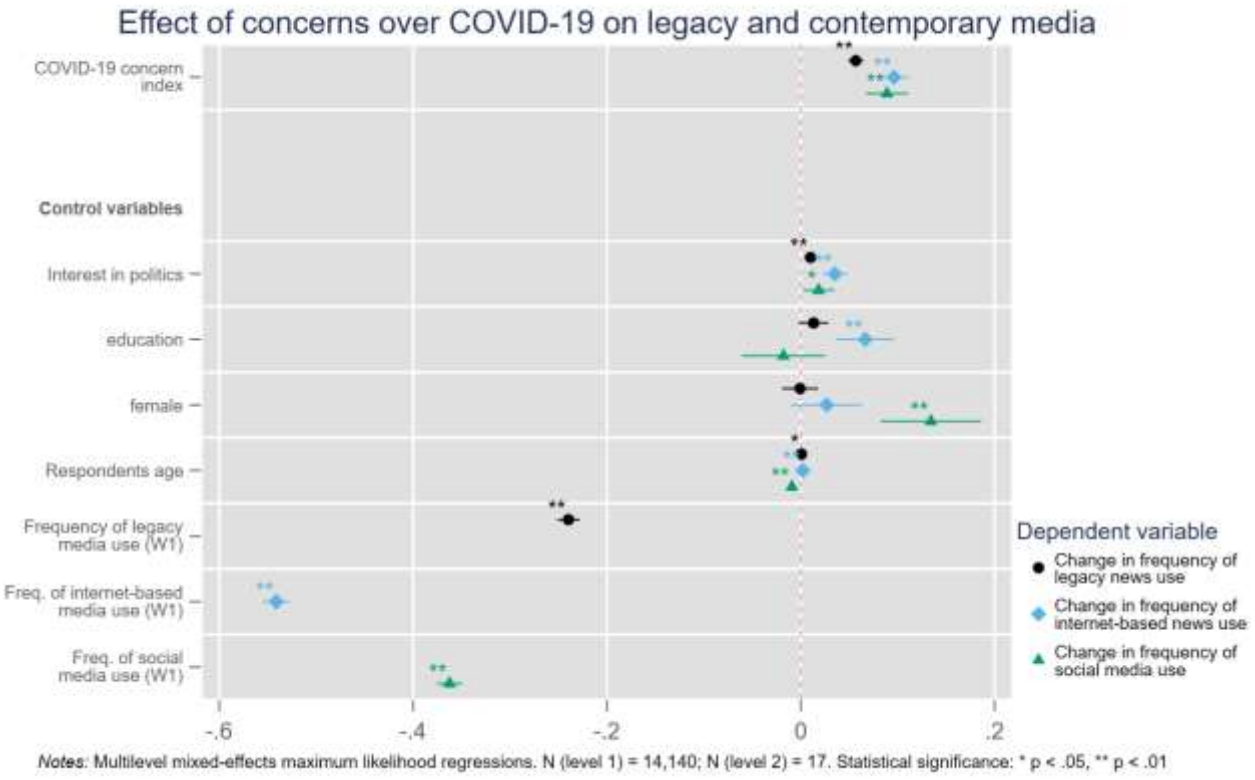


Lastly, we will explore how worries over the COVID-19 pandemic affected news consumption patterns. Toward that end, in Figure 5, three regressions[5] test individually the correlations between people's concerns over the pandemic and change in the consumption of (1) legacy media, (2) internet-based media and (3) social media. In line with H3, the results clearly show that people who displayed higher concerns about the impact of COVID-19 increased their news consumption – whether it be of legacy, online or social media – more than those who were less concerned. The plot also shows that this effect is strongest for Internet-based news consumption, followed by social media and finally legacy media.

In terms of control variables, significant coefficients show that – when holding all other variables constant – political interest is positively correlated with change in consumption for all three types of media, whilst their respective initial levels of consumption were all negatively correlated. Education levels are only significant and have a positive effect when it comes to online media consumption, whilst women were more likely to increase their news consumption when it comes to social media only. Age is significantly correlated with all three dependent variables, but whilst it has a positive association with legacy and online media, it has an opposite, negative correlation with social media, indicating that older people were more likely to increase legacy and online news use, but decrease their social media use.

[5] See full coefficient table in Appendix K.

Figure 5



So far, we tested the moderating effects of initial news media trust and concern with the pandemic in general as we expected they would work across countries. This expectation is largely confirmed when we run separate country models. The initial trust in legacy news media is positive and significant in 13 out of 17 countries. The effect of the COVID-19 concern index also has a positive effect in a majority of countries on legacy news use (14 out of 17 countries), on internet-based news use (11 countries) and on social media news use (10 countries). In none of the countries did we find any effect working in the opposite direction.

5. Conclusion and discussion

What happens to news media use during an exogenous shock like a pandemic? As such crises can cause significant changes in information seeking patterns, this is an important question. Unfortunately, most previous studies have been based on cross-sectional data and/or confined to single countries. In contrast, in this study we have been able to draw upon a unique 17 country panel survey, allowing us to investigate changes in news use between before the outbreak of COVID-19 and a post-outbreak period with severe restrictions on public life. Our research thereby allows us to test classical insights about the effect of crises periods on news use in the contemporary digital news and information environment.

In line with previous studies on the influence of sudden dramatic events, we expected a general increase in the need for orientation, and subsequently of news use. Our findings confirm, across the board, that online news usage and social media usage increased. This was also the case for television news, while the use of radio and newspapers (in particular popular press) remained the same or even decreased. The pandemic, thus, led to an increase in the consumption of certain media (television and contemporary media) but the increase did not apply to all types of media. These findings suggest that news media that offer faster and more immediate coverage (online, social, and television) experienced the increase while for example popular press experienced a decrease. This pattern might be attributed to the fact that the press did not keep pace with a pandemic that unfolded rapidly. In addition, three other factors probably played a role. First, television viewership might have been increased by the frequent press conferences with corona updates by political leaders and medical experts. Second, internet-based news might have been boosted by the need to look for specific information related to the crisis and its consequences. In addition, people probably relied on online media, and social media in particular, to get an idea of how others were reacting to and evaluating the crisis. Future research should delve deeper in the reasons and motivations for media use in times of crisis. Finally, the decline of radio and newspapers might be related to the lockdown and the disruption of daily routines during the pandemic, when many people did not go to work and could for instance not buy their newspaper at train stations, or listen to the radio while commuting. In that sense, this crisis is rather unique, although somewhat comparable to war situations where limited access to certain media also plays a role (Dotan & Cohen, 1976; Kozman & Melki, 2018).

Although there was an average increase in news consumption during the months following the outbreak of the pandemic, we expected that the positive effect would not be similar for all citizens. In line with the literature on conditional media effects, we hypothesized the increase to be more pronounced among people that have trust in the news media. Our results confirm that the increase in usage was particularly pronounced for those individuals whose legacy news trust in the pre-crisis period was high. Their increase was higher than people whose initial media trust levels were either average or below average. This is indicative of a behavioral pattern in which media trust might boost later media use. Second, our study found that people who experienced higher concerns about the impact of COVID-19 increased their news consumption the most, no matter the specific type of media. In line with previous work, this confirms that concerns and anxiety about a crisis are drivers of news media usage.
Besides initial levels of media trust, and concern about the crisis itself, our study indicates an important additional moderating factor: initial media usage. In particular people with lower levels of news use before the crisis increased their news use. Although this is partly due to a

ceiling effect, this finding indicates that a crisis situation might lower the news gap between news avoiders and news junkies.

In contrast with differences at the individual level, we did not expect to find strong country variation. Despite cross-national variation in the timing and severity of when and how the pandemic unfolded, the pandemic was seen as a major risk to public health in all countries under study. This general expectation was largely supported, as our hypotheses were supported in the vast majority of countries. Naturally, there was some variation in the strength of the effects, but only few countries deviated from the general pattern. Probably this is partly due the composition of our sample, focusing mainly on Western European democracies with more similarities than differences with respect to their media environments. It remains an open question to what extent our findings apply in substantially different information environments such as the US (lacking a strong public broadcaster) or in authoritarian countries, characterized by absence of press freedom.

Although the outbreak of the COVID-19 pandemic offered us a unique opportunity to test the effect of a severe health crisis on news consumption, our study has several limitations. First, the *timing* of our survey may have influenced the results. Potentially, the relatively small increase in news use is due to the fact that the second wave of our survey was fielded late in the initial outbreak of the crisis in Europe. The effects would probably have been much more outspoken in the first weeks after the crisis resulted in a partial or full lockdown of social life. In that respect, it would have been interesting to be able to track news consumption as the pandemic evolved and became not only a public health crisis but also an economic and welfare crisis. More specifically, it would be useful to further study whether the ongoing nature of the crisis led to a corona-related news fatigue for specific parts of the population. Second, studying unexpected events is challenging and forces scholars to make difficult choices that are not always well-embedded in the literature. For instance, we were successful in adding several measures of concern related to the pandemic, but did not have space to add questions that could dig deeper and tap *why* media use increased, and what respondents identified as the most important 'uses and gratifications' of following the news in times of crisis. Future studies, also using more qualitative approaches, should therefore shed further light on how the place of news in people's lives changes because of dramatic external events (Picone et al., 2015). Third, future research should try to include macro level data such as the rate of infections/fatalities in each of the countries to test for the effect of real-world differences on media consumption.

Notwithstanding these shortcomings, we believe our study adds to the literature on how an unexpected crisis can influence traditional and more contemporary news use habits. From an empirical perspective, we have shown the value of comparative work to find general patterns in news behavior that holds across countries. From a theoretical perspective, our findings suggest that a classical concept like the need for orientation is still valuable and can be linked to more recent work in social psychology that deals with human concerns and anxiety, and to classical theories in communication science that deal with media dependency (Lowery, 2004) or uncertainty reduction (Knobloch 2015). And finally, we believe our work has implications from a pure journalistic perspective. Our findings provide some good and bad news for journalism. Overall, the general increase is definitely good news. Traditional quality journalism that is fast and accurate is still valued, and citizens with a relatively low news use increase their news consumption when a crisis forces them to do so. However, there are also signs for concern. People that do not trust traditional news media, and those that are little concerned about the

impact of the crisis, did not feel the need for information. This group of people might not get enough factual and relevant information and might be most vulnerable for all sorts of misinformation that accompanied this pandemic. The rise in internet-based news use also raises the question to what extent this led people to use more quality digital journalism or rather doubtful or even misleading content related to this health crisis. We hope our study inspires others to further investigate these and other threats that a health crisis poses for our information environment. Future studies should however keep in mind our overall finding that news media in times of crisis matter more than ever.

References

Aalberg, T., and S. Cushion (2016). "Public service broadcasting, hard news, and citizens' knowledge of current affairs." In *Oxford Research Encyclopedia of Politics*.

Althaus, S. L. (2002). „American News Consumption during Times of National Crisis." *PS: Political Science and Politics, 35*(3), 517-521. http://www.jstor.org/stable/1554680

BBC (2020). "TV watching and online streaming surge during lockdown." 5 August 2020. https://www.bbc.com/news/entertainment-arts-53637305

Bento, A. I., T. Nguyen, C. Wing, F. Lozano-Rojas, Y.-Y. Ahn, and K. Simon (2020). "Evidence from internet search data shows information-seeking responses to news of local COVID-19 cases." *Proceedings of the National Academy of Sciences*, 117(21), 11220-11222. doi:10.1073/pnas.2005335117

Boomgaarden, H. G., and C. H. de Vreese (2007). "Dramatic Real-world Events and Public Opinion Dynamics: Media Coverage and its Impact on Public Reactions to an Assassination." *International Journal of Public Opinion Research, 19*(3), 354-366. doi:10.1093/ijpor/edm012

Casero-Ripollés, A. (2020). "Impact of Covid-19 on the media system. Communicative and democratic consequences of news consumption during the outbreak." *El profesional de la información, 29*(2), e290223. https://ssrn.com/abstract=3594133

Chadwick, A. (2017). The hybrid media system: Politics and power. In (2nd ed.): Oxford University Press.

Dotan, J., & Cohen, A. A. (1976). "Mass Media Use in the Family During War and Peace: Israel 1973-1974." *Communication Research, 3*(4), 393-402. doi:10.1177/009365027600300403

EBU (2020). "Public Service Media are trusted source of information on COVID-19 crisis." 25 March 2020. https://www.ebu.ch/news/2020/03/public-service-media-are-trusted-source-of-information-on-covid-19-crisis-1

Fletcher, R., and S. Park (2017). "The Impact of Trust in the News Media on Online News Consumption and Participation." *Digital Journalism, 5*(10), 1281-1299. doi:10.1080/21670811.2017.1279979

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology, 39*(5), 355-357. doi:10.1037/hea0000875

Heikkilä, H., and L. Ahva (2015). "The Relevance of Journalism: Studying news audiences in a digital era." *Journalism Practice*, 9(1), 50–64.

Hu, B., and D. Zhang (2014). "Channel selection and knowledge acquisition during the 2009 Beijing H1N1 flu crisis: a media system dependency theory perspective." *Chinese Journal of Communication, 7*(3), 299-318. doi:10.1080/17544750.2014.926951

Jackob, N. G. E. (2010). "No alternatives? The relationship between perceived media dependency, use of alternative information sources, and general trust in mass media." *International Journal of Communication*, Vol. 4 (18).

Jin, Y., B.F. Liu, and L.L. Austin (2014). "Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses." *Communication research*, *41*(1), 74-94.

Kalogeropoulos, A., Suiter, J., Udris, L., & Eisenegger, M. (2019). News media trust and news consumption: Factors related to trust in news in 35 countries. *International Journal of Communication*, *13*, 3672–3693.

Kantar (2020). “COVID-19 Barometer: Consumer attitudes, media habits and expectations.” 3 April 2020, https://www.kantar.com/inspiration/coronavirus/covid-19-barometer-consumer-attitudes-media-habits-and-expectations/

Knobloch, L.K. (2015). “Uncertainty Reduction Theory.“ In *The International Encyclopedia of Interpersonal Communication*, edited by C.R. Berger, M.E. Roloff, S.R. Wilson, J.P. Dillard, J. Caughlin, D. Solomon. Wiley, doi:10.1002/9781118540190.wbeic144

Kozman, C., & Melki, J. (2018). "News Media Uses During War." *Journalism Studies, 19*(10), 1466-1488. doi:10.1080/1461670X.2017.1279564

Lachlan, K. A., P.R. Spence, and M. Seeger (2009). “Terrorist attacks and uncertainty reduction: media use after September 11. Behavioral Sciences of Terrorism and Political Aggression,” 1(2), 101-110. doi:10.1080/19434470902771683

Lachlan, K. A., P.R. Spence, X. Lin, K. Najarian, and M. Del Greco (2016). “Social media and crisis management: CERC, search strategies, and Twitter content.” *Computers in Human Behavior*, 54, 647–652. http://dx.doi.org/10.1016/j.chb.2015.05.027.

Ladd, J. M. (2011). *Why Americans hate the media and how it matters*. Princeton, NJ: Princeton University Press.

Lehman-Wilzig, S., and M. Seletzky (2012). “Elite and popular newspaper publication of press releases: Differential success factors.” *Public Relations Journal*, *6*(1), 1-25.

Lowery, W. (2004). “Media Dependency During a Large-Scale Social Disruption: The Case of September 11.” *Mass Communication and Society, 7*(3), 339-357. doi:10.1207/s15327825mcs0703_5

Lu, X. (2018). “Online communication behavior at the onset of a catastrophe: an exploratory study of the 2008 Wenchuan earthquake in China.” *Nat Hazards* 91, 785–802 https://doi.org/10.1007/s11069-017-3155-1

Magin, M. (2019). “Elite versus popular press.” *The International Encyclopedia of Journalism Studies*, 1-7. Wiley.

Matthes, J. (2006). “The Need for Orientation Towards News Media: Revising and Validating a Classic Concept.” *International Journal of Public Opinion Research*, 18, 422-444.

McCombs, M., & Weaver, D. H. (1973). *Voters' Need for Orientation and Use of Mass Communication.* Paper presented at the International Communication Association, Montreal, Canada.

McQuail, D. (1992). *Media performance, Mass communication and the public interest*. London: Sage.

Mihelj, S., Kondor, K., and Štětka, V. (2020). “Audience engagement with Covid-19 news: Domesticity, polarization and de-politicization in Eastern Europe.“ Paper submitted to the 71th ICA conference.

Mirbabaie, M. and E. Zapatka (2017). "Sensemaking in social media crisis communication – a case study on the Brussels bombings in 2016.” *Proceedings of the 25th European Conference on Information Systems (ECIS),* Guimarães, Portugal, June 5-10, 2017 (pp. 2169-2186). ISBN 978-989-20-7655-3 Research Papers.https://aisel.aisnet.org/ecis2017_rp/138

Nelson, J. L., and S. J. Kim (2020). “Improve Trust, Increase Loyalty? Analyzing the Relationship Between News Credibility and Consumption.” *Journalism Practice*, 1-18. doi:10.1080/17512786.2020.1719874

Newman, N., R. Fletcher, A. Schulz, S. Andi, and R.K. Nielsen. "*Digital news report 2020*." Reuter Institute for the Study of Journalism.

Nielsen, R. K., R. Fletcher, N. Newman, S. J. Brennen, and P. N. Howard (2020). "Navigating the 'infodemic': How people in six countries access and rate news and information about coronavirus." Reuters Institute for the Study of Journalism. https://reutersinstitute.politics.ox.ac.uk/infodemic-how-people-six-countries-access-and-rate-news-and-information-about-coronavirus

Ofcom (2020a). "Effects of Covid-19 on TV viewing." October 2020. https://www.ofcom.org.uk/__data/assets/pdf_file/0023/205088/covid-19-news-consumption-week-twenty-nine-barb.pdf

Ofcom (2020b). "Effects of Covid-19 on online consumption." October 2020. https://www.ofcom.org.uk/__data/assets/pdf_file/0024/205089/covid-19-news-consumption-week-twenty-nine-comscore.pdf

Pew Research Center (2002). "One year later: September 11 and the Internet" https://www.pewresearch.org/internet/2002/09/05/one-year-later-september-11-and-the-internet/

Picone, I., C. Courtois, and S. Paulussen (2015). "When news is everywhere." *Journalism Practice*, 9(1), 35–49.

Porter, R. (2020). "TV Quarantine TV Ratings Spike is Over." *The Hollywood Reporter,* 24 June 2020, https://www.hollywoodreporter.com/live-feed/quarantine-tv-ratings-spike-is-1299998

Prior, M. (2007). *Post-broadcast democracy: How media choice increases inequality in political involvement and polarizes elections*: Cambridge University Press.

Schulz, A., Levy, D.L., and R.K. Nielsen (2019). "Old, Educated, and Politically Diverse: The Audience of Public Service News. Reuters Institute for the Study of Journalism." Reuters Institute for the Study of Journalism. https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2019-09/The_audience_of_public_service_news_FINAL.pdf

Schwarz, A. (2012). "How publics use social media to respond to blame games in crisis communication: The Love Parade tragedy in Duisburg 2010." *Public Relations Review*, 38(3), 430-437.

Strömbäck, J., Y. Tsfati, H. Boomgaarden, A. Damstra, E. Lindgren, R. Vliegenthart, and T. Lindholm (2020). "News media trust and its impact on media use: toward a framework for future research." *Annals of the International Communication Association, 44*(2), 139-156. doi:10.1080/23808985.2020.1755338

Thompson, R. R., Jones, N. M., Holman, E. A., & Silver, R. C. (2019). "Media exposure to mass violence events can fuel a cycle of distress." *Science Advances, 5*(4), eaav3502. doi:10.1126/sciadv.aav3502

Towers, S., S. Afzal, G. Bernal, N. Bliss, S. Brown, B. Espinoza, . . . and M. Lin (2015). "Mass media and the contagion of fear: the case of Ebola in America." *PloS one, 10*(6), e0129179.

Tsfati, Y. (2010). "Online news exposure and trust in the mainstream media: Exploring possible associations." *American Behavioral Scientist*, 54(1), 22-42.

Tsfati, Y., and G. Ariely (2014). "Individual and Contextual Correlates of Trust in Media Across 44 Countries. Communication Research, 41(6), 760–782. https://doi.org/10.1177/0093650213485972

Tsfati, Y., & Cappella, J. N. (2003). Do people watch what they do not trust? Exploring the association between news media skepticism and exposure. *Communication Research, 30*(5), 504–529.

Tsfati, Y., & Cappella, J. N. (2005). Why do people watch news they do not trust? The need for cognition as a moderator in the association between news media skepticism and exposure. *Media Psychology*, *7*(3), 251–271.

Turcotte, J., C. York, J. Irving, R. M. Scholl, and R.J. Pingree (2015). "News Recommendations from Social Media Opinion Leaders: Effects on Media Trust and Information Seeking." *Journal of Computer-Mediated Communication*, 20(5), 520–535. https://doi.org/10.1111/jcc4.12127

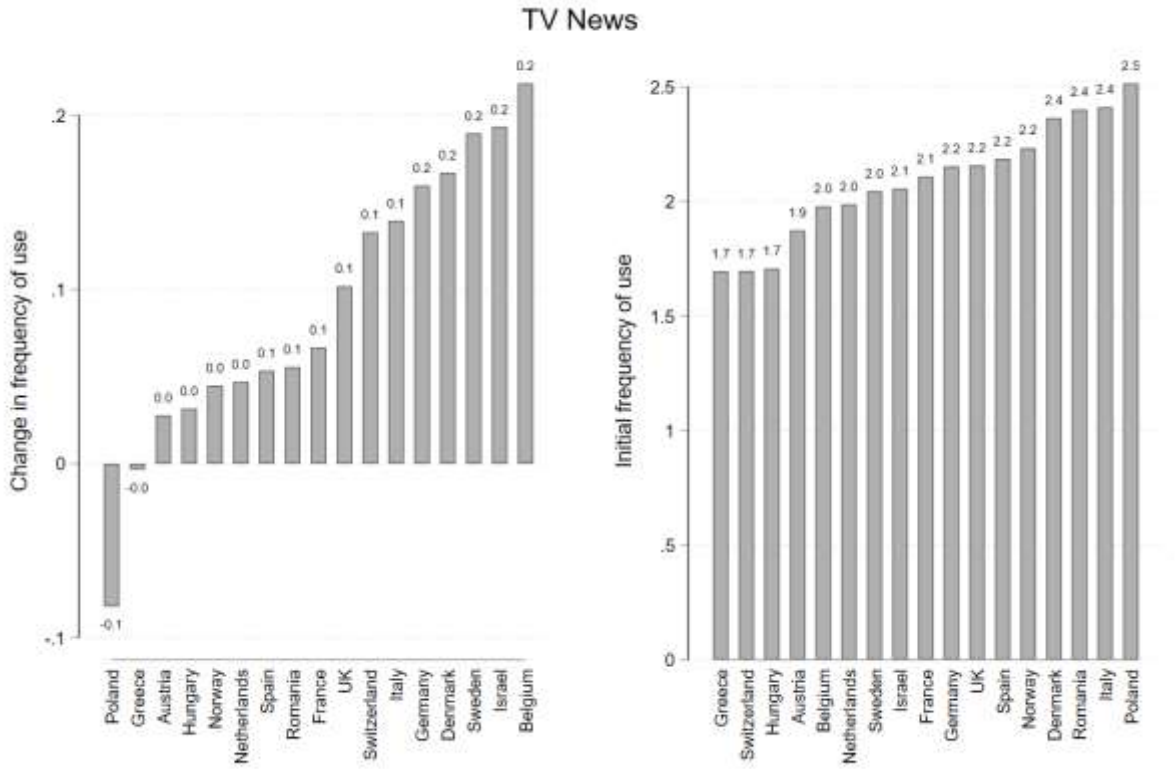
Utz, S., F. Schultz, and S. Glocka (2013). "Crisis communication online: How medium, crisis type and emotions affected public reactions in the Fukushima Daiichi nuclear disaster." *Public relations review*, *39*(1), 40-46.

Van Aelst, P., Strömbäck, J., Aalberg, T., Esser, F., de Vreese, C., Matthes, J., . . . Stanyer, J. (2017). "Political communication in a high-choice media environment: a challenge for democracy?" *Annals of the International Communication Association, 41*(1), 3-27. doi:10.1080/23808985.2017.1288551

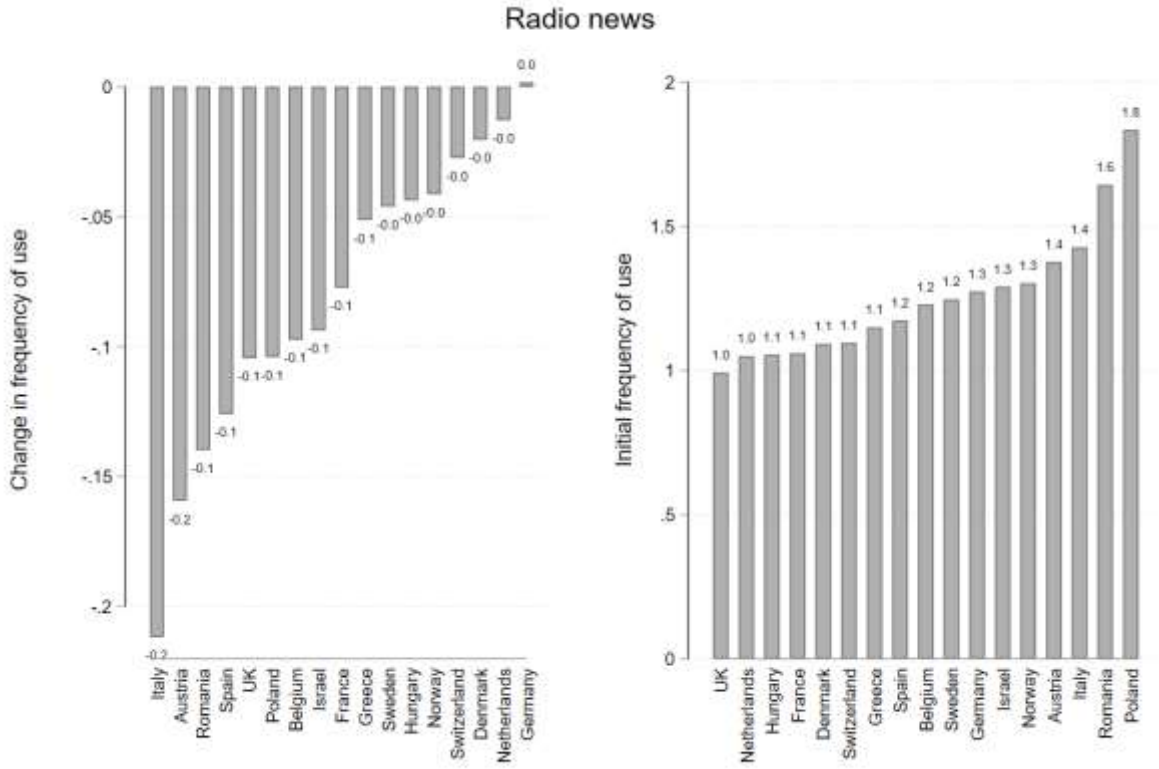
Westlund, O., and M. Ghersetti (2015). "Modelling news media use: Positing and applying the GC/MC model to the analysis of media use in everyday life and crisis situations." *Journalism studies*, *16*(2), 133-151.

Wiggins, R.W. (2001) 'The Effects of September 11 on the Leading Search Engine', *First Monday,* 10(6); www.firstmonday.dk/issues/issue6_10/wiggins/

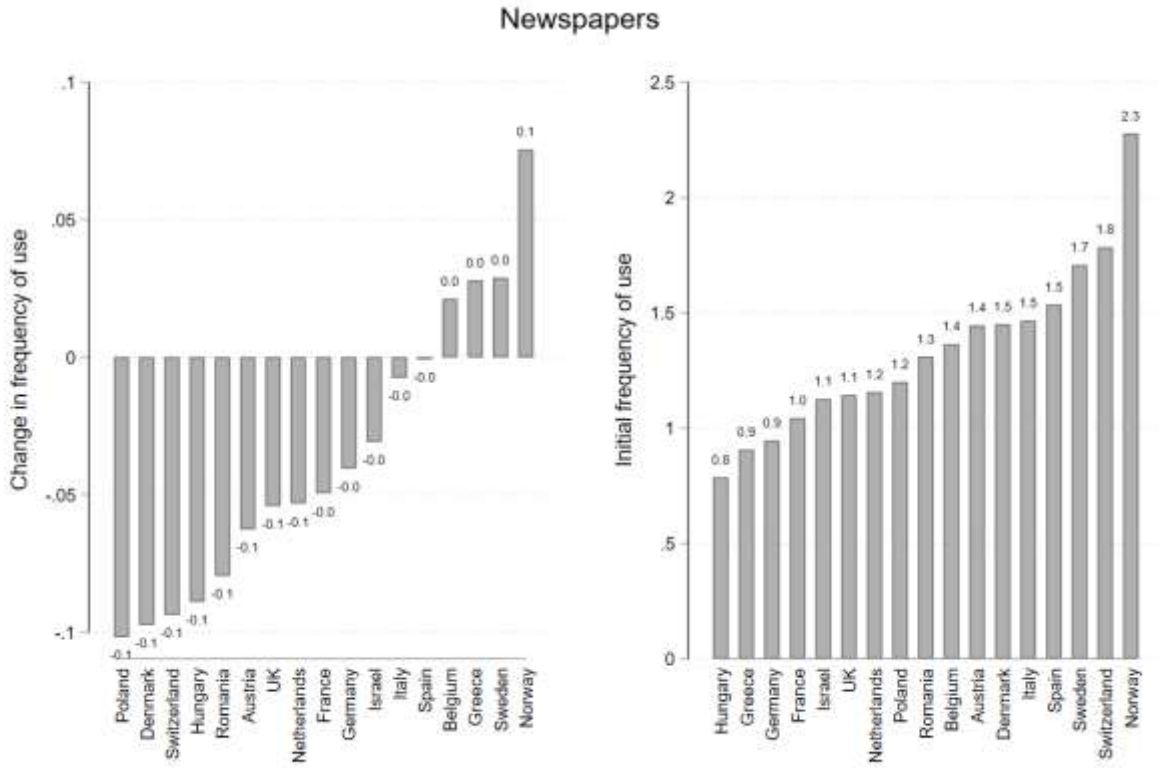
Appendices
Appendix A



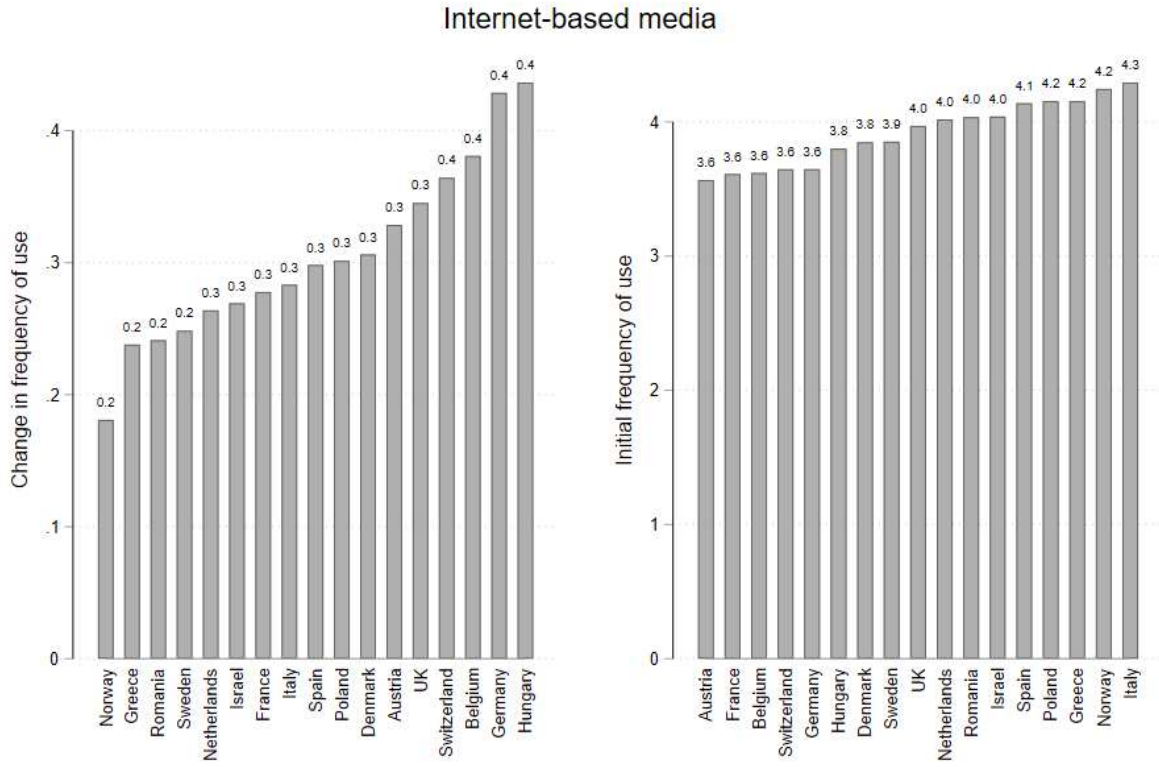
Appendix B


Radio news
Change in frequency of use
0
-.05
-.1
-.15
-.2
-0.2
-0.2
-0.1
-0.1
-0.1
-0.1
-0.1
-0.1
-0.1
-0.0
-0.0
-0.0
-0.0
-0.0
-0.0
0.0
Italy
Austria
Romania
Spain
UK
Poland
Belgium
Israel
France
Greece
Sweden
Hungary
Norway
Switzerland
Denmark
Netherlands
Germany
Initial frequency of use
2
1.5
1
.5
0
1.0
1.0
1.1
1.1
1.1
1.1
1.2
1.2
1.2
1.2
1.3
1.3
1.3
1.4
1.4
1.6
1.8
UK
Netherlands
Hungary
France
Denmark
Switzerland
Greece
Spain
Belgium
Sweden
Germany
Israel
Norway
Austria
Italy
Romania
Poland

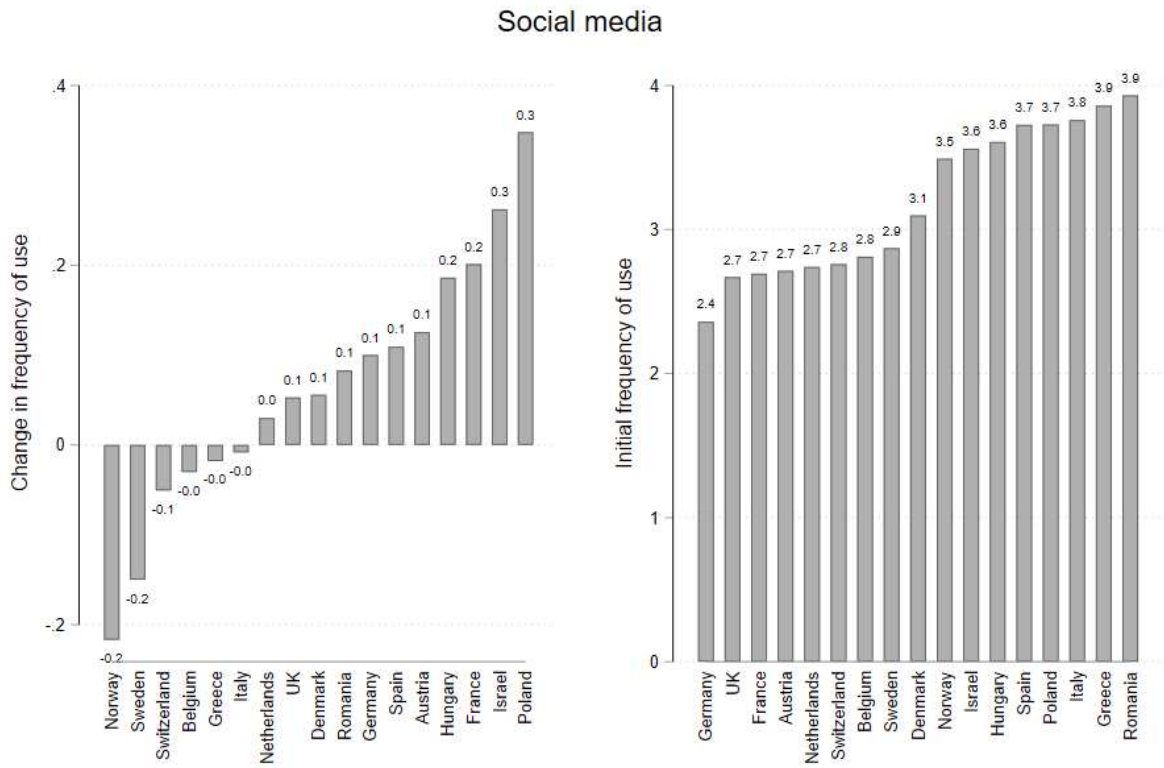
Appendix C


Newspapers
Change in frequency of use
.1
.05
0
-.05
-.1
-0.1 -0.1 -0.1 -0.1 -0.1 -0.1 -0.0 -0.0 -0.0 -0.0 -0.0 0.0 0.0 0.0 0.1
Poland Denmark Switzerland Hungary Romania Austria UK Netherlands France Germany Israel Italy Spain Belgium Greece Sweden Norway
Initial frequency of use
2.5
2
1.5
1
.5
0
0.8 0.9 0.9 1.0 1.1 1.1 1.2 1.2 1.3 1.4 1.4 1.5 1.5 1.5 1.7 1.8 2.3
Hungary Greece Germany France Israel UK Netherlands Poland Romania Belgium Austria Denmark Italy Spain Sweden Switzerland Norway

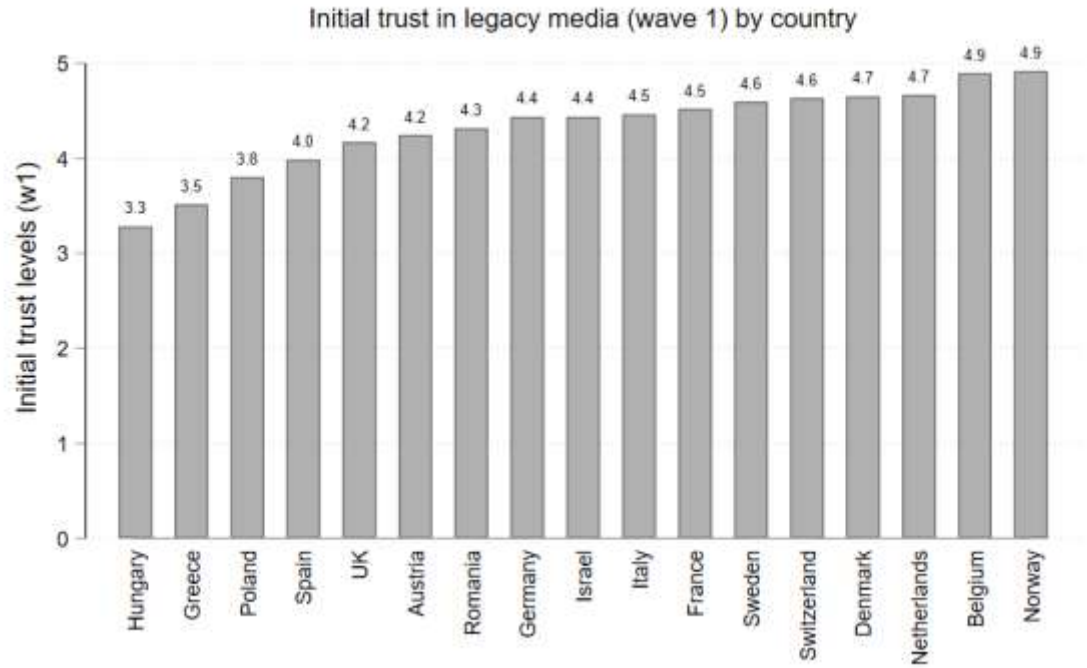
Appendix D


Internet-based media
Change in frequency of use
0
.1
.2
.3
.4
Norway 0.2
Greece 0.2
Romania 0.2
Sweden 0.2
Netherlands 0.3
Israel 0.3
France 0.3
Italy 0.3
Spain 0.3
Poland 0.3
Denmark 0.3
Austria 0.3
UK 0.3
Switzerland 0.4
Belgium 0.4
Germany 0.4
Hungary 0.4
Initial frequency of use
0
1
2
3
4
Austria 3.6
France 3.6
Belgium 3.6
Switzerland 3.6
Germany 3.6
Hungary 3.8
Denmark 3.8
Sweden 3.9
UK 4.0
Netherlands 4.0
Romania 4.0
Israel 4.0
Spain 4.1
Poland 4.2
Greece 4.2
Norway 4.2
Italy 4.3

Appendix E

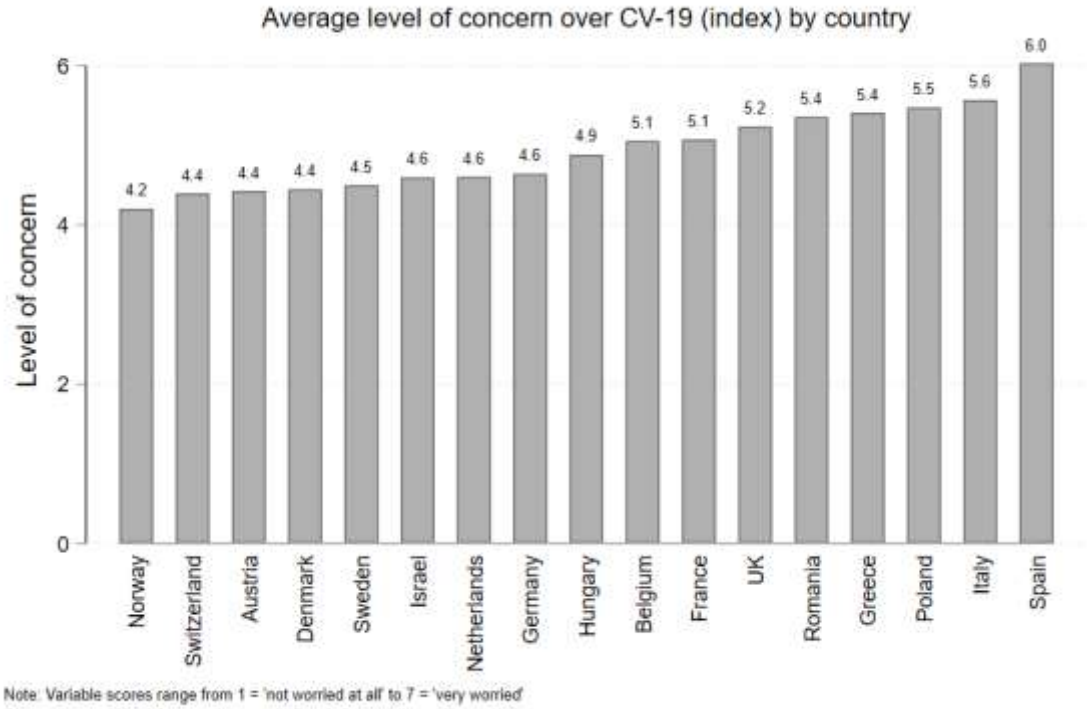

Social media
Change in frequency of use
.4
.2
0
-.2
-0.2
-0.2
-0.1
-0.0
-0.0
-0.0
0.0
0.1
0.1
0.1
0.1
0.1
0.2
0.2
0.3
0.3
Norway
Sweden
Switzerland
Belgium
Greece
Italy
Netherlands
UK
Denmark
Romania
Germany
Spain
Austria
Hungary
France
Israel
Poland
Initial frequency of use
4
3
2
1
0
2.4
2.7
2.7
2.7
2.7
2.8
2.8
2.9
3.1
3.5
3.6
3.6
3.7
3.7
3.8
3.9
3.9
Germany
UK
France
Austria
Netherlands
Switzerland
Belgium
Sweden
Denmark
Norway
Israel
Hungary
Spain
Poland
Italy
Greece
Romania

Appendix F



Note: Variable scores range from 1 = 'not at all trustworthy' to 7 = 'completely trustworthy'

Appendix G



Note: Variable scores range from 1 = 'not worried at all' to 7 = 'very worried'

Appendix H

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Question wording
Dependent variables						
Legacy news media (Change in frequency)	-.01	.58	-3.67	3.33	-.01	Recoded from TV, radio and newspapers
TV news (Change in frequency)	.09	.91	-5	5	.09	During a typical week, how many days do you watch news on the following channels, either on TV or online? [list channels]
Radio news (Change in frequency)	-.08	.76	-4.2	5	-.08	During a typical week, how many days do you follow the news on the following stations, either on the radio or online? [list stations]
Newspapers (Change in frequency)	-.04	.83	-5	5	-.04	During a typical week, how many days do you read the following newspapers, either print or online? [list newspapers]
Internet-based news (Change in frequency)	.31	1.29	-5	5	.31	During a typical week, how often do you watch or read news on the Internet?
Social media news (Change in frequency)	.07	1.67	-5	5	.07	During a typical week, how often do you follow news on social media (e.g. Facebook, Twitter, Instagram or WhatsApp)?
Public service TV (Change in frequency)	.1	1.15	-5	5	.1	Recoded from TV news
Commercial TV (Change in frequency)	.08	1.24	-5	5	.08	Recoded from TV news
Elite press (Change in frequency)	-.01	.96	-5	5	-.01	Recoded from newspapers
Popular press (Change in frequency)	-.05	1.04	-5	5	-.05	Recoded from newspapers
Independent variables						

Trust in legacy news (3 categories)	28317	2.08	.46	1	3	How trustworthy would you say political information from the following sources is? [list media sources] *NB: additive scale taking average for all brands by country, ten recoded to categorical variable with 3 categories*
COVID-19 concern index	14218	4.95	1.28	1	7	How worried are you that you or one of your family members gets infected by the coronavirus? How worried are you about the economic consequences of the coronavirus crisis for you personally? How worried are you about the economic consequences of the coronavirus crisis for your country?
Control variables						
Interest in politics	28317	4.52	1.69	1	7	Generally speaking, how interested are you in politics?
Education	28070	2.32	.61	1	3	What is the highest level of education you have successfully completed?
Gender (female)	28317	.55	.5	0	1	What is your gender?
Age	28317	41.93	13.29	18	65	Respondent's age
Legacy news (Frequency in wave 1)	28317	1.56	.88	0	5	Same as change variable, see above
Internet-based news (Frequency in wave 1)	28317	3.92	1.45	0	5	Same as change variable, see above
Social media news (Frequency in wave 1)	28317	3.2	2.04	0	5	Same as change variable, see above

Appendix I

Education w1

Wave 1	Freq.	Percent	Wave 2	Freq.	Percent
Low	2083	7.42		1026	7.26
Medium	14805	52.74		7250	51.27
High	11182	39.84		5864	41.47
Total	28070	100.00		14140	100.00

Female

Wave1	Freq.	Percent	Wave2	Freq.	Percent
0	12639	44.63		6769	47.61
1	15678	55.37		7449	52.39
Total	28317	100.00		14218	100.00

Age

Wave 1	Freq.	Percent	Wave2	Freq.	Percent
18-29	6171	21.79		2072	14.57
30-49	12781	45.14		6662	46.86
50-64	8830	31.18		5285	37.17
65-100	535	1.89		199	1.40
Total	28317	100.00		14218	100.00

		Survey		Population
		Wave 1	Wave 2	
Belgium	share female	60,5	57,5	51,4
	share people aged 50+	44,4	49,2	37,5
	share lowest educational degree (ISCED 1)	16,1	12,6	11,1
Denmark	share female	59,8	54,7	50,7
	share people aged 50+	46,5	55,1	44,3
	share lowest educational degree (ISCED 1)	1,1	1,5	0,4
Germany	share female	52,6	50,5	51,6
	share people aged 50+	40,5	45,8	47,3
	share lowest educational degree (ISCED 1)	1,0	0,7	6,9
Greece	share female	54,9	50,8	51,3
	share people aged 50+	21,1	28,5	44,6
	share lowest educational degree (ISCED 1)	1,4	0,8	32,2
Spain	share female	51,1	49,9	51,1
	share people aged 50+	30,7	38,2	42,0
	share lowest educational degree (ISCED 1)	14,8	13,2	26,1
France	share female	55,6	54,7	52,2
	share people aged 50+	37,1	45,3	44,1
	share lowest educational degree (ISCED 1)	4,3	4,0	17,5
Italy	share female	53,5	50,8	52,1
	share people aged 50+	30,0	36,1	47,0
	share lowest educational degree (ISCED 1)	7,3	6,9	23,2
Netherlands	share female	55,9	52,7	50,9
	share people aged 50+	41,4	52,8	43,9
	share lowest educational degree (ISCED 1)	10,1	15,5	15,0
Hungary	share female	56,8	53,9	53,2
	share people aged 50+	31,7	37,2	44,4
	share lowest educational degree (ISCED 1)	2,0	1,4	1,4
Austria	share female	56,0	52,0	51,7
	share people aged 50+	36,6	46,0	43,4
	share lowest educational degree (ISCED 1)	3,0	3,0	7,8
Poland	share female	52,9	54,9	52,2

	share people aged 50+	26,0	32,0	42,0
	share lowest educational degree (ISCED 1)	7,3	6,7	18,7
Romania	share female	52,2	46,5	51,9
	share people aged 50+	26,7	42,5	43,0
	share lowest educational degree (ISCED 1)	4,3	2,6	12,2
Sweden	share female	61,4	55,8	50,6
	share people aged 50+	37,7	47,7	45,8
	share lowest educational degree (ISCED 1)	8,0	8,4	10,7
Norway	share female	60,5	54,9	50,5
	share people aged 50+	31,3	42,3	42,9
	share lowest educational degree (ISCED 1)	8,4	8,3	0,7
Switzerland	share female	52,3	47,5	50,9
	share people aged 50+	28,8	34,4	42,4
	share lowest educational degree (ISCED 1)	2,1	1,6	8,6
UK	share female	54,3	51,9	51,4
	share people aged 50+	40,7	50,2	42,2
	share highest educational degree (ISCED 1)*	46,6	24,1	31,0
	*census data in UK do not include lowest educational degree category			
Israel	share female	53,5	52,8	50,3
	share people aged 50+	20,8	32,2	32,7
	share lowest educational degree (ISCED 1)	1,0	0,9	22,0
	*Israel census data are from 2019 and are not harmonized with Eurostat			

Appendix J
Coefficients table, Figure 3

	Dependent variable: **Change in legacy media use**
Levels of trust in legacy media (wave1)	
(Ref. cat: average trusters)	
Low trusters	-.131***
	(.018)
High trsuters	.039***
	(.014)
Interest in politics	.017***
	(.003)
Education	.009
	(.008)
Gender (female)	.008
	(.01)
Age	.001***
	(0)
Frequency of legacy media use (wave 1)	-.234***
	(.006)
Constant	.215***
	(.032)
N (level 1)	14,140
N (level 2)	17
Variance level 1 (σ^2)	.297
Variance level 2 ($\tau 00$)	.003
Log restricted likelihood	-11494.308

Notes: Table reports unstandardized coefficients from multilevel mixed-effects maximum likelihood regressions for Figure 3. Standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Appendix K

Coefficients table, Figure 5

	Dep. variable: Change in freq of legacy media use	**Dep. variable: Change in freq of internet-based media use**	**Dep. variable: Change in freq of social media use**
COVID-19 concern index	.057***	.096***	.089***
	(.004)	(.008)	(.011)
Interest in politics	.01***	.035***	.018**
	(.003)	(.006)	(.008)
Education	.013*	.067***	-.018
	(.008)	(.015)	(.022)
Gender (female)	-.001	.027	.134***
	(.009)	(.019)	(.026)
Age	.001**	.002***	-.009***
	(0)	(.001)	(.001)
Frequency of legacy media use (wave 1)	-.24***		
	(.006)		
Frequency of internet-based media use (wave 1)		-.541***	
		(.007)	
Frequency of social media use (wave 1)			-.363***
			(.007)
Constant	-.026	1.563***	1.001***
	(.038)	(.069)	(.112)
N (level 1)	14,140	14,140	14,140
N (level 2)	17	17	17
Variance level 1 (σ^2)	.294	1.122	2.287
Variance level 2 ($\tau 00$)	.006	.006	.055
Log restricted likelihood	-11425.813	-20889.695	-25936.866

Notes: Table reports unstandardized coefficients from multilevel mixed-effects maximum likelihood regressions for Figure 5. Standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Appendix L

Re-contact rates

The re-contact rate, which is calculated for wave two, is computed by dividing the number of completed interviews in wave 1 by the number of completed interviews in wave 2, as all respondents having completed an interview were invited for the following wave.

Country:	***RCR Wave 2***
UK	*60.7%*
Germany	*58.0%*
France	*51.6%*
Italy	*50.4%*
Netherlands	*51.2%*
Spain	*53.7%*
Poland	*50.5%*
Belgium	*46.3%*
Austria	*51.3%*
Denmark	*45.5%*
Switzerland	*51.6%*
Sweden	*40.1%*
Norway	*40.1%*
Greece	*54.3%*
Romania	*39.8%*
Hungary	*49.3%*
Israel	*58.6%*